Guelph Innovation District – Block 1 & 2

Traffic Impact Study

Fusion Homes

10 December 2025

The Power of Commitment

Executive Summary

GHD Limited is pleased to provide the following updated Traffic Impact Study in support of the development of Block Plan Areas 1 & 2 within the Guelph Innovation District (GID). The Block Plan Areas 1 and 2 are generally located in the northeast corner of the intersection of Victoria Road South and Stone Road East in the City of Guelph.

The report has been updated to reflect an updated Draft Plan and site statics and to address comments provided by City staff dated September 2025 based on their review of the previous submission.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network and site driveways during the weekday a.m. and p.m. peak hours for future background operating conditions for a future planning horizon in 2036 (full build-out), 2041 (five years post build-out), and 2046 (ten years post build-out).

Based on the approved Terms of Reference, the following existing intersections were included in the study area:

- Victoria Road South at York Road
- Victoria Road South at College Avenue East
- Victoria Road South at Stone Road East
- Watson Parkway at York Road
- Watson Parkway at Watson Road/Dunlop Drive
- Watson Parkway at Stone Road

The following proposed new intersections were also included in the analysis:

- New Street “A” at Victoria Road South
- New Street “A” (east/west) at New Street “A” (north/south)
- Main Street at New Street “A”
- New Street “B” at Victoria Road South
- New Street “B” at New Street “A”
- New Street “A” at Stone Road East

The block plan currently contemplated for the two Block Plan Areas generally consist of a mix of dwelling units, office GFA, retail GFA, and school GFA.

Access to Block Plan Areas 1 & 2 is proposed via three new east/west roadways (New Street “A”, Main Street, and New Street “B”) from Victoria Road South and a single north/south roadway (New Street “A”) connecting to Stone Road.

The project development is expected to generate a total of 1,647 two-way vehicle trips during the a.m. peak hour consisting of 841inbound and 806outbound trips. During the p.m. peak hour, it is expected to generate 1,857new two-way vehicle trips consisting of 807inbound and 1,050 outbound trips.

Under existing traffic conditions, the study intersections are operating at satisfactory levels however some individual movements at some intersections are operating with some capacity constraints and high levels of delay while remaining below capacity.

Future background traffic volumes projected for the 2036, 2041, and 2046 planning horizons include several background developments including the GID Block Plan Area 3 and assumes all recommended network and intersections improvements required to accommodate traffic volumes generated by background developments.

The following improvements have been identified to be required by either background developments or to accommodate future background traffic volumes:

- Victoria Road
    - Widening to a four-lane cross-section

The following geometric improvements are required to accommodate GID Block Plans 1 and 2:

- Victoria Road at College Avenue/Main Street
    - The construction of the fourth leg of the intersection (east leg) and a corresponding eastbound through, southbound left-turn, and northbound right-turn lane.

Left-turn lane warrants were also completed for unsignalized intersections which confirmed that a left-turn lane is warranted in the westbound direction along Stone Road and in the southbound direction along Victoria Road South.

With the implementation of the planned and recommended road and intersection improvements, the study confirms that the proposed residential mixed-use development within GID Block Plan Areas 1 and 2 can generally be accommodated on the surrounding road network with the exception of several intersections along Victoria Road which are expected to operate with critical movements, particularly for left turns and through movements. These operational constraints are a result of the City requiring that Victoria Road not be widened to beyond a four-lane cross section and to avoid implementing dual left-turn lanes at signalized intersections, which limits the ability to provide the additional capacity needed to improve traffic flow at these locations.

The required improvements for Victoria Road will be further defined through the City-initiated Environmental Assessment (EA) process and will be coordinated with the ongoing study to ensure consistency between development-related recommendations and long-term infrastructure planning.

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

Sincerely,

GHD





December 10, 2025

Rafael Andrenacci, B.Eng.
Transportation Planner

William Maria, P. Eng.
Transportation Planning Lead

Contents

Executive Summary i

1. Introduction 1

1.1 Retainer and Objective 1

1.2 Study Team 2

2. Site Characteristics 3

2.1 Study Area 3

2.2 Guelph Innovation District Secondary Plan/Official Plan Amendment 54 3

2.3 Proposed Draft Plan 5

3. Existing Conditions 10

3.1 Existing Road Network 10

3.2 Pedestrian and Bicycle Facilities 11

3.3 Transit Services 12

3.4 Existing Traffic Data 14

4. Future Conditions 15

4.1 Study Horizon Year 15

4.2 Planned and Proposed Road Network Improvements 15

4.2.1 Future Road Network for GID Block Plan Area 1 and 2 16

4.3 Proposed Pedestrian and Bicycle Facilities 16

4.4 Corridor Growth 17

4.5 Background Development Traffic 17

4.6 Future Background Traffic Volumes 22

5. Site Generated Traffic 27

5.1 GID Blocks 1 & 2 Areas 27

5.2 Site Trip Generation 27

5.3 Site Traffic Distribution and Assignment 30

6. Future Total Traffic 36

7. Capacity Analysis 40

7.1 Victoria Road South at York Road 40

7.2 Victoria Road South at College Avenue East/Main Street 44

7.2.1 Roundabout Analysis 46

7.3 Victoria Road South at Stone Road East 48

7.4 Watson Parkway at York Road 51

7.5 Watson Parkway at Watson Road/Dunlop Drive 54

7.6 Watson Parkway at Stone Road 56

7.7 New Street “A” at Victoria Road South 58

7.8 New Street “B” at Victoria Road South 59

7.9 New Street “A” at New Street “A” 59

7.10 Main Street at New Street “A” 60
7.11 New Street “A” at Stone Road 60
7.12 New Street “A” at New Street “B” 62
8. Recommended Improvements for GID Block Plan Areas 1 and 2 62
9. Warrant Analysis 65
9.1 Signal Warrant 65
9.2 Left-Turn Lane Warrant 66
10. Sightline Assessment 66
10.1.1 Victoria Road South and Street A 67
10.1.2 Victoria Road South and Street B 68
10.1.3 Stone Road and Street A 71
10.2 Sightline Assessment – Plan and Profile Drawings 71
11. Travel Demand Management 72
11.1 Travel Demand Management 72
11.2 Existing TDM Opportunities 72
11.2.1 Walking/Cycling 72
11.2.2 Transit 73
11.3 Recommended TDM Measures 73
12. Conclusion 75

Table Index

Table 1 Background Development Traffic 19
Table 2 Target Mode Splits 28
Table 3 Trip Generation Per Land Use 28
Table 4 Site Traffic Distribution 30
Table 5 Capacity analysis of Victoria Road South and York Road 40
Table 6 Capacity analysis of Victoria Road South at College Avenue East/Main Street 44
Table 7 Capacity Analysis Victoria Road South at College Avenue East/Main Street - Roundabout 47
Table 8 Capacity analysis of Victoria Road South at Stone Road East 48
Table 9 Capacity analysis of Watson Parkway at York Road 51
Table 10 Capacity analysis of Watson Parkway at Watson Road/Dunlop Drive 54
Table 11 Capacity analysis of Watson Parkway at Stone Road 56
Table 12 Capacity analysis of New Street “A” at Victoria Road South 58
Table 13 Capacity analysis of New Street “B” at Victoria Road South 59
Table 14 Capacity analysis of New Street “A” at New Street “A” 59
Table 15 Capacity analysis of Main Street at New Street “A” 60
Table 16 Capacity analysis of New Street “A” at Stone Road 61
Table 17 Capacity analysis of New Street “A” at New Street “B” 62
Table 18 Intersection Sight Distance Requirement For Victoria Road and Street A 67
Table 19 Intersection Sight Distance Requirement For Victoria Road and Street B 69
Table 20 Intersection Sight Distance Requirement For Stone Road and Street A 71

Figure Index

Figure 1	Site Location	2
Figure 2	Block Plan	9
Figure 3	Existing Lane Configuration and Traffic Controls	11
Figure 4	Existing Active Transportation Facilities	12
Figure 5	Existing Transit Routes	13
Figure 6	Projected Baseline 2025 Traffic Volumes	14
Figure 7	Planned/Proposed Improvements	16
Figure 8	Location of Background Developments	18
Figure 9	Total Background Development Site Traffic (2031)	20
Figure 10	Total Background Development Site Traffic (2036 and Beyond)	21
Figure 11	2031 Future Background Traffic Volumes	23
Figure 12	2036 Future Background Traffic Volumes	24
Figure 13	2041 Future Background Traffic Volumes	25
Figure 14	2046 Future Background Traffic Volumes	26
Figure 15	Residential Site Trips	31
Figure 16	Retail Site Trips	32
Figure 17	Office Site Trips	33
Figure 18	School Site Trips	34
Figure 19	Total Site Trips	35
Figure 20	2036 Future Total Traffic Volumes	37
Figure 21	2041 Future Total Traffic Volumes	38
Figure 22	2046 Future Total Traffic Volumes	39
Figure 23	GID Blocks 1 and 2 Recommended Improvements (External Intersections)	64
Figure 24	GID Blocks 1 and 2 Recommended Improvements (Proposed Intersections)	65
Figure 25	Intersection Sight Distance (Victoria Road and Street A)	68
Figure 26	Intersection Sight Distance (Victoria Road and Street B)	70
Figure 27	Intersection Sight Distance (Stone Road and Street A)	71

Appendices

Appendix A	Terms of Reference
Appendix B	Block Plan
Appendix C	Traffic Data
Appendix D	Background Development Site Traffic
Appendix E	Synchro Outputs
Appendix F	Transportation Tomorrow Survey 2016
Appendix G	Signal Warrants
Appendix H	Left-Turn Lane Warrants
Appendix I	Sightline Assessment – Plan and Profile Drawings

1. Introduction

1.1 Retainer and Objective

GHD Limited was retained to prepare a Traffic Impact Study for Block Plan Area 1 & 2 within the Guelph Innovation District (GID). The GID Block Plan Areas 1 & 2 are generally located on the east side of Victoria Road between the Eramosa River to the north and Stone Road East to the south in the City of Guelph.

The site location is illustrated in **Figure 1** and identifies the subject site (GID Blocks 1 & 2) as well as GID Block 3 located south of Stone Road.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2024 and determine future background operating conditions for a future planning horizon in 2036 (year of full build out), 2041 (5-year post build out), and 2046 (10-year post build out).
- Estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peek periods through intersection capacity analysis and confirm any geometric improvements that would be warranted.
- Complete left-turn lane and signal warrants for proposed intersections.

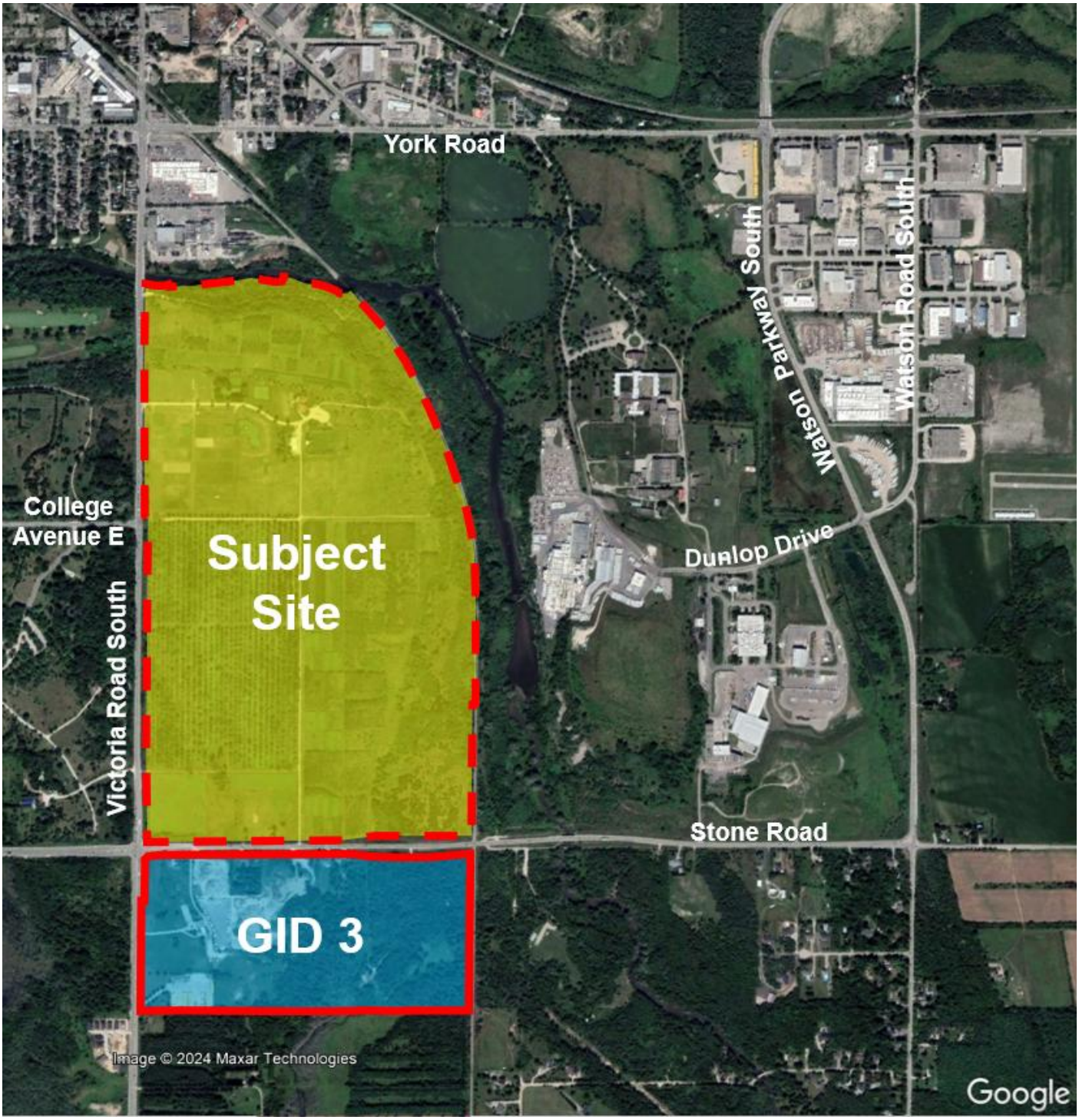


Figure 1 Site Location

1.2 Study Team

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

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

2. Site Characteristics

2.1 Study Area

As per the agreed Terms of Reference for the study attached in **Appendix A**, the following existing intersections were included in the study area:

- Victoria Road South at York Road
- Victoria Road South at College Avenue East
- Victoria Road South at Stone Road East
- Watson Parkway at York Road
- Watson Parkway at Watson Road/Dunlop Drive
- Watson Parkway at Stone Road

The following proposed new intersections are also included in the analysis:

- New Street “A” at Victoria Road South
- New Street “A” (east/west) at New Street “A” (north/south)
- Main Street at New Street “A”
- New Street “B” at Victoria Road South
- New Street “B” at New Street “A”
- New Street “A” at Stone Road East

2.2 Guelph Innovation District Secondary Plan/Official Plan Amendment 54

The Guelph Innovation District Secondary Plan is an amendment to the City of Guelph’s Official Plan and is referred to as “Amendment 54”. The amendment has been established in order to replace the existing land use policies, that were established in the City’s 2001 Official Plan, with new policies that are specific to the GID lands. The proposed amendments to the City’s Official Plan provides the area with new policies that are in line with recent amendments.

The Guelph Innovation District is located in an area generally bounded by York Road to the north, Watson Road to the east, the City’s boundary to the south (just south of Stone Road), and Victoria Road South to the west.

The six following principles were used to establish the policies for the Guelph Innovation District:

- Protect what is Valuable
- Create Sustainable and Energy Efficient Infrastructure
- Establish a Multi-modal Pedestrian-focused Mobility System
- Create an Attractive and Memorable Place
- Promote a Diversity of Land Uses and Densities
- Grow Innovative Employment Opportunities

The principles were used to establish policies related to Natural and Cultural Heritage, Energy, Servicing and Stormwater, Mobility, The Public Realm, and Land Use and Built Form.

From a transportation perspective, the policies are generally established in Section 11.2.4 – Mobility of the Official Plan and provide guidance for long-term growth and planning around the following transportation aspects.

General Mobility Policies

The General Mobility Policies outline how the road network should be established. The road network should follow the general hierarchy of arterial, collector and local roads while respecting the existing topography within the subject lands. It also notes that a future active transportation link should be provided over the Eramosa River and public transit vehicles should be considered through a controlled motorized vehicle access.

Transportation Demand Management (TDM)

The TDM policies provide guidance relating to the design of roadways that would be heavily used by both active transportation users (i.e. pedestrians and cyclists) and truck traffic to ensure a safer and more comfortable experience for vulnerable road users.

It also outlines that the City should work with transit providers, developers, and businesses within the University-Downtown-GID area (referred to as a trinity area) to provide TDM measures that reduces residents and employees dependency on single occupant vehicles and encourage them to explore alternatives such as public transit, active transportation, and carpooling.

Active Transportation – Walking and Cycling

The Active Transportation policies outline how the active transportation network should be laid out to provide active transportation links within GID as well as to the external road network. The policy also states that the Active Transportation Links have been identified on Schedule A of the Official Plan.

Public Transit

The Public Transit policies provide guidance on how the transit stops should be provided within the Guelph Innovation District and providing amenities to provide an easier connection between public transit users and active transportation users (such as providing areas to store bicycles near transit stops).

The Road Network

The Road Network section generally states that the road network should be designed in accordance with the road classifications and alignments identified in Schedule A.

Main Street has been identified as a proposed collector road/Main Street and is an extension of the existing College Avenue East roadway into the Block 1 and 2 lands towards the new north/south roadway.

New Street “A” has been identified as an east/west collector road located near the northern limit of the Block 1 and 2 lands and will operate between Victoria Road South and the new north/south roadway. New Street “A” will also operate in the general north/south direction between its east/west roadway and Stone Road East and will line up directly with the access to the GID Block 3 lands.

New Street “B” has been identified as an east/west collector road between Main Street and Stone Road East and will also operate between Victoria Road South and the new north/south roadway.

Arterial Roads, Collector Roads, Main Street, Local Roads

General guidance for each road type is provided within their own section. Each section outlines the existing and future roadways for their respective road type and the consideration that should be taken in constructing new roadways. It is also stated that each road type should be generally designed based on the standards provided in Table 1 of the Official Plan.

Parking

The Parking section generally provides a guiding principle on how parking should be provided within the GID. It states that shared parking is encouraged in order to take advantage of the various peaks in demand that occur at different times throughout the day for different types of land uses.

The section also states that parking reductions may be granted on a site-by-site basis based on the various TDM measures provided for the respective developments. The parking reduction may also take into consideration areas where high levels of transit currently exist or are planned.

2.3 Proposed Draft Plan

GID Block Plan Areas 1 & 2 have been designed to implement the principles identified in the City of Guelph's Official Plan Amendment 54. The transportation related matters have been outlined in **Section 2.2** with the following describing how the proposed block plan for GID Blocks 1 & 2 generally satisfies the guiding principles from the Official Plan:

General Mobility Policies

The Official Plan and Secondary Plan lay out the general hierarchy for arterial, collector, and local roadways. The Secondary Plan's Mobility Plan outlines the general road network requirement for Blocks 1 and 2 of the Guelph Innovation District.

GID 1 & 2 proposes to provide the three collector roads and one local road identified under Schedule A of the Official Plan. Consistent with the Secondary Plan, the following roads are proposed for the subject site:

- New Street "A" is a collector road proposed to operate in both the east/west and north/west direction.
- Main Street is a collector road proposed to operate in the general east/west direction between Victoria Road South and the north/south New Street "A". Main Street will operate as an extension of the existing College Avenue East.
- New Street "B" is an east/west collector road operating between Victoria Road South and the north/south New Street "A".

Transportation Demand Management (TDM)

TDM measures can be used by the developer to encourage residents to reduce their dependency on single occupant vehicle trips and explore alternatives such as active transportation and public transit use.

The developer can consider a series of hard and soft measures to either include in the design of each building or provide at the time of the purchase as a way to encourage residents to explore alternative modes of transportation.

The TDM measures that the developer may incorporate into the future Site Plans submissions are further discussed in **Section 11.3**.

Active Transportation – Walking and Cycling

As further discussed in the "Typical Cross-Section" section, the proposed New Street "A", New Street "B", and Main Street have been identified as collector roadway, requiring a 2.0-metre sidewalk and 1.5-metre bike lane on both sides. All remaining roadways have been identified as local roadways and would require a 1.5 metre sidewalk on both sides and no bike lanes.

The Street Section drawings have identified typical 26-metre roadways to have 2.625-metre sidewalks and 1.5-metre sidewalks on both sides and typical 18-metre roadways having 1.75-metre sidewalks and no cycling provisions.

Public Transit

Public transit stops will be provided within GID Blocks 1 & 2 consistent with the guidelines provided in the Official Plan which includes transit stops along Victoria Road South at New Street "A", Main Street, New Street "B", and Stone Road East, along Stone Road East at New Street "A", and internally at Main Street and New Street "A" as well as adjacent to the active transportation link crossing the Eramosa River..

The Road Network

As outlined in Schedule A of the Official Plan Amendment, New Street “A”, New Street “B”, and Main Street have been identified as Collector Roads.

The proposed road network has been designed to provide the same functionality as intended by Schedule A of the Official Plan, which includes the general layout of the road network in addition to collector roads designed with 26-metre right-of ways and local roadways designed with 18-metre rights-of-way.

Arterial Roads, Collector Roads, Main Street, Local Roads

As further discussed below related to the Typical Cross-Section, all proposed roadways will be generally designed in accordance with Table 1 of the Official Plan amendment.

Typical Cross-Section

The typical cross-section elements are provided within Table 1 of the Official Plan amendment. The proposed roadways within Block 1 & 2 of the Guelph Innovation District have been identified as collector and local roadways based on Schedule A of the Official Plan.

The following elements have been identified for all collector roadways:

- a right-of-way of 26 metres (except for a 24-metre right-of-way for Main Street),
- two travel lanes (increased to four travel lanes during peak hours, with the exception of Main Street)
- will not have any proposed transit stops
- Transit stops at College Avenue East and Victoria Road South, College Avenue East and New Street A, College Avenue East and New Street A, New Street A and Victoria Road South, New Street A and Stone Road East
- Parking will to be provided, including on both sides along Main Street
- To include 2.0 metre sidewalks and 1.8 metre planting on both sides,
- To include a minimum 1.5-metre wide dedicated bicycle lane

Based on the Draft Plan, New Street “A” and New Street “B” will have 26-metre right-of-ways and Main Street will have a 24-metre right-of-way. The street section plan for 26-metre right-of-ways includes a 3-lane cross-section, with parking provided on one side, in addition to a 2.635-metre sidewalk, 1.5-metre planting strip, and 1.5-metre bike lane on both sides. The transit stops will be provided consistent with the locations identified under the Official Plan.

The following elements have been identified for all local roadways:

- a right-of-way of 18 metres,
- two travel lanes
- will not have any proposed transit stops
- will have parking spaces where appropriate,
- will include 1.5 metre sidewalks on both sides,
- and will not provide dedicated bicycle facilities.

Based on the Draft Plan, all local roads with have 18-metre right-of-ways. The street section plan for 18-metre right-of-ways includes a 2-lane cross-section, with parking provided on one side, in addition to a 1.75-metre sidewalk, 2-metre planting strips on both sides and no bicycle facilities. Consistent with the Official Plan, no transit stops will be provided along local roadways.

Vehicular Parking

Parking will generally be provided to satisfy the City's minimum parking requirements. For the apartment and mixed-use blocks, the visitor parking will generally be provided on the ground floor while the resident parking will generally be located within the underground parking facilities.

City council approved the new Zoning By-law in April 2023 (2023-20790), however the By-law is currently under appeal and it is advised that applications should currently comply with both the approved By-law and the older By-law (1995-14864)

Under the approved Zoning By-law, parking should be provided to meet the Zoning By-law. The following summarizes the parking rates for the uses currently proposed for the GID Block 1 and 2 lands:

Mixed-use building

- Residents
    - In addition to the requirement for the non-residential component, a minimum of 0.85 spaces per unit (Draft Zoning By-law)
- Visitors
    - A minimum of 0.15 visitor spaces per unit

Townhouses

- A minimum of 1 space per dwelling unit.

Townhouse– back-to-back, cluster, stacked, and stacked back-to-back

In addition to the 1 space per unit required above, the back-to-back, cluster, stacked, and stacked back-to-back townhouses require a minimum of an additional 0.20 space per unit for visitors.

Single detached dwelling

- A minimum of 1 space per dwelling unit.

Office

- A minimum of 3 spaces per 100 m^2 of GFA.

School

- A minimum of 1 space per classroom, plus 4 visitor spaces (elementary school)
- 3 spaces per classroom (secondary school)
- 1 space per 100 m^2 of GFA (post-secondary school)

Non-residential uses

Based on Table 7.1 of the Zoning By-law, a variety of uses are permitted within a mixed-use corridor. Although the parking provision and requirements will further be discussed as each parcel proceeds through the site plan application stage, the non-residential uses permitted for the Mixed-use Corridor have minimum parking requirements that typically range from 1 to 5 spaces per 100 m^2 of GFA.

As directed by the Official Plan, shared parking between the visitor and non-residential uses should be explored to take advantage of the different peaking characteristics of the parking demand for each use.

Bicycle Parking

Bicycle parking will generally be provided to satisfy the City's minimum parking requirements.

City council approved the new Zoning By-law in April 2023 (2023-20790), however the By-law is currently under appeal and it is advised that applications should currently comply with both the approved By-law and the older By-law (1995-14864).

The following summarizes the parking rates for the uses currently proposed for the GID Block 1 and 2 lands:

Apartment building and Townhouses (back-to-back, cluster, stacked, stacked back-to-back)

As part of the Draft Zoning By-law Amendment being sought for the subject site, no bicycle parking spaces would be required for buildings having 26 dwelling units or more.

- Short-term
    - A minimum of 0.1 spaces per unit, 2 spaces minimum
- Long-term
    - A minimum of 1.0 space per unit, 2 spaces minimum.

Office

- Short-term
    - A minimum of 0.13 spaces per 100 m^2, 2 spaces minimum
- Long-term
    - A minimum of 0.20 spaces per 100 m^2, 2 spaces minimum

Commercial, service, retail

- Short-term
    - A minimum of 0.20 spaces per 100 m^2, 2 spaces minimum
- Long-term
    - A minimum of 0.10 spaces per 100 m^2, 2 spaces minimum

All other non-residential uses

- Short-term and long-term
    - 4% of the required parking under Table 5.3 of the City's By-law, a minimum of 2 spaces

Electric Vehicle Parking

Electric vehicle (EV) parking requirements are also provided in the City council approved Zoning By-law (2023-20790), however the By-law is currently under appeal, and it is advised that applications should currently comply with both the approved By-law and the older By-law (1995-14864).

However, as part of the Draft Zoning By-law Amendment being sought, the EV Parking Space requirements shall not apply. The EV parking supply will be determined at the Site Plan level based on market demand.

As per the Block Plan shown in **Figure 2** and provided in **Appendix B**, the development currently contemplated for the subject site will generally consist of a mix of dwelling units, office GFA, retail GFA, and school GFA.

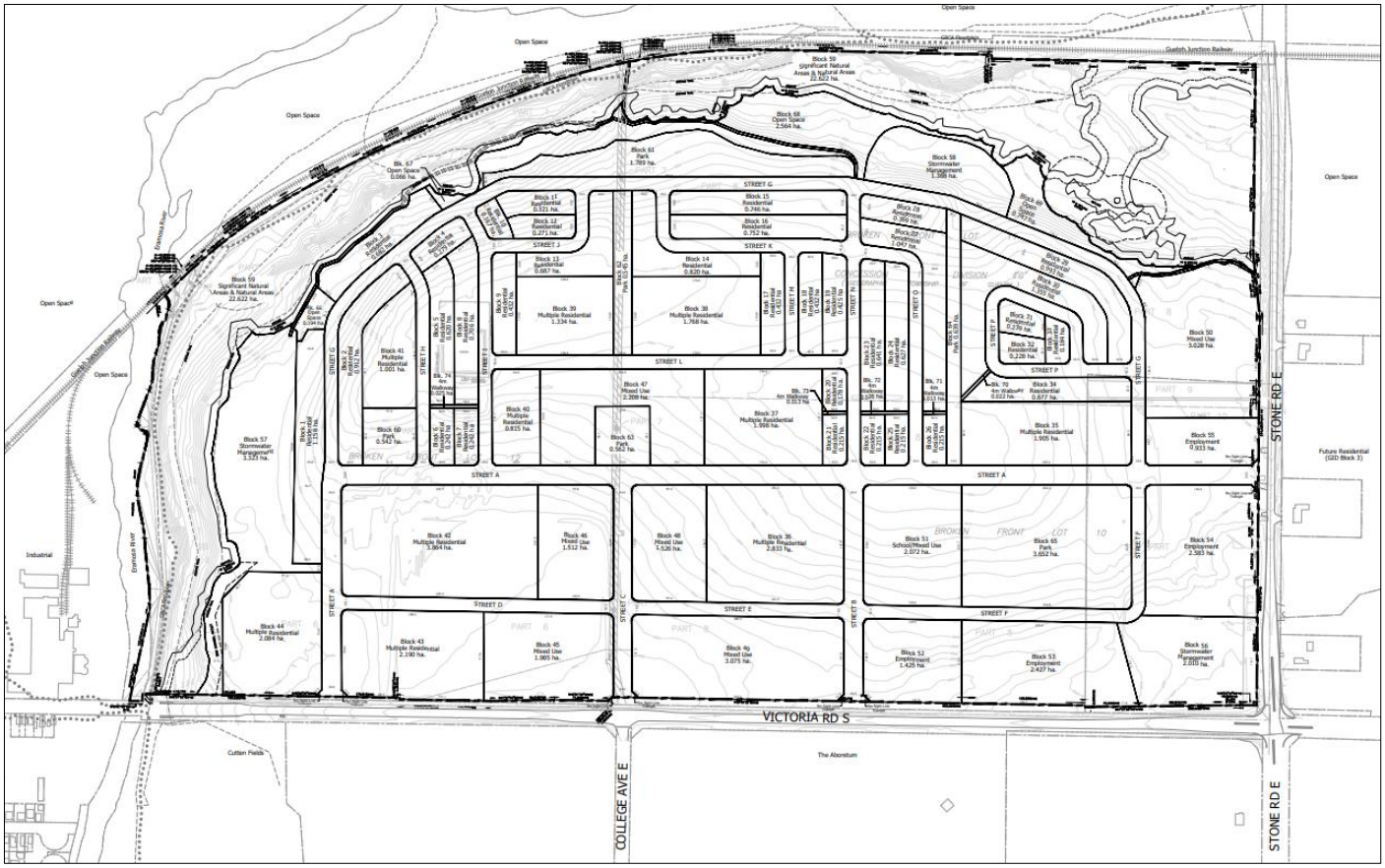


Figure 2 Block Plan

The higher density dwelling units are generally to be located along the Victoria Road South and Stone Road East frontages, with the density reduced as you move into the subject lands towards the Eramosa River. The dwelling type transitions from apartment dwelling units along the external road network, to townhouse units in the centre of the block, and lastly to the single detached units primarily located along the Eramosa River.

The mixed-use buildings will primarily be located along the proposed Main Street, extending from Victoria Street East in the east to just beyond the proposed Street A in the east. Additionally, mixed-use buildings are also proposed along Stone Road East between the north/south Street “A” and the east property limit. The mixed-use buildings are proposed to contain apartment dwelling units along with ground floor retail and/or office uses.

A total of two employment blocks are proposed to be located in the general southwest portion of the development, bounded by Victoria Road South to the west, New Street “B” to the north, New Street “A” to the east, and Stone Road East to the south.

Lastly, the proposed retail space will generally be located throughout the mixed-use buildings adjacent to the proposed Main Street.

Access to the subject site from the municipal road network will be provided from three new proposed municipal roadways (operating in the general east/west direction) intersecting Victoria Road South and a fourth roadway (operating in the general north/south direction) intersecting Stone Road East.

Of the roadways intersecting Victoria Road South, the proposed Main Street forms the extension of College Avenue East to the east of Victoria Road South. New Street “A” is proposed to be located to the north of Main Street with New Street “B” proposed to be located to the south of it. The north/south roadway within GID Block 1 & 2, also referred to as New Street “A”, will operate from the east/west New Street “A” towards Stone Road East and is proposed to be lined up with the access to the block to the south to GID 3.

3. Existing Conditions

3.1 Existing Road Network

Victoria Road South is a north/south arterial road under the jurisdiction of the City of Guelph. Within the study area Victoria Road South has a four-lane cross-section with the exception of the road segment between the bridge over the Eramosa River and the intersection with Stone Road East that has a two-lane cross-section. Its intersections with York Road, College Avenue East, and Stone Road East are all signalized with auxiliary left-turn lanes in both the northbound and southbound directions. However, its intersection with College Avenue East is a T-intersection and the auxiliary turn lane in the southbound direction is a right-turn lane. The posted speed limit along Victoria Road South changes at a point located approximately 350 metres north of College Avenue East, with a posted speed limit of 50 km/h north of this point and increases to 70 km/h south of it.

Stone Road East is an east/west arterial road under the jurisdiction of the City of Guelph. Stone Road East has a four-lane cross-section from the east and is reduced to a two-lane cross-section to the east of its intersection with Victoria Road South. Its intersection with Stone Road East is an unsignalized all-way stop-controlled intersection with an auxiliary left-turn lane in the eastbound and westbound directions. The posted speed limit along Stone Road East is 60 km/h.

York Road is an east/west arterial road under the jurisdiction of the City of Guelph with a two-lane cross-section within the study area. Its intersections with Victoria Road South and Watson Parkway are both signalized. At Victoria Road South the intersection consists of an auxiliary left-turn lane in the eastbound and westbound directions, an auxiliary right-turn lane in the westbound direction, and a shared through-right turn lane in the eastbound direction that begins just before the intersection and ends just after the intersection. Its intersection with Watson Parkway consists generally of a similar lane configuration (auxiliary left-turn lane in both directions and auxiliary right-turn lane in the eastbound direction), however there is no additional lane added in the westbound direction. The speed limit along York Road is 50 km/h within the majority of the study area and increases to 60 km/h generally towards the east of Watson Parkway.

College Avenue East is an east/west arterial road under the jurisdiction of the City of Guelph with a two-lane cross-section within the study area. Its intersection with Victoria Road South is College Avenue East's eastern limit and is a signalized T-intersection with an auxiliary left-turn lane. The posted speed limit along College Avenue East is 60 km/h.

Watson Parkway is a north/south arterial road under the jurisdiction of the City of Guelph with a two-lane cross-section within the study area. Its intersections with York Road, Dunlop Drive/Watson Road are signalized while its intersection with Stone Road is an all-way stop-controlled intersection. At its intersection with York Road, an auxiliary left-turn lane is provided in the northbound and southbound directions and an auxiliary right-turn lane is only provided in the southbound direction. No auxiliary turning lanes are provided at its intersection with Dunlop Drive/Watson Road South. At its intersection with Stone Road East, an auxiliary channelized right-turn lane is provided with a yield control.

Dunlop Drive is an east/west local road under the jurisdiction of the City of Guelph with a two-lane cross-section within the study area. Dunlop Drive's eastern limit is Watson Parkway, where it continues towards the east and the north as Watson Road. **Watson Road** is a north/south arterial road under the jurisdiction of the City of Guelph with a two-lane cross-section within the study area. Although it operates in a general north/south direction, it does operate in the east/west direction over a short distance in order to intersect Watson Parkway at a 90-degree angle. The intersection of Dunlop Drive/Watson Road with Watson Parkway is signalized with no provision of auxiliary turning lanes. The posted speed limit along Dunlop Drive is 50 km/h and is increased to the east of Watson Parkway to 60 km/h along Watson Road.

The existing lane configurations and intersection controls for study intersections are shown in the figure below.

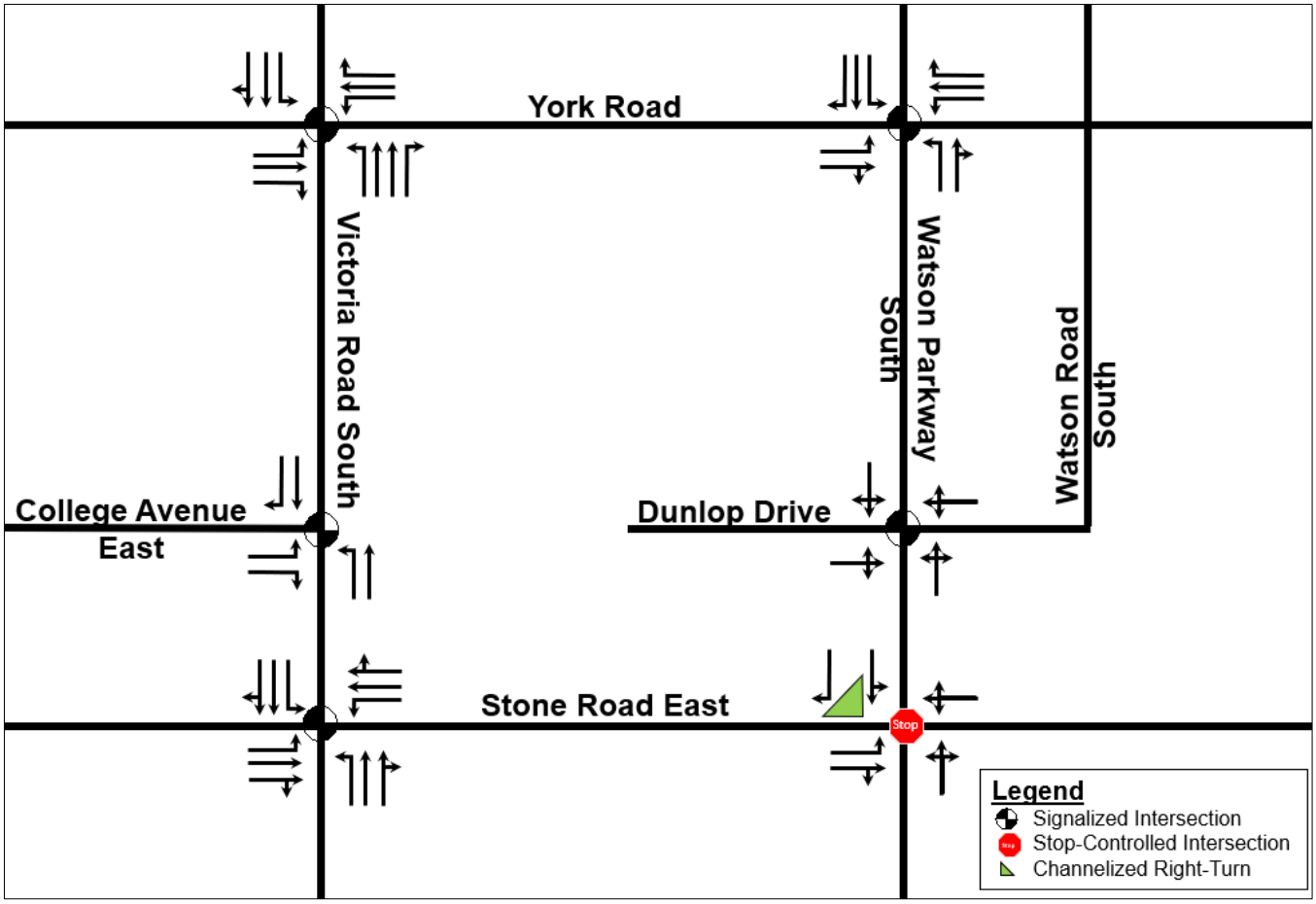


Figure 3 Existing Lane Configuration and Traffic Controls

3.2 Pedestrian and Bicycle Facilities

Within the study area, sidewalks are currently provided along the following roads:

- Along both sides of York Road from the west and ending at the railway tracks to the east of Victoria Road
- Along the west side of Victoria Road from the north of the study area and ending at the bridge over the Eramosa River. The sidewalk along the east side of Victoria Road is provided along a short stretch between York Road and the north of the bridge over the Eramosa River. The sidewalk along the west side of Victoria Road is re-introduced at Stone Road and continues beyond the southern limit of the study area.
- Along both sides of Stone Road from the west of the study area and ending at the intersection with Victoria Road South
- Along both sides of Watson Parkway from York Road to approximately 100 metres north of the intersection

Bike lanes are provided within the study area along the following roads:

- A buffered bike lane is provided along Victoria Road South from the Eramosa River to Stone Road East, and continues south of Stone Road as a regular bike lane
- A buffered bike lane is provided along Stone Road East from the west of the study area to Victoria Road South, and continues east of Victoria Road South as a regular bike lane to Watson Parkway
- A buffered bike lane is provided along Watson Parkway north of York Road

The Active transportation facilities are illustrated in the figure below.

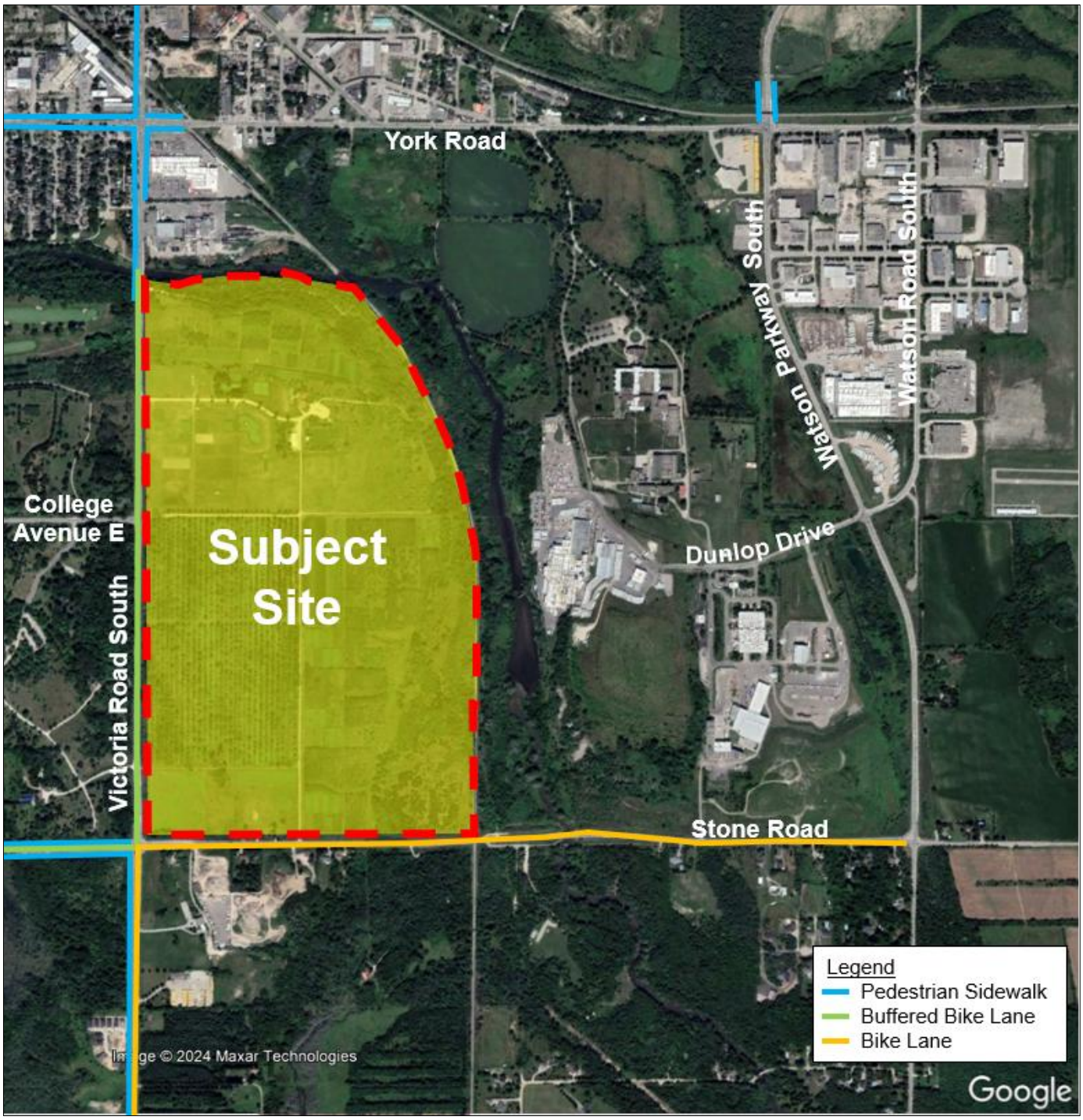


Figure 4 Existing Active Transportation Facilities

3.3 Transit Services

Guelph Transit currently offers transit service along the following routes within the study area:

Route 4 (**York**) operates in a general east/west direction along York Road between the Guelph Central Station and Watson Parkway. The route operates with a 30-minute headway throughout the day.

Route 5 (**Goodwin**) operates in a clockwise direction generally along Stone Road, Victoria Road South, Goodwin Drive and Gordon Street. The route operates with a 20-minute headway during the a.m. and p.m. peak hours and a 30-minute headway outside of the peak hours.

Routes 17 and 18 (**Woodland Watson**) operate generally in a loop generally along the City limits with Route 17 operating in a clockwise direction and Route 18 operating in a counter clockwise direction. The route operates with a 30-minute headway throughout the day.

The transit routes are illustrated in the figure below.

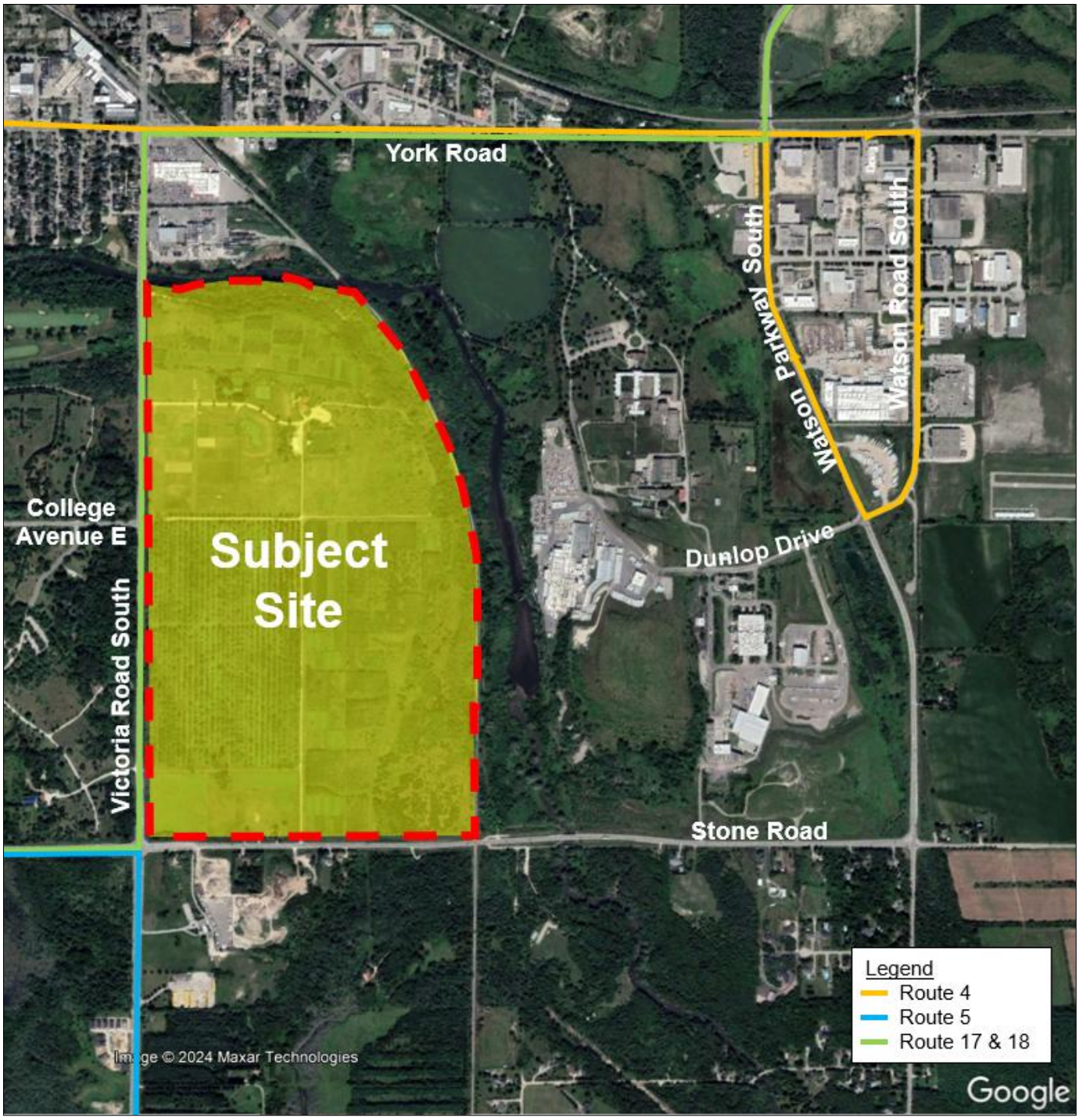


Figure 5 Existing Transit Routes

3.4 Existing Traffic Data

GHD received historic turning movements counts from the City of Guelph and contracted Spectrum Traffic Inc. to conduct updated turning movement counts at all the study intersections in November 2022. As directed by City staff through the Terms of Reference, the pre-COVID counts should be compared to the updated turning movements counts with the highest volumes used. As the historic counts obtained from the City were higher than the updated traffic data, the 2019 volumes were considered as no growth was assumed to have occurred due to the effects of the COVID-19 pandemic. However, City staff has confirmed with GHD that updated counts completed by the City in 2025 generally align with the volumes from the November 2022 counts and that the November 2022 counts should form the baseline existing volumes.

The baseline 2025 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 6** below with the full turning movement counts provided in **Appendix C.**

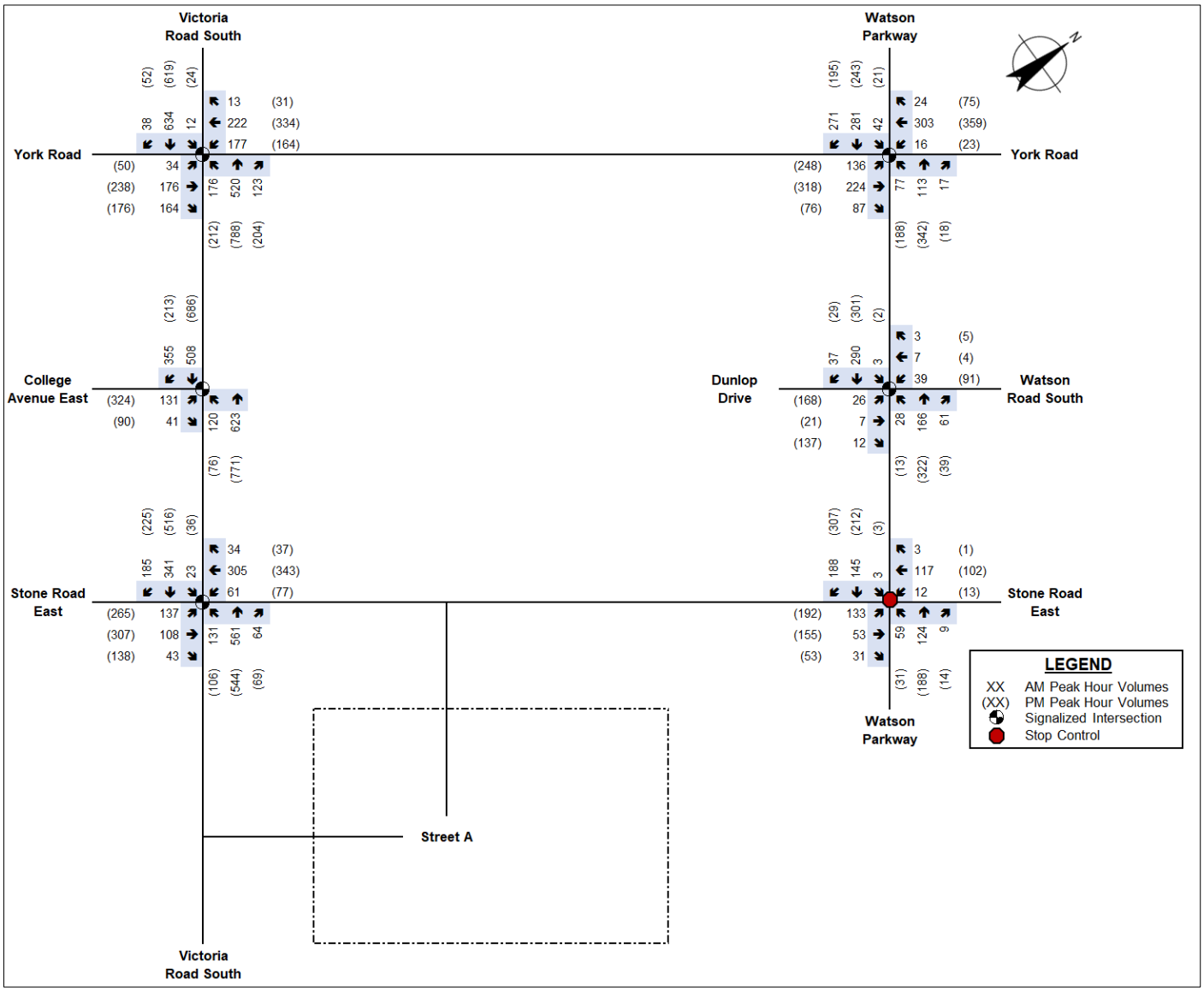


Figure 6 Projected Baseline 2025 Traffic Volumes

4. Future Conditions

4.1 Study Horizon Year

As confirmed through the terms of reference, future horizon years of 2031, 2036, and 2041 were agreed upon for the Guelph Innovation District studies. This assumed full build-out of GID Block Plan Area 3 in 2031, full build-out of GID Block Plan Areas 1 and 2 in 2036 and a period of 5 years post build-out of GID Block Plan Areas 1 and 2 in 2041. The selected horizon years are generally consistent with the City's TIS guidelines and confirmed through the Terms of Reference with City staff. As requested from City staff in their review of the first submission, an additional horizon year of 2046 was requested and corresponds to a period of 10-years post build-out.

As GID Blocks 1 & 2 were not assumed to be constructed under the 2031 horizon year, only the 2036 and 2041 horizon years were selected for the analysis contained in this report.

4.2 Planned and Proposed Road Network Improvements

As identified by City staff, the following roadway improvements are planned within the study area:

York Road Reconstruction Phase 4

Phase 4 of the York Road reconstruction will occur between Victoria Road South to the west and the City limits to the east. Utility relocation work was scheduled to begin in 2024, with construction beginning in spring 2025, and targeted to be completed in late 2028. The improvements consist of adding a multi-use path for the entire route within Phase 4. A widening to a four-lane cross-section was previously contemplated, however it is no longer included in the scope of the project.

GHD had previously assumed a four-lane cross-section along York Road, however as confirmed by City staff the project is proceeding without widening from its current two-lane cross-section.

Th City of Guelph also identified the two following potential road improvements. The City may undertake future EA studies to justify the potential improvements with the timing of the construction determined based on the area traffic demand and growth:

Victoria Road Widening

An EA was completed for Victoria Road in 2005. The improvements currently contemplated for Victoria Road include a widening to a four-lane cross-section between the Eramosa River to the north and Stone Road to the south as well as intersection improvements at the intersection of Victoria Road and York Road.

Stone Road Widening

Within the study area, a widening of Stone Road to a four-lane cross-section from Victoria to Watson Parkway and intersection improvements at Stone Road and Watson Parkway are currently contemplated. As advised by City staff, the intersection improvements at Stone Road and Watson Parkway may potentially include a roundabout for the intersection.

As the two improvements are currently proposed and not planned, GHD will consider both improvements based on future traffic volumes and identify potential timings for the improvements.

The planned and proposed improvements are summarised in the figure below.

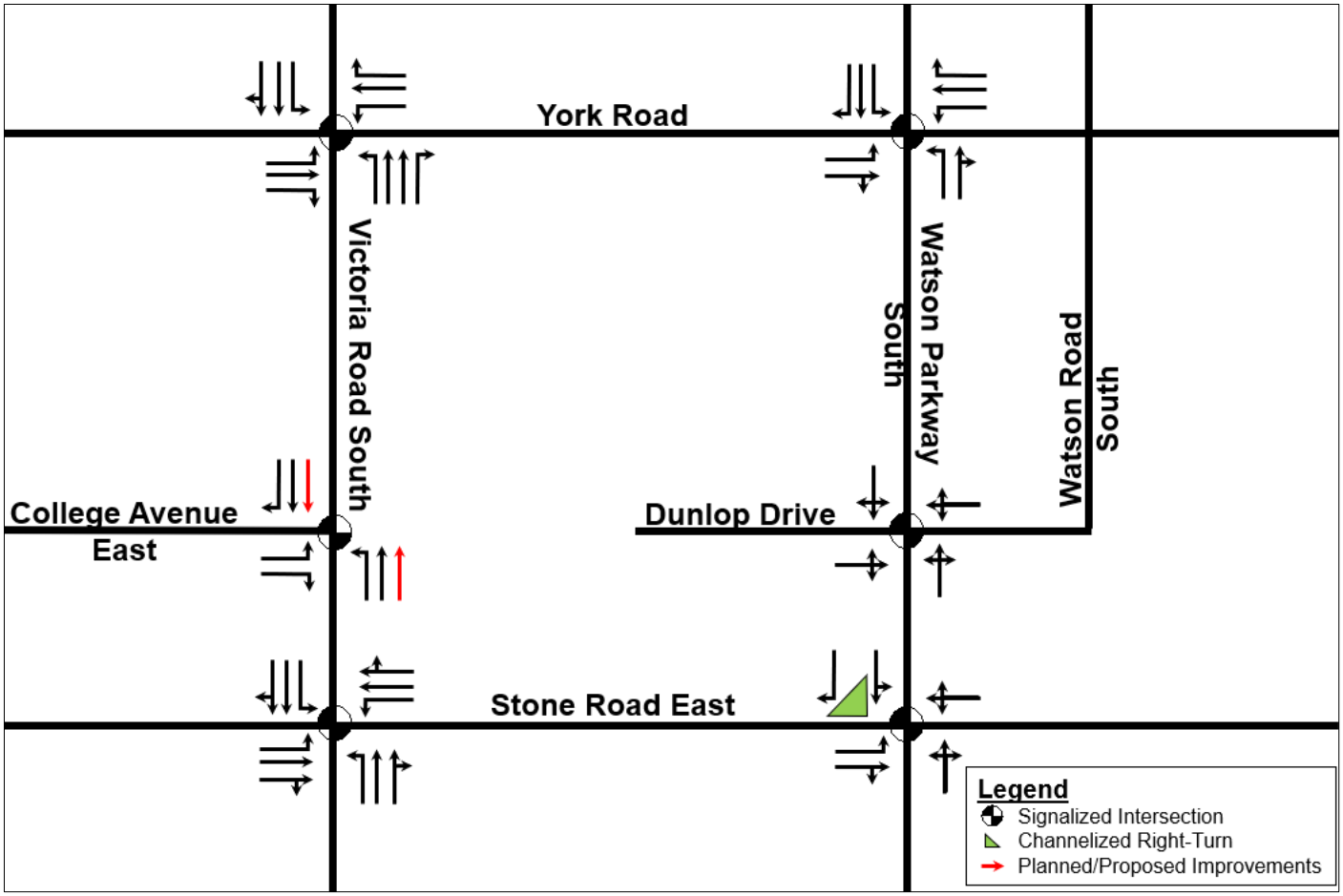


Figure 7 Planned/Proposed Improvements

4.2.1 Future Road Network for GID Block Plan Area 1 and 2

The Secondary Plan provides the requirements for the road network within Blocks 1 & 2 of the Guelph Innovation District. The road network proposed for Blocks 1 & 2 consist of four major roadways, with three roadways operating in the general east/west direction (Main Street, New Street “A”, and New Street “B”) that intersect with Victoria Road South and one roadway operating in the general north/south direction intersecting Stone Road East.

The two east/west collector roads (New Street “A” and New Street “B”) will have a 26-metre right-of-way between Victoria Road South and the new north/south collector road and will continue towards the east with an 18-metre right-of-way. Main Street will have a 24-metre right-of-way between Victoria Road South and its eastern limit at the new north/south collector road.

The north/south New Street “A” is also proposed to operate as a collector road with a 26-metre right-of-way from the east/west New Street “A” to Stone Road. It is also proposed to align the north/south New Street “A” at Stone Road with the access to the GID Block 3 lands.

4.3 Proposed Pedestrian and Bicycle Facilities

The City of Guelph’s Official Plan, Schedule A: Guelph Innovation District Secondary Plan Mobility Plan has identified the following pedestrian and bicycle facilities within the Secondary Plan Boundaries:

- a proposed on-street bike lane along Victoria Road South and York Road (currently planned as multi-use path as discussed in **Section 4.2**)

- a proposed on-street bike lane along Main Street and New Street “A” within the Guelph Innovation District Blocks 1 and 2
- proposed City trail network along Victoria Road South south of Stone Road East, along York Road, and along the Eramosa River.
- Active transportation links within the Guelph Innovation District Blocks 1 and 2, including one link crossing the Eramosa River

Sidewalks will also be provided along both sides of all roadways within the GID Block 1 and 2 lands.

4.4 Corridor Growth

As directed by City staff, a 2% growth rate was previously applied to all movements along each road within the study area to estimate corridor growth up to the future horizon years as agreed to in the Terms of Reference and is in line with the City’s population growth.

Based on their review of the first submission, City staff requested GHD to consider a 1.5% per annum growth rate to project 2031 volumes followed by a 1% per annum growth rate beyond 2031. The growth rates were revised to reflect the 1% and 1.5% per annum growth rates in this updated analysis.

4.5 Background Development Traffic

City of Guelph identified the following background developments located near the subject site that would contribute traffic volumes at the study intersections:

- Guelph Transit Operation Campus (in the northwest corner of Stone Road and Watson Parkway)
- York Elizabeth Land Use Study (Additional population of 160 residents plus additional commercial development 4,878 sq.m.)
- 115 Watson Parkway (582 apartment units and 197 townhouses)
- 855 and 927 Victoria Road (486 residential units)
- Guelph Innovation District Block 3
- Guelph Innovation District Block 4

The locations of the background developments are shown in **Figure 8** below.

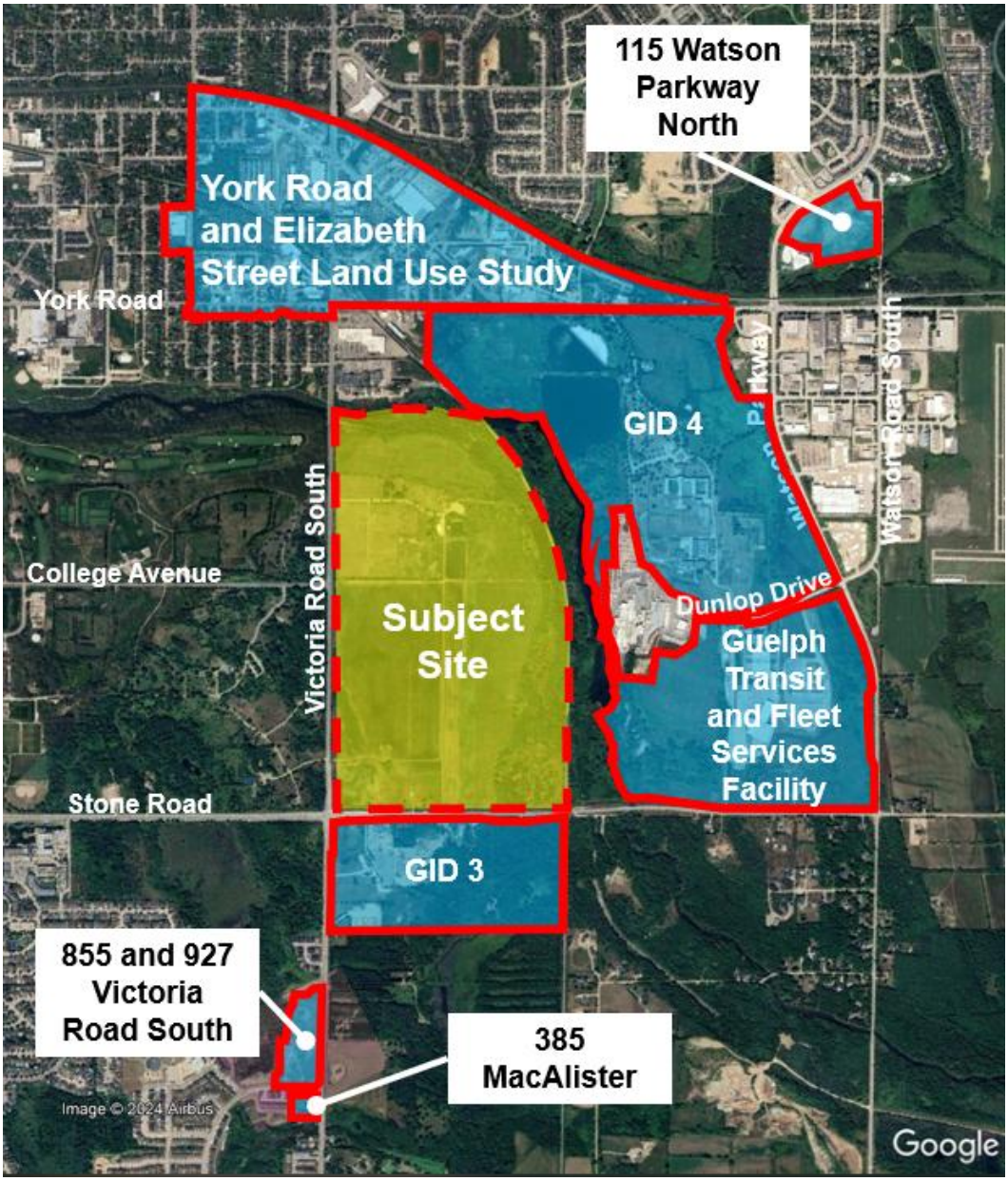


Figure 8 Location of Background Developments

The trip assignment for 115 Watson Parkway and 855 Victoria Road were retrieved from their respective Traffic Impact Studies that were available on the City's development application portal. City of Guelph staff provided GHD with the site trip assignment for the Guelph Transit Operation Campus and the site statistics for the York Elizabeth Land Use Study. Based on the information provided for the York Elizabeth Land Use Study GHD completed the trip generation and assigned them to the road network based on the trip distribution also completed for GID 3 (further discussed in **Section 5.3**).

The proposed trip generation from each background development is summarized in the table below and the total site trips from the background developments provided in **Figure 10**.

As confirmed with City staff, the following outlines the anticipated build-out of the background developments:

- Before 2031
    - 855 and 927 Victoria Road (currently under construction)

- City's Transit Operation Campus in the NW corner of Stone Road and Watson Parkway
- 115 Watson Parkway
- York Elizabeth Land Use Study
- GID Block 3

- Before 2036
  - 385 Macallister Boulevard
  - GID Block 4

The relevant trip assignment from each development are provided in **Appendix D**.

Table 1 Background Development Traffic

Background Development	Peak Hour Trips					
	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Guelph Transit Operation Campus (in the northwest corner of Stone Road and Watson Parkway)	55	31	86	53	49	102
York Elizabeth Land Use Study. (Additional population of 160 residents plus additional commercial development 4,878 sq.m.)	80	69	149	78	87	165
115 Watson Parkway (873 high-rise dwelling units, 197 low-rise units, and 30,340 ft^2 of commercial GFA)	175	296	471	354	269	623
855 Victoria Road (110 stacked townhouse units, 70 back-to-back townhouse units, 49 podium townhouse units and 269 apartment units)	47	147	194	148	90	238
Guelph Innovation District Block 3 (1,857 dwelling units and 5,645 m2 of commercial GFA)	75	250	324	285	154	437
Guelph Innovation District Block 4 (750 employees)	220	30	250	39	190	229
385 MacAlister Boulevard	173	169	342	174	168	342
Total Background Traffic (2031)	**432**	**793**	**1224**	**918**	**649**	**1565**
Total Background Traffic (Beyond 2036)	**825**	**992**	**1816**	**1131**	**1007**	**2136**

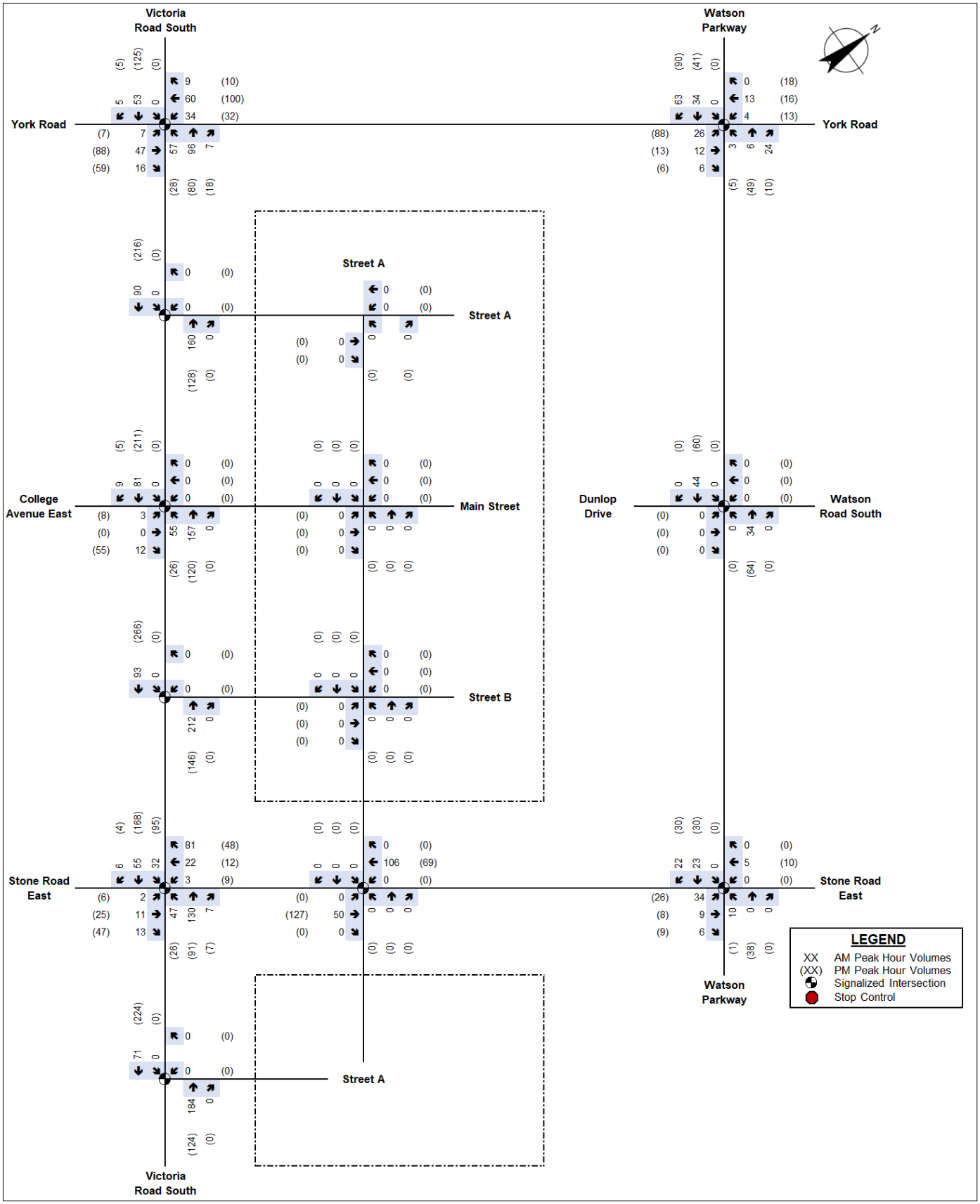


Figure 9 Total Background Development Site Traffic (2031)

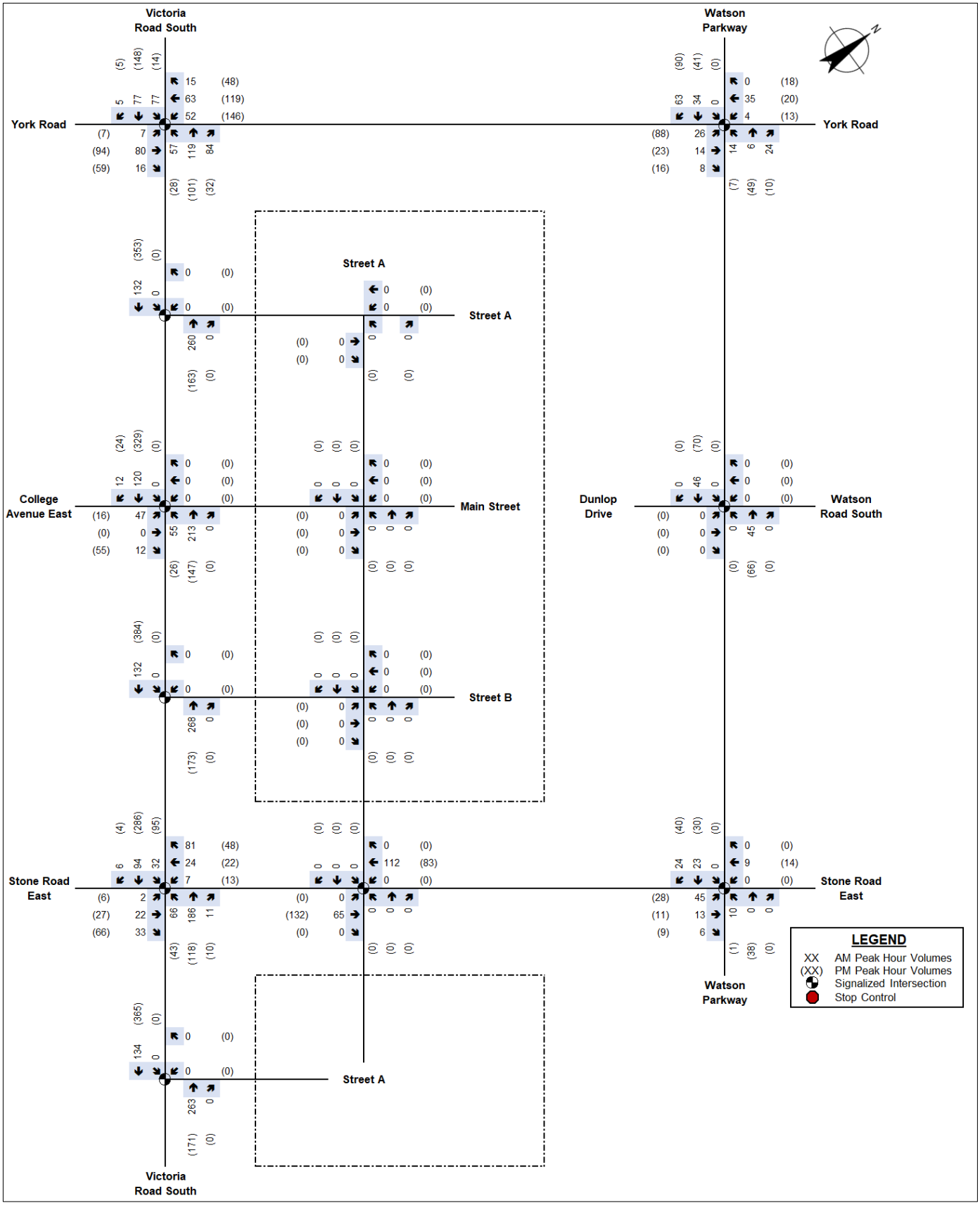


Figure 10 Total Background Development Site Traffic (2036 and Beyond)

4.6 Future Background Traffic Volumes

The background traffic volumes for the 2036, 2041, and 2046 horizon year were derived by applying the respective growth rates to the study area roads and adding the total background development site traffic from **Figure 10** for the 2041 and 2046 horizon years only. The resulting 2036, 2041, and 2046 future background traffic volumes are summarized in **Figure 12, Figure 13**, and **Figure 14** respectively.

As requested by City staff, GHD also included an analysis of future background conditions under the 2031 horizon year. The 2031 future background traffic volumes are provided in **Figure 11**.

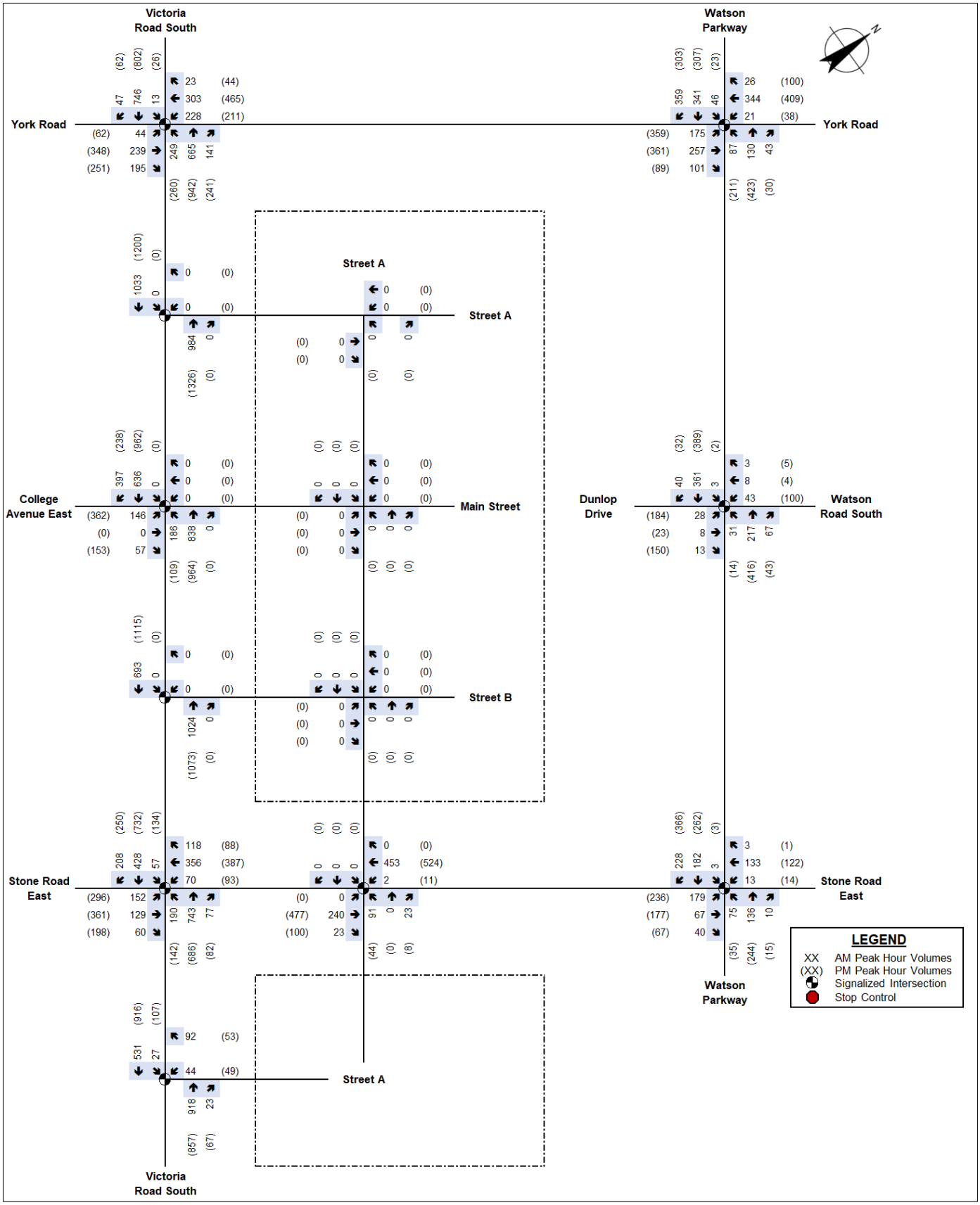


Figure 11 2031 Future Background Traffic Volumes

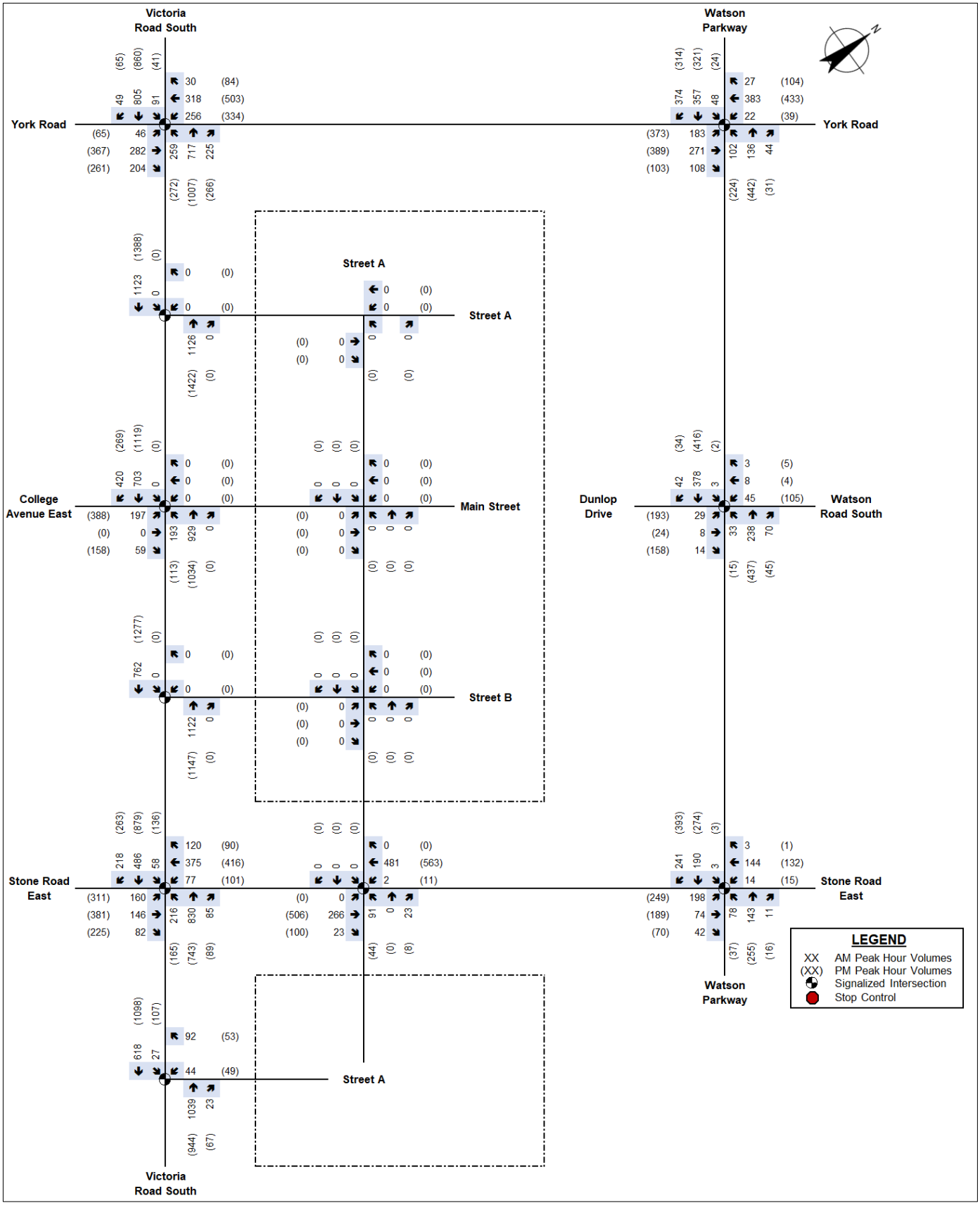


Figure 12 2036 Future Background Traffic Volumes

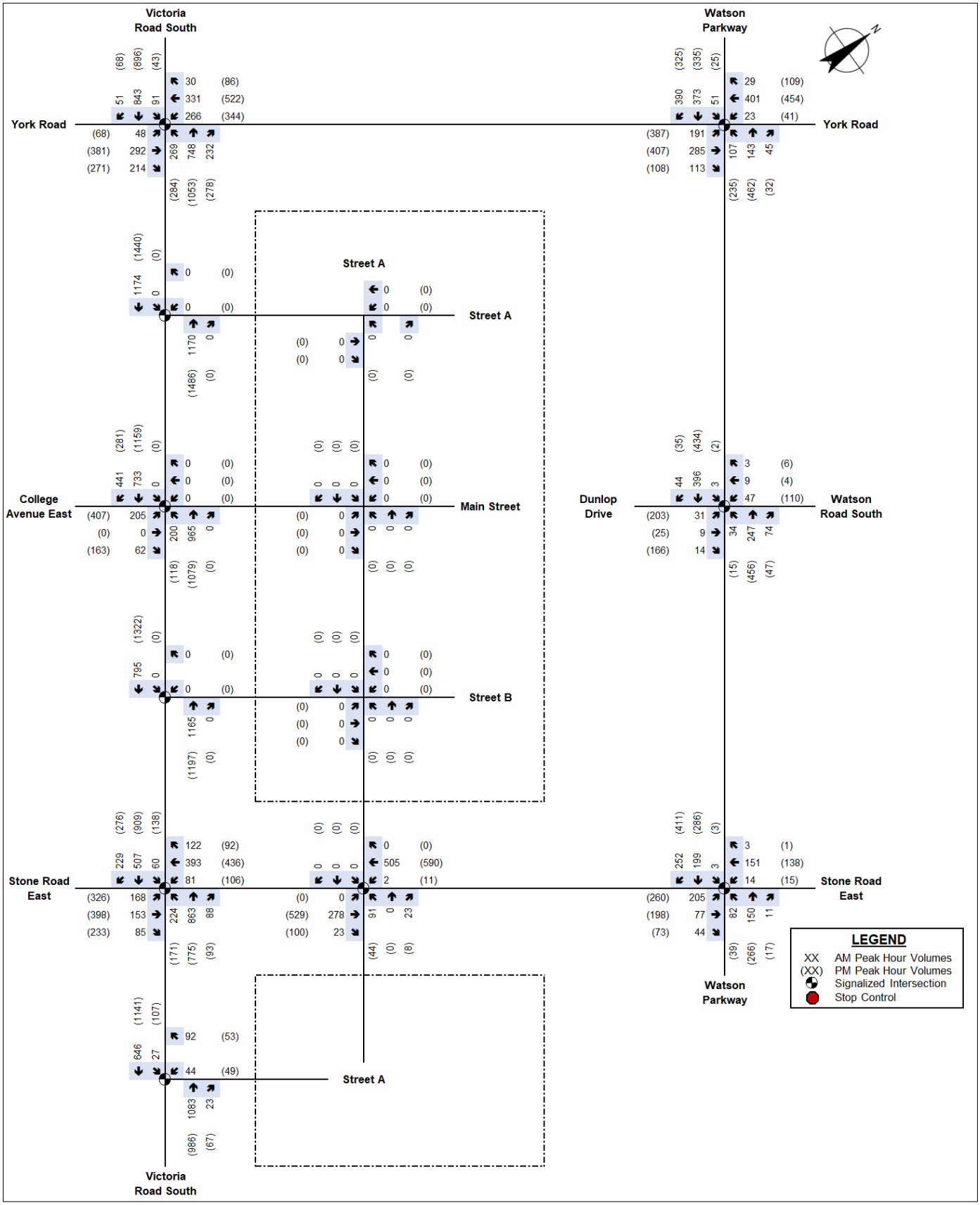


Figure 13 2041 Future Background Traffic Volumes

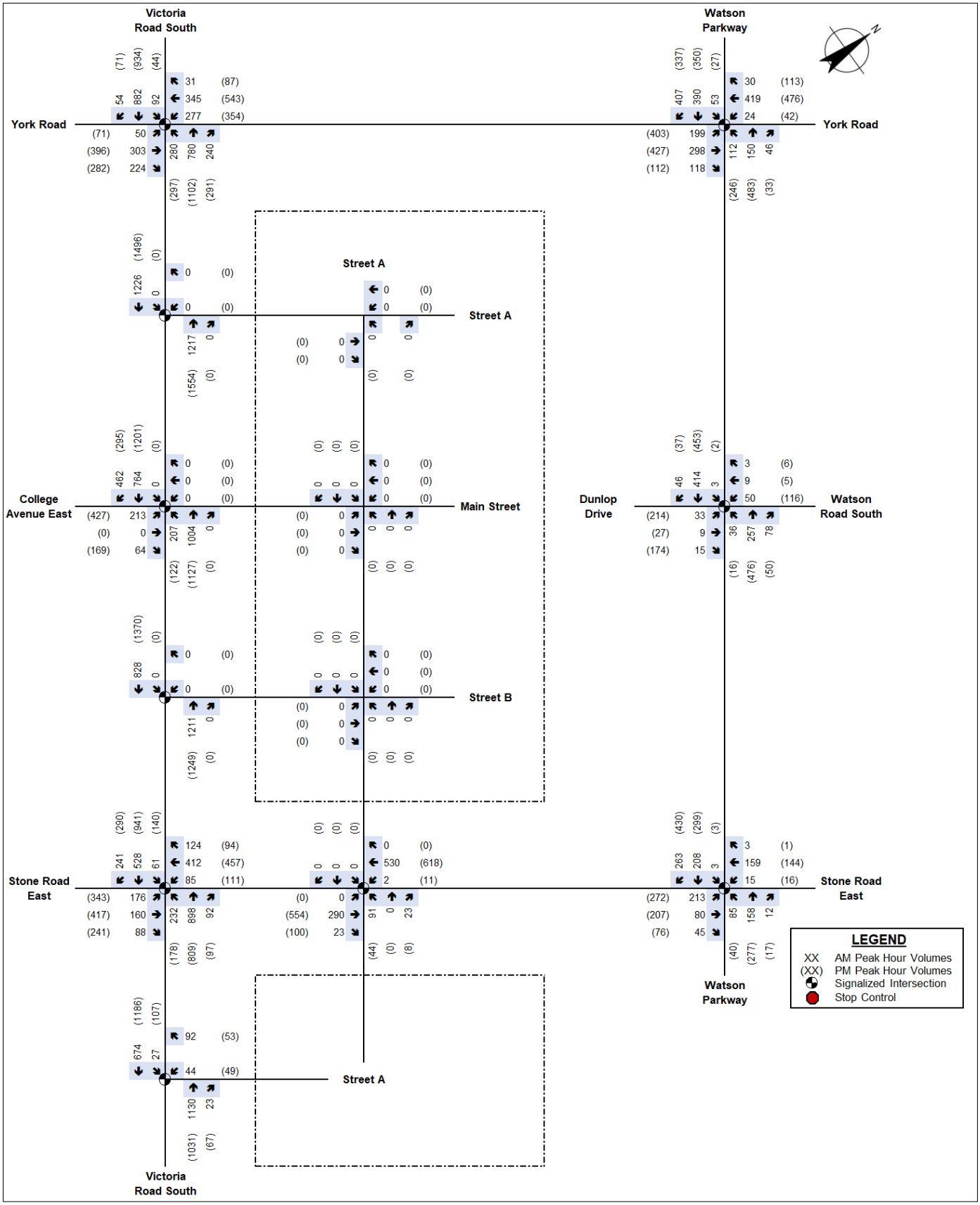


Figure 14 2046 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 GID Blocks 1 & 2 Areas

A Draft Plan of Subdivision has been prepared for GID Block Plan Areas 1 and 2 and will generally consist of a mix of dwelling units and non-residential uses including retail space, office space, and school space.

The previous block plan generally consisted of 4,649 dwelling units and approximately 140,197 m^2 of non-residential uses consisting of 25,913 m^2 of retail space, 105,980 m^2 of office space, and 8,304 m^2 of school space.

The 4,485 dwelling units generally consisted of the following:

- 2,500 apartment dwelling units
- 1,642 townhouse dwelling units
- 507 single dwelling units

The current draft plan will generally consist of 4,544 dwelling units (decrease of 105 units) and approximately 167,361 m^2 of non-residential uses consisting of 20,000 m^2 of retail space (reduction of 5,913 m^2), 147,360 m^2 of office space (increase of 41,380 m^2), and 8,288 m^2 of school space (reduction of 16 m^2).

The 4,544 dwelling units will generally consist of the following:

- 3,084 apartment dwelling units
- 1,003 townhouse dwelling units
- 457 single dwelling units

5.2 Site Trip Generation

Site traffic generated by the proposed development for the weekday a.m. and p.m. peak hours was estimated by applying the trip rates for Land Use Codes 210 (Single-Family Detached Housing), 220 (Multifamily Housing – Low-Rise) and 221 (Multifamily Housing – Mid-Rise) for the single detached, townhouse and apartment dwelling units, respectively, while the trip generation for the commercial space was generated using LUC 822 (Strip Retail Plaza), for the office space using LUC 710 (General Office), and LUC 520 for the school.

GHD used the methodology provided in Section 4.4 of the ITE Trip Generation Handbook to establish if the average rate or fitted curve equation are to be used to estimate site traffic for each land use. Each land use code contained 20 or more data points and as a result the fitted curve equation was used to estimate site traffic for all land uses.

The trip generation for the mid-rise units and the office uses were generated based on the “Dense Multi-use Urban” Setting/Location to align with the nature of the surrounding uses.

The City of Guelph provided GHD with the mode share targets for the area that were taken from the 2022 Transportation Master Plan Technical analysis. The targeted mode splits are provided in **Table 2** below.

Table 2 Target Mode Splits

Mode	Split
Auto Driver	70%
Walking	10%
Biking	7%
Transit Bus	13%
Total	**100%**

Based on the future target mode split for the area of 30% for the sum of the non-auto modes, the trip generation was reduced by 30% to reflect the future targets.

The mixed-use development also provides the opportunity for its residents to use the commercial component without having to leave the site, also known as synergy/internal capture. To account for any synergy/internal capture between the residential and commercial uses within the subject site, the City of Guelph provided GHD with the following rates to be used:

- 20% for residential uses
- 30% for employment uses
- 30% for commercial/retail uses
- 75% for school uses

It is assumed that the synergy/internal capture for the site not only takes into account the residents that walk/bike to the commercial component, but also any resident that may drive from one area to another without exiting onto the external road network.

The pass-by rates takes into account any existing trip that stops by the retail component was retrieved from the 2021 ITE Trip Generation Pass-By Tables. For the strip retail use (LUC 822) an average pass-by rate is assumed for sites with GLA between 150 and 300k is 29% and is only applied during the p.m. peak hour.

The estimated trip generation for the subject site is provided in **Table 3**, which summarizes the estimated trip generation for each land use of the site that was previously discussed.

Table 3 Trip Generation Per Land Use

Land Use Code	Dwelling Units/GFA/ Students	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) (LUC 221) (Apartment within Mixed-Use Buildings)	3,084 units	Trip Ratio	23%	77%	100%	61%	39%	100%
		Gross Trips	200	664	864	489	313	802
		Synergy/Internal Capture	-41	-133	-174	-98	-61	-160
		Transit Reduction	-47	-159	-206	-116	-75	-190
		New Trips	**112**	**372**	**484**	**275**	**177**	**452**

LUC 220 Multifamily Housing (Low-Rise) Townhouse	1,003 units	Trip Ratio	24%	76%	100%	63%	37%	100%
		Gross Trips	80	254	334	286	166	452
		Synergy/Internal Capture	-17	-50	-67	-56	-33	-90
		Transit Reduction	-20	-61	-81	-69	-40	-108
		New Trips	**43**	**143**	**186**	**161**	**93**	**254**
LUC 210 Single Family Detached Housing	457 units	Trip Ratio	25%	75%	100%	63%	37%	100%
		Gross Trips	74	223	297	262	153	415
		Synergy/Internal Capture	-16	-46	-59	-52	-31	-83
		Transit Reduction	-18	-52	-73	-63	-35	-98
		New Trips	**40**	**125**	**165**	**147**	**87**	**234**
Retail (LUC 822)	215,288.76 ft^2 (20,000 m^2)	Trip Ratio	60%	40%	100%	50%	50%	100%
		Gross Trips	132	87	219	343	343	686
		Synergy/Internal Capture	-39	-26	-65	-103	-103	-205
		Transit Reduction	-26	-18	-44	-71	-71	-143
		Pass-By	0	0	0	-49	-49	-98
		New Trips	**67**	**43**	**110**	**120**	**120**	**240**
Office (LUC 710)	1,586,169.84 ft^2 (147,360.00 m^2)	Trip Ratio	88%	12%	100%	17%	83%	100%
		Gross Trips	1039	128	1167	185	1138	1323
		Synergy/Internal Capture	-312	-38	-350	-55	-341	-397
		Transit Reduction	-218	-27	-245	-39	-239	-277
		New Trips	**509**	**63**	**572**	**91**	**558**	**649**
School (LUC 520)	1,000 students	Trip Ratio	54%	46%	100%	46%	54%	100%
		Gross Trips	400	340	740	74	86	160
		Synergy/Internal Capture	-300	-255	-555	-55	-64	-120
		Transit Reduction	-30	-25	-55	-6	-7	-12
		New Trips	**70**	**60**	**130**	**13**	**15**	**28**
Total Trips			**841**	**806**	**1,647**	**807**	**1,050**	**1,857**

The development is expected to generate a total of 1,647 two-way vehicle trips during the a.m. peak hour consisting of 841inbound and 806outbound trips. During the p.m. peak hour, it is expected to generate 1,857new two-way vehicle trips consisting of 807inbound and 1,050 outbound trips.

5.3 Site Traffic Distribution and Assignment

The site generated traffic for the subject site was distributed to the local network based on the existing travel patterns and a review of the 2016 Transportation Tomorrow Survey (TTS) data. The distribution was provided to City of Guelph and updated based on their recommendations.

The directional distribution is provided in **Table 4** with the site generated traffic assignment to the study area road network for the weekday a.m. and p.m. peak hours provided in **Figure 19** for the subject site.

Table 4 Site Traffic Distribution

Land Use	Direction	East (York)	West (York)	West (College)	East (Stone)	West (Stone)	North (Victoria)	South (Victoria)
Residential	Inbound	5%	20%	20%	0%	15%	25%	15%
	Outbound	10%	20%	20%	0%	15%	20%	15%
Retail	Inbound	5%	10%	10%	0%	5%	20%	50%
	Outbound	5%	10%	10%	0%	5%	20%	50%
Employment	Inbound	10%	15%	20%	0%	5%	30%	20%
	Outbound	10%	15%	20%	0%	5%	30%	20%

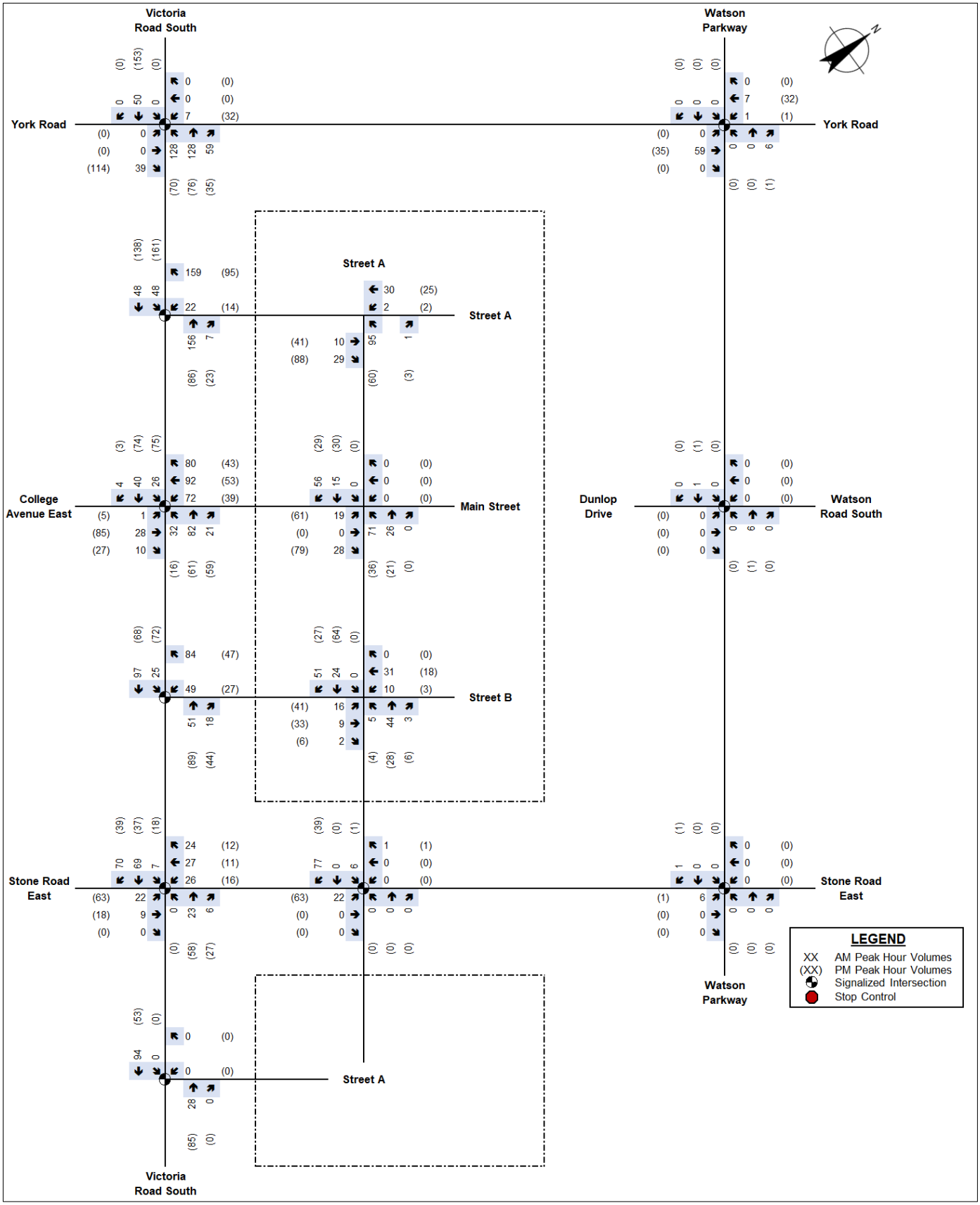


Figure 15 Residential Site Trips

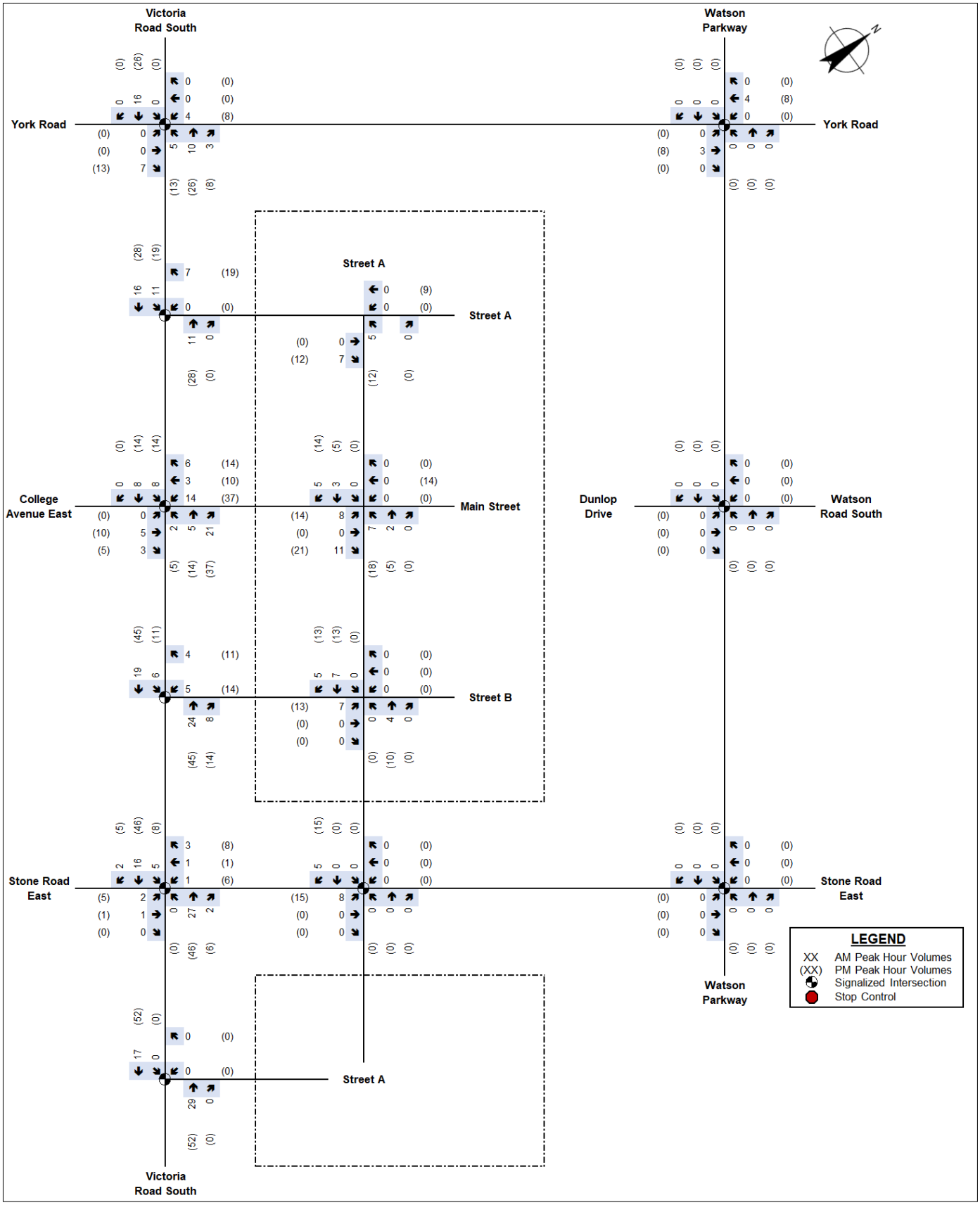


Figure 16 Retail Site Trips

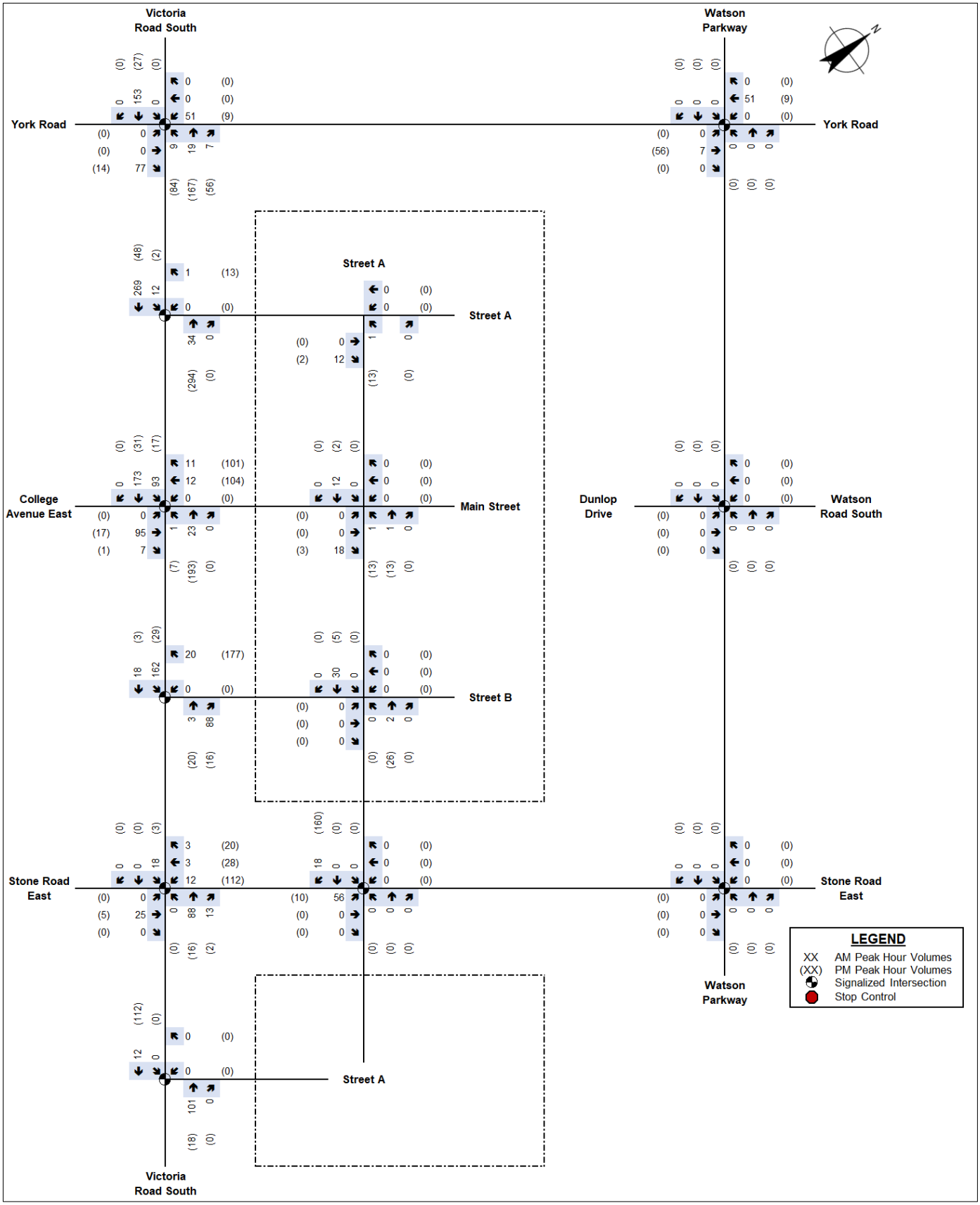


Figure 17 Office Site Trips

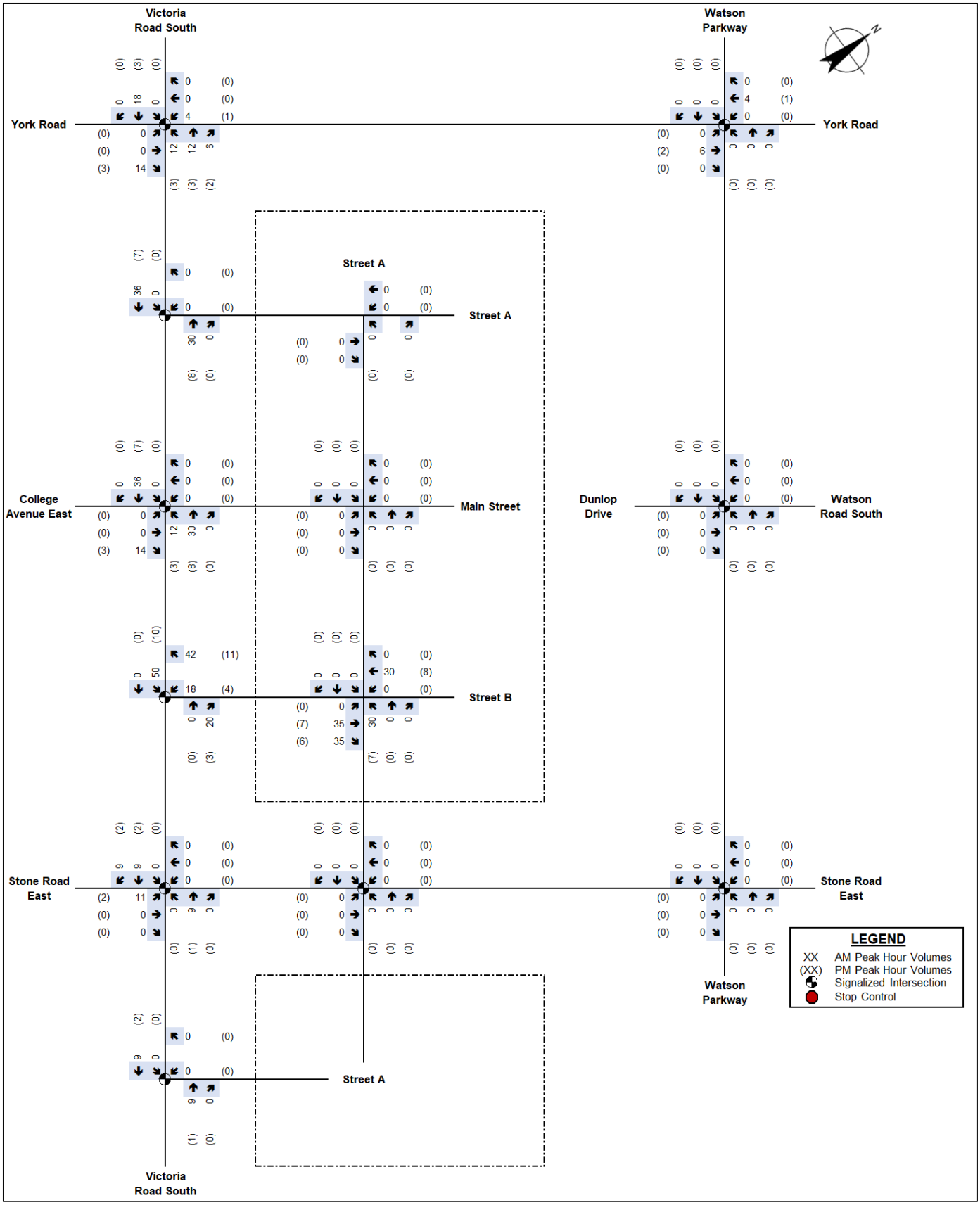


Figure 18 School Site Trips

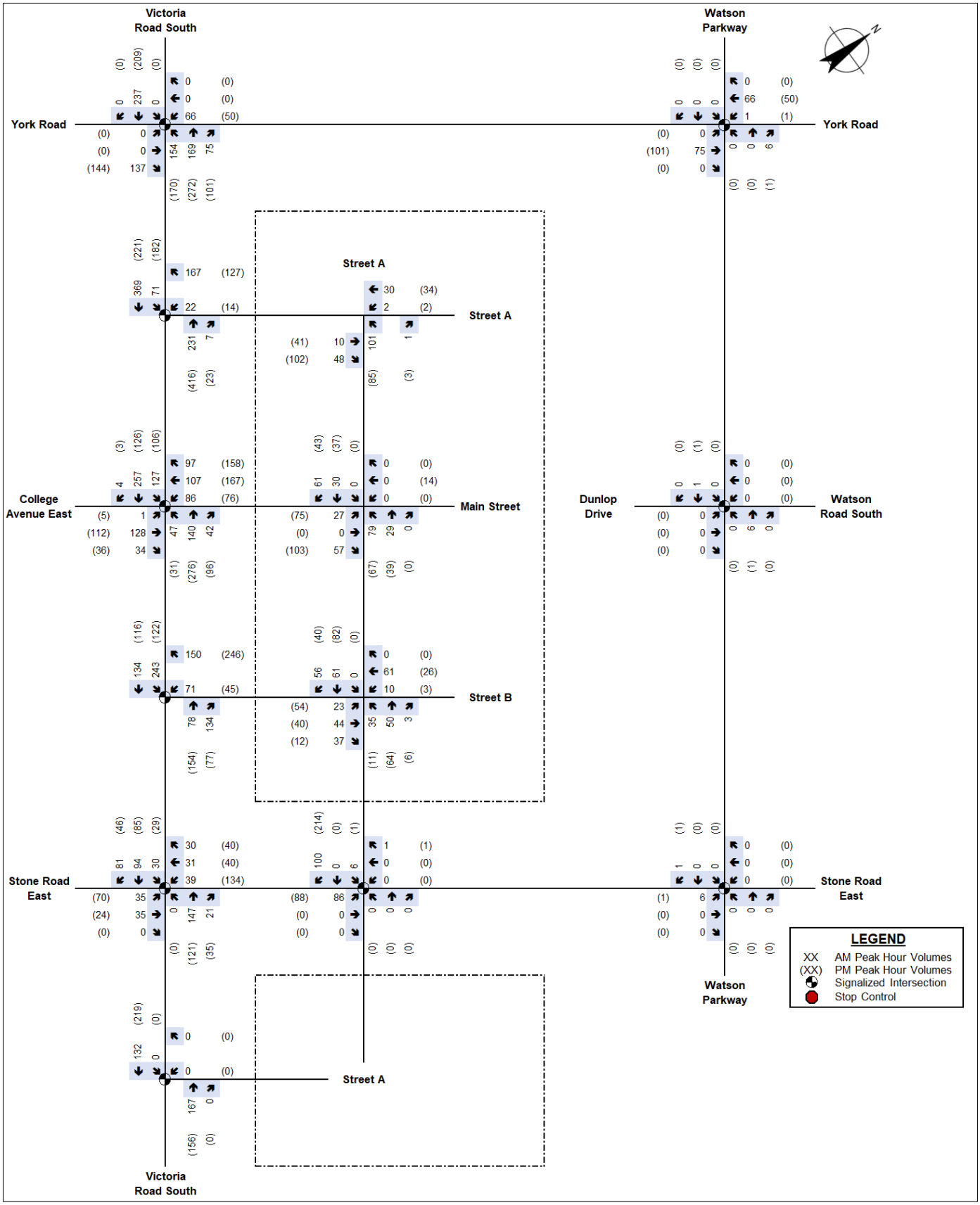


Figure 19 Total Site Trips

6. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2036, 2041, and 2046 planning horizon was derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 20**, **Figure 21**, and **Figure 22**.

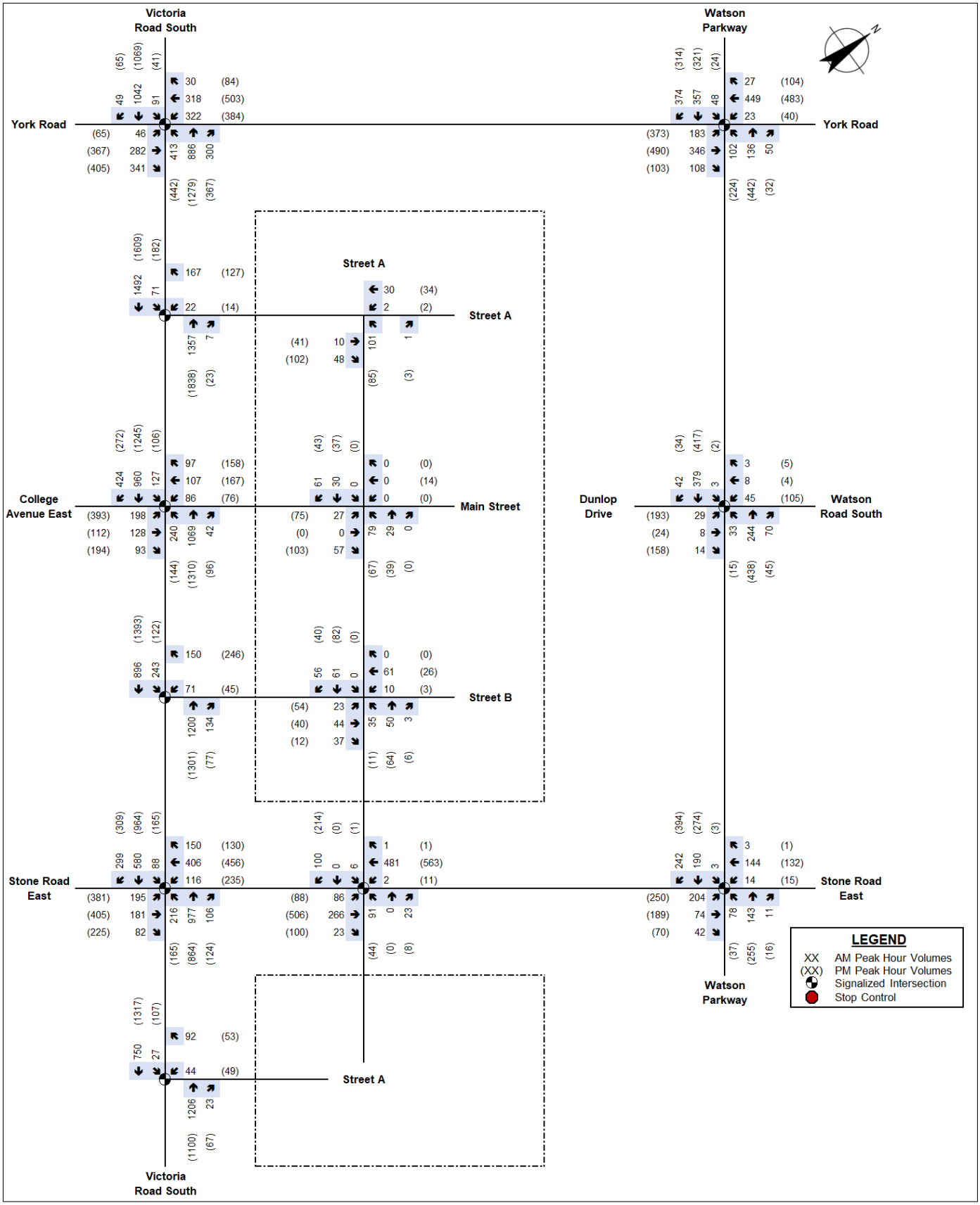


Figure 20 2036 Future Total Traffic Volumes

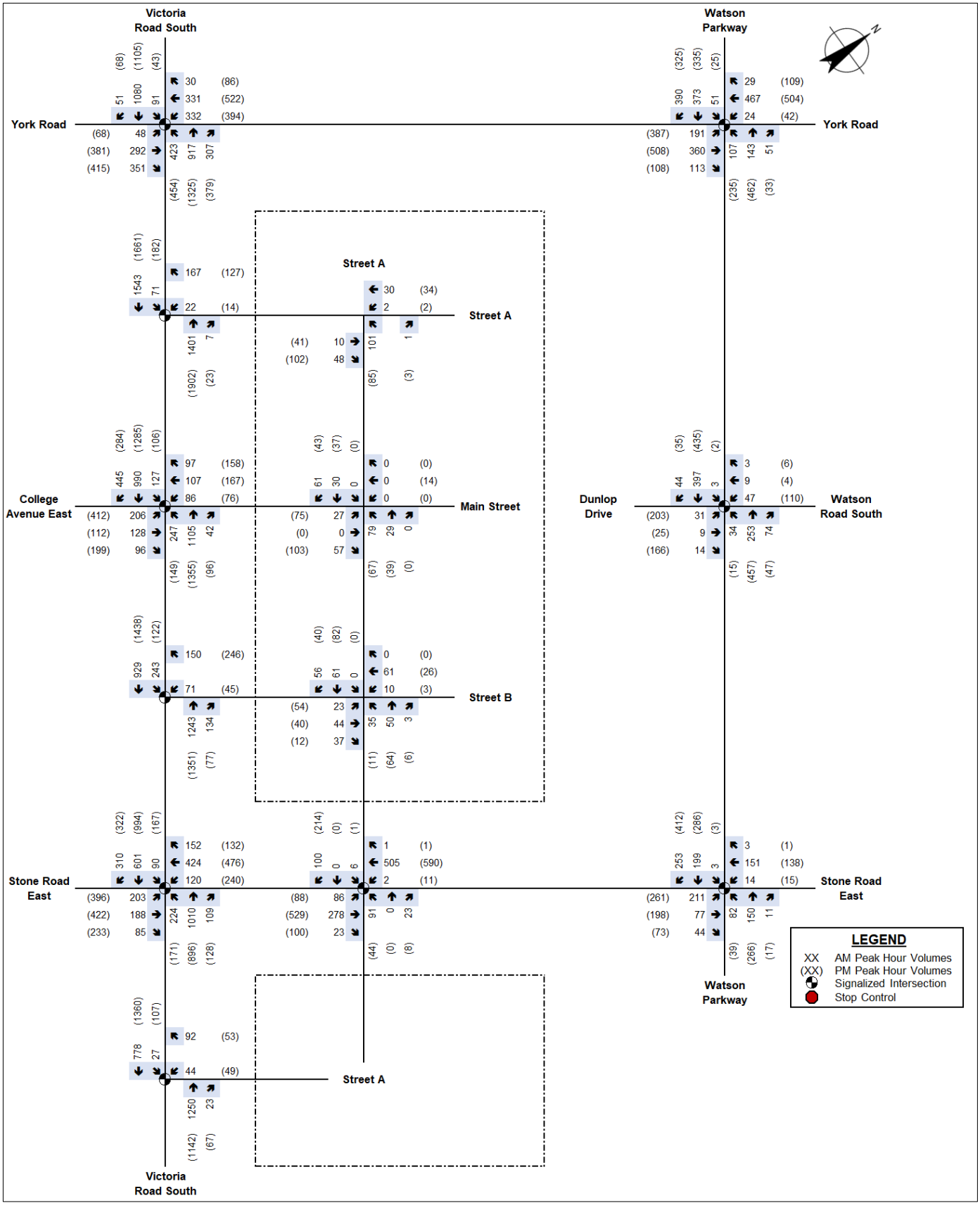


Figure 21 2041 Future Total Traffic Volumes

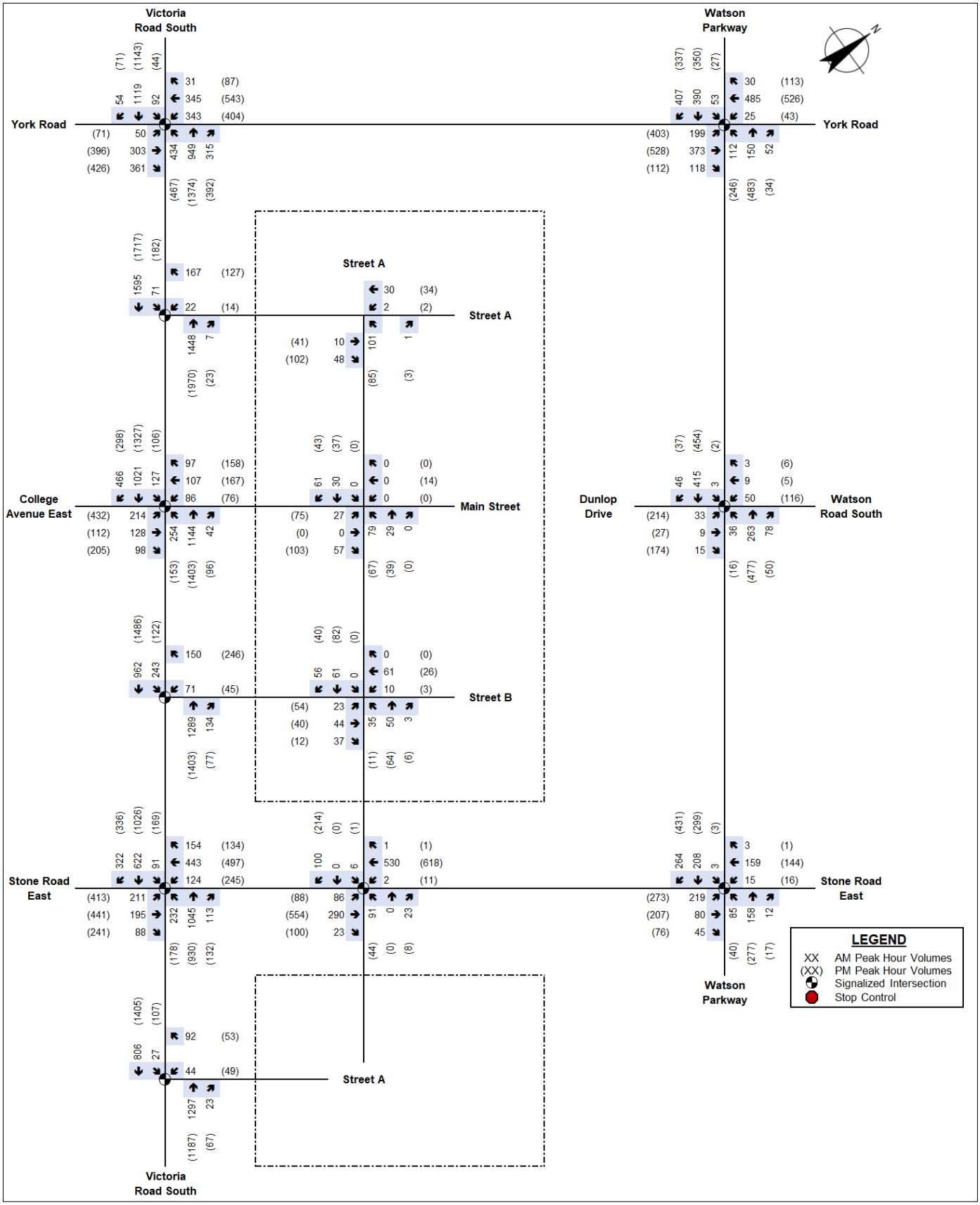


Figure 22 2046 Future Total Traffic Volumes

7. Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 11 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the counts were used to analyze existing traffic conditions. Existing peak hour factors were also used for future traffic conditions.

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

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

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements are greater than 0.90;
- V/C ratios for exclusive movements are greater than 0.95

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2024), future background (2036, 2041, and 2046) and future total (2036, 2041, and 2046) traffic conditions. The detailed calculation sheets are provided in **Appendix E**.

7.1 Victoria Road South at York Road

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

Table 5 Capacity analysis of Victoria Road South and York Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	Overall: 0.56 (C) 27 EBL = 0.12 (C) 25 EBT = 0.47 (D) 36 EBR = 0.11 (C) 30 WBL = 0.53 (C) 33 WBT = 0.57 (D) 39 WBR = 0.01 (C) 29 NBL = 0.43 (B) 16 NBT = 0.37 (B) 19 NBR = 0.09 (B) 17 SBL = 0.03 (B) 18 SBTR = 0.62 (C) 30	 EBL = 15 m EBT = 55 m EBR = 20 m WBL = 45 m WBT = 70 m WBR = 0 m NBL = 30 m NBT = 55 m NBR = 10 m SBL = 5 m SBTR = 85 m	Overall: 0.63 (C) 29 EBL = 0.22 (C) 28 EBT = 0.59 (D) 39 EBR = 0.12 (C) 30 WBL = 0.55 (C) 34 WBT = 0.81 (D) 51 WBR = 0.02 (C) 29 NBL = 0.49 (B) 17 NBT = 0.53 (C) 22 NBR = 0.18 (B) 18 SBL = 0.09 (B) 18 SBTR = 0.6 (C) 30	 EBL = 15 m EBT = 75 m EBR = 20 m WBL = 45 m WBT = 115 m WBR = 0 m NBL = 35 m NBT = 85 m NBR = 20 m SBL = 5 m SBTR = 85 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2031	Overall: 0.72 (C) 30 EBL = 0.23 (C) 35 EBT = 0.75 (D) 50 EBR = 0.3 (D) 40 WBL = 0.88 (E) 57 WBT = 0.74 (D) 45 WBR = 0.02 (C) 31 NBL = 0.58 (B) 16 NBT = 0.37 (B) 16 NBR = 0.1 (A) 8 SBL = 0.04 (B) 17 SBTR = 0.57 (C) 26	 EBL = 20 m EBT = 90 m EBR = 40 m WBL = 75 m WBT = 110 m WBR = 0 m NBL = 40 m NBT = 70 m NBR = 10 m SBL = 5 m SBTR = 110 m	Overall: 0.76 (C) 35 EBL = 0.52 (D) 38 EBT = 0.93 (E) 71 EBR = 0.27 (C) 25 WBL = 0.8 (D) 43 WBT = **0.94** (E) 64 WBR = 0.03 (C) 30 NBL = 0.65 (C) 20 NBT = 0.57 (C) 22 NBR = 0.19 (A) 9 SBL = 0.13 (C) 21 SBTR = 0.62 (C) 30	 EBL = 25 m EBT = 160 m EBR = 35 m WBL = 75 m WBT = 200 m WBR = 0 m NBL = 45 m NBT = 115 m NBR = 15 m SBL = 10 m SBTR = 120 m
Future Background 2036	Overall: 0.8 (C) 34 EBL = 0.2 (C) 35 EBT = 0.83 (E) 58 EBR = 0.32 (D) 41 WBL = 0.9 (E) 58 WBT = 0.68 (D) 41 WBR = 0.02 (C) 30 NBL = 0.67 (C) 23 NBT = 0.48 (C) 24 NBR = 0.16 (B) 12 SBL = 0.29 (B) 19 SBTR = 0.68 (C) 33	 EBL = 20 m EBT = 120 m EBR = 40 m WBL = 95 m WBT = 115 m WBR = 0 m NBL = 45 m NBT = 85 m NBR = 10 m SBL = 20 m SBTR = 135 m	Overall: 0.88 (D) 46 EBL = 0.55 (D) 41 EBT = **1.03** (F) 99 EBR = 0.29 (C) 24 WBL = **1.06** (F) 100 WBT = **0.94** (E) 61 WBR = 0.06 (C) 28 NBL = 0.72 (C) 31 NBT = 0.66 (C) 27 NBR = 0.21 (A) 10 SBL = 0.23 (C) 24 SBTR = 0.75 (D) 38	 EBL = 25 m EBT = 175 m EBR = 40 m WBL = 145 m WBT = 210 m WBR = 10 m NBL = 65 m NBT = 130 m NBR = 15 m SBL = 10 m SBTR = 155 m
Future Total 2036	Overall: **1.03** (D) 54 EBL = 0.21 (D) 36 EBT = 0.84 (E) 61 EBR = 0.64 (D) 48 WBL = **1.01** (F) 82 WBT = 0.69 (D) 42 WBR = 0.02 (C) 31 NBL = **1.03** (F) 90 NBT = 0.62 (C) 27 NBR = 0.25 (B) 12 SBL = 0.37 (C) 25 SBTR = **1.02** (E) 71	 EBL = 20 m EBT = 120 m EBR = 80 m WBL = 125 m WBT = 115 m WBR = 0 m NBL = 170 m NBT = 125 m NBR = 20 m SBL = 20 m SBTR = 210 m	Overall: **1.13** (E) 78 EBL = 0.56 (D) 44 EBT = **1.06** (F) 112 EBR = 0.54 (C) 24 WBL = **1.27** (F) 178 WBT = **0.97** (E) 71 WBR = 0.06 (C) 30 NBL = **1.02** (F) 84 NBT = 0.84 (C) 33 NBR = 0.32 (B) 10 SBL = 0.32 (C) 30 SBTR = **1.18** (F) 132	 EBL = 25 m EBT = 175 m EBR = 90 m WBL = 180 m WBT = 215 m WBR = 10 m NBL = 175 m NBT = 195 m NBR = 30 m SBL = 10 m SBTR = 240 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2041	Overall: 0.85 (D) 37 EBL = 0.23 (D) 36 EBT = 0.86 (E) 62 EBR = 0.36 (D) 42 WBL = **0.96** (E) 73 WBT = 0.7 (D) 41 WBR = 0.02 (C) 30 NBL = 0.71 (C) 26 NBT = 0.49 (C) 24 NBR = 0.16 (B) 12 SBL = 0.3 (C) 20 SBTR = 0.73 (D) 35	 EBL = 20 m EBT = 125 m EBR = 45 m WBL = 110 m WBT = 120 m WBR = 0 m NBL = 55 m NBT = 90 m NBR = 10 m SBL = 20 m SBTR = 145 m	Overall: **0.92** (D) 49 EBL = 0.53 (D) 39 EBT = **1.07** (F) 110 EBR = 0.3 (C) 24 WBL = **1.05** (F) 96 WBT = **0.97** (E) 67 WBR = 0.06 (C) 28 NBL = 0.78 (D) 41 NBT = 0.71 (C) 29 NBR = 0.22 (A) 10 SBL = 0.27 (C) 25 SBTR = 0.82 (D) 42	 EBL = 25 m EBT = 185 m EBR = 40 m WBL = 150 m WBT = 225 m WBR = 10 m NBL = 80 m NBT = 145 m NBR = 20 m SBL = 15 m SBTR = 165 m
Future Total 2041	Overall: **1.06** (E) 59 EBL = 0.23 (D) 36 EBT = 0.86 (E) 64 EBR = 0.67 (D) 50 WBL = **1.06** (F) 97 WBT = 0.7 (D) 42 WBR = 0.02 (C) 30 NBL = **1.06** (F) 98 NBT = 0.64 (C) 27 NBR = 0.26 (B) 12 SBL = 0.39 (C) 25 SBTR = **1.06** (F) 84	 EBL = 20 m EBT = 125 m EBR = 90 m WBL = 135 m WBT = 120 m WBR = 0 m NBL = 175 m NBT = 125 m NBR = 20 m SBL = 20 m SBTR = 225 m	Overall: **1.17** (F) 85 EBL = 0.54 (D) 42 EBT = **1.1** (F) 125 EBR = 0.57 (C) 26 WBL = **1.25** (F) 169 WBT = **1.00** (E) 79 WBR = 0.06 (C) 30 NBL = **1.08** (F) 102 NBT = 0.89 (D) 37 NBR = 0.34 (B) 11 SBL = 0.34 (C) 31 SBTR = **1.22** (F) 149	 EBL = 25 m EBT = 185 m EBR = 95 m WBL = 180 m WBT = 225 m WBR = 10 m NBL = 190 m NBT = 230 m NBR = 35 m SBL = 15 m SBTR = 250 m
Future Background 2046	Overall: **0.91** (D) 40 EBL = 0.24 (D) 36 EBT = 0.88 (E) 66 EBR = 0.39 (D) 42 WBL = **1.03** (F) 93 WBT = 0.72 (D) 43 WBR = 0.02 (C) 30 NBL = 0.77 (D) 35 NBT = 0.51 (C) 25 NBR = 0.17 (B) 12 SBL = 0.32 (C) 21 SBTR = 0.78 (D) 38	 EBL = 20 m EBT = 135 m EBR = 50 m WBL = 120 m WBT = 125 m WBR = 0 m NBL = 65 m NBT = 95 m NBR = 10 m SBL = 20 m SBTR = 165 m	Overall: **0.97** (D) 55 EBL = 0.59 (D) 43 EBT = **1.09** (F) 117 EBR = 0.31 (C) 23 WBL = **1.16** (F) 134 WBT = **1.02** (F) 83 WBR = 0.06 (C) 28 NBL = 0.79 (D) 41 NBT = 0.73 (C) 28 NBR = 0.24 (B) 10 SBL = 0.28 (C) 25 SBTR = 0.85 (D) 43	 EBL = 25 m EBT = 190 m EBR = 45 m WBL = 160 m WBT = 240 m WBR = 10 m NBL = 80 m NBT = 150 m NBR = 20 m SBL = 10 m SBTR = 175 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2046	Overall: **1.1** (E) 66 EBL = 0.25 (D) 36 EBT = 0.88 (E) 67 EBR = 0.7 (D) 52 WBL = **1.12** (F) 116 WBT = 0.73 (D) 43 WBR = 0.02 (C) 30 NBL = **1.09** (F) 108 NBT = 0.66 (C) 28 NBR = 0.27 (B) 13 SBL = 0.42 (C) 26 SBTR = **1.1** (F) 99	 EBL = 20 m EBT = 135 m EBR = 95 m WBL = 145 m WBT = 125 m WBR = 0 m NBL = 185 m NBT = 130 m NBR = 25 m SBL = 20 m SBTR = 235 m	Overall: **1.21** (F) 94 EBL = 0.61 (D) 47 EBT = **1.15** (F) 140 EBR = 0.58 (C) 25 WBL = **1.4** (F) 232 WBT = **1.08** (F) 102 WBR = 0.06 (C) 31 NBL = **1.08** (F) 101 NBT = 0.89 (D) 36 NBR = 0.35 (B) 11 SBL = 0.35 (C) 31 SBTR = **1.23** (F) 152	 EBL = 25 m EBT = 190 m EBR = 100 m WBL = 195 m WBT = 240 m WBR = 10 m NBL = 190 m NBT = 235 m NBR = 40 m SBL = 10 m SBTR = 260 m

Under existing traffic conditions, the intersection is operating with an overall v/c ratio of 0.56 LOS C during the a.m. peak hour and 0.64 LOS C during the p.m. peak hour. The intersection operates without any critical movements during both peak hours.

With the addition of corridor growth and background development from GID 3 for the 2031 future background traffic scenario, the overall intersection is reported to operate with a v/c of 0.73 LOS C and 0.76 LOS C during the a.m. and p.m. peak hours, respectively. The intersection is reported to continue to operate below critical thresholds during both peak hours.

With the continued addition of corridor growth and background development from GID 3 for the 2036 future background traffic scenario, the overall intersection is reported to continue to operate with overall v/c of 0.80 LOS C and 1.03 LOS C during the a.m. and p.m. peak hours, respectively. The eastbound and westbound through movements as well as the westbound left-turn movement are reported to operate at critical levels during the p.m. peak hour.

Under the 2036 future total conditions, with the addition of site generated traffic, the overall v/c ratio increases to 1.03 LOS D during the a.m. peak hour and 1.13 LOS E during the p.m. peak hour. In addition to the critical movements identified under the 2036 future background conditions, the westbound and northbound left-turn movements as well as the southbound shared through/right-turn movement are reported to operate at critical levels during both peak hours.

With the continued addition of corridor growth and the addition of background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.85 LOS D and 1.07 LOS D during the p.m. peak hour. In addition to the overall intersection operating at critical levels during the p.m. peak hour, the westbound left-turn movement during both peak hours and the eastbound and westbound through movements are reported to operate at critical levels.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 1.06 LOS E during the a.m. peak hour and 1.17 LOS F during the p.m. peak hour. In addition to the critical movements identified under the 2041 future background conditions, the overall intersection during the a.m. peak hour, and the northbound left-turn and southbound shared through/right-turn movements are reported to operate at critical levels during both peak hours.

With the continued addition of corridor growth and the background development traffic for the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.91 LOS D and 0.97 LOS D during the p.m. peak hour. In addition to the overall intersection operating at critical levels during both peak hours, the westbound left-turn movement during both peak hours and the eastbound and westbound through movements operate as a critical movement during the p.m. peak hour only.

Under the 2046 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 1.10 LOS E during the a.m. peak hour and 1.09 LOS F during the p.m. peak hour. In addition to the overall intersection and critical movements reported to operate at critical levels under the 2046 future background conditions, the northbound left-turn and southbound shared through/right-turn movement are reported to operate at critical levels during both peak hours.

Future traffic volumes along Victoria Road South indicate that a six-lane cross-section would be warranted to accommodate projected traffic volumes; however, City staff have expressed a preference to not support additional widening beyond a four-lane cross section or to implement dual left turn lanes. If widening were pursued, the additional capacity could help mitigate critical movements by allowing for more efficient signal timing adjustments, such as reallocating green time to movements experiencing the highest delays.

The improvements along Victoria Road South will align with the ongoing Environmental Assessment process for Victoria Road South. The City's Official Plan also acknowledges that growth within the City will come at a cost of increased congestion, however developing the City's transit and active transportation network will provide the opportunity to alleviate increased traffic volumes by encouraging residents to seek alternatives to single-occupant vehicle trips.

7.2 Victoria Road South at College Avenue East/Main Street

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

Table 6 Capacity analysis of Victoria Road South at College Avenue East/Main Street

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	Overall: 0.6 (B) 14 EBL = 0.38 (C) 26 EBR = 0.03 (C) 21 NBL = 0.33 (A) 8 NBT = 0.64 (B) 12 SBT = 0.66 (B) 18 SBR = 0.25 (B) 12	 EBL = 35 m EBR = 10 m NBL = 15 m NBT = 90 m SBT = 95 m SBR = 15 m	Overall: 0.81 (C) 21 EBL = 0.83 (D) 44 EBR = 0.06 (C) 22 NBL = 0.26 (A) 10 NBT = 0.72 (B) 14 SBT = 0.8 (C) 23 SBR = 0.16 (B) 11	 EBL = 90 m EBR = 10 m NBL = 10 m NBT = 115 m SBT = 150 m SBR = 15 m
Future Background 2031	Overall: 0.44 (B) 18 EBL = 0.37 (C) 26 EBTR = 0.04 (C) 24 NBL = 0.37 (B) 12 NBTR = 0.43 (B) 14 SBT = 0.46 (C) 22 SBR = 0.33 (C) 20	 EBL = 45 m EBTR = 0 m NBL = 30 m NBTR = 75 m SBT = 80 m SBR = 30 m	Overall: 0.63 (B) 16 EBL = 0.85 (D) 44 EBTR = 0.08 (C) 26 NBL = 0.25 (A) 8 NBTR = 0.46 (A) 9 SBT = 0.51 (B) 14 SBR = 0.17 (A) 1	 EBL = 115 m EBTR = 0 m NBL = 15 m NBTR = 65 m SBT = 85 m SBR = 5 m
Future Background 2036	Overall: 0.52 (C) 22 EBL = 0.44 (C) 26 EBTR = 0.04 (C) 22 NBL = 0.44 (B) 15 NBTR = 0.51 (B) 17 SBT = 0.55 (C) 26 SBR = 0.4 (C) 24	 EBL = 55 m EBTR = 0 m NBL = 30 m NBTR = 90 m SBT = 95 m SBR = 50 m	Overall: 0.67 (B) 20 EBL = **1.01** (F) 80 EBTR = 0.08 (C) 29 NBL = 0.27 (A) 7 NBTR = 0.45 (A) 7 SBT = 0.56 (B) 13 SBR = 0.19 (A) 2	 EBL = 145 m EBTR = 0 m NBL = 10 m NBTR = 55 m SBT = 85 m SBR = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	Overall: 0.76 (C) 35 EBL = 0.63 (C) 34 EBTR = 0.5 (D) 41 WBL = 0.29 (D) 36 WBTR = 0.57 (D) 50 NBL = 0.75 (D) 37 NBTR = 0.79 (C) 32 SBL = 0.64 (C) 29 SBT = 0.78 (D) 36 SBR = 0.52 (C) 32	 EBL = 60 m EBTR = 75 m WBL = 30 m WBTR = 75 m NBL = 70 m NBTR = 165 m SBL = 35 m SBT = 155 m SBR = 85 m	Overall: **0.99** (D) 51 EBL = **1.1** (F) 110 EBTR = 0.57 (D) 36 WBL = 0.27 (D) 36 WBTR = **0.99** (F) 94 NBL = 0.77 (D) 45 NBTR = **0.98** (D) 49 SBL = 0.61 (C) 31 SBT = 0.9 (D) 39 SBR = 0.21 (A) 9	 EBL = 170 m EBTR = 90 m WBL = 25 m WBTR = 150 m NBL = 55 m NBTR = 250 m SBL = 30 m SBT = 195 m SBR = 15 m
Future Background 2041	Overall: 0.54 (C) 22 EBL = 0.47 (C) 27 EBTR = 0.04 (C) 23 NBL = 0.47 (B) 15 NBTR = 0.52 (B) 17 SBT = 0.56 (C) 26 SBR = 0.43 (C) 24	 EBL = 60 m EBTR = 0 m NBL = 30 m NBTR = 90 m SBT = 100 m SBR = 55 m	Overall: 0.71 (C) 20 EBL = **1.00** (E) 77 EBTR = 0.09 (C) 28 NBL = 0.3 (A) 8 NBTR = 0.49 (A) 8 SBT = 0.6 (B) 15 SBR = 0.2 (A) 2	 EBL = 155 m EBTR = 0 m NBL = 10 m NBTR = 65 m SBT = 95 m SBR = 5 m
Future Total 2041	Overall: 0.79 (D) 36 EBL = 0.67 (D) 36 EBTR = 0.53 (D) 43 WBL = 0.3 (D) 37 WBTR = 0.6 (D) 52 NBL = 0.77 (D) 40 NBTR = 0.8 (C) 32 SBL = 0.66 (C) 30 SBT = 0.8 (D) 36 SBR = 0.55 (C) 32	 EBL = 65 m EBTR = 75 m WBL = 30 m WBTR = 80 m NBL = 75 m NBTR = 170 m SBL = 35 m SBT = 160 m SBR = 90 m	Overall: **1.02** (E) 56 EBL = **1.11** (F) 114 EBTR = 0.57 (D) 35 WBL = 0.27 (D) 36 WBTR = **1.00** (F) 97 NBL = 0.84 (E) 58 NBTR = **1.02** (E) 61 SBL = 0.61 (C) 31 SBT = **0.93** (D) 42 SBR = 0.22 (A) 8	 EBL = 175 m EBTR = 90 m WBL = 25 m WBTR = 150 m NBL = 60 m NBTR = 265 m SBL = 30 m SBT = 215 m SBR = 15 m
Future Background 2046	Overall: 0.56 (C) 22 EBL = 0.5 (C) 28 EBTR = 0.04 (C) 24 NBL = 0.5 (B) 15 NBTR = 0.53 (B) 16 SBT = 0.58 (C) 26 SBR = 0.46 (C) 25	 EBL = 65 m EBTR = 0 m NBL = 30 m NBTR = 95 m SBT = 100 m SBR = 60 m	Overall: 0.74 (C) 22 EBL = **1.06** (F) 93 EBTR = 0.09 (C) 29 NBL = 0.32 (A) 8 NBTR = 0.51 (A) 8 SBT = 0.62 (B) 15 SBR = 0.21 (A) 2	 EBL = 165 m EBTR = 0 m NBL = 10 m NBTR = 65 m SBT = 100 m SBR = 5 m
Future Total 2046	Overall: 0.82 (D) 36 EBL = 0.72 (D) 39 EBTR = 0.55 (D) 44 WBL = 0.31 (D) 38 WBTR = 0.64 (E) 55 NBL = 0.8 (D) 43 NBTR = 0.82 (C) 32 SBL = 0.68 (C) 31 SBT = 0.81 (D) 36 SBR = 0.58 (C) 32	 EBL = 70 m EBTR = 75 m WBL = 30 m WBTR = 85 m NBL = 80 m NBTR = 175 m SBL = 40 m SBT = 165 m SBR = 95 m	Overall: **1.05** (E) 63 EBL = **1.17** (F) 133 EBTR = 0.59 (D) 36 WBL = 0.28 (D) 37 WBTR = **1.03** (F) 108 NBL = 0.78 (D) 47 NBTR = **1.04** (E) 66 SBL = 0.61 (C) 32 SBT = **0.97** (D) 50 SBR = 0.23 (A) 9	 EBL = 190 m EBTR = 95 m WBL = 25 m WBTR = 150 m NBL = 60 m NBTR = 275 m SBL = 30 m SBT = 235 m SBR = 15 m

Under the existing condition, the signalized intersection of Victoria Road South at College Avenue East operates with an overall v/c ratio of 0.60 LOS B during the a.m. peak hour and 0.81 LOS C during the p.m. peak hour. The intersection operates without any critical movements during both peak hours.

With the addition of corridor growth for the 2031 future background traffic scenario in addition to site traffic from GID 3, the overall intersection is reported to operate with an overall v/c 0.44 LOS A during the a.m. peak hour and 0.63 LOS B during the p.m. peak hour. The signal timings were optimized in order to mitigate any delays.

With the continued addition of corridor growth for the 2036 future background traffic scenario, the overall intersection is reported to operate with an overall v/c 0.52 LOS B during the a.m. peak hour and 0.67 LOS C during the p.m. peak hour. The eastbound left-turn movement during the p.m. peak hour is operating at critical levels.

Under the 2036 future total conditions, with the addition of site generated traffic, the east leg of the intersection, and proposed improvements including a northbound right-turn lane, the overall v/c ratio of the intersection is anticipated to increase to 0.76 LOS C during the a.m. peak hour and 0.99 LOS D during the p.m. peak hour. The eastbound left-turn, westbound shared through/right-turn, and northbound shared through/right-turn movements during the p.m. peak hour operate at critical levels.

With the continued addition of corridor growth and the addition of background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.54 LOS C during the a.m. peak hour and 0.71 LOS C during the p.m. peak hour. The eastbound left-turn movement during the p.m. peak hours is reported to operate at critical levels.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.79 LOS D during the a.m. peak hour and to 1.00 LOS E during the p.m. peak hour. The eastbound left-turn, westbound shared through/right-turn, northbound shared through/right-turn, and southbound through movements during the p.m. peak hour operate at critical levels.

With the continued addition of corridor growth and the addition of background development traffic for the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.56 LOS C during the a.m. peak hour and 0.74 LOS C during the p.m. peak hour. Only the eastbound left-turn movement during the p.m. peak hour continues to operate at critical levels.

Under the 2046 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.82 LOS D during the a.m. peak hour and to 1.05 LOS E during the p.m. peak hour. In addition to the overall intersection during the p.m. peak hour, the eastbound left-turn, westbound shared through/right-turn, northbound shared through/right-turn, and southbound through movements during the p.m. peak hour operate at critical levels.

As noted before, the future traffic volumes along Victoria Road South indicate that a six-lane cross-section would be warranted to accommodate projected demand; however, City staff have expressed a preference to maintain the existing road width and do not support widening. If widening were pursued, the additional capacity could help mitigate critical movements by allowing for more efficient signal timing adjustments, such as reallocating green time to movements experiencing the highest delays. The City's Official Plan also acknowledges that growth within the City will come at a cost of increased congestion, however developing the City's transit and active transportation network will provide the opportunity to alleviate increased traffic volumes by encouraging residents to seek alternatives to single-occupant vehicle trips.

7.2.1 Roundabout Analysis

As requested by City staff, GHD completed an assessment of the subject intersection to evaluate the feasibility of converting it to a roundabout. A capacity analysis was undertaken for the future total traffic conditions during the weekday a.m. and p.m. peak hours, with the results summarized in the following table. In the absence of a detailed design, the assessment was based on a conceptual layout reflecting the typical geometry of comparable two-lane roundabouts.

Table 7 Capacity Analysis Victoria Road South at College Avenue East/Main Street - Roundabout

Traffic Condition	Location	AM Peak Hour				PM Peak Hour			
		V/C Ratio	LOS	95th % Que (veh)	Delay (s)	V/C Ratio	LOS	95th % Que (veh)	Delay (s)
Future Total 2036 (85% Y-intercept)	SB Victoria Road	**1**	F	100.1	57.44	**1.04**	F	125.5	92.6
	EB College Avenue	0.42	A	3.3	5.68	0.85	C	25.7	24.69
	NB Victoria Road	0.9	C	41	20.27	**1.12**	F	168.2	183.89
	WB Main Street	0.38	A	2.7	6.78	0.65	B	6.6	14.81
Future Total 2036 (100% Y-intercept)	SB Victoria Road	0.82	A	18.7	9.77	0.86	B	30.4	12.59
	EB College Avenue	0.32	A	1.8	3.65	0.63	A	2.9	7.84
	NB Victoria Road	0.74	A	5.5	6.83	**0.91**	C	45.7	19.5
	WB Main Street	0.26	A	1.4	3.93	0.47	A	4.1	7.3
Future Total 2041 (85% y-intercept)	SB Victoria Road	**1.03**	F	119.4	87.85	**1.07**	F	148.5	128.28
	EB College Avenue	0.43	A	3.3	5.83	0.88	D	34.2	30.15
	NB Victoria Road	**0.93**	D	59.6	27.11	**1.16**	F	200	261.87
	WB Main Street	0.4	A	3	7.38	0.66	C	6.4	15.44
Future Total 2041 (100% y-intercept)	SB Victoria Road	0.85	B	26.4	11.7	0.89	C	39.6	15.8
	EB College Avenue	0.33	A	2	3.79	0.67	A	3.8	9.02
	NB Victoria Road	0.76	A	8.4	7.61	**0.94**	D	72	28.78
	WB Main Street	0.27	A	1.4	4.13	0.5	A	4.6	8.27
Future Total 2046 (85% y-intercept)	SB Victoria Road	**1.07**	F	143.7	126.92	**1.1**	F	176.8	170.87
	EB College Avenue	0.44	A	3.2	5.91	0.91	E	44	37.75
	NB Victoria Road	**0.96**	E	80.5	38.97	**1.21**	F	200	362.57
	WB Main Street	0.42	A	3.4	8.08	0.66	C	7.1	16.11
Future Total 2046 (100% y-intercept)	SB Victoria Road	0.88	B	35.8	14.58	**0.92**	C	57.8	21.15
	EB College Avenue	0.35	A	2.3	3.95	0.71	B	6.4	10.71
	NB Victoria Road	0.79	A	13.2	8.65	**0.98**	E	98.4	46.73
	WB Main Street	0.28	A	1.5	4.37	0.54	A	5.1	9.4

The results of the roundabout analysis are presented using both 85% and 100% entry capacity y-intercepts, in accordance with standard engineering practice. The 85% y-intercept reflects conditions where some delay is expected due to driver unfamiliarity with roundabout operations, while the 100% y-intercept represents a future condition in which users are more experienced and comfortable navigating the roundabout.

Under the 100% y-intercept scenario, which assumes greater driver familiarity, the roundabout is projected to operate with the northbound and southbound approaches at critical levels but remaining below the theoretical capacity levels.

In comparison, under the signalized intersection scenario, the overall intersection, the eastbound left-turn, westbound and northbound shared through/right-turn, and the southbound through movements are all reported to operate at critical levels with all movements except the southbound through movement also operating above capacity.

7.3 Victoria Road South at Stone Road East

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

Table 8 Capacity analysis of Victoria Road South at Stone Road East

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	Overall: 0.49 (B) 19 EBL = 0.49 (C) 22 EBTR = 0.22 (C) 26 WBL = 0.26 (C) 23 WBTR = 0.59 (C) 30 NBL = 0.32 (A) 10 NBTR = 0.44 (B) 15 SBL = 0.07 (B) 12 SBTR = 0.39 (B) 17	 EBL = 30 m EBTR = 20 m WBL = 15 m WBTR = 40 m NBL = 20 m NBTR = 60 m SBL = 5 m SBTR = 45 m	Overall: 0.66 (C) 23 EBL = 0.83 (D) 37 EBTR = 0.55 (C) 27 WBL = 0.34 (C) 22 WBTR = 0.56 (C) 28 NBL = 0.33 (B) 12 NBTR = 0.44 (B) 17 SBL = 0.1 (B) 12 SBTR = 0.54 (B) 19	 EBL = 60 m EBTR = 45 m WBL = 20 m WBTR = 45 m NBL = 20 m NBTR = 55 m SBL = 10 m SBTR = 65 m
Future Background 2031	Overall: 0.58 (C) 20 EBL = 0.55 (C) 23 EBT = 0.21 (C) 25 EBR = 0.04 (C) 24 WBL = 0.28 (C) 23 WBTR = 0.63 (C) 30 NBL = 0.37 (B) 10 NBTR = 0.56 (B) 18 SBL = 0.14 (B) 12 SBT = 0.33 (B) 17 SBR = 0.15 (B) 16	 EBL = 35 m EBT = 20 m EBR = 5 m WBL = 20 m WBTR = 45 m NBL = 25 m NBTR = 75 m SBL = 10 m SBT = 40 m SBR = 15 m	Overall: 0.71 (C) 28 EBL = 0.8 (C) 34 EBT = 0.44 (C) 30 EBR = 0.14 (C) 21 WBL = 0.39 (C) 29 WBTR = 0.72 (D) 42 NBL = 0.43 (B) 16 NBTR = 0.6 (C) 26 SBL = 0.2 (B) 18 SBT = 0.56 (C) 27 SBR = 0.18 (C) 22	 EBL = 75 m EBT = 50 m EBR = 15 m WBL = 25 m WBTR = 65 m NBL = 30 m NBTR = 100 m SBL = 15 m SBT = 85 m SBR = 20 m
Future Background 2036	Overall: 0.65 (C) 21 EBL = 0.59 (C) 24 EBT = 0.23 (C) 25 EBR = 0.06 (C) 24 WBL = 0.3 (C) 23 WBTR = 0.64 (C) 31 NBL = 0.46 (B) 11 NBTR = 0.64 (B) 20 SBL = 0.16 (B) 13 SBT = 0.38 (B) 18 SBR = 0.16 (B) 16	 EBL = 35 m EBT = 20 m EBR = 10 m WBL = 20 m WBTR = 50 m NBL = 30 m NBTR = 90 m SBL = 10 m SBT = 45 m SBR = 15 m	Overall: 0.78 (C) 30 EBL = 0.82 (C) 35 EBT = 0.47 (C) 30 EBR = 0.16 (C) 22 WBL = 0.39 (C) 28 WBTR = 0.75 (D) 43 NBL = 0.65 (C) 24 NBTR = 0.67 (C) 28 SBL = 0.24 (B) 19 SBT = 0.7 (C) 31 SBR = 0.23 (C) 23	 EBL = 80 m EBT = 55 m EBR = 15 m WBL = 25 m WBTR = 70 m NBL = 40 m NBTR = 115 m SBL = 15 m SBT = 115 m SBR = 25 m

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	Overall: 0.88 (C) 28 EBL = 0.82 (D) 39 EBT = 0.25 (C) 24 EBR = 0.06 (C) 23 WBL = 0.41 (C) 22 WBTR = 0.71 (C) 31 NBL = 0.63 (B) 17 NBTR = 0.92 (D) 35 SBL = 0.45 (B) 18 SBT = 0.5 (C) 21 SBR = 0.22 (B) 18	 EBL = 50 m EBT = 25 m EBR = 10 m WBL = 25 m WBTR = 60 m NBL = 40 m NBTR = 160 m SBL = 20 m SBT = 65 m SBR = 20 m	Overall: **0.91** (D) 41 EBL = 0.92 (D) 49 EBT = 0.56 (C) 35 EBR = 0.34 (C) 27 WBL = 0.72 (C) 31 WBTR = 0.81 (D) 44 NBL = 0.88 (E) 57 NBTR = 0.89 (D) 42 SBL = 0.8 (D) 40 SBT = **0.92** (D) 47 SBR = 0.34 (C) 28	 EBL = 125 m EBT = 65 m EBR = 40 m WBL = 55 m WBTR = 90 m NBL = 65 m NBTR = 170 m SBL = 60 m SBT = 170 m SBR = 45 m
Future Background 2041	Overall: 0.68 (C) 21 EBL = 0.64 (C) 26 EBT = 0.24 (C) 25 EBR = 0.06 (C) 24 WBL = 0.32 (C) 23 WBTR = 0.66 (C) 31 NBL = 0.5 (B) 12 NBTR = 0.67 (C) 21 SBL = 0.18 (B) 13 SBT = 0.4 (B) 18 SBR = 0.17 (B) 16	 EBL = 35 m EBT = 20 m EBR = 10 m WBL = 20 m WBTR = 50 m NBL = 35 m NBTR = 95 m SBL = 10 m SBT = 50 m SBR = 15 m	Overall: 0.83 (C) 32 EBL = 0.85 (D) 38 EBT = 0.48 (C) 30 EBR = 0.17 (C) 22 WBL = 0.4 (C) 28 WBTR = 0.76 (D) 43 NBL = 0.72 (C) 29 NBTR = 0.71 (C) 30 SBL = 0.27 (C) 20 SBT = 0.74 (C) 33 SBR = 0.25 (C) 24	 EBL = 90 m EBT = 55 m EBR = 15 m WBL = 25 m WBTR = 75 m NBL = 50 m NBTR = 125 m SBL = 15 m SBT = 125 m SBR = 30 m
Future Total 2041	Overall: **0.91** (C) 30 EBL = 0.88 (D) 50 EBT = 0.28 (C) 25 EBR = 0.07 (C) 24 WBL = 0.4 (C) 21 WBTR = 0.74 (C) 32 NBL = 0.67 (B) 18 NBTR = 0.95 (D) 39 SBL = 0.46 (B) 18 SBT = 0.52 (C) 22 SBR = 0.25 (B) 19	 EBL = 55 m EBT = 25 m EBR = 10 m WBL = 25 m WBTR = 65 m NBL = 45 m NBTR = 175 m SBL = 20 m SBT = 70 m SBR = 25 m	Overall: **0.95** (D) 46 EBL = **0.97** (E) 60 EBT = 0.57 (C) 35 EBR = 0.36 (C) 27 WBL = 0.74 (C) 32 WBTR = 0.82 (D) 45 NBL = 0.92 (E) 66 NBTR = **0.94** (D) 47 SBL = 0.82 (D) 44 SBT = **0.96** (D) 53 SBR = 0.37 (C) 29	 EBL = 135 m EBT = 65 m EBR = 40 m WBL = 60 m WBTR = 95 m NBL = 70 m NBTR = 180 m SBL = 65 m SBT = 180 m SBR = 50 m
Future Background 2046	Overall: 0.72 (C) 22 EBL = 0.67 (C) 27 EBT = 0.24 (C) 25 EBR = 0.07 (C) 24 WBL = 0.33 (C) 23 WBTR = 0.67 (C) 31 NBL = 0.53 (B) 12 NBTR = 0.71 (C) 22 SBL = 0.2 (B) 14 SBT = 0.42 (B) 19 SBR = 0.17 (B) 17	 EBL = 35 m EBT = 20 m EBR = 10 m WBL = 20 m WBTR = 55 m NBL = 35 m NBTR = 110 m SBL = 10 m SBT = 50 m SBR = 15 m	Overall: **0.91** (C) 34 EBL = 0.9 (D) 44 EBT = 0.49 (C) 30 EBR = 0.18 (C) 22 WBL = 0.42 (C) 27 WBTR = 0.77 (D) 43 NBL = 0.82 (D) 40 NBTR = 0.76 (C) 32 SBL = 0.31 (C) 21 SBT = 0.78 (D) 35 SBR = 0.28 (C) 25	 EBL = 105 m EBT = 60 m EBR = 15 m WBL = 30 m WBTR = 80 m NBL = 65 m NBTR = 135 m SBL = 20 m SBT = 135 m SBR = 35 m

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2046	Overall: **0.95** (C) 34 EBL = 0.93 (E) 61 EBT = 0.28 (C) 25 EBR = 0.07 (C) 24 WBL = 0.41 (C) 21 WBTR = 0.75 (C) 32 NBL = 0.72 (C) 21 NBTR = **0.99** (D) 47 SBL = 0.47 (B) 19 SBT = 0.54 (C) 22 SBR = 0.29 (B) 20	 EBL = 60 m EBT = 25 m EBR = 10 m WBL = 30 m WBTR = 65 m NBL = 55 m NBTR = 185 m SBL = 20 m SBT = 75 m SBR = 30 m	Overall: **0.98** (D) 52 EBL = **1.02** (E) 77 EBT = 0.59 (C) 35 EBR = 0.39 (C) 27 WBL = 0.76 (C) 33 WBTR = 0.83 (D) 46 NBL = **0.97** (F) 80 NBTR = **0.98** (E) 56 SBL = 0.83 (D) 47 SBT = **1.00** (E) 62 SBR = 0.4 (C) 30	 EBL = 150 m EBT = 70 m EBR = 45 m WBL = 60 m WBTR = 95 m NBL = 75 m NBTR = 190 m SBL = 65 m SBT = 190 m SBR = 50 m

Under the existing condition, the signalized intersection of Victoria Road South at Stone Road East operates with an overall v/c ratio of 0.49 LOS B during the a.m. peak hour and 0.66 LOS C during the p.m. peak hour. The intersection operates without any critical movements.

With the addition of corridor growth and background development traffic from GID 3 for the 2031 future background traffic scenario, the overall intersection operates with an overall v/c ratio of 0.58 LOS C and 0.71 LOS C during the a.m. and p.m. peak hours, respectively. The intersection operates without any critical movements.

With the continued addition of corridor growth and background development traffic from GID 3 for the 2036 future background traffic scenario, the intersection operates with an overall v/c ratio of 0.65 LOS B and 0.78 LOS C during the a.m. and p.m. peak hours, respectively. The intersection is reported to continue to operate without any critical movements.

Under the 2036 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.88 LOS C and 0.91 LOS D during the a.m. and p.m. peak hours, respectively. The overall intersection in addition to the eastbound left-turn and southbound through movements operate at a critical level during the p.m. peak hour only.

With the continued addition of corridor growth and the addition of all background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.68 LOS C during the a.m. peak hour and 0.83 LOS C during the p.m. peak hour. The intersection is reported to operate without any critical movements.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is reported at 0.91 LOS C during the a.m. peak hour and 0.95 LOS D during the p.m. peak hour. The overall intersection and the northbound shared through/right-turn movement during both peak hours as well as the eastbound left-turn and southbound through movement during the p.m. peak hour are reported to operate at critical levels.

With the continued addition of corridor growth and the background development traffic under the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.72 LOS C during the a.m. peak hour and 0.91 LOS C during the p.m. peak hour. The intersection is reported to operate without any critical movements.

Under the 2046 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is reported at 0.95 LOS C during the a.m. peak hour and 0.98 LOS D during the p.m. peak hour. The overall intersection and the northbound shared through/right-turn movement during both peak hours as well as the eastbound and northbound left-turn, the northbound shared through/right-turn, and southbound through movements during the p.m. peak hour are reported to operate at critical levels.

As previously noted, the future traffic volumes along Victoria Road South indicate that a six-lane cross-section would be warranted to accommodate projected demand; however, City staff have expressed a preference to maintain the existing road width and do not support widening. If widening were pursued, the additional capacity could help mitigate critical movements by allowing for more efficient signal timing adjustments, such as reallocating green time to movements experiencing the highest delays. The City's Official Plan also acknowledges that growth within the City will come at a cost of increased congestion, however developing the City's transit and active transportation network will provide the opportunity to alleviate increased traffic volumes by encouraging residents to seek alternatives to single-occupant vehicle trips

7.4 Watson Parkway at York Road

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

Table 9 Capacity analysis of Watson Parkway at York Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	Overall: 0.5 (C) 22 EBL = 0.29 (B) 11 EBTR = 0.41 (B) 15 WBL = 0.05 (B) 14 WBT = 0.46 (B) 20 WBR = 0.02 (B) 15 NBL = 0.33 (C) 21 NBTR = 0.31 (C) 24 SBL = 0.13 (C) 22 SBT = 0.7 (C) 33 SBR = 0.18 (C) 24	 EBL = 25 m EBTR = 70 m WBL = 5 m WBT = 75 m WBR = 0 m NBL = 20 m NBTR = 35 m SBL = 10 m SBT = 70 m SBR = 20 m	Overall: 0.66 (C) 24 EBL = 0.54 (B) 14 EBTR = 0.51 (B) 19 WBL = 0.07 (B) 16 WBT = 0.57 (C) 25 WBR = 0.05 (B) 17 NBL = 0.64 (C) 27 NBTR = 0.73 (C) 32 SBL = 0.1 (C) 24 SBT = 0.59 (C) 31 SBR = 0.14 (C) 25	 EBL = 40 m EBTR = 90 m WBL = 5 m WBT = 85 m WBR = 5 m NBL = 40 m NBTR = 90 m SBL = 10 m SBT = 60 m SBR = 15 m
Future Background 2031	Overall: 0.59 (C) 24 EBL = 0.41 (B) 12 EBTR = 0.49 (B) 18 WBL = 0.05 (B) 14 WBT = 0.5 (C) 21 WBR = 0.02 (B) 15 NBL = 0.44 (C) 23 NBTR = 0.34 (C) 25 SBL = 0.13 (C) 22 SBT = 0.79 (D) 38 SBR = 0.26 (C) 26	 EBL = 30 m EBTR = 80 m WBL = 5 m WBT = 80 m WBR = 0 m NBL = 20 m NBTR = 40 m SBL = 15 m SBT = 90 m SBR = 25 m	Overall: **0.94** (C) 35 EBL = 0.91 (D) 40 EBTR = 0.63 (C) 25 WBL = 0.09 (B) 20 WBT = 0.72 (D) 36 WBR = 0.07 (C) 22 NBL = 0.78 (D) 37 NBTR = 0.87 (D) 46 SBL = 0.15 (C) 28 SBT = 0.76 (D) 43 SBR = 0.33 (C) 22	 EBL = 95 m EBTR = 115 m WBL = 10 m WBT = 120 m WBR = 5 m NBL = 55 m NBTR = 155 m SBL = 10 m SBT = 90 m SBR = 35 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2036	Overall: 0.64 (C) 25 EBL = 0.47 (B) 13 EBTR = 0.52 (B) 19 WBL = 0.06 (B) 14 WBT = 0.58 (C) 24 WBR = 0.02 (B) 16 NBL = 0.52 (C) 24 NBTR = 0.35 (C) 25 SBL = 0.14 (C) 22 SBT = 0.81 (D) 40 SBR = 0.31 (C) 26	EBL = 30 m EBTR = 85 m WBL = 5 m WBT = 90 m WBR = 0 m NBL = 25 m NBTR = 40 m SBL = 15 m SBT = 95 m SBR = 30 m	Overall: **1.01** (D) 40 EBL = **0.99** (E) 61 EBTR = 0.68 (C) 27 WBL = 0.11 (C) 20 WBT = 0.75 (D) 37 WBR = 0.07 (C) 22 NBL = 0.86 (D) 49 NBTR = **0.91** (D) 52 SBL = 0.18 (C) 29 SBT = 0.78 (D) 45 SBR = 0.37 (C) 23	EBL = 105 m EBTR = 130 m WBL = 10 m WBT = 135 m WBR = 5 m NBL = 70 m NBTR = 165 m SBL = 10 m SBT = 105 m SBR = 40 m
Future Total 2036	Overall: 0.7 (C) 26 EBL = 0.54 (B) 15 EBTR = 0.63 (C) 22 WBL = 0.08 (B) 15 WBT = 0.68 (C) 27 WBR = 0.02 (B) 16 NBL = 0.52 (C) 24 NBTR = 0.4 (C) 26 SBL = 0.14 (C) 22 SBT = 0.81 (D) 40 SBR = 0.33 (C) 26	EBL = 30 m EBTR = 120 m WBL = 5 m WBT = 115 m WBR = 0 m NBL = 25 m NBTR = 45 m SBL = 15 m SBT = 95 m SBR = 30 m	Overall: **0.95** (D) 42 EBL = **0.98** (E) 62 EBTR = 0.83 (C) 34 WBL = 0.21 (C) 21 WBT = 0.79 (D) 38 WBR = 0.07 (C) 22 NBL = 0.86 (D) 49 NBTR = **0.92** (D) 55 SBL = 0.19 (C) 29 SBT = 0.78 (D) 45 SBR = 0.38 (C) 23	EBL = 115 m EBTR = 190 m WBL = 10 m WBT = 150 m WBR = 5 m NBL = 70 m NBTR = 170 m SBL = 10 m SBT = 105 m SBR = 45 m
Future Background 2041	Overall: 0.68 (C) 26 EBL = 0.51 (B) 14 EBTR = 0.55 (C) 20 WBL = 0.07 (B) 15 WBT = 0.63 (C) 26 WBR = 0.02 (B) 16 NBL = 0.57 (C) 26 NBTR = 0.36 (C) 25 SBL = 0.15 (C) 22 SBT = 0.83 (D) 41 SBR = 0.35 (C) 26	EBL = 35 m EBTR = 90 m WBL = 5 m WBT = 100 m WBR = 0 m NBL = 25 m NBTR = 40 m SBL = 15 m SBT = 105 m SBR = 35 m	Overall: **1.06** (D) 47 EBL = **1.05** (F) 86 EBTR = 0.73 (C) 30 WBL = 0.13 (C) 23 WBT = 0.89 (D) 53 WBR = 0.08 (C) 25 NBL = 0.9 (E) 56 NBTR = **0.92** (D) 53 SBL = 0.19 (C) 29 SBT = 0.79 (D) 44 SBR = 0.4 (C) 21	EBL = 130 m EBTR = 150 m WBL = 10 m WBT = 160 m WBR = 5 m NBL = 75 m NBTR = 175 m SBL = 10 m SBT = 105 m SBR = 45 m
Future Total 2041	Overall: 0.74 (C) 28 EBL = 0.58 (B) 16 EBTR = 0.66 (C) 23 WBL = 0.09 (B) 16 WBT = 0.74 (C) 30 WBR = 0.02 (B) 16 NBL = 0.57 (C) 26 NBTR = 0.41 (C) 26 SBL = 0.15 (C) 22 SBT = 0.83 (D) 41 SBR = 0.4 (C) 27	EBL = 35 m EBTR = 130 m WBL = 10 m WBT = 130 m WBR = 0 m NBL = 25 m NBTR = 45 m SBL = 15 m SBT = 105 m SBR = 40 m	Overall: **1.01** (D) 50 EBL = **1.04** (F) 85 EBTR = 0.88 (D) 40 WBL = 0.25 (C) 24 WBT = **0.93** (E) 57 WBR = 0.08 (C) 25 NBL = 0.9 (E) 56 NBTR = **0.94** (E) 56 SBL = 0.2 (C) 29 SBT = 0.79 (D) 44 SBR = 0.41 (C) 21	EBL = 135 m EBTR = 205 m WBL = 10 m WBT = 175 m WBR = 5 m NBL = 75 m NBTR = 180 m SBL = 10 m SBT = 105 m SBR = 50 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2046	Overall: 0.71 (C) 27 EBL = 0.55 (B) 15 EBTR = 0.58 (C) 21 WBL = 0.07 (B) 16 WBT = 0.66 (C) 27 WBR = 0.02 (B) 17 NBL = 0.62 (C) 28 NBTR = 0.37 (C) 25 SBL = 0.15 (C) 22 SBT = 0.85 (D) 43 SBR = 0.4 (C) 26	 EBL = 35 m EBTR = 100 m WBL = 5 m WBT = 105 m WBR = 0 m NBL = 25 m NBTR = 45 m SBL = 15 m SBT = 110 m SBR = 40 m	Overall: **1.15** (E) 58 EBL = **1.15** (F) 120 EBTR = 0.77 (C) 31 WBL = 0.14 (C) 23 WBT = **0.93** (E) 59 WBR = 0.08 (C) 25 NBL = **0.98** (E) 77 NBTR = **1.00** (E) 73 SBL = 0.21 (C) 28 SBT = 0.82 (D) 47 SBR = 0.44 (C) 21	 EBL = 145 m EBTR = 165 m WBL = 10 m WBT = 170 m WBR = 10 m NBL = 75 m NBTR = 185 m SBL = 10 m SBT = 115 m SBR = 55 m
Future Total 2046	Overall: 0.77 (C) 29 EBL = 0.64 (B) 19 EBTR = 0.69 (C) 24 WBL = 0.1 (B) 16 WBT = 0.77 (C) 32 WBR = 0.02 (B) 17 NBL = 0.62 (C) 28 NBTR = 0.42 (C) 26 SBL = 0.16 (C) 22 SBT = 0.85 (D) 43 SBR = 0.46 (C) 27	 EBL = 35 m EBTR = 135 m WBL = 10 m WBT = 140 m WBR = 0 m NBL = 25 m NBTR = 50 m SBL = 15 m SBT = 110 m SBR = 45 m	Overall: **1.07** (E) 59 EBL = **1.08** (F) 99 EBTR = **0.91** (D) 44 WBL = 0.28 (C) 24 WBT = **0.97** (E) 65 WBR = 0.08 (C) 25 NBL = **0.98** (E) 77 NBTR = **1.02** (E) 78 SBL = 0.21 (C) 29 SBT = 0.82 (D) 47 SBR = 0.44 (C) 21	 EBL = 145 m EBTR = 215 m WBL = 10 m WBT = 185 m WBR = 10 m NBL = 75 m NBTR = 190 m SBL = 10 m SBT = 115 m SBR = 55 m

Under the existing condition, the signalized intersection of Watson Parkway at York Road operates with an overall v/c ratio of 0.50 LOS C during the a.m. peak hour and 0.66 LOS C during the p.m. peak hour. The intersection operates without any critical movements.

With the addition of corridor growth for the 2031 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of to 0.59 LOS C during the a.m. peak hour and 0.94 LOS C during the p.m. peak hour. The signal timings were optimized in order to mitigate any delays. The intersection is reported to operate without any critical movements.

With the continued addition of corridor growth, the addition of background development traffic from GID 3 for the 2036 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of to 0.64 LOS C during the a.m. peak hour and 1.01 LOS D during the p.m. peak hour. The eastbound left-turn and northbound shared through/right-turn lane are reported to operate at critical levels during the p.m. peak hour.

Under the 2036 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is reported to increase to 0.70 LOS C and 0.95 LOS D during the a.m. and p.m. peak hours, respectively. The eastbound left-turn and northbound shared through/right-turn lane are reported to continue to operate as the only movements at critical levels during the p.m. peak hour.

With the continued addition of corridor growth and the addition of background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.68 LOS C during the a.m. peak hour and 1.06 LOS D during the p.m. peak hour. The intersection continues to operate without any critical movements during the a.m. peak hour while the overall intersection, eastbound left-turn, and northbound shared through/right-turn operate at critical levels during the p.m. peak hour.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.74 LOS C during the a.m. peak hour and 1.01 LOS D during the p.m. peak hour. The

critical movements reported under the 2041 future background conditions continue to operate at a critical level under the 2041 future total scenario in addition to the westbound through movement during the p.m. peak hour.

With the continued addition of corridor growth and the addition of background development traffic for the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.71 LOS C during the a.m. peak hour and 1.15 LOS E during the p.m. peak hour. The intersection continues to operate without any critical movements during the a.m. peak hour while the overall intersection, eastbound left-turn, northbound left-turn and northbound shared through/right-turn movements operate critically during the p.m. peak hour.

Under the 2046 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.77 LOS C during the a.m. peak hour and 1.07 LOS D during the p.m. peak hour. The intersection continues to operate without any critical movements during the a.m. peak hour while the overall intersection, eastbound left-turn and shared through/right-turn, westbound through, northbound left-turn and northbound shared through/right-turn movements continue to operate at critical levels during the p.m. peak hour.

7.5 Watson Parkway at Watson Road/Dunlop Drive

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

Table 10 Capacity analysis of Watson Parkway at Watson Road/Dunlop Drive

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	Overall: 0.31 (A) 7 EBTLR = 0.49 (C) 28 WBTLR = 0.51 (C) 28 NBTLR = 0.25 (A) 3 SBTLR = 0.29 (A) 4	 EBTLR = 10 m WBTLR = 15 m NBTLR = 25 m SBTLR = 30 m	Overall: 0.66 (B) 19 EBTLR = 0.82 (C) 31 WBTLR = 0.4 (B) 17 NBTLR = 0.55 (B) 14 SBTLR = 0.46 (B) 12	 EBTLR = 60 m WBTLR = 20 m NBTLR = 60 m SBTLR = 50 m
Future Background 2031	Overall: 0.36 (A) 8 EBL = 0.33 (C) 33 EBTR = 0.11 (C) 30 WBTLR = 0.59 (D) 40 NBTLR = 0.27 (A) 4 SBTLR = 0.33 (A) 4	 EBL = 10 m EBTR = 10 m WBTLR = 20 m NBTLR = 25 m SBTLR = 40 m	Overall: 0.59 (B) 16 EBL = 0.74 (C) 34 EBTR = 0.24 (C) 21 WBTLR = 0.49 (C) 24 NBTLR = 0.52 (B) 11 SBTLR = 0.44 (B) 10	 EBL = 50 m EBTR = 20 m WBTLR = 30 m NBTLR = 85 m SBTLR = 70 m
Future Background 2036	Overall: 0.37 (A) 8 EBL = 0.34 (C) 33 EBTR = 0.11 (C) 31 WBTLR = 0.61 (D) 42 NBTLR = 0.29 (A) 4 SBTLR = 0.35 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 30 m SBTLR = 45 m	Overall: 0.62 (B) 17 EBL = 0.76 (D) 36 EBTR = 0.25 (C) 21 WBTLR = 0.52 (C) 24 NBTLR = 0.56 (B) 12 SBTLR = 0.48 (B) 11	 EBL = 50 m EBTR = 20 m WBTLR = 30 m NBTLR = 90 m SBTLR = 75 m
Future Total 2036	Overall: 0.38 (A) 8 EBL = 0.34 (C) 33 EBTR = 0.11 (C) 31 WBTLR = 0.61 (D) 42 NBTLR = 0.32 (A) 4 SBTLR = 0.35 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 35 m SBTLR = 45 m	Overall: 0.63 (B) 17 EBL = 0.76 (D) 36 EBTR = 0.25 (C) 21 WBTLR = 0.52 (C) 24 NBTLR = 0.57 (B) 12 SBTLR = 0.49 (B) 11	 EBL = 50 m EBTR = 20 m WBTLR = 30 m NBTLR = 95 m SBTLR = 80 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2041	Overall: 0.39 (A) 8 EBL = 0.35 (C) 33 EBTR = 0.12 (C) 31 WBTLR = 0.63 (D) 45 NBTLR = 0.31 (A) 4 SBTLR = 0.36 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 35 m SBTLR = 45 m	Overall: 0.65 (B) 18 EBL = 0.78 (D) 37 EBTR = 0.26 (C) 21 WBTLR = 0.54 (C) 25 NBTLR = 0.59 (B) 13 SBTLR = 0.5 (B) 12	 EBL = 55 m EBTR = 20 m WBTLR = 35 m NBTLR = 100 m SBTLR = 80 m
Future Total 2041	Overall: 0.39 (A) 8 EBL = 0.35 (C) 33 EBTR = 0.12 (C) 31 WBTLR = 0.63 (D) 45 NBTLR = 0.34 (A) 4 SBTLR = 0.37 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 35 m SBTLR = 45 m	Overall: 0.66 (B) 18 EBL = 0.78 (D) 37 EBTR = 0.26 (C) 21 WBTLR = 0.54 (C) 25 NBTLR = 0.6 (B) 13 SBTLR = 0.52 (B) 12	 EBL = 55 m EBTR = 20 m WBTLR = 35 m NBTLR = 100 m SBTLR = 85 m
Future Background 2046	Overall: 0.41 (A) 9 EBL = 0.36 (C) 33 EBTR = 0.12 (C) 31 WBTLR = 0.65 (D) 46 NBTLR = 0.33 (A) 4 SBTLR = 0.38 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 35 m SBTLR = 50 m	Overall: 0.68 (B) 19 EBL = 0.8 (D) 38 EBTR = 0.27 (C) 21 WBTLR = 0.57 (C) 26 NBTLR = 0.62 (B) 14 SBTLR = 0.53 (B) 13	 EBL = 60 m EBTR = 20 m WBTLR = 35 m NBTLR = 105 m SBTLR = 85 m
Future Total 2046	Overall: 0.41 (A) 9 EBL = 0.36 (C) 33 EBTR = 0.12 (C) 31 WBTLR = 0.65 (D) 46 NBTLR = 0.35 (A) 4 SBTLR = 0.38 (A) 4	 EBL = 15 m EBTR = 10 m WBTLR = 20 m NBTLR = 40 m SBTLR = 50 m	Overall: 0.69 (B) 19 EBL = 0.8 (D) 38 EBTR = 0.27 (C) 21 WBTLR = 0.57 (C) 26 NBTLR = 0.64 (B) 15 SBTLR = 0.55 (B) 13	 EBL = 60 m EBTR = 20 m WBTLR = 35 m NBTLR = 110 m SBTLR = 90 m

Under the existing condition, the signalized intersection of Watson Parkway at Watson Road/Dunlop Drive operates with an overall v/c ratio of 0.31 LOS A during the a.m. peak hour and 0.66 LOS C during the p.m. peak hour. The intersection operates without any critical movements.

With the addition of corridor growth and background development traffic from GID 3 for the 2031 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.36 LOS B during the a.m. peak hour and 0.59 LOS B during the p.m. peak hour. The eastbound approach is reported to operate at critical levels during the p.m. peak hour while remaining below capacity.

With the continued addition of corridor growth for the 2036 future background traffic scenario, it is recommended to provide an auxiliary left-turn lane in the eastbound approach. With the proposed lane configuration, the overall intersection is reported to operate with an overall v/c of 0.37 LOS A during the a.m. peak hour and 0.62 LOS B during the p.m. peak hour.

Under the 2036 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is reported to increase to 0.38 LOS A and 0.63 LOS B during the a.m. and p.m. peak hours, respectively. The intersection continues to operate without any critical movements.

With the continued addition of corridor growth and the addition of background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c 0.39 LOS A during the a.m. peak hour and 0.65 LOS B during the p.m. peak hour. The intersection continues to operate without any critical movements.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to remain at 0.39 LOS A during the a.m. peak hour and increase marginally to 0.66 LOS B during the p.m. peak hour. The intersection continues to operate without any critical movements.

With the continued addition of corridor growth and the addition of background development traffic for the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c 0.41 LOS A during the a.m. peak hour and 0.69 LOS B during the p.m. peak hour. The intersection continues to operate without any critical 8movements.

Under the 2046 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase marginally to 0.41 LOS A during the a.m. peak hour and to 0.69 LOS B during the p.m. peak hour. The intersection continues to operate without any critical movements.

7.6 Watson Parkway at Stone Road

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

Table 11 Capacity analysis of Watson Parkway at Stone Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2025	EBL = 0.25 (A) 10 EBTR = 0.14 (A) 8 WBTLR = 0.21 (A) 10 NBTLR = 0.3 (B) 10 SBTL = 0.23 (A) 10 SBR = 0.18 (A) 7	EBL = 0 m EBTR = 0 m WBTLR = 0 m NBTLR = 0 m SBTL = 0 m SBR = 0 m	EBL = 0.4 (B) 13 EBTR = 0.38 (A) 12 WBTLR = 0.23 (B) 11 NBTLR = 0.42 (B) 13 SBTL = 0.39 (A) 13 SBR = 0.3 (A) 8	EBL = 0 m EBTR = 0 m WBTLR = 0 m NBTLR = 0 m SBTL = 0 m SBR = 0 m
Future Background 2031	Overall: 0.36 (B) 13 EBL = 0.69 (C) 30 EBTR = 0.2 (B) 20 WBTLR = 0.38 (C) 21 NBTLR = 0.24 (A) 6 SBTL = 0.17 (A) 5 SBR = 0.17 (A) 5	EBL = 35 m EBTR = 20 m WBTLR = 30 m NBTLR = 30 m SBTL = 25 m SBR = 10 m	Overall: 0.46 (C) 20 EBL = 0.59 (C) 26 EBTR = 0.37 (C) 23 WBTLR = 0.63 (D) 47 NBTLR = 0.35 (B) 15 SBTL = 0.29 (B) 14 SBR = 0.27 (B) 14	EBL = 55 m EBTR = 55 m WBTLR = 55 m NBTLR = 70 m SBTL = 65 m SBR = 20 m
Future Background 2036	Overall: 0.4 (B) 14 EBL = 0.73 (C) 32 EBTR = 0.21 (B) 19 WBTLR = 0.38 (B) 20 NBTLR = 0.26 (A) 7 SBTL = 0.19 (A) 6 SBR = 0.18 (A) 6	EBL = 40 m EBTR = 20 m WBTLR = 35 m NBTLR = 35 m SBTL = 25 m SBR = 10 m	Overall: 0.49 (C) 21 EBL = 0.61 (C) 26 EBTR = 0.38 (C) 22 WBTLR = 0.66 (D) 49 NBTLR = 0.37 (B) 16 SBTL = 0.31 (B) 15 SBR = 0.29 (B) 15	EBL = 60 m EBTR = 60 m WBTLR = 60 m NBTLR = 80 m SBTL = 70 m SBR = 20 m
Future Total 2036	Overall: 0.43 (B) 14 EBL = 0.76 (C) 33 EBTR = 0.19 (B) 18 WBTLR = 0.34 (B) 19 NBTLR = 0.27 (A) 8 SBTL = 0.19 (A) 7 SBR = 0.18 (A) 7	EBL = 50 m EBTR = 20 m WBTLR = 30 m NBTLR = 35 m SBTL = 30 m SBR = 10 m	Overall: 0.5 (C) 21 EBL = 0.62 (C) 26 EBTR = 0.38 (C) 22 WBTLR = 0.66 (D) 49 NBTLR = 0.37 (B) 16 SBTL = 0.31 (B) 15 SBR = 0.3 (B) 15	EBL = 60 m EBTR = 60 m WBTLR = 60 m NBTLR = 80 m SBTL = 70 m SBR = 20 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2041	Overall: 0.42 (B) 14 EBL = 0.74 (C) 32 EBTR = 0.21 (B) 18 WBTLR = 0.38 (B) 19 NBTLR = 0.28 (A) 7 SBTL = 0.2 (A) 6 SBR = 0.19 (A) 6	 EBL = 45 m EBTR = 20 m WBTLR = 35 m NBTLR = 35 m SBTL = 30 m SBR = 10 m	Overall: 0.51 (C) 22 EBL = 0.63 (C) 26 EBTR = 0.39 (C) 22 WBTLR = 0.67 (D) 50 NBTLR = 0.39 (B) 17 SBTL = 0.33 (B) 16 SBR = 0.3 (B) 16	 EBL = 65 m EBTR = 60 m WBTLR = 60 m NBTLR = 85 m SBTL = 75 m SBR = 20 m
Future Total 2041	Overall: 0.45 (B) 14 EBL = 0.77 (C) 32 EBTR = 0.19 (B) 17 WBTLR = 0.34 (B) 18 NBTLR = 0.29 (A) 8 SBTL = 0.21 (A) 7 SBR = 0.19 (A) 7	 EBL = 50 m EBTR = 20 m WBTLR = 35 m NBTLR = 40 m SBTL = 30 m SBR = 15 m	Overall: 0.52 (C) 22 EBL = 0.64 (C) 27 EBTR = 0.39 (C) 22 WBTLR = 0.67 (D) 50 NBTLR = 0.4 (B) 17 SBTL = 0.33 (B) 16 SBR = 0.31 (B) 16	 EBL = 65 m EBTR = 60 m WBTLR = 60 m NBTLR = 85 m SBTL = 75 m SBR = 20 m
Future Background 2046	Overall: 0.45 (B) 14 EBL = 0.75 (C) 32 EBTR = 0.21 (B) 18 WBTLR = 0.38 (B) 19 NBTLR = 0.3 (A) 8 SBTL = 0.21 (A) 7 SBR = 0.2 (A) 7	 EBL = 45 m EBTR = 20 m WBTLR = 35 m NBTLR = 40 m SBTL = 30 m SBR = 10 m	Overall: 0.53 (C) 22 EBL = 0.65 (C) 27 EBTR = 0.4 (C) 22 WBTLR = 0.69 (D) 50 NBTLR = 0.41 (B) 18 SBTL = 0.35 (B) 17 SBR = 0.31 (B) 17	 EBL = 65 m EBTR = 65 m WBTLR = 65 m NBTLR = 90 m SBTL = 80 m SBR = 20 m
Future Total 2046	Overall: 0.48 (B) 15 EBL = 0.79 (C) 34 EBTR = 0.2 (B) 17 WBTLR = 0.35 (B) 18 NBTLR = 0.31 (A) 9 SBTL = 0.22 (A) 8 SBR = 0.2 (A) 8	 EBL = 50 m EBTR = 20 m WBTLR = 35 m NBTLR = 45 m SBTL = 35 m SBR = 15 m	Overall: 0.54 (C) 23 EBL = 0.66 (C) 27 EBTR = 0.4 (C) 22 WBTLR = 0.69 (D) 51 NBTLR = 0.42 (B) 18 SBTL = 0.35 (B) 17 SBR = 0.32 (B) 17	 EBL = 70 m EBTR = 65 m WBTLR = 65 m NBTLR = 90 m SBTL = 80 m SBR = 20 m

Under the existing condition, the intersection of Watson Parkway at Stone Road operates at satisfactory levels with a maximum delay of 10 seconds during the a.m. peak hour and 13 seconds during the p.m. peak hour.

With the addition of corridor growth and background development traffic from GID 3 for the 2036 future background traffic scenario, the overall intersection is reported to operate with a v/c of 0.364 LOS B during the a.m. peak hour and 0.46 LOS B during the p.m. peak hour. The intersection continues to operate without any critical movements.

With the continued addition of corridor growth for the 2036 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.40 LOS B during the a.m. peak hour and 0.49 LOS C during the p.m. peak hour. The intersection continues to operate without any critical movements.

Under the 2036 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is reported to increase to 0.43 LOS B during the a.m. peak hour and 0.50 LOS C during the p.m. peak hour. The intersection is reported to continue to operate without any critical movements.

With the continued addition of corridor growth and the addition of background development traffic for the 2041 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.42 LOS B during the a.m. peak hour and 0.51 LOS C during the p.m. peak hour. The intersection is reported to continue to operate without any critical movements.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.45 LOS B during the a.m. peak hour and decrease to 0.52 LOS C during the p.m. peak hour. The intersection is reported to continue to operate without any critical movements.

With the continued addition of corridor growth and the addition of background development traffic for the 2046 future background traffic scenario, the overall intersection is reported to operate with an overall v/c of 0.45 LOS B during the a.m. peak hour and 0.53 LOS C during the p.m. peak hour. The intersection is reported to continue to operate without any critical movements.

Under the 2041 future total conditions, with the addition of site generated traffic, the overall v/c ratio of the intersection is anticipated to increase to 0.48 LOS B during the a.m. peak hour and decrease to 0.54 LOS C during the p.m. peak hour. The intersection is reported to continue to operate without any critical movements.

7.7 New Street "A" at Victoria Road South

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

Table 12 Capacity analysis of New Street "A" at Victoria Road South

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	Overall: 0.52 (A) 7 WBL = 0.15 (D) 39 WBR = 0.11 (D) 39 NBTR = 0.54 (A) 7 SBL = 0.23 (A) 4 SBT = 0.52 (A) 3	 WBL = 10 m WBR = 20 m NBTR = 90 m SBL = 5 m SBT = 60 m	Overall: 0.71 (B) 12 WBL = 0.11 (D) 44 WBR = 0.08 (D) 44 NBTR = 0.77 (B) 13 SBL = 0.73 (D) 36 SBT = 0.56 (A) 4	 WBL = 10 m WBR = 20 m NBTR = 180 m SBL = 50 m SBT = 75 m
Future Total 2041	Overall: 0.53 (A) 7 WBL = 0.15 (D) 40 WBR = 0.13 (D) 40 NBTR = 0.56 (A) 7 SBL = 0.24 (A) 4 SBT = 0.53 (A) 3	 WBL = 10 m WBR = 20 m NBTR = 95 m SBL = 5 m SBT = 60 m	Overall: 0.8 (B) 12 WBL = 0.11 (D) 44 WBR = 0.08 (D) 44 NBTR = 0.78 (B) 12 SBL = 0.83 (D) 51 SBT = 0.58 (A) 4	 WBL = 10 m WBR = 20 m NBTR = 175 m SBL = 60 m SBT = 80 m
Future Total 2046	Overall: 0.55 (A) 7 WBL = 0.15 (D) 40 WBR = 0.16 (D) 40 NBTR = 0.58 (A) 8 SBL = 0.25 (A) 5 SBT = 0.55 (A) 4	 WBL = 10 m WBR = 20 m NBTR = 100 m SBL = 5 m SBT = 65 m	Overall: 0.76 (B) 13 WBL = 0.11 (D) 44 WBR = 0.08 (D) 44 NBTR = 0.83 (B) 15 SBL = 0.74 (D) 39 SBT = 0.6 (A) 4	 WBL = 10 m WBR = 20 m NBTR = 210 m SBL = 50 m SBT = 85 m

Under 2036 future total traffic conditions, the proposed intersection of New Street "A" at Victoria Road South is reported to operate with an overall v/c ratio of 0.52 LOS A during the a.m. peak hour and 0.71 LOS B during the p.m. peak hour.

Under the 2041 horizon year, the proposed intersection is reported to operate at satisfactory levels with an overall v/c ratio of 0.53 LOS A during the a.m. peak hour and 0.80 LOS B during the p.m. peak hour. All movements are reported to operate below capacity and under critical thresholds.

Under the 2046 horizon year, the proposed intersection is reported to operate at satisfactory levels with an overall v/c ratio of 0.55 LOS A during the a.m. peak hour and 0.76 LOS B during the p.m. peak hour. All movements are reported to operate below capacity and under critical thresholds.

7.8 New Street "B" at Victoria Road South

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

Table 13 Capacity analysis of New Street "B" at Victoria Road South

Scenario	Am Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	Overall: 0.6 (B) 10 WBL = 0.38 (C) 35 WBR = 0.09 (C) 33 NBTR = 0.63 (B) 11 SBL = 0.61 (B) 11 SBT = 0.32 (A) 3	 WBL = 25 m WBR = 20 m NBTR = 110 m SBL = 30 m SBT = 30 m	Overall: 0.57 (B) 10 WBL = 0.23 (C) 34 WBR = 0.35 (D) 35 NBTR = 0.61 (B) 10 SBL = 0.41 (A) 6 SBT = 0.53 (A) 5	 WBL = 20 m WBR = 30 m NBTR = 115 m SBL = 10 m SBT = 75 m
Future Total 2041	Overall: 0.62 (B) 11 WBL = 0.38 (C) 35 WBR = 0.09 (C) 33 NBTR = 0.65 (B) 12 SBL = 0.63 (B) 13 SBT = 0.34 (A) 3	 WBL = 25 m WBR = 20 m NBTR = 115 m SBL = 35 m SBT = 30 m	Overall: 0.6 (B) 10 WBL = 0.22 (C) 34 WBR = 0.37 (D) 36 NBTR = 0.64 (B) 10 SBL = 0.44 (A) 7 SBT = 0.55 (A) 5	 WBL = 20 m WBR = 30 m NBTR = 125 m SBL = 10 m SBT = 80 m
Future Total 2046	Overall: 0.64 (B) 11 WBL = 0.38 (C) 35 WBR = 0.09 (C) 33 NBTR = 0.67 (B) 12 SBL = 0.65 (B) 16 SBT = 0.35 (A) 3	 WBL = 25 m WBR = 20 m NBTR = 120 m SBL = 40 m SBT = 30 m	Overall: 0.64 (B) 11 WBL = 0.2 (C) 33 WBR = 0.5 (D) 36 NBTR = 0.67 (B) 12 SBL = 0.48 (A) 9 SBT = 0.58 (A) 6	 WBL = 15 m WBR = 35 m NBTR = 130 m SBL = 15 m SBT = 95 m

Under 2036 future total traffic conditions, the proposed intersection of New Street "B" at Victoria Road South is reported to operate with an overall v/c ratio of 0.60 LOS B during the a.m. peak hour and 0.57 LOS B during the p.m. peak hour.

Under the 2041 horizon year, the proposed intersection is reported to operate at satisfactory levels with the overall v/c ratio increasing to 0.62 LOS B during the a.m. peak hour and 0.60 LOS B during the p.m. peak hour. All movements are reported to operate under the critical thresholds,

Under the 2046 horizon year, the proposed intersection is reported to continue to operate at satisfactory levels with an overall v/c ratio of 0.64 LOS B during the a.m. peak hour and 0.64 LOS B during the p.m. peak hour. All movements are reported to operate under the critical thresholds.

7.9 New Street "A" at New Street "A"

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

Table 14 Capacity analysis of New Street "A" at New Street "A"

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	EBTR = 0.03 (A) 0 WBTL = 0 (A) 0 NBLR = 0.11 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0 (A) 0 NBLR = 0.1 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2041	EBTR = 0.03 (A) 0 WBTL = 0 (A) 0 NBLR = 0.11 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0 (A) 0 NBLR = 0.1 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Total 2046	EBTR = 0.03 (A) 0 WBTL = 0 (A) 0 NBLR = 0.11 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0 (A) 0 NBLR = 0.1 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m

Under 2036 and 2041 future total traffic conditions, the proposed intersection of the east/west and north/south New Street “A” is reported to operate at satisfactory with low v/c ratios, delays and levels of queuing.

7.10 Main Street at New Street “A”

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

Table 15 Capacity analysis of Main Street at New Street “A”

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	EBL = 0.04 (A) 10 EBR = 0.06 (A) 9 NBTL = 0.05 (A) 6 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m	EBL = 0.1 (A) 11 EBR = 0.1 (A) 9 NBTL = 0.04 (A) 5 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m
Future Total 2041	EBL = 0.04 (A) 10 EBR = 0.06 (A) 9 NBTL = 0.05 (A) 6 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m	EBL = 0.1 (A) 11 EBR = 0.1 (A) 9 NBTL = 0.04 (A) 5 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m
Future Total 2046	EBL = 0.04 (A) 10 EBR = 0.06 (A) 9 NBTL = 0.05 (A) 6 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m	EBL = 0.1 (A) 11 EBR = 0.1 (A) 9 NBTL = 0.04 (A) 5 SBTR = 0.05 (A) 0	EBL = 5 m EBR = 5 m NBTL = 5 m SBTR = 0 m

Under 2036, 2041, and 2046 future total traffic conditions, the proposed intersection of the Main Street at New Street “A” is reported to operate at satisfactory with low v/c ratios, delays and levels of queuing with the exception of the eastbound left-turn lane during the p.m. peak hour. Despite the critical v/c ratio, it is reported to operate below theoretical capacity levels.

7.11 New Street “A” at Stone Road

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

Table 16 Capacity analysis of New Street "A" at Stone Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Background 2036	Overall: 0.25 (A) 5 EBTR = 0.12 (A) 3 WBTL = 0.21 (A) 3 NBL = 0.41 (C) 21 NBR = 0.02 (B) 19	 EBTR = 10 m WBTL = 15 m NBL = 20 m NBR = 5 m	Overall: 0.25 (A) 3 EBTR = 0.23 (A) 2 WBTL = 0.22 (A) 2 NBL = 0.48 (C) 29 NBR = 0.01 (C) 24	 EBTR = 15 m WBTL = 15 m NBL = 15 m NBR = 5 m
Future Total 2036	Overall: 0.27 (B) 13 EBTLR = 0.35 (B) 13 WBTLR = 0.36 (B) 13 NBL = 0.18 (B) 12 NBTR = 0.01 (B) 11 SBL = 0.01 (B) 11 SBTR = 0.06 (B) 11	 EBTLR = 25 m WBTLR = 30 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 0 m	Overall: 0.34 (A) 7 EBTLR = 0.34 (A) 4 WBTLR = 0.24 (A) 3 NBL = 0.35 (C) 25 NBTR = 0.01 (C) 22 SBL = 0.01 (C) 22 SBTR = 0.14 (C) 23	 EBTLR = 25 m WBTLR = 20 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 10 m
Future Background 2041	Overall: 0.26 (A) 5 EBTR = 0.13 (A) 3 WBTL = 0.23 (A) 3 NBL = 0.42 (C) 22 NBR = 0.02 (B) 19	 EBTR = 10 m WBTL = 15 m NBL = 20 m NBR = 5 m	Overall: 0.26 (A) 3 EBTR = 0.24 (A) 2 WBTL = 0.24 (A) 2 NBL = 0.48 (C) 29 NBR = 0.01 (C) 24	 EBTR = 15 m WBTL = 20 m NBL = 15 m NBR = 5 m
Future Total 2041	Overall: 0.28 (B) 13 EBTLR = 0.36 (B) 14 WBTLR = 0.38 (B) 14 NBL = 0.18 (B) 12 NBTR = 0.01 (B) 11 SBL = 0.01 (B) 11 SBTR = 0.06 (B) 11	 EBTLR = 25 m WBTLR = 35 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 0 m	Overall: 0.35 (A) 7 EBTLR = 0.35 (A) 4 WBTLR = 0.25 (A) 3 NBL = 0.35 (C) 25 NBTR = 0.01 (C) 22 SBL = 0.01 (C) 22 SBTR = 0.14 (C) 23	 EBTLR = 25 m WBTLR = 20 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 10 m
Future Background 2046	Overall: 0.27 (A) 5 EBTR = 0.13 (A) 3 WBTL = 0.24 (A) 3 NBL = 0.42 (C) 22 NBR = 0.02 (B) 19	 EBTR = 10 m WBTL = 20 m NBL = 20 m NBR = 5 m	Overall: 0.27 (A) 3 EBTR = 0.26 (A) 2 WBTL = 0.26 (A) 2 NBL = 0.37 (C) 26 NBR = 0.01 (C) 23	 EBTR = 20 m WBTL = 20 m NBL = 15 m NBR = 5 m
Future Total 2046	Overall: 0.29 (B) 13 EBTLR = 0.37 (B) 14 WBTLR = 0.4 (B) 14 NBL = 0.18 (B) 12 NBTR = 0.01 (B) 11 SBL = 0.01 (B) 11 SBTR = 0.06 (B) 11	 EBTLR = 25 m WBTLR = 35 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 5 m	Overall: 0.36 (A) 7 EBTLR = 0.36 (A) 4 WBTLR = 0.26 (A) 3 NBL = 0.35 (C) 25 NBTR = 0.01 (C) 22 SBL = 0.01 (C) 22 SBTR = 0.14 (C) 23	 EBTLR = 25 m WBTLR = 20 m NBL = 15 m NBTR = 0 m SBL = 5 m SBTR = 10 m

Under 2036 future background traffic conditions, the proposed intersection of New Street "A" at Stone Road is reported to operate with an overall v/c ratio of 0.25 LOS A during the a.m. peak hour and 0.25 LOS A during the p.m. peak hour.

With the addition of the north leg of the intersection under the 2036 future total conditions, the intersection is reported to operate with an overall v/c ratio of 0.27 LOS B during the a.m. peak hour and 0.34 LOS A during the p.m. peak hour.

Under 2041 future background traffic conditions, the proposed intersection of New Street "A" at Stone Road is reported to operate with an overall v/c ratio of 0.26 LOS A during the a.m. peak hour and 0.26 LOS A during the p.m. peak hour.

With the addition of the north leg of the intersection under the 2041 future total conditions, the intersection is reported to operate with an overall v/c ratio of 0.28 LOS B during the a.m. peak hour and 0.35 LOS A during the p.m. peak hour.

Under 2046 future background traffic conditions, the proposed intersection of New Street “A” at Stone Road is reported to operate with an overall v/c ratio of 0.27 LOS A during the a.m. peak hour and 0.27 LOS A during the p.m. peak hour.

With the addition of the north leg of the intersection under the 2046 future total conditions, the intersection is reported to operate with an overall v/c ratio of 0.29 LOS B during the a.m. peak hour and 0.36 LOS A during the p.m. peak hour.

7.12 New Street “A” at New Street “B”

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

Table 17 Capacity analysis of New Street “A” at New Street “B”

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2036	EBTLR = 0.14 (B) 11 WBTLR = 0.11 (B) 11 NBTLR = 0.02 (A) 3 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.14 (B) 11 WBTLR = 0.04 (B) 10 NBTLR = 0.01 (A) 1 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Total 2041	EBTLR = 0.14 (B) 11 WBTLR = 0.11 (B) 11 NBTLR = 0.02 (A) 3 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.14 (B) 11 WBTLR = 0.04 (B) 10 NBTLR = 0.01 (A) 1 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m
Future Total 2046	EBTLR = 0.14 (B) 11 WBTLR = 0.11 (B) 11 NBTLR = 0.02 (A) 3 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m	EBTLR = 0.14 (B) 11 WBTLR = 0.04 (B) 10 NBTLR = 0.01 (A) 1 SBTLR = 0 (A) 0	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 0 m

Under future total traffic conditions, the proposed intersection of New Street “A” at New Street “B” is reported to operate at satisfactory levels satisfactory v/c ratios, levels of service, acceptable queueing, and delays.

8. Recommended Improvements for GID Block Plan Areas 1 and 2

In order to accommodate the additional traffic generated by GID Blocks 1 & 2, GHD explored possible geometric improvements to mitigate delays. In their review of the first submission, City staff noted that they are not supportive of dual left-turn lanes or of widening Victoria Road to a six-lane cross-section. Additionally, a previously recommended widening of York Road to a four-lane cross-section is no longer included as a recommended improvement. Instead, the latest information from City staff indicates that York Road will remain as a two-lane roadway, with new multi-use pathways proposed on both sides to support active transportation and enhance connectivity for pedestrians and cyclists.

City of Guelph staff have acknowledged that the level of population and employment growth projected for the City will likely result in increased traffic congestion across the network. In response, the City’s Transportation Master Plan

(TMP) outlines a strategic shift in transportation planning, placing sustainability at the core of all decisions. As stated in the TMP Project Overview, the update prioritizes policies that enhance the movement of people—rather than vehicles—through sustainable, inclusive, and multimodal solutions. This includes a conscious departure from conventional approaches such as road widening to increase vehicle capacity, and instead focuses on improving the function and safety of the public right-of-way beyond the curb through measures such as complete streets, transit prioritization, and active transportation infrastructure.

The TMP sets out seven overarching goals that reflect the City's guiding principles and long-term vision for mobility as follows:

1. People of all ages and physical ability will be able to travel safely using any transportation mode that they choose;
2. Guelph's transportation system will be easy-to-use, reliable and give people and businesses the options they want when they need them;
3. Transit service will provide travel times and traveler convenience at levels that are competitive with travel by car;
4. The carbon footprint from the transportation sector will aim for net zero by 2050;
5. Guelph's streets, trails and rail networks will align with the City's land use objectives;
6. Investment decisions will be made considering the asset lifecycle costs; and
7. Guelph's transportation system will plan for the changes of tomorrow, while delivering great service today.

In keeping with these goals, the widening of Victoria Road beyond a four-lane cross-section is not considered consistent with the City's current transportation policy framework. Instead of expanding vehicle capacity through additional lanes, the preferred approach emphasizes transportation demand management and mode shift strategies that reduce reliance on single-occupant vehicles. Future residents and employees in GID Blocks 1 and 2 will be encouraged to use sustainable travel modes including walking, cycling, and public transit through TDM measures, targeted infrastructure enhancements and supportive policy direction.

Accordingly, the recommended transportation improvements for GID Blocks 1 and 2 do not include widening Victoria Road. The strategy aligns with the TMP's emphasis on sustainability, equity, and long-term network resilience.

In addition to the planned and proposed improvements in the surrounding area, and those already identified as necessary to accommodate traffic under future background conditions, the following site-specific improvements are recommended to address traffic generated by the GID Blocks 1 and 2 development:

Victoria Road at College Avenue / Main Street

Construction of the fourth (east) leg of the intersection to facilitate access to the GID lands. This includes the provision of:

- An eastbound through lane,
- A southbound left-turn lane, and
- A northbound shared through/right-turn lane.

These recommended intersection modifications are intended to support safe and efficient access to the developing area while remaining consistent with the City's long-range vision for multimodal transportation. A figure summarizing the recommended improvements for GID Blocks 1 and 2 is provided below in **Figure 23** along existing municipal roadways and in **Figure 24** for roadways associated with GID Blocks 1 and 2.

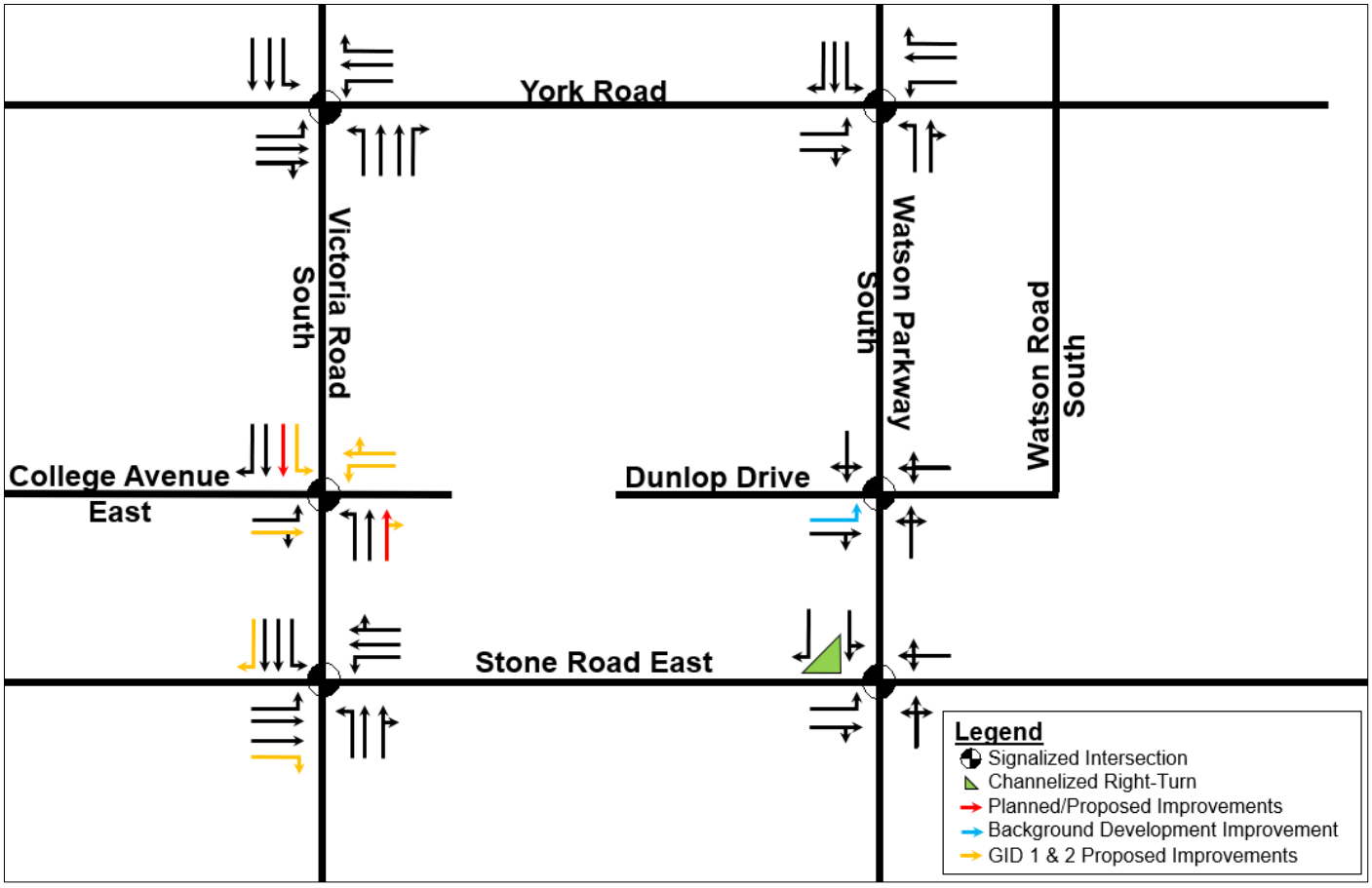


Figure 23 GID Blocks 1 and 2 Recommended Improvements (External Intersections)

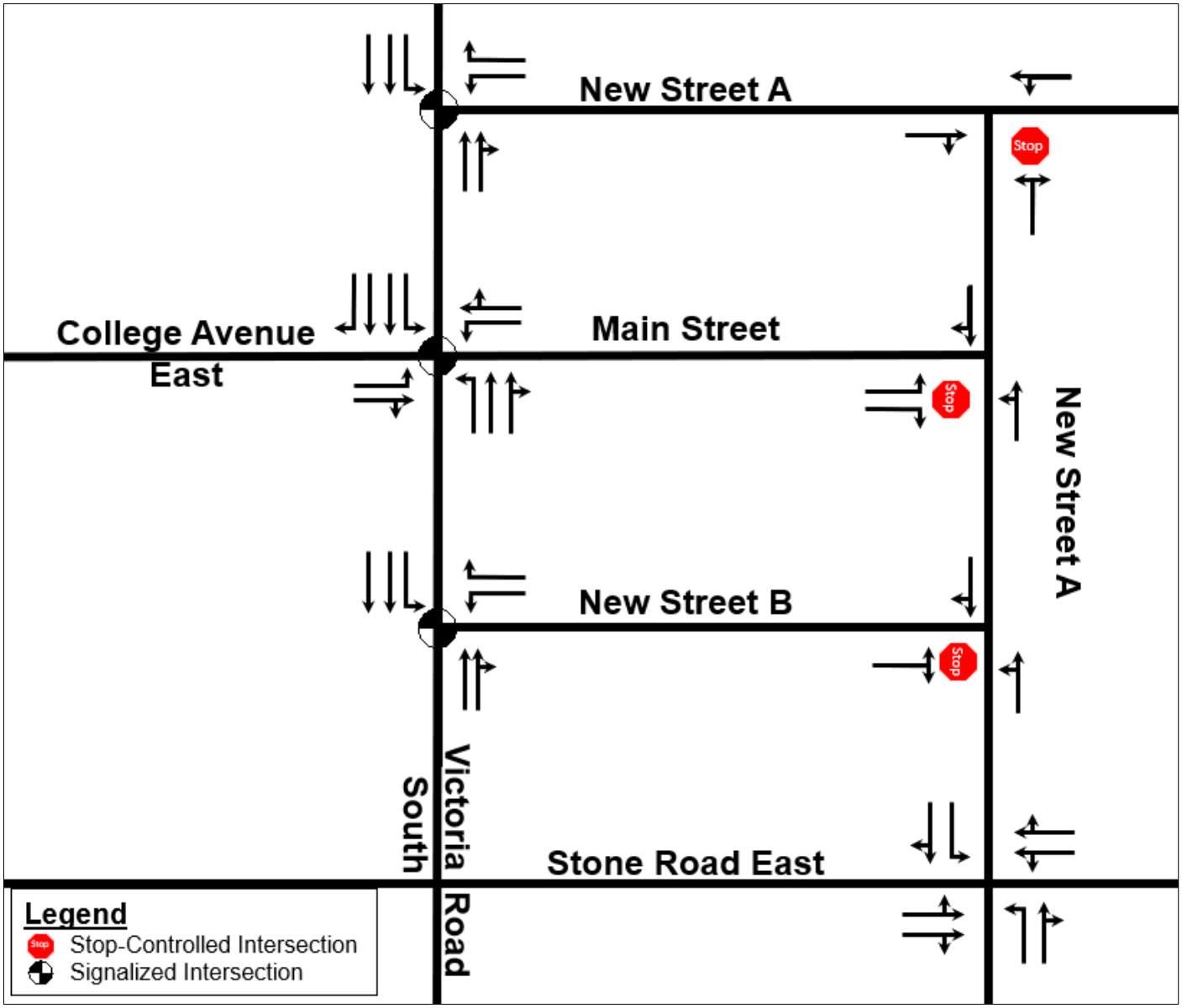


Figure 24 GID Blocks 1 and 2 Recommended Improvements (Proposed Intersections)

9. Warrant Analysis

9.1 Signal Warrant

Signal warrant analyses were conducted for all proposed intersections along Victoria Road South and Stone Road, as well as the intersection of Main Street and New Street A, under all future total traffic scenarios.

The results indicate that a traffic signal might be warranted (Case 2) for the intersection of Street A and Victoria Street under Future Total 2036 and 2041 conditions while undoubtedly warranted (Case 3) under Future Total 2041 conditions. For the intersection of Street B and Victoria Street, traffic signals might be warranted (Case 2) under all three Future Total conditions. For the intersection of Street A and Stone Road, traffic signals are undoubtedly warranted (Case 3) under all three Future Total conditions.

The results of the signal warrants are provided in **Appendix G**.

9.2 Left-Turn Lane Warrant

Left-turn lane warrants were completed for all proposed intersections along Victoria Road South and Stone Road. Although left-turn lane warrants are not applicable for proposed signalized intersections, the warrant was completed at all locations assuming unsignalized operation to ensure a comprehensive evaluation of turn lane requirements considering that it is recommended to signalize some intersections despite not meeting the signal warrants as noted in **Section 9.1**.

The warrants were assessed for the 2036 horizon year, representing full build-out of the development, and confirmed that left-turn lanes would be warranted at each intersection. However, the MTO left-turn lane warrants for a four-lane undivided roadway do not account for opposing volumes at the projected levels along Victoria Road South, as a four-lane cross-section theoretically cannot accommodate the projected link volumes. As a result, it is not possible to use the MTO left-turn warrant graphs to determine an appropriate storage length for the left-turn lanes along Victoria Road South assuming these intersections were unsignalized. At the intersection of Stone Road and Street A, a left-turn lane would be warranted with a storage length of 25 metres.

The results of the signal warrants are provided in **Appendix H**.

10. Sightline Assessment

GHD completed a sightline assessment for each of the proposed intersections along Victoria Road and Stone Road. Adjacent to the proposed site, Victoria Road has a posted speed limit of 70 km/h (reduced to 50 km/h adjacent to proposed Street A) and Stone Road has a posted speed limit of 60 km/h. For the purpose of Sight Distance assessment, a design speed of 80 km/h was assumed along Victoria Road and 70 km/h was assumed along Stone Road. All sightline assessments were completed from the estimated future widened right-of-way for each intersection taking into consideration any future road widening.

Section 9.9 of the Transportation Association of Canada's Geometric Design Guide for Canadian Roads (TAC GDGCR) provides intersection sight distances for different scenarios, with the following scenarios used to complete the intersection sight distance analysis:

- Case B1 – Left turn from the minor road
- Case B2 – Right turn from the minor road
- Case F – Left turns from the major road

For the purpose of the assessment, the minor road is assumed to be Street A and Street B.

A vehicle entering the major road from the site driveways is assumed to stop a distance of approximately 4.5 metres to the pavement edge of the major road as recommended by TAC. In this stopped position, the driver will be required to look left and right in order to perceive and react to approaching vehicles prior to initiating a turning movement onto the intersecting drive aisle.

The required intersection sight distances are provided in TAC GDGCR Tables 9.9.4, 9.9.6 and 9.9.12 for passenger vehicles rucks turning left from stop, turning right from stop, or turning left from the major road.

The required intersection sight distance is calculated from the equation.

$$ISD = 0.278\, V_{major}\, t_g$$

Where:

$$ISD = intersection\ sight\ distance$$

$$V_{major} = design\ speed\ of\ the\ major\ road\ \left(\frac{km}{h}\right)$$

$$t_g = time\ gap\ for\ the\ minor\ road\ vehicle\ to\ enter\ the\ major\ road\ (s)$$

The intersection sight distance requirement for passenger cars was determined by the equation above, where the time gap for the minor road vehicle to enter the major road for passenger vehicles is 7.5 seconds for turning left from stop, 6.5 seconds for vehicles turning right from a stop and 5.5 seconds for left turns from the major road.

The intersection sight distance requirement for trucks was determined by the equation above, where the time gap for the minor road vehicle to enter the major road for trucks is 11.5 seconds for vehicles turning left from stop, 10.5 seconds for vehicles turning right from a stop and 7.5 seconds for left turns from the major road.

10.1.1 Victoria Road South and Street A

The required intersection sight distances for Street A at Victoria Road is summarized in the table below based on an 80 km/h design speed along Victoria Road.

Table 18 Intersection Sight Distance Requirement For Victoria Road and Street A

Case (Design Speed of 80 km/h)	Required Intersection Sight Distance for Passenger Cars (TAC 2017)	Required Intersection Sight Distance for WB-20 Trucks (TAC 2017)	Available Intersection Sight Distance	TAC Reference
B1: Vehicles turning left from stop	170 m	260 m	>260 m	Table 9.9.4
B2: Vehicles turning right from stop	145 m	235 m	>260 m	Table 9.9.6
F: Left turns from the major road	125 m	170 m	>260 m	Table 9.9.12

The available sight distances along Victoria Road to the north and south of Street A exceeds the minimum required stopping sight distance for an 80 km/h design speed. The sightline for a passenger vehicle exiting the site and turning left is illustrated in **Figure 25**. The crest in the road along Victoria Road is located generally south of the proposed access. Due to the proximity of the proposed Street A to the crest of the road, it is not anticipated to impact the operation of the intersection.



Figure 25 Intersection Sight Distance (Victoria Road and Street A)

10.1.2 Victoria Road South and Street B

The required intersection sight distances for Street B at Victoria Road is summarized in the table below based on an 80 km/h design speed along Victoria Road.

Table 19 Intersection Sight Distance Requirement For Victoria Road and Street B

Case (Design Speed of 80 km/h)	Required Intersection Sight Distance for Passenger Cars (TAC 2017)	Required Intersection Sight Distance for WB-20 Trucks (TAC 2017)	Available Intersection Sight Distance	TAC Reference
B1: Vehicles turning left from stop	170 m	260 m	>260 m	Table 9.9.4
B2: Vehicles turning right from stop	145 m	235 m	>260 m	Table 9.9.6
F: Left turns from the major road	125 m	170 m	>260 m	Table 9.9.12

The available sight distances along Victoria Road to the north and south of Street B exceeds the minimum required stopping sight distance for an 80 km/h design speed. The sightline for a passenger vehicle exiting the site and turning left is illustrated in **Figure 25**.



Figure 26 Intersection Sight Distance (Victoria Road and Street B)

10.1.3 Stone Road and Street A

The required intersection sight distances for Stone Road and Street A is summarized in the table below based on a 70 km/h design speed along Stone Road.

Table 20 Intersection Sight Distance Requirement For Stone Road and Street A

Case (Design Speed of 70 km/h)	Required Intersection Sight Distance for Passenger Cars (TAC 2017)	Required Intersection Sight Distance for WB-20 Trucks (TAC 2017)	Available Intersection Sight Distance	TAC Reference
B1: Vehicles turning left from stop	150 m	225 m	>225 m	Table 9.9.4
B2: Vehicles turning right from stop	130 m	205 m	>225 m	Table 9.9.6
F: Left turns from the major road	110 m	150 m	>225 m	Table 9.9.12

The available sight distances along Stone Road to the east and west of Street A exceeds the minimum required stopping sight distance for a 70 km/h design speed. The sightline for a passenger vehicle exiting the site and turning left is illustrated in **Figure 25**. The crest in the road along Stone Road is located generally east of the proposed access. Due to the proximity of the proposed Street A to the crest of the road, it is not anticipated to impact the operation of the intersection.



Figure 27 Intersection Sight Distance (Stone Road and Street A)

10.2 Sightline Assessment – Plan and Profile Drawings

GHD also completed a sightline assessment for four proposed intersections onto Victoria Road South and Stone Road East based on the Plan and Profile drawings provided by the City of Guelph. The results of the sightline assessment are provided in **Appendix I** and confirm there is sufficient sightlines at all proposed intersections.

As the four intersections are proposed to be signalized, the sightline assessment was completed based on Case B2 (right-turn from stop) and Case F (left-turn from major road) as the left-turn from the minor approach can only be permitted when trough traffic along the major road is stopped.

The assessment was completed based on the TAC manual using a driver's eye height of 1.08 metre and an object height of 1.3 metres, corresponding to the top of a car, and aligns with sight distance guidelines within urban conditions where street lighting is available such as on both Victoria Road South and Stone Road East

11. Travel Demand Management

11.1 Travel Demand Management

Travel Demand Management (TDM) refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality;
- Decreased traffic congestion to reduce travel time;
- Increased travel options for businesses and commuters;
- Reduced personal transportation costs and energy consumptions; and
- Support Provincial smart growth objectives.

The combined benefits listed above will assist in creating a more active and livable community through improvements to overall active transportation standards for the local businesses and surrounding community.

11.2 Existing TDM Opportunities

11.2.1 Walking/Cycling

Within the study area, active transportation facilities are provided generally in the vicinity of Victoria Road and include the following:

Sidewalks

- Along both sides of York Road from the west and ending at the railway tracks to the east of Victoria Road
- Along the west side of Victoria Road from the north of the study area and ending at the bridge over the Eramosa River. The sidewalk along the east side of Victoria Road is provided along a short stretch between York Road and the north of the bridge over the Eramosa River. The sidewalk along the west side of Victoria Road is re-introduced at Stone Road and continues beyond the southern limit of the study area.
- Along both sides of Stone Road from the west of the study area and ending at the intersection with Victoria Road South
- Along both sides of Watson Parkway from York Road to approximately 100 metres north of the intersection

Cycling facilities

- A buffered bike lane is provided along Victoria Road South from the Eramosa River to Stone Road East, and continues south of Stone Road as a regular bike lane
- A buffered bike lane is provided along Stone Road East from the west of the study area to Victoria Road South, and continues east of Victoria Road South as a regular bike lane to Watson Parkway

- A buffered bike lane is provided along Watson Parkway north of York Road

11.2.2 Transit

As previously discussed in **Section 3.3**, the subject site is generally serviced by two Guelph Transit routes with a third route operating along York Road to the north of the site. The three routes operate with a headway ranging between 20-30 minutes throughout the day.

11.3 Recommended TDM Measures

The following TDM measures are recommended to encourage residents to explore alternate modes of transportation:

Pedestrian Connections

The provision of pedestrian connections between each parcel, the proposed local roadway, and the external roadway provides pedestrians with direct connections between the uses and the external road network.

Providing shorter routes for pedestrians will further encourage them to complete short trips by foot by not forcing pedestrians to go out of their way to complete simple day-to-day tasks.

Enhanced pedestrian amenities can also be provided on site and can include, but not limited to, benches, landscaping and lighting.

Bicycle Parking/Repair Station

Bicycle parking provides residents and visitors to the site with an area to conveniently lock-up their bicycle. A secure or weather protected area can further encourage people to use their bicycle more frequently by reducing the threat of bicycle theft and shielding them from rain and snow. The supply of bicycle parking for residents and visitors will be provided to meet or exceed the City's Zoning By-law requirements.

The provision of long-term bicycle parking within secured areas for residents will allow cyclists to lock-up their bicycle within a secure room that would only be accessible by residents and reduce the likelihood of theft. Bicycle repair stations can also be provided within the secured bicycle room, providing the opportunity to complete quick repairs to their bicycle with readily available tools.

The applicant may also explore parking areas for micro-mobility devices such as e-scooters. The popularity of micro-mobility devices has been observed to have increased over the last few years, providing an alternative to typical active transportation modes of walking and cycling. Due to the proximity of GID Blocks 1 & 2 and Guelph University from Block 3, residents that frequent those nearby areas may choose to use an e-scooter to complete the relatively short trip to get to their destination.

Short-term bicycle parking for visitors (residential and non-residential uses) can be provided at-grade and within weather protected areas, protecting them from the elements such as rain and snow.

Information Packages

Information packages can be provided to residents at the time of the purchase of a unit to educate them on the various infrastructures that are in place or are proposed to further reduce their dependency on motor vehicle trips to complete short trips.

The information packages can include maps and schedules of nearby local transit routes operated by Guelph Transit and the regional public transit system through GO Transit (bus and train schedules), as well as active transportation maps such as the existing/proposed cycling routes and future sidewalk and trails maps.

The provision of public transit maps and schedules can identify the nearby transit routes that operate within the vicinity of the site and provide them with additional information such as the typical time of the day the route operates as well as the frequency at which buses arrive (headways).

Car Share

The provision of car-share spaces/vehicles will support the residents who require the occasional use of a personal vehicle but prefer to not have the hassle of vehicle ownership. Having car share options available can make it easier for residents to rely on public transit for their daily commute, and relying on a shared vehicle when necessary, thus promoting a multi-modal transport approach.

Providing car shares services directly within the development provides many benefits including:

- Car sharing eliminates the expenses associated with owning a vehicle, such as the cost of the vehicle, maintenance and insurance.
- Fewer vehicles on the road mean reduced carbon emissions and pollution, contributing to a cleaner and healthier environment.
- Car share services provide the convenience of a vehicle without the commitment of ownership, ideal for residents who only need a vehicle occasionally.
- Users of car share services are more likely to utilize public transit, walk, or cycle, leading to more sustainable and active transportation habits.
- With fewer privately-owned vehicles in use, car sharing can help reduce overall traffic congestion in urban areas.
- Encourages Responsible Vehicle Use: When users pay per trip, they tend to plan their car use more efficiently, reducing unnecessary travel.

Transit Passes and Real Time Transit Information

Transit incentives such as transit passes can be provided to residents at the time of the purchase of a unit to encourage them to use public transit period. The amount provided or the duration of the transit pass can be further discussed between the developer and the public transit agency.

The provision of transit incentives can provide residents with the opportunity to try out public transit at no cost to the resident, while also establishing a new routine for them in order to further reduce their dependency on single occupant vehicle trips.

The Government of Ontario has begun to establish fare integration between various transit agencies within the GTA, allowing transit users to transfer between different transit agencies while only paying the fare once over a two-hour period. The program is not currently offered with Guelph Transit, but as the program continues to roll-out it may be included in the future. The program would allow for someone to take a Guelph Transit bus to the Guelph Central GO Station and transfer to a GO train/bus while only paying the fare for one transit agency.

The provision of real-time transit information on screens within the main lobbies of each building can provide transit riders with real-time data for the various transit routes adjacent to the site. Providing these screens within the lobby will offer residents to stay within the building when waiting for the next transit bus while protecting them from the elements.

Reduced Parking

The reduced parking provision works in conjunction with the set of TDM measures provided by the developer by to reduce resident's dependency on motor vehicle trips.

A reduction in parking spaces from the By-law requirement can encourage a shift between the auto driver mode and the non-auto driver mode (walking, cycling, public transit, etc.) by reducing the number of vehicles trips generated by the overall development. When making alternative modes more readily available and practical, residents will be more encouraged to explore alternative modes of transportation and make it a new habit.

12. Conclusion

The block plan currently contemplated for the subject site proposes to generally consist of a mix of dwelling units, office GFA, retail GFA, and school GFA.

Access to Block Plan Area 1 & 2 is proposed via three new east/west roadways (New Street “A”, Main Street, and New Street “B”) and a single north/south roadway (New Street “A”)

The project development is expected to generate a total of 1,647 two-way vehicle trips during the a.m. peak hour consisting of 841inbound and 806outbound trips. During the p.m. peak hour, it is expected to generate 1,857new two-way vehicle trips consisting of 807inbound and 1,050 outbound trips.

Under existing traffic conditions, the study intersections are operating at satisfactory levels however some individual movements at some intersections are operating with some capacity constraints and high levels of delay while remaining below capacity.

Future background traffic volumes projected for the 2036, 2041, and 2046 planning horizons include several background developments including the GID Block Plan Area 3 and generally assumes all recommended network and intersections improvements identified in the GID Block Plan Area 3 Traffic Impact Study prepared by GHD.

The following improvements have been identified to be required by either background developments or to accommodate future background traffic volumes:

- Victoria Road
    - Widening to a four-lane cross-section

The following geometric improvements are required to accommodate GID Block Plans 1 and 2:

- Victoria Road at College Avenue/Main Street
    - The construction of the fourth leg of the intersection (east leg) and a corresponding eastbound through, southbound left-turn, and northbound right-turn lane.

Left-turn lane warrants were also completed for unsignalized intersections which confirmed that a left-turn lane is warranted in the westbound direction along Stone Road and in the southbound direction along Victoria Road South.

With the implementation of the planned and recommended road and intersection improvements, the study confirms that the proposed residential mixed-use development within GID Block Plan Areas 1 and 2 can generally be accommodated on the surrounding road network with the exception of several intersections along Victoria Road which are expected to operate with critical movements, particularly for left turns and through movements. These operational constraints are a result of the City requiring that Victoria Road not be widened to beyond a four-lane cross section and to avoid implement dual left turn lanes at signalized intersections, which limits the ability to provide the additional capacity needed to improve traffic flow at these locations.

Appendices

Appendix A

Terms of Reference

Raf Andrenacci

From: Will Maria
Sent: Wednesday, February 7, 2024 3:15 PM
To: Raf Andrenacci
Subject: FW: Guelph Innovation District TOR

CompleteRepository: 899999999
Description: Miscellaneous
JobNo: 99999
OperatingCentre: 89
RepoEmail: 899999999@ghd.com
RepoType: Overhead
SubJob: 99

Will

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

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

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: Monday, January 9, 2023 5:10 PM
To: Dominic Cho <Do-Hyun.Cho@ghd.com>
Cc: Planning Division <Planning@guelph.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>; Kate Berry <Kate.Berry@guelph.ca>; Jennifer Juste <Jennifer.Juste@guelph.ca>; Will Maria <William.Maria@ghd.com>
Subject: RE: Guelph Innovation District TOR

Hi Dominic,

I hope you had a good holiday!

I just wanted to clarify that you were planning to prepare two TIS studies, one for Blocks 1 and 2 and another for Block 3. Please correct me if I am wrong.

Regards,
Gwen

From: Dominic Cho <Do-Hyun.Cho@ghd.com>
Sent: Monday, January 9, 2023 4:01 PM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>

Cc: Planning Division <Planning@guelph.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>; Kate Berry <Kate.Berry@guelph.ca>; Jennifer Juste <Jennifer.Juste@guelph.ca>; Will Maria <William.Maria@ghd.com>
Subject: RE: Guelph Innovation District TOR

Hi Gwen,

Happy new year!

GHD will be retained to assist in development application for GID Block Area 3, on top of the Areas 1 and 2 that we've provided TOR for.

As such, we are wondering if the city would want us to include GID Block Area 3 as background development for the Block Areas 1 & 2 report, and vise versa.

Please let us know.

Regards,

Dominic Cho, **B.ASc., P.Eng.**
Transportation Planner

GHD
Proudly employee owned | ghd.com
140 Allstate Parkway Suite 210 Markham Ontario L3R 5Y8 Canada | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

The Power of Commitment

Connect

Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: November 17, 2022 8:52 AM
To: Dominic Cho <Do-Hyun.Cho@ghd.com>; Planning Division <Planning@guelph.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>; Kate Berry <Kate.Berry@guelph.ca>; Jennifer Juste <Jennifer.Juste@guelph.ca>
Subject: RE: Guelph Innovation District TOR

You don't often get email from gwen.zhang@guelph.ca. Learn why this is important

Hi Dominic,

We have reviewed the proposed TOR. Our comments are provided below and are highlighted in red.

If you have any questions, please feel free to contact us.

Regards,

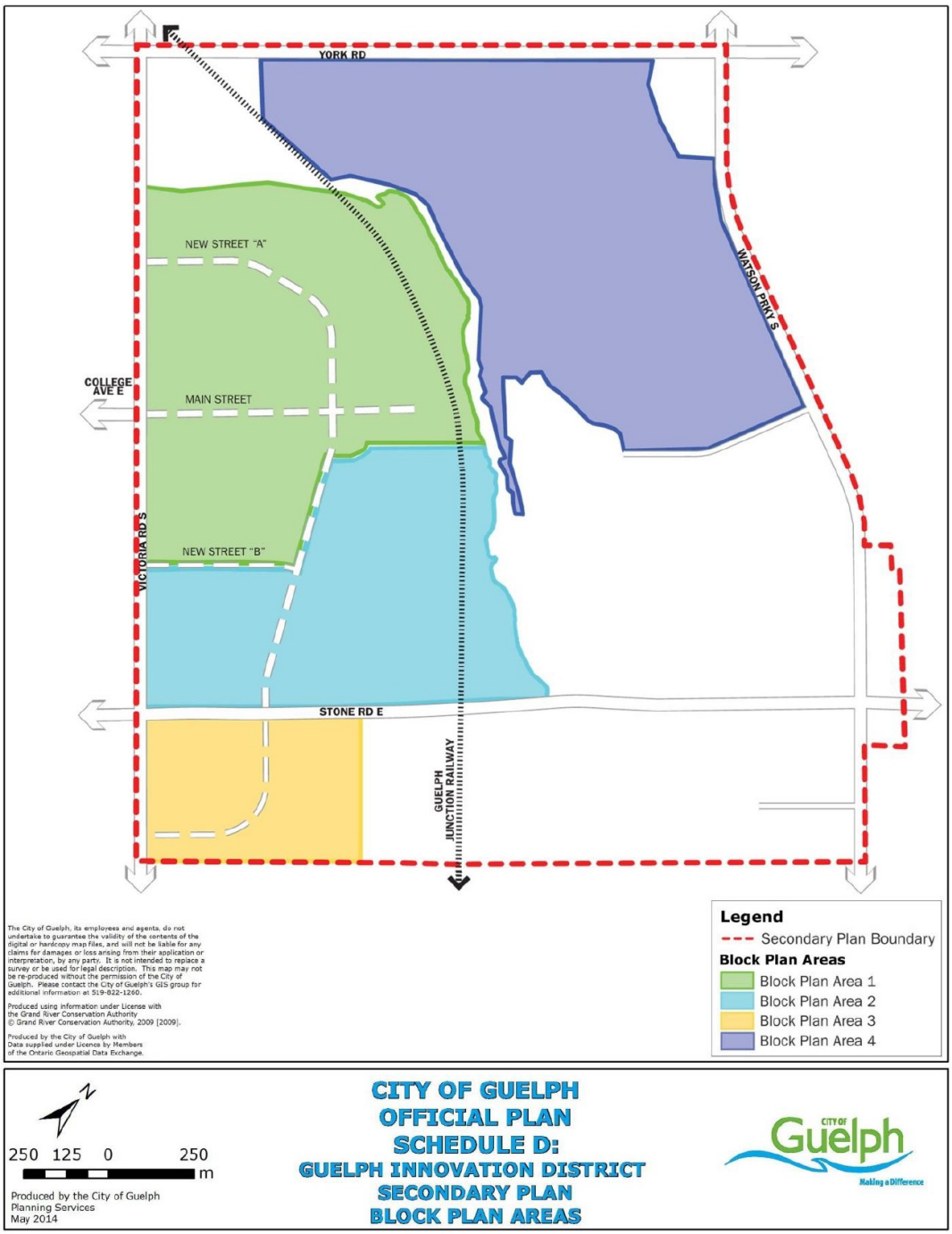
Gwen Zhang, M.Sc., P.Eng (she/her), Transportation Planning Engineer

Engineering and Transportation Services
T 519-822-1260 x 2638
E gwen.zhang@guelph.ca

From: Dominic Cho <Do-Hyun.Cho@ghd.com>
Sent: Thursday, November 3, 2022 1:35 PM
To: Planning Division <Planning@guelph.ca>; Munshif Muccaram <Munshif.Muccaram@guelph.ca>; Kate Berry <Kate.Berry@guelph.ca>; Jennifer Juste <Jennifer.Juste@guelph.ca>; Gwen Zhang <Gwen.Zhang@guelph.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: Guelph Innovation District TOR

[EXTERNAL EMAIL] Do not click links or attachments unless you recognize the sender and know the content is safe.

Good afternoon, GHD Limited has been retained to prepare a Transportation Impact Study (TIS) for the proposed Block Plan Areas 1 and 2 within the Guelph Innovation District (GID).
A terms of reference has been prepared for the overall Block Plan that is being submitted to the City as required by the Guelph Innovation District Guidance for Preparation of Block Plans 2019 which includes the following scope of work. However, to begin discussions with City staff and begin our work, we ask that the City review and provide comments on the following work plan:
The subject area is a shown in figure below, and includes area bounded by Victoria Road South to the west, Stone Road to the south and Eramosa River to the northeast.



Traffic assessment years (horizon years) of existing 2022, future background 2032 and future total of 2032 will be used for the TIS. The proposed horizon years are a departure from the typical horizon year of build-out and five years after the build-out but given infancy of the proposed plans and the size of the scope, ten years from existing is more appropriate. Please follow City's Traffic Impact Study Guidelines to determine future horizon years. The improvements to the surrounding road network have to be identified upon the traffic operation analysis under scenarios of the full build-out, five years and ten years after the full build-out.

The following will be addressed in the study:

- Establish existing and future operating conditions for the study intersections, including anticipated corridor growth, future development of Block Plan Areas 1 and 2 of GID and any other background developments
- Forecast trip generation and distribution of Block Plan Areas 1 and 2 and determine its impact to the study intersections and surrounding traffic

- Review the proposed road network within the Block Plans for conformance to the Guelph Innovation District Secondary Plan
- Prepare Parking Study and Transportation Demand Management (TDM) recommendations suggesting reduced parking standards and TDM measures for the Block Plans Please contact Planning Department to see whether a parking justification report is needed.
- Review the active transportation network within the Block Plans for conformance/integration to the Transportation Master Plan, Cycling Master Plan, Guelph Active Transportation Network Study and Guelph Innovation District Secondary Plan

The following documents have been reviewed in preparation of this Terms of Reference and will be used for the TIS:

- City of Guelph Transportation Master Plan (January 2022)
- City of Guelph Cycling Master Plan (February 2012)
- City of Guelph Traffic Impact Study Guidelines (April 2016)
- Guelph Active Transportation Network Study (June 2017)
- Guelph Innovation District Secondary Plan (August 2017)
- Guelph Innovation District: Guidance for Preparation of Block Plans (2019)

Existing Conditions

The following existing study intersections have been identified: The additional intersections were provided to GHD on November 4, 2022. They are listed below in red.

- Victoria Road South at York Road
- Victoria Road South at College Avenue East
- Victoria Road South at Stone Road East
- Watson Parkway at York Road
- Watson Parkway at Watson Road/Dunlop Drive
- Watson Parkway at Stone Road

Please contact traffic@guelph.ca to purchase the following traffic TMCs counts.

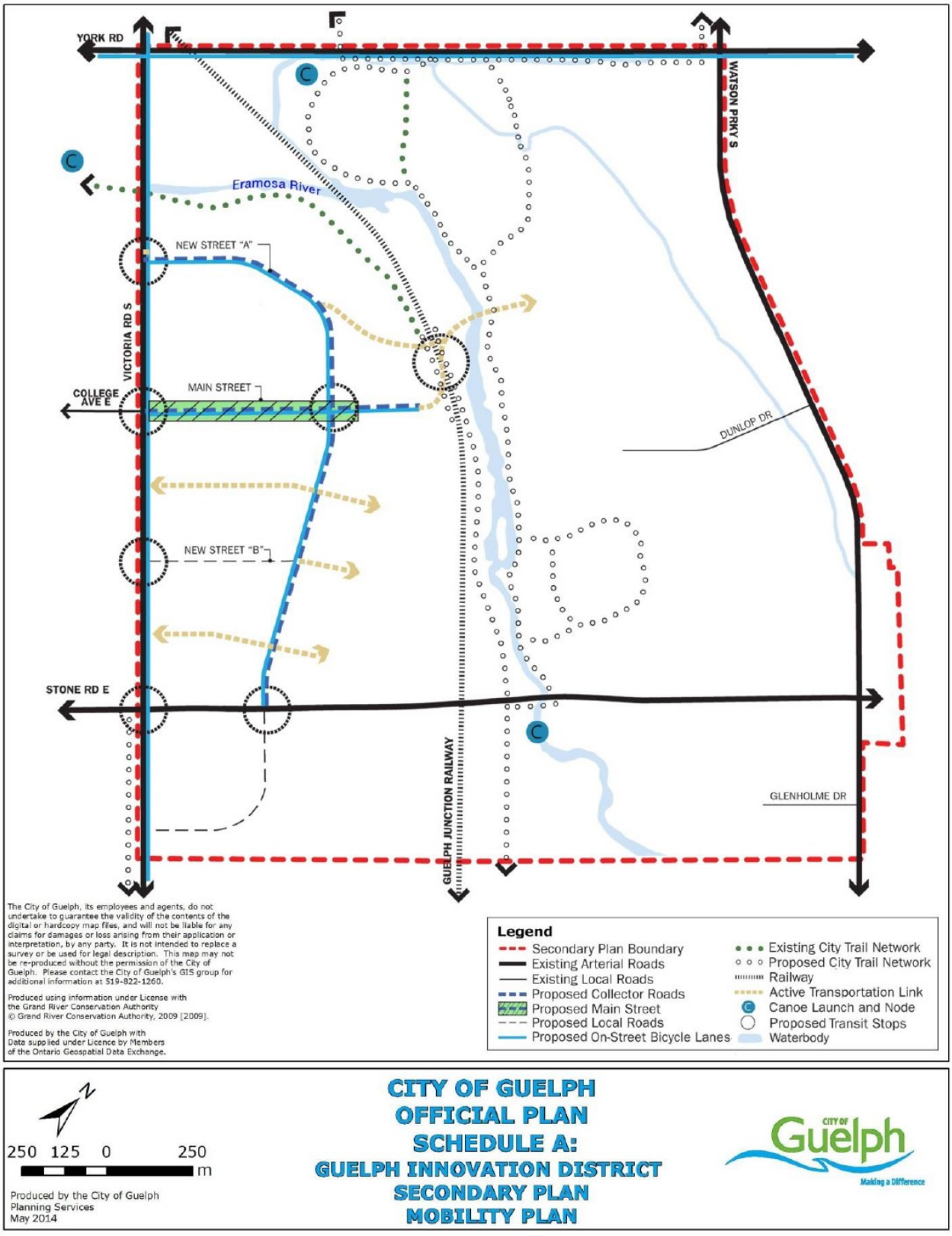
- York Road and Victoria Road
  - May 2019
- York Road and Watson Parkway
  - March 2019
- Victoria Road and College Avenue
  - March 2019
- Victoria Road at Stone Road
  - April 2014
- Stone Road and Watson Parkway
  - July 2018

The base year scenario must be developed by using pre-COVID counts if available or new counts, whichever is higher.

In addition to the existing study intersections above, the following proposed intersections have also been identified based on the Mobility Plan for GID, taken from Schedule A of Guelph Innovation District Secondary Plan (August 2017):

The proposed study intersection identified in the mobility plan are as follows:

- Victoria Road South at New Street ‘A’
- Victoria Road South at New Street ‘B’
- New Street ‘A’ at Main Street
- New Street ‘A’ at Stone Road East
- New Street ‘A’ at Street ‘B’



Existing traffic data will be undertaken for the existing study intersections for the weekday AM and PM peak hours. Existing signal timings for the existing study intersections will be obtained from the City. Please contact traffic@guelph.ca for traffic signal timing plans.

The study will include transportation analysis of existing conditions using Trafficware's Synchro.

Future Background Conditions

The following roadway improvement is identified for the study area:

- York Road Reconstruction Phase ~~3~~4 – 202~~3~~4 to Summer 202~~4~~6. Improvements include widening York Road to four lanes and adding multi-use pathways from Victoria Road to City's east limit.

Information related to York Road Reconstruction Phase 4 can be found from the following project webpages.

- https://guelph.ca/living/construction-projects/york-road-reconstruction/#phase-4-design-work-ongoing
- https://guelph.ca/wp-content/uploads/19-08-York-Road-EIS.pdf
  - Section 7.0 Recommended Design Alternative

Other potential roadway improvements include following locations. Please note future EA studies for road widening may be undertaken by the City to justify some of these improvements. If warranted, the construction timing will be driven by the area traffic demand and growth.

- Victoria Road widening to four lanes from Eramosa River to Stone Road. Intersection improvements at Victoria Road and York Road. A copy of the Victoria Road EA (2005) can be found in the city's website. https://guelph.ca/wp-content/uploads/Victoria-Road-Class-EA-Study-Consolidated.pdf
- Stone Road widening to four lanes from Victoria Road to Watson Parkway. Intersection improvements at Stone Road and Watson Parkway including a potential roundabout.

We ask the City to provide us with the detailed design of the York Road Reconstruction and confirm any other relevant transportation network improvements within the study horizon. See above.

Future background traffic volume for the study intersections will consider corridor growth along existing roadway and any relevant future developments. We ask the City to confirm if traffic data such as AADT or EMME model are available that could be used to calculate appropriate growth rates, as well as information on any future developments that the City expects to be included as background. We recommend a 2% annual growth rate for the area road network which is in line with City's population growth.

The following potential developments must be included in the background traffic growth for future scenarios.

- The rest of the developments in Guelph Innovation Districts (Page 26).
  - https://guelph.ca/wp-content/uploads/OPA54_GuelphInnovationDistrict_08102017.pdf
  - City has a plan for the land use in the northwest corner of Stone Road and Watson Parkway. We will share the information by the end of November.
- York Elizabeth Land Use Study. Additional population 160. Additional commercial development 4,878 sq.m.
  - https://guelph.ca/living/construction-projects/york-elizabeth-land-use-study-and-urban-design-concept-plan/

Site Trip Generation

Trip Generation estimates will be prepared for the weekday AM and PM peak hours for the Block Plan Areas 1 and 2 using the Institute of Transportation Engineer's (ITE's) Trip Generation Manual, 11th edition.

Existing transportation modal split and any reduction in site trips will be clearly documented as per the Transportation Tomorrow Survey (TTS) 2016 data. The City's transportation modal split goal from the TMP will be used as the future split.

The distribution of traffic to and from the district will be based on review of TTS data, existing traffic patterns and consultations with the City. Please provide the proposed trip distribution to City prior to the completion of the analysis. The site traffic will be assigned to the study area road network in accordance with our interpretation of this information.

Future Total Conditions

We will develop and analyze Future Background and Future Total traffic scenarios.

Impact of generated site traffic volumes on existing/future study intersections will be identified using Trafficware's Synchro software, in accordance with the TIS Guideline from the City – as well as review of expected performance of these study intersection under the Guideline's criteria.

The Block Plans for Area 1 and 2 and its road network will be reviewed with respect to criteria outlined in Schedule A of Guelph Innovation District Secondary Plan, Guelph Active Transportation Network Study , Transportation Master Plan, and Geometric Design Guide for Canadian Road by Transportation Association of Canada.

Transportation Improvements

All recommended transportation improvements will be summarized including additional new roads and multimodal connections, physical intersection improvements, operational changes, signal timing changes, as well as identification of proposed changes to transit routes and/or stops through the study area.

- Provide traffic signal warrant analysis at unsignalized intersections.
- Identify intersection control types at unsignalized intersections including strop controls or controlled pedestrian crossing.
- Provide turning lane warrant analysis at all intersections.
- Provide typical cross sections for streets within Guelph Innovation District, Victoria Road and Stone Road. Please follow the guidance in the Transportation Master Plan and the Clair-Maltby Secondary Plan for typical cross-sections (Appendix C).
    - https://guelph.ca/wp-content/uploads/Clair-Maltby-Secondary-Plan-Official-Plan-Amendment-79.pdf
- At intersections (including driveway intersections) along Victoria Road and Stone Road adjacent to Blocks 1 and 2, identify approach sightline triangles to ensure sufficient corner clearances. Considerations should be given to potential sightline obstructions due to any roadway vertical curvatures.

Parking and Transportation Demand Management

The study will include a parking study that reviews the current Zoning By-law parking requirements for the City, reviews parking requirement from other municipality including recent parking review studies and recommends reduced parking standards for the land uses proposed in the Block Plan based on the planned transit and active transportation network and supported by recommended TDM measures.

Transportation Demand Management options will be recommended to support future transportation modal split and reduced parking standards that is consistent with the proposed active transportation network and connections to the City's existing/proposed network in accordance with the Guelph Active Transportation Network Study (June 2017) and the Transportation Master Plan (2022).

Future Focused Transportation Studies

It is noted that this Study represents the first of potentially several transportation studies to be completed in support the GID. The broad-based analyses conducted in the TIS will focus on operations at the proposed connections to the adjacent existing municipal streets. This study will combines the requirements for a Transportation Impact Study (TIS), Transportation Demand Management Strategy, and Transportation Operations Study, but also lays the ground work for future focused studies in support of the Draft Plan of Subdivision and individual Site Plan Applications in.

If acceptable, the preceding will form the work plan for our Block Plan Traffic study.

Regards,

Dominic Cho
EIT
Transportation Planner

GHD
Proudly employee owned | ghd.com
140 Allstate Parkway Suite 210 Markham Ontario L3R 5Y8 Canada | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

The Power of Commitment

Connect

Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.

This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.

Raf Andrenacci

From: Will Maria
Sent: Wednesday, February 7, 2024 2:48 PM
To: Raf Andrenacci
Subject: FW: Guelph Innovation District - Trip Distribution and Balancing

CompleteRepository: 899999999
Description: Miscellaneous
JobNo: 99999
OperatingCentre: 89
RepoEmail: 899999999@ghd.com
RepoType: Overhead
SubJob: 99

Will

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

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

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

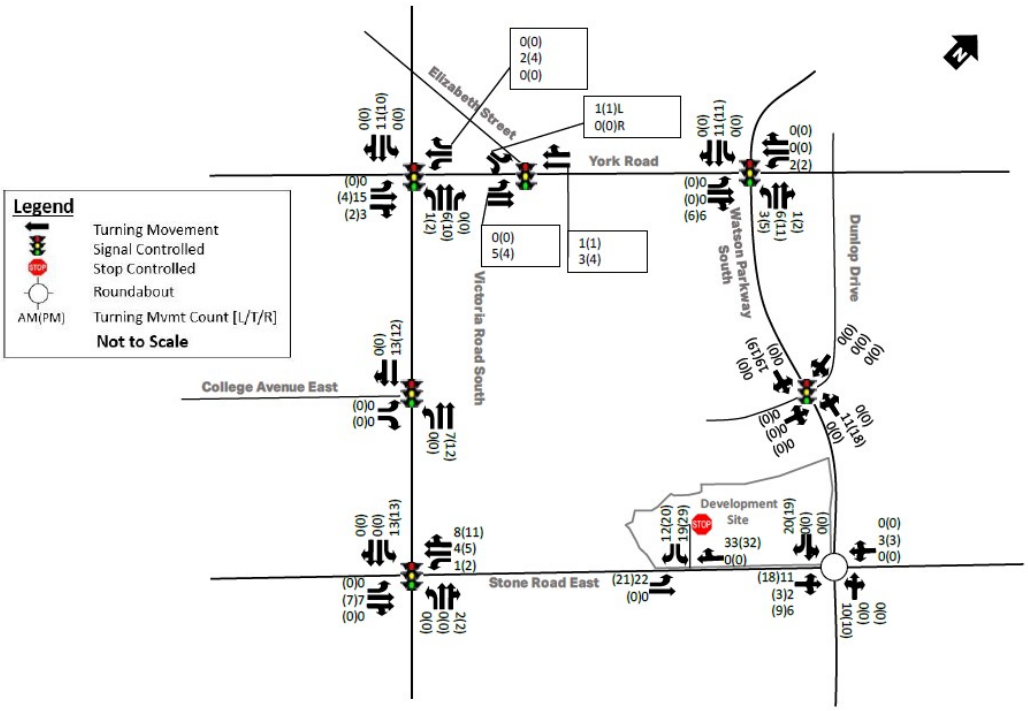
From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: Friday, January 19, 2024 2:38 PM
To: Will Maria <William.Maria@ghd.com>
Cc: Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Subject: RE: Guelph Innovation District - Trip Distribution and Balancing

You don't often get email from gwen.zhang@guelph.ca. Learn why this is important

Hi Will,

The trips generated by City's Operations Campus in the NW quadrant of Stone Road/Watson Parkway are shown below.

Figure 9: Development-Generated Traffic Volumes



Gwen

From: Gwen Zhang
Sent: Friday, January 19, 2024 12:07 PM
To: 'Will Maria' <William.Maria@ghd.com>
Cc: Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Subject: RE: Guelph Innovation District - Trip Distribution and Balancing

And this is the link to the land use forecast for GID including Block 4 (750 employment).
https://guelph.ca/wp-content/uploads/OPA54_GuelphInnovationDistrict_08102017.pdf#page=49

From: Gwen Zhang
Sent: Friday, January 19, 2024 10:38 AM
To: Will Maria <William.Maria@ghd.com>
Cc: Munshif Muccaram <Munshif.Muccaram@guelph.ca>
Subject: FW: Guelph Innovation District - Trip Distribution and Balancing

Hi Will, here is the email on trip distribution. Thanks.

From: Gwen Zhang
Sent: Wednesday, November 22, 2023 4:50 PM
To: Dominic Cho <Do-Hyun.Cho@ghd.com>
Subject: RE: Guelph Innovation District - Trip Distribution and Balancing

Hi Dominic,

We generally agree with the proposed trip distribution patterns. We increased the trips to/from the south by 5% due to the future employment developments in the Hanlon Creek Business Park.

If traffic counts are not to be balanced throughout the study area, rationales must be described in the TIS report.

As we mentioned in our previous comments, we strong encourage you to collect new counts at all intersections and compare them with the pre-COVID conditions. Please provide a comparison of the new counts and historical counts so we can help determine the appropriate data source.

Regards,

Gwen

From: Dominic Cho <Do-Hyun.Cho@ghd.com>
Sent: Tuesday, November 21, 2023 2:48 PM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>
Subject: Guelph Innovation District - Trip Distribution and Balancing

[EXTERNAL EMAIL] This email originates outside the City of Guelph. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hello Gwen,

Please see in below tables, trip distribution for GID based on TTS data for the entirety of Guelph.

		Residential		Employment		Retail	
		In	Out	In	Out	In	Out
York	East	5%	10%	10%	10%	5%	5%
York	West	20%	20%	15%	15%	10%	10%
College	West	20%	20%	20%	20%	10%	10%
Stone	East	0%	0%	0%	0%	0%	0%
Stone	West	15%	15%	5%	5%	5%	5%
Victoria	North	~~30%~~25%	~~25%~~20%	~~35%~~30%	~~35%~~30%	20%	20%
Victoria	South	~~10%~~15%	~~10%~~ 15%	~~15%~~20%	~~15%~~20%	50%	50%
		100%	100%	100%	100%	100%	100%

	Residential		Employment		Retail	
	In	Out	In	Out	In	Out
East	5%	10%	10%	10%	5%	5%
West	55%	55%	40%	40%	25%	25%
North	30% 25%	25% 20%	35% 30%	35% 30%	20%	20%
South	~~10%~~ 15%	~~10%~~ 15%	~~15%~~20%	~~15%~~20%	50%	50%
	100%	100%	100%	100%	100%	100%

Please note that each column had different TTS data retrieval (i.e. no column were copied/mirrored from each other). The distribution % are also rounded to nearest 5%

In addition, Guelph TIS Guideline (Oct 2023) states to consult the city if we want to build the traffic model without balancing the existing traffic volumes.

Given the varying traffic count dates due to the city's preference on using the highest volume data, the distance between the intersections and developments along Watson Parkway and on southeast quadrant of Victoria Road at York Road, we feel strongly that the volumes should not be balanced between study intersections.

Please let me know your thoughts.

Dominic Cho, **B.ASc., P.Eng.**
Transportation Planner

GHD
Proudly employee owned | ghd.com
100 Milverton Drive Suite 404, Mississauga Ontario L5R 4H1 CANADA | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

The Power of Commitment

Connect



Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.

Raf Andrenacci

From: Will Maria
Sent: Monday, February 5, 2024 2:54 PM
To: Raf Andrenacci
Subject: FW: GID - Future Improvements

CompleteRepository: 899999999
Description: Miscellaneous
JobNo: 99999
OperatingCentre: 89
RepoEmail: 899999999@ghd.com
RepoType: Overhead
SubJob: 99

Will

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

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

WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: Wednesday, December 13, 2023 4:39 PM
To: Dominic Cho <Do-Hyun.Cho@ghd.com>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: GID - Future Improvements

You don't often get email from gwen.zhang@guelph.ca. Learn why this is important

Hi Dominic,

Based on the land use type/size/arrangement, the trip synergy rates can be determined by generally following the mix-use trip generation in ITE's Trip Generation Handbook. The following are suggested rates:

- Residential – 20%
- Employment – 30%
- School – 75%
- Retail – 30%

Please note the 2022 TMP has set aggressive mode share targets for the GID area including walk 10%, bike 7%, transit bus 13%, and auto 70%. These targets plus the trip synergy will help reduce the total auto trips.

Let me know if you have any questions.

Regards,
Gwen

From: Dominic Cho <Do-Hyun.Cho@ghd.com>
Sent: Wednesday, December 13, 2023 10:41 AM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: GID - Future Improvements

[EXTERNAL EMAIL] This email originates outside the City of Guelph. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hi Gwen,

We want to hear the city's perspective on internal trip capture for GID 1 & 2.



The following are main land-uses within GID 1 & 2:

- Residential
- Employment
- School
- Retail

We expect that there will be lots of internal site interactions, for example, big portion of employees within the employment areas walking to/from residencies within the secondary plan area because many will choose to live within the GID area.

However, ITE Trip Generation Handbook have negligible amount of reduction for internal site interactions, because they are not built with secondary plan like GID in mind.

Therefore we want to propose the following reductions in auto-trips to account for internal trip capture within the secondary plan:

- Residential – 20%
- Employment – 50%
- School – 75%
- Retail – 50%

Please let me know what your thoughts regarding the above reductions.

Regards,

Dominic Cho, **B.ASc., P.Eng.**
Transportation Planner

GHD
Proudly employee owned | ghd.com
100 Milverton Drive Suite 404, Mississauga Ontario L5R 4H1 CANADA | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

→ The Power of Commitment

Connect



Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Dominic Cho
Sent: Tuesday, December 12, 2023 9:08 AM
To: 'Gwen Zhang' <Gwen.Zhang@guelph.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: GID - Future Improvements

That's perfect, thank you!

Dominic Cho, B.ASc., P.Eng.
Transportation Planner

GHD
Proudly employee owned | ghd.com
100 Milverton Drive Suite 404, Mississauga Ontario L5R 4H1 CANADA | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

→ The Power of Commitment

Connect



Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

From: Gwen Zhang <Gwen.Zhang@guelph.ca>
Sent: Tuesday, December 12, 2023 8:57 AM
To: Dominic Cho <Do-Hyun.Cho@ghd.com>
Cc: Will Maria <William.Maria@ghd.com>
Subject: RE: GID - Future Improvements

Hi Dominic,

We generally follow the 2022 TMP for lane expansion.

For the corridors surrounding the GID area, we accept 900 vphpl as the threshold.

Let me know if you have any questions.

Gwen

From: Dominic Cho <Do-Hyun.Cho@ghd.com>
Sent: Monday, December 11, 2023 3:27 PM
To: Gwen Zhang <Gwen.Zhang@guelph.ca>
Cc: Will Maria <William.Maria@ghd.com>
Subject: GID - Future Improvements

[EXTERNAL EMAIL] This email originates outside the City of Guelph. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hi Gwen,

What's the city's threshold/criteria for a lane expansion?

Like the ones used for Transportation Master Study to decide future lane expansions.

Can we assume 800 vhp per lane, as is standard for typical urban (not freeway) roadways?

Please let me know.

Regards,

Dominic Cho, B.ASc., P.Eng.
Transportation Planner

GHD
Proudly employee owned | ghd.com
100 Milverton Drive Suite 404, Mississauga Ontario L5R 4H1 CANADA | www.ghd.com
D +1 905 752 4317 **V** 884317 **E** do-hyun.cho@ghd.com

The Power of Commitment

Connect

Please consider the environment before printing this email
WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

Please consider our environment before printing this email

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.

This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.

Appendix B

Block Plan

DRAFT PLAN OF SUBDIVISION

Legal Description

PART OF BROKEN FRONT LOTS 10, 11 & 12
CONCESSION 1, DIVISION 'G'
GEOGRAPHIC TOWNSHIP OF GUELPH
IN THE CITY OF GUELPH
COUNTY OF WELLINGTON

Owner's Certificate

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____ _____
OWNER

Surveyor's Certificate

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

DATE: _____ _____
J. ANDREW SMITH
ONTARIO LAND SURVEYOR

Key Plan



Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended

A. AS SHOWN	B. AS SHOWN	C. AS SHOWN
D. AS SHOWN	E. AS SHOWN	F. AS SHOWN
G. AS SHOWN	H. MUNICIPAL WATER SUPPLY	I. TBD
J. AS SHOWN	K. ALL SERVICES AS REQUIRED	L. AS SHOWN

Area Schedule

Description	Block	Area (ha)	Units
Low Density Residential	1-34	17.724	457
Multiple Residential	35-44	19.792	1,003
Mixed Use	45-50	13.334	3,084
School/Mixed Use	51	2.072	
Employment	52-55	7.367	
Stormwater Management	56-58	6.701	
Significant Natural Area & Natural Areas	59	22.622	
Park	60-65	7.729	
Open Space	66-69	3.571	
Walkway	70-74	0.099	
Roads		15.585	
TOTAL	74	116.596	4,544

No.	Date	Issued / Revision	By
1.	Nov. 11 , 2025	Preliminary Draft Plan	SP

Notes

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. SURVEY INFORMATION PROVIDED BY CALLON DIETZ LAND SURVEYING ONTARIO, NOV. 2016.
3. TOPOGRAPHIC INFORMATION PROVIDED BY MTE.
4. WETLAND, DRIPLINE, AND BUFFERS PROVIDED BY NRSI INC, OCT. 2022.
5. CONTAINS INFORMATION MADE AVAILABLE UNDER GRAND RIVER CONSERVATION AUTHORITY'S OPEN DATA LICENCE V1.0.
6. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CITY OF GUELPH.
7. COLLECTOR SIGHT LINE TRIANGLE 9m. LOCAL STREET CORNER RADIUS 8m.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON. N2B 3X9 | P. 519.576.3650 F. 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date	December 5, 2025
File No.	1405G
Plan Scale	1:2,500 (Arch D)
Drawn By	SP/JB
Checked By	DA

Project
Guelph Innovation District
Block 1 & 2
Fusion Homes
Guelph, Ontario

north

File Name Draft Plan of Subdivision

Dwg No. 1 of 1

Scale Bar
0 25 50 100 150 200m

K:\1405G - GID Block 1 and 2\DP\DP_5Dec2025.dwg

Appendix C

Traffic Data

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

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

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

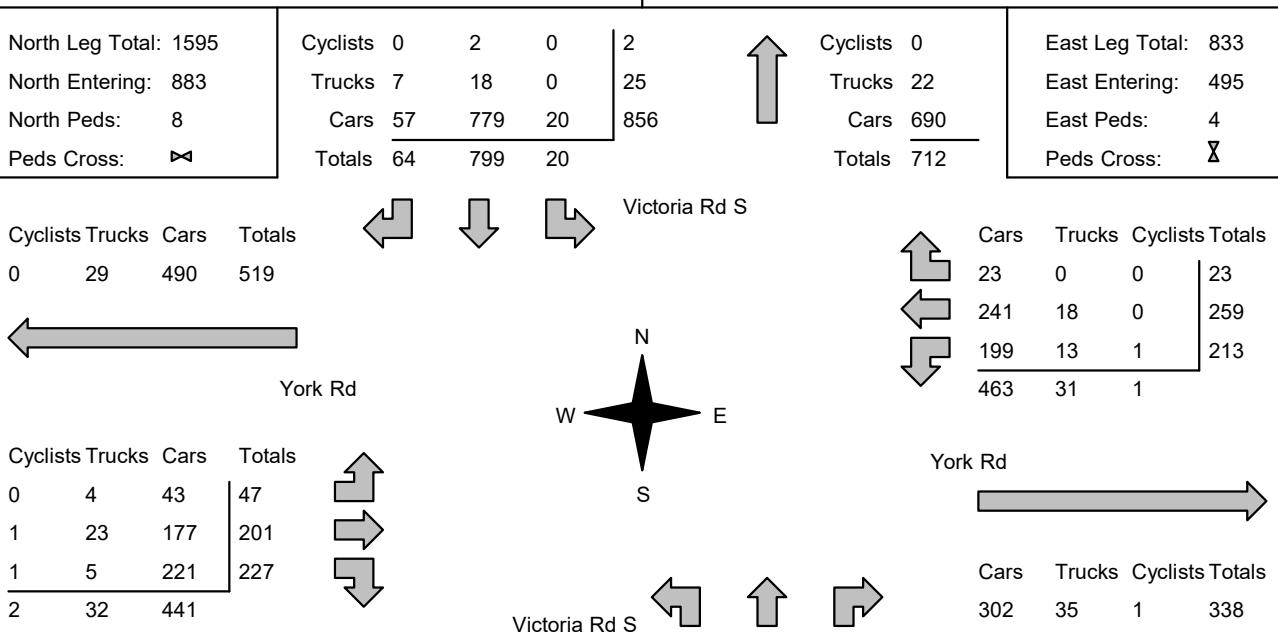
Municipality: Guelph
Site #: 1906000001
Intersection: Victoria Rd S & York Rd
TFR File #: 1
Count date: 29-May-19

Weather conditions: Sunny

Person counted: AlenaB
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

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

One Hour Peak
From: 11:30:00
To: 12:30:00

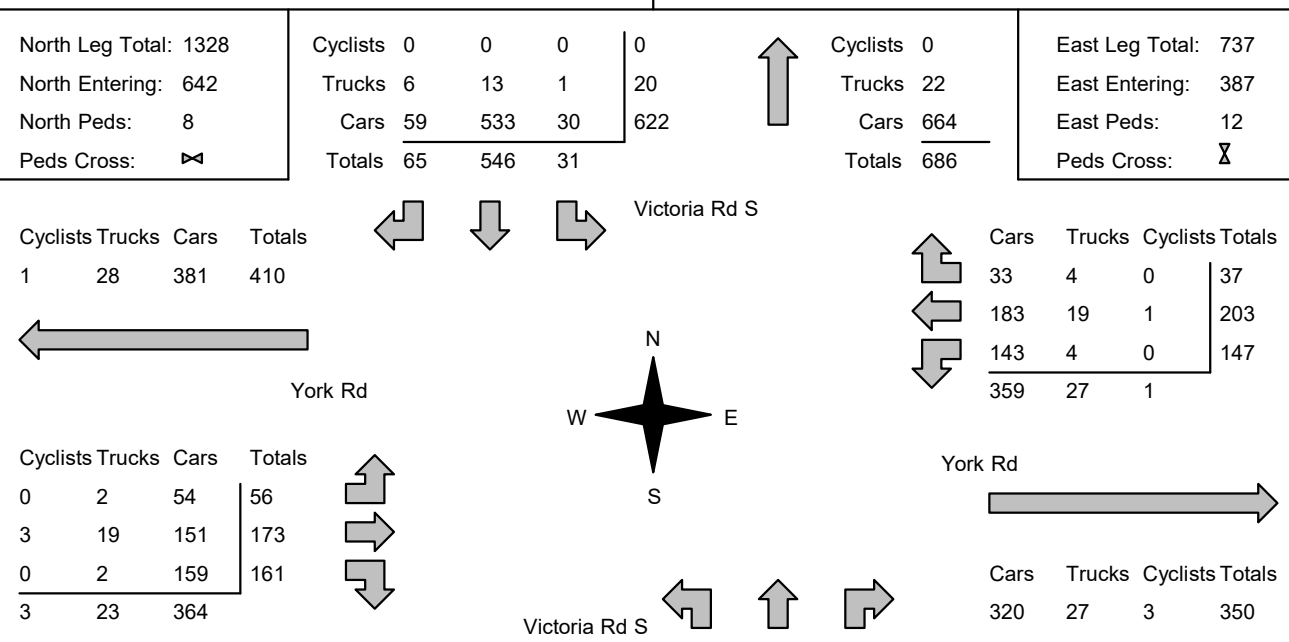
Municipality: Guelph
Site #: 1906000001
Intersection: Victoria Rd S & York Rd
TFR File #: 1
Count date: 29-May-19

Weather conditions: Sunny

Person counted: AlenaB
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

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

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

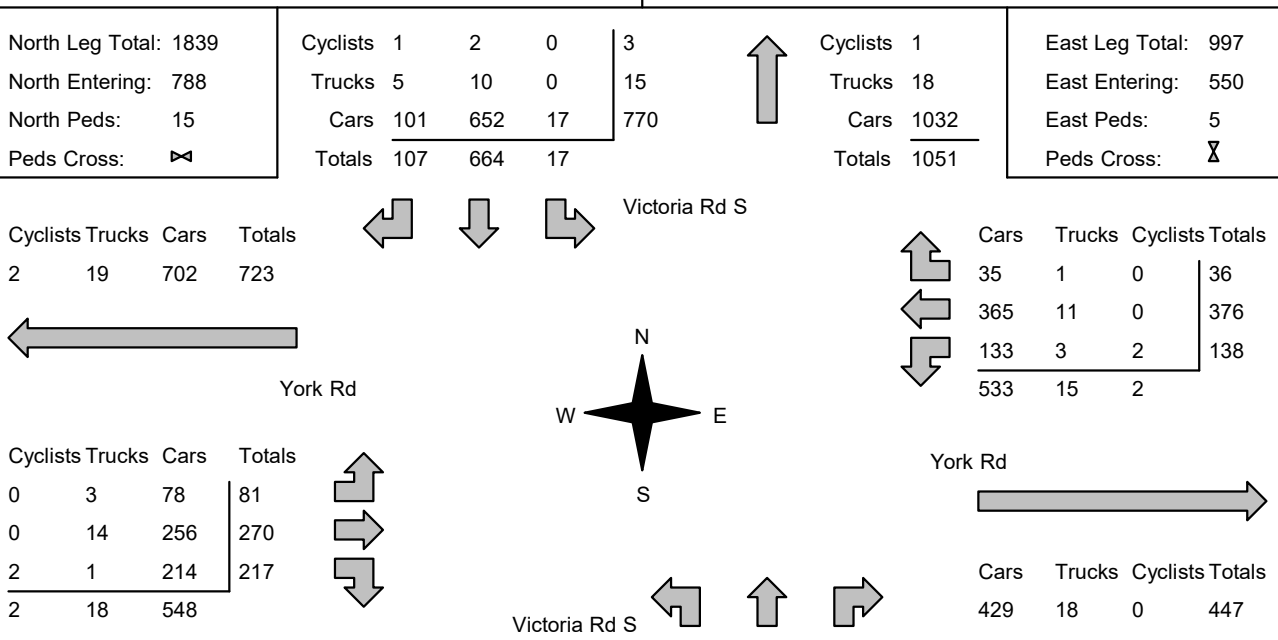
Municipality: Guelph
Site #: 1906000001
Intersection: Victoria Rd S & York Rd
TFR File #: 1
Count date: 29-May-19

Weather conditions: Sunny

Person counted: AlenaB
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Eight Hour Peak Diagram

Eight Hour Peak
From: 8:00:00
To: 16:00:00

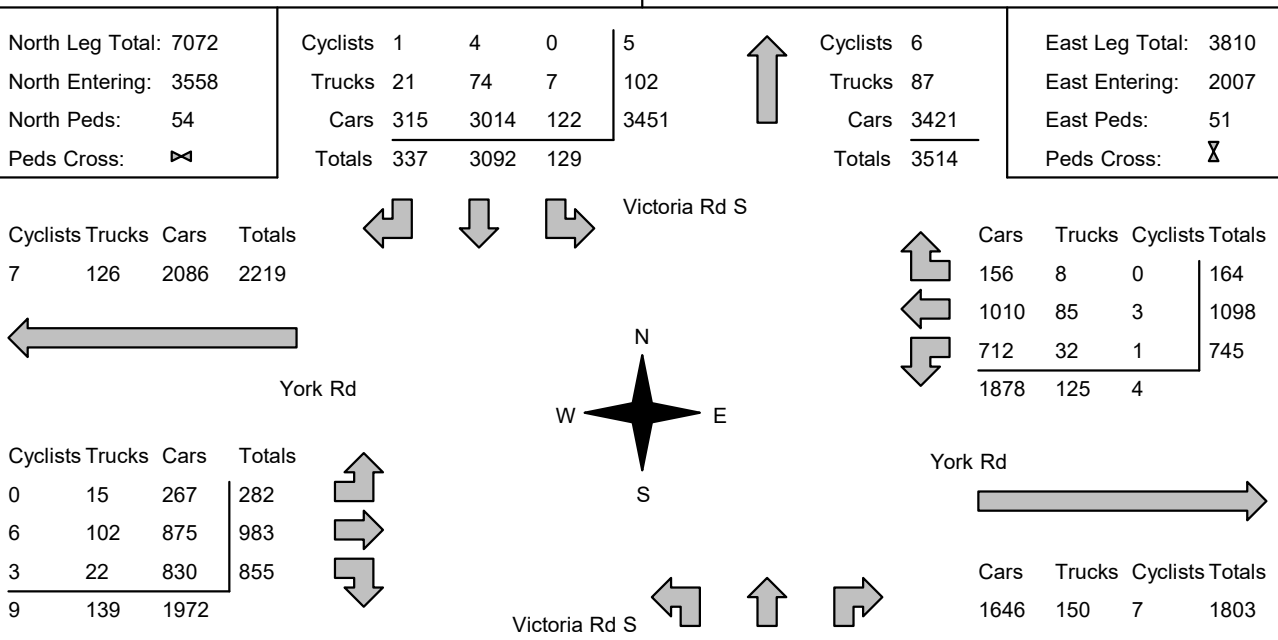
Municipality: Guelph
Site #: 1906000001
Intersection: Victoria Rd S & York Rd
TFR File #: 1
Count date: 29-May-19

Weather conditions:
Sunny

Person counted: AlenaB
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

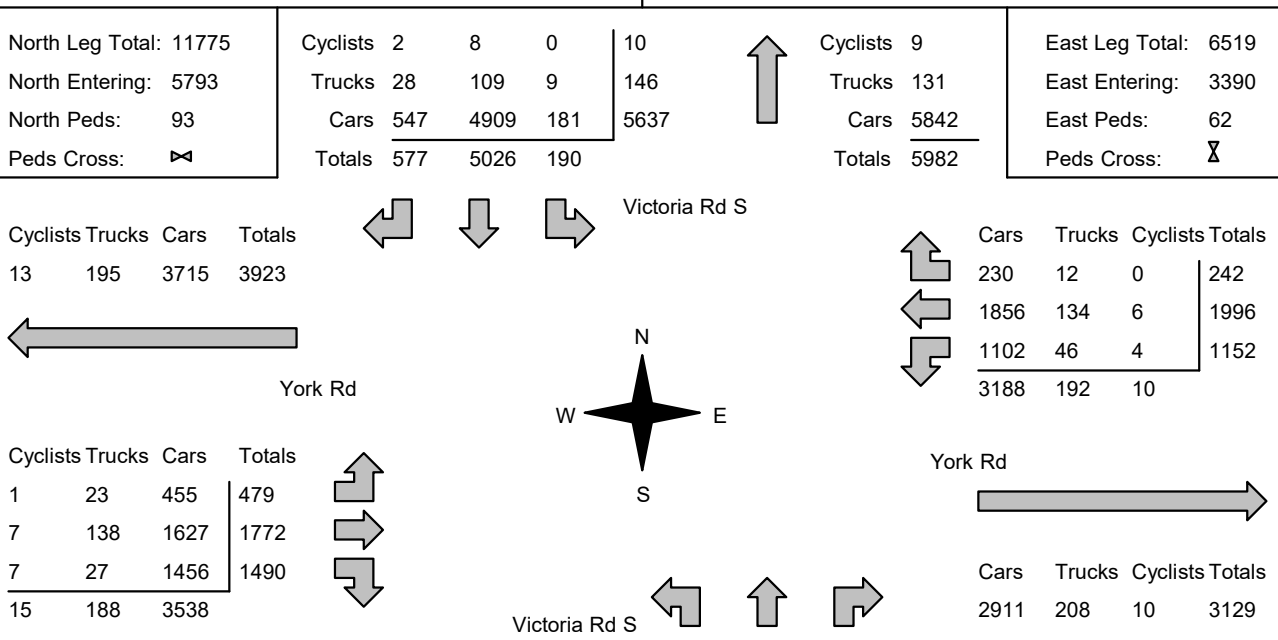
Municipality: Guelph
Site #: 1906000001
Intersection: Victoria Rd S & York Rd
TFR File #: 1
Count date: 29-May-19

Weather conditions: Sunny

Person counted: AlenaB
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Victoria Rd S & York Rd | **Count Date:** 29-May-19 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*17*	*620*	*33*	*670*	*3*
9:00:00	*20*	*799*	*64*	*883*	*8*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*28*	*542*	*70*	*640*	*8*
13:00:00	*25*	*544*	*65*	*634*	*16*
14:00:00	*29*	*527*	*60*	*616*	*7*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*27*	*680*	*78*	*785*	*15*
17:00:00	*18*	*628*	*99*	*745*	*20*
18:00:00	*26*	*686*	*108*	*820*	*16*
Totals:	190	5026	577	5793	93

North/South Total Approaches: 13571

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*114*	*405*	*143*	*662*	*2*
9:00:00	*196*	*642*	*117*	*955*	*14*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*125*	*565*	*130*	*820*	*14*
13:00:00	*141*	*581*	*143*	*865*	*18*
14:00:00	*140*	*554*	*153*	*847*	*8*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*182*	*726*	*148*	*1056*	*13*
17:00:00	*221*	*883*	*176*	*1280*	*8*
18:00:00	*231*	*905*	*157*	*1293*	*14*
S Totals:	1350	5261	1167	7778	91

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*140*	*188*	*15*	*343*	*3*
9:00:00	*213*	*259*	*23*	*495*	*4*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*116*	*180*	*26*	*322*	*10*
13:00:00	*142*	*212*	*36*	*390*	*15*
14:00:00	*133*	*170*	*42*	*345*	*17*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*141*	*277*	*37*	*455*	*5*
17:00:00	*142*	*389*	*39*	*570*	*3*
18:00:00	*125*	*321*	*24*	*470*	*5*
Totals:	1152	1996	242	3390	62

East/West Total Approaches: 7131

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*43*	*239*	*183*	*465*	*6*
9:00:00	*47*	*201*	*227*	*475*	*14*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*45*	*178*	*139*	*362*	*5*
13:00:00	*63*	*173*	*163*	*399*	*11*
14:00:00	*61*	*210*	*149*	*420*	*9*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*66*	*221*	*177*	*464*	*19*
17:00:00	*81*	*281*	*228*	*590*	*16*
18:00:00	*73*	*269*	*224*	*566*	*19*
W Totals:	479	1772	1490	3741	99

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*8:00*	*9:00*	*12:00*	*13:00*	*14:00*	*16:00*	*17:00*	*18:00*
Crossing Values:	*427*	*541*	*363*	*451*	*419*	*512*	*640*	*549*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 29-May-19 Site #: 1906000001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	123	123	3	3	0	0	2	2	0	0	0	0	0	0	0	0	1	1
7:30:00	8	2	253	130	10	7	1	1	7	5	0	0	0	0	1	1	0	0	2	1
7:45:00	12	4	432	179	23	13	1	0	9	2	1	1	0	0	1	0	0	0	2	0
8:00:00	15	3	604	172	32	9	2	1	15	6	1	0	0	0	1	0	0	0	3	1
8:15:00	16	1	782	178	43	11	2	0	18	3	5	4	0	0	1	0	0	0	3	0
8:30:00	21	5	1014	232	62	19	2	0	21	3	7	2	0	0	2	1	0	0	6	3
8:45:00	29	8	1197	183	77	15	2	0	26	5	7	0	0	0	2	0	0	0	10	4
9:00:00	35	6	1383	186	89	12	2	0	33	7	8	1	0	0	3	1	0	0	11	1
9:10:10	35	0	1383	0	89	0	2	0	33	0	8	0	0	0	3	0	0	0	11	0
11:00:00	35	0	1383	0	89	0	2	0	33	0	8	0	0	0	3	0	0	0	11	0
11:15:00	42	7	1519	136	104	15	2	0	42	9	9	1	0	0	3	0	0	0	12	1
11:30:00	47	5	1646	127	118	14	3	1	46	4	9	0	0	0	3	0	0	0	14	2
11:45:00	54	7	1782	136	133	15	3	0	50	4	9	0	0	0	3	0	0	0	17	3
12:00:00	62	8	1904	122	155	22	3	0	54	4	12	3	0	0	3	0	0	0	19	2
12:15:00	71	9	2060	156	167	12	4	1	59	5	14	2	0	0	3	0	0	0	20	1
12:30:00	77	6	2179	119	177	10	4	0	59	0	15	1	0	0	3	0	0	0	22	2
12:45:00	80	3	2308	129	202	25	5	1	61	2	15	0	0	0	3	0	0	0	27	5
13:00:00	85	5	2437	129	216	14	5	0	65	4	16	1	0	0	3	0	0	0	35	8
13:15:00	95	10	2578	141	230	14	5	0	67	2	17	1	0	0	3	0	0	0	36	1
13:30:00	101	6	2708	130	245	15	5	0	70	3	17	0	0	0	3	0	0	0	38	2
13:45:00	110	9	2831	123	261	16	5	0	73	3	17	0	0	0	4	1	0	0	40	2
14:00:00	113	3	2952	121	273	12	6	1	75	2	19	2	0	0	5	1	0	0	42	2
14:10:10	113	0	2952	0	273	0	6	0	75	0	19	0	0	0	5	0	0	0	42	0
15:00:00	113	0	2952	0	273	0	6	0	75	0	19	0	0	0	5	0	0	0	42	0
15:15:00	118	5	3108	156	294	21	7	1	76	1	19	0	0	0	5	0	0	0	43	1
15:30:00	123	5	3272	164	306	12	8	1	82	6	20	1	0	0	5	0	0	0	45	2
15:45:00	130	7	3454	182	322	16	9	1	86	4	22	2	0	0	5	0	1	1	49	4
16:00:00	137	7	3618	164	347	25	9	0	89	3	22	0	0	0	5	0	1	0	57	8
16:15:00	142	5	3774	156	374	27	9	0	92	3	22	0	0	0	5	0	1	0	69	12
16:30:00	145	3	3925	151	391	17	9	0	93	1	24	2	0	0	6	1	1	0	71	2
16:45:00	149	4	4076	151	413	22	9	0	98	5	25	1	0	0	6	0	1	0	74	3
17:00:00	155	6	4233	157	442	29	9	0	100	2	26	1	0	0	7	1	1	0	77	3
17:15:00	159	4	4426	193	475	33	9	0	102	2	27	1	0	0	7	0	2	1	84	7
17:30:00	163	4	4581	155	493	18	9	0	102	0	28	1	0	0	7	0	2	0	86	2
17:45:00	171	8	4750	169	516	23	9	0	104	2	28	0	0	0	8	1	2	0	87	1
18:00:00	181	10	4909	159	547	31	9	0	109	5	28	0	0	0	8	0	2	0	93	6
18:10:10	181	0	4909	0	547	0	9	0	109	0	28	0	0	0	8	0	2	0	93	0
18:15:15	181	0	4909	0	547	0	9	0	109	0	28	0	0	0	8	0	2	0	93	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 29-May-19 Site #: 1906000001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	31	31	37	37	4	4	1	1	5	5	0	0	0	0	0	0	0	0	0	0
7:30:00	61	30	64	27	7	3	4	3	12	7	0	0	0	0	0	0	0	0	1	1
7:45:00	89	28	112	48	9	2	4	0	19	7	1	1	0	0	2	2	0	0	2	1
8:00:00	132	43	163	51	13	4	8	4	23	4	2	1	0	0	2	0	0	0	3	1
8:15:00	180	48	223	60	18	5	12	4	30	7	2	0	1	1	2	0	0	0	4	1
8:30:00	233	53	294	71	24	6	16	4	34	4	2	0	1	0	2	0	0	0	5	1
8:45:00	284	51	340	46	33	9	20	4	37	3	2	0	1	0	2	0	0	0	7	2
9:00:00	331	47	404	64	36	3	21	1	41	4	2	0	1	0	2	0	0	0	7	0
9:10:10	331	0	404	0	36	0	21	0	41	0	2	0	1	0	2	0	0	0	7	0
11:00:00	331	0	404	0	36	0	21	0	41	0	2	0	1	0	2	0	0	0	7	0
11:15:00	351	20	447	43	38	2	23	2	46	5	2	0	1	0	2	0	0	0	8	1
11:30:00	374	23	488	41	43	5	24	1	49	3	3	1	1	0	2	0	0	0	12	4
11:45:00	420	46	523	35	53	10	24	0	54	5	3	0	1	0	2	0	0	0	15	3
12:00:00	443	23	569	46	60	7	25	1	56	2	4	1	1	0	2	0	0	0	17	2
12:15:00	486	43	627	58	68	8	27	2	64	8	6	2	1	0	2	0	0	0	21	4
12:30:00	517	31	671	44	76	8	28	1	68	4	7	1	1	0	3	1	0	0	24	3
12:45:00	550	33	716	45	87	11	28	0	74	6	7	0	1	0	3	0	0	0	26	2
13:00:00	580	30	759	43	93	6	30	2	77	3	7	0	1	0	3	0	0	0	32	6
13:15:00	619	39	806	47	104	11	30	0	84	7	7	0	1	0	3	0	0	0	35	3
13:30:00	657	38	836	30	110	6	33	3	88	4	8	1	1	0	3	0	0	0	36	1
13:45:00	682	25	882	46	122	12	33	0	92	4	8	0	1	0	3	0	0	0	42	6
14:00:00	707	25	909	27	133	11	36	3	97	5	9	1	1	0	3	0	0	0	49	7
14:10:10	707	0	909	0	133	0	36	0	97	0	9	0	1	0	3	0	0	0	49	0
15:00:00	707	0	909	0	133	0	36	0	97	0	9	0	1	0	3	0	0	0	49	0
15:15:00	738	31	976	67	143	10	36	0	102	5	9	0	1	0	4	1	0	0	50	1
15:30:00	775	37	1039	63	148	5	37	1	106	4	10	1	1	0	5	1	0	0	50	0
15:45:00	812	37	1106	67	156	8	38	1	108	2	10	0	1	0	5	0	0	0	54	4
16:00:00	844	32	1173	67	169	13	40	2	108	0	10	0	1	0	5	0	0	0	54	0
16:15:00	880	36	1264	91	178	9	42	2	114	6	10	0	1	0	5	0	0	0	54	0
16:30:00	909	29	1375	111	191	13	42	0	116	2	11	1	3	2	5	0	0	0	55	1
16:45:00	943	34	1466	91	196	5	43	1	118	2	11	0	3	0	5	0	0	0	55	0
17:00:00	981	38	1548	82	207	11	43	0	122	4	11	0	3	0	5	0	0	0	57	2
17:15:00	1013	32	1629	81	213	6	45	2	125	3	11	0	3	0	5	0	0	0	59	2
17:30:00	1038	25	1696	67	217	4	45	0	126	1	11	0	3	0	5	0	0	0	61	2
17:45:00	1069	31	1783	87	223	6	46	1	129	3	12	1	4	1	6	1	0	0	62	1
18:00:00	1102	33	1856	73	230	7	46	0	134	5	12	0	4	0	6	0	0	0	62	0
18:10:10	1102	0	1856	0	230	0	46	0	134	0	12	0	4	0	6	0	0	0	62	0
18:15:15	1102	0	1856	0	230	0	46	0	134	0	12	0	4	0	6	0	0	0	62	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 29-May-19 Site #: 1906000001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	22	22	69	69	32	32	2	2	1	1	4	4	1	1	0	0	0	0	0	0
7:30:00	46	24	154	85	60	28	2	0	6	5	5	1	1	0	0	0	0	0	0	0
7:45:00	71	25	251	97	95	35	3	1	8	2	7	2	1	0	0	0	0	0	0	0
8:00:00	107	36	394	143	134	39	6	3	11	3	8	1	1	0	0	0	1	1	2	2
8:15:00	145	38	548	154	156	22	6	0	15	4	11	3	1	0	0	0	1	0	9	7
8:30:00	191	46	692	144	185	29	7	1	18	3	13	2	1	0	0	0	1	0	12	3
8:45:00	244	53	836	144	215	30	7	0	23	5	17	4	1	0	0	0	1	0	14	2
9:00:00	299	55	1018	182	239	24	10	3	29	6	20	3	1	0	0	0	1	0	16	2
9:10:10	299	0	1018	0	239	0	10	0	29	0	20	0	1	0	0	0	1	0	16	0
11:00:00	299	0	1018	0	239	0	10	0	29	0	20	0	1	0	0	0	1	0	16	0
11:15:00	324	25	1161	143	268	29	10	0	31	2	25	5	1	0	0	0	1	0	19	3
11:30:00	350	26	1279	118	288	20	12	2	34	3	26	1	2	1	1	1	1	0	25	6
11:45:00	380	30	1429	150	322	34	13	1	42	8	29	3	2	0	1	0	1	0	28	3
12:00:00	419	39	1566	137	358	36	14	1	45	3	31	2	2	0	1	0	1	0	30	2
12:15:00	451	32	1712	146	391	33	14	0	47	2	33	2	2	0	1	0	1	0	39	9
12:30:00	489	38	1856	144	427	36	15	1	50	3	33	0	2	0	1	0	1	0	43	4
12:45:00	521	32	2002	146	460	33	15	0	51	1	34	1	2	0	1	0	1	0	47	4
13:00:00	558	37	2137	135	495	35	16	1	55	4	37	3	2	0	1	0	1	0	48	1
13:15:00	583	25	2269	132	546	51	20	4	59	4	38	1	2	0	1	0	1	0	51	3
13:30:00	620	37	2406	137	568	22	21	1	61	2	39	1	2	0	2	1	1	0	52	1
13:45:00	649	29	2543	137	603	35	22	1	62	1	40	1	3	1	4	2	1	0	54	2
14:00:00	691	42	2676	133	644	41	22	0	66	4	41	1	3	0	5	1	1	0	56	2
14:10:10	691	0	2676	0	644	0	22	0	66	0	41	0	3	0	5	0	1	0	56	0
15:00:00	691	0	2676	0	644	0	22	0	66	0	41	0	3	0	5	0	1	0	56	0
15:15:00	727	36	2821	145	670	26	22	0	68	2	43	2	3	0	5	0	2	1	61	5
15:30:00	778	51	3020	199	702	32	25	3	70	2	44	1	3	0	5	0	2	0	66	5
15:45:00	818	40	3184	164	747	45	26	1	73	3	47	3	3	0	5	0	2	0	69	3
16:00:00	868	50	3392	208	783	36	26	0	75	2	49	2	4	1	6	1	2	0	69	0
16:15:00	905	37	3574	182	829	46	28	2	78	3	54	5	4	0	6	0	2	0	71	2
16:30:00	958	53	3812	238	873	44	29	1	83	5	54	0	4	0	6	0	2	0	74	3
16:45:00	1013	55	4027	215	911	38	29	0	86	3	56	2	5	1	6	0	2	0	74	0
17:00:00	1084	71	4261	234	951	40	30	1	89	3	57	1	5	0	6	0	2	0	77	3
17:15:00	1141	57	4493	232	985	34	31	1	92	3	58	1	5	0	7	1	2	0	81	4
17:30:00	1211	70	4697	204	1027	42	31	0	93	1	60	2	5	0	8	1	2	0	86	5
17:45:00	1249	38	4915	218	1065	38	32	1	93	0	61	1	5	0	8	0	2	0	87	1
18:00:00	1312	63	5157	242	1103	38	33	1	96	3	61	0	5	0	8	0	3	1	91	4
18:10:10	1312	0	5157	0	1103	0	33	0	96	0	61	0	5	0	8	0	3	0	91	0
18:15:15	1312	0	5157	0	1103	0	33	0	96	0	61	0	5	0	8	0	3	0	91	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 29-May-19 Site #: 1906000001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	9	9	48	48	38	38	0	0	2	2	0	0	0	0	1	1	0	0	0	0
7:30:00	16	7	103	55	79	41	0	0	6	4	1	1	0	0	1	0	0	0	0	0
7:45:00	31	15	168	65	136	57	2	2	9	3	2	1	0	0	1	0	1	1	2	2
8:00:00	39	8	224	56	179	43	4	2	14	5	3	1	0	0	1	0	1	0	6	4
8:15:00	50	11	271	47	235	56	5	1	22	8	3	0	0	0	2	1	2	1	12	6
8:30:00	61	11	314	43	287	52	7	2	25	3	4	1	0	0	2	0	2	0	16	4
8:45:00	75	14	352	38	342	55	7	0	28	3	5	1	0	0	2	0	2	0	17	1
9:00:00	82	7	401	49	400	58	8	1	37	9	8	3	0	0	2	0	2	0	20	3
9:10:10	82	0	401	0	400	0	8	0	37	0	8	0	0	0	2	0	2	0	20	0
11:00:00	82	0	401	0	400	0	8	0	37	0	8	0	0	0	2	0	2	0	20	0
11:15:00	89	7	436	35	424	24	8	0	43	6	10	2	0	0	3	1	2	0	22	2
11:30:00	100	11	476	40	456	32	9	1	47	4	10	0	0	0	3	0	2	0	24	2
11:45:00	113	13	522	46	482	26	10	1	53	6	10	0	0	0	5	2	2	0	25	1
12:00:00	125	12	554	32	536	54	10	0	59	6	11	1	0	0	5	0	2	0	25	0
12:15:00	142	17	591	37	572	36	10	0	61	2	12	1	0	0	5	0	2	0	31	6
12:30:00	154	12	627	36	615	43	11	1	66	5	12	0	0	0	6	1	2	0	32	1
12:45:00	171	17	664	37	655	40	11	0	70	4	14	2	0	0	6	0	2	0	34	2
13:00:00	186	15	703	39	695	40	12	1	82	12	14	0	0	0	6	0	3	1	36	2
13:15:00	201	15	749	46	734	39	12	0	86	4	16	2	0	0	6	0	3	0	39	3
13:30:00	220	19	794	45	774	40	12	0	93	7	17	1	0	0	6	0	3	0	40	1
13:45:00	232	12	835	41	800	26	14	2	94	1	19	2	0	0	6	0	3	0	44	4
14:00:00	244	12	895	60	837	37	15	1	100	6	21	2	0	0	6	0	3	0	45	1
14:10:10	244	0	895	0	837	0	15	0	100	0	21	0	0	0	6	0	3	0	45	0
15:00:00	244	0	895	0	837	0	15	0	100	0	21	0	0	0	6	0	3	0	45	0
15:15:00	254	10	940	45	886	49	17	2	103	3	23	2	0	0	7	1	4	1	51	6
15:30:00	272	18	997	57	922	36	17	0	107	4	24	1	0	0	7	0	4	0	56	5
15:45:00	288	16	1048	51	968	46	17	0	108	1	24	0	0	0	7	0	4	0	60	4
16:00:00	306	18	1099	51	1009	41	19	2	116	8	25	1	0	0	7	0	4	0	64	4
16:15:00	327	21	1176	77	1078	69	20	1	117	1	26	1	0	0	7	0	4	0	70	6
16:30:00	344	17	1249	73	1124	46	21	1	121	4	26	0	0	0	7	0	5	1	71	1
16:45:00	361	17	1309	60	1177	53	21	0	126	5	27	1	0	0	7	0	5	0	77	6
17:00:00	383	22	1366	57	1234	57	23	2	130	4	27	0	0	0	7	0	5	0	80	3
17:15:00	405	22	1432	66	1292	58	23	0	131	1	27	0	0	0	7	0	6	1	85	5
17:30:00	422	17	1508	76	1363	71	23	0	132	1	27	0	0	0	7	0	6	0	89	4
17:45:00	439	17	1575	67	1416	53	23	0	132	0	27	0	1	1	7	0	6	0	95	6
18:00:00	455	16	1627	52	1456	40	23	0	138	6	27	0	1	0	7	0	7	1	99	4
18:10:10	455	0	1627	0	1456	0	23	0	138	0	27	0	1	0	7	0	7	0	99	0
18:15:15	455	0	1627	0	1456	0	23	0	138	0	27	0	1	0	7	0	7	0	99	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-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

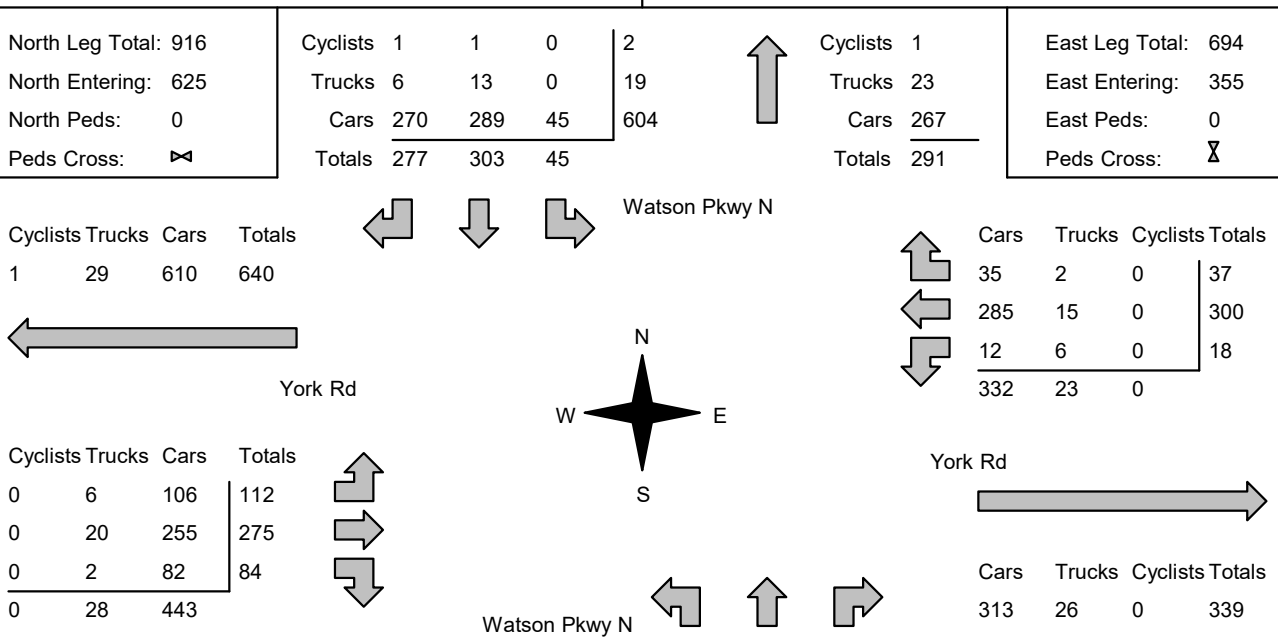
Municipality: Guelph
Site #: 2205500024
Intersection: York Rd & Watson Pkwy N
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

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

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

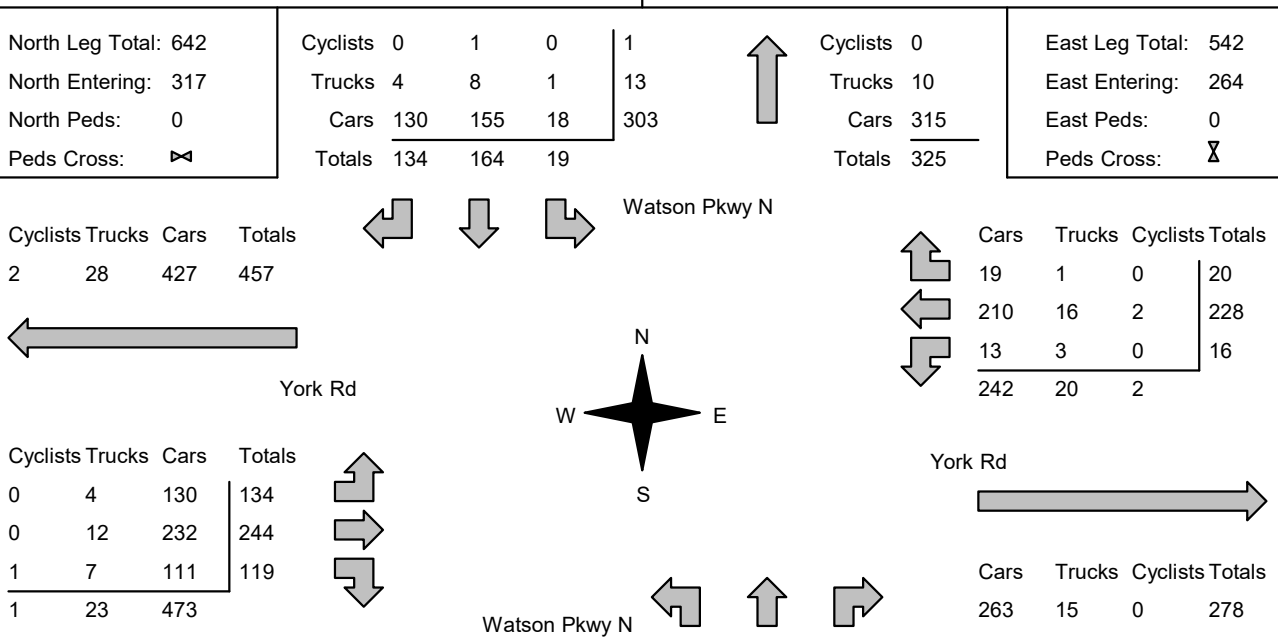
Municipality: Guelph
Site #: 2205500024
Intersection: York Rd & Watson Pkwy N
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

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

One Hour Peak
From: 15:45:00
To: 16:45:00

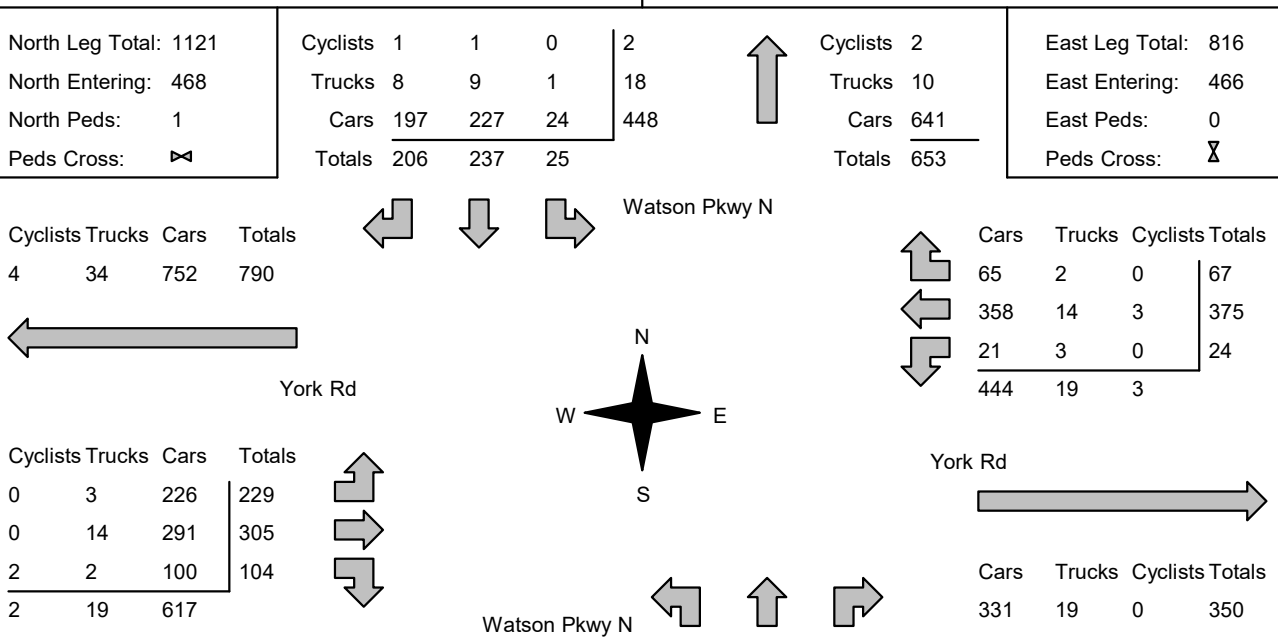
Municipality: Guelph
Site #: 2205500024
Intersection: York Rd & Watson Pkwy N
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

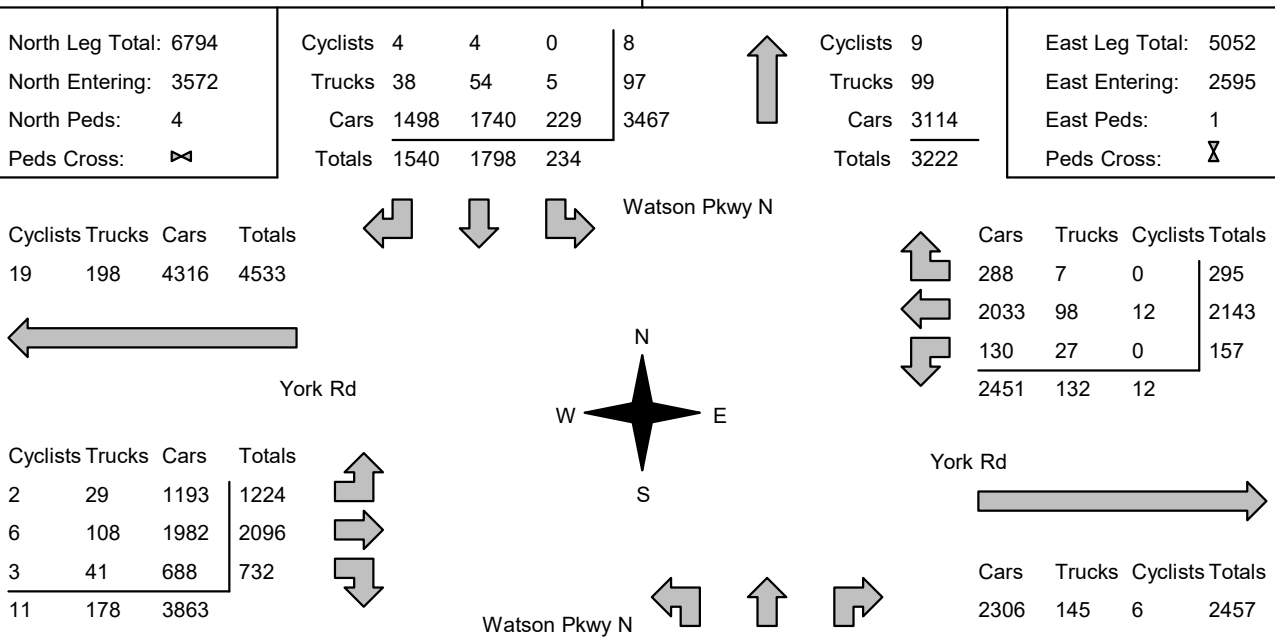
Municipality: Guelph
Site #: 2205500024
Intersection: York Rd & Watson Pkwy N
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: York Rd & Watson Pkwy N | **Count Date:** 10-Nov-22 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	North/South Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	*0*	*0*	*0*	*0*	*0*	*0*
8:00:00	*51*	*265*	*239*	*555*	*0*	*718*
9:00:00	*47*	*310*	*269*	*626*	*0*	*843*
11:00:00	*0*	*0*	*0*	*0*	*0*	*0*
12:00:00	*14*	*186*	*155*	*355*	*0*	*590*
13:00:00	*31*	*196*	*146*	*373*	*1*	*645*
14:00:00	*19*	*164*	*134*	*317*	*0*	*598*
15:00:00	*0*	*0*	*0*	*0*	*0*	*0*
16:00:00	*27*	*220*	*196*	*443*	*0*	*922*
17:00:00	*22*	*239*	*194*	*455*	*2*	*1023*
18:00:00	*23*	*218*	*207*	*448*	*1*	*913*
Totals:	234	1798	1540	3572	4	6252

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*55*	*94*	*14*	*163*	*6*
9:00:00	*59*	*145*	*13*	*217*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*77*	*146*	*12*	*235*	*1*
13:00:00	*85*	*173*	*14*	*272*	*1*
14:00:00	*95*	*171*	*15*	*281*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*165*	*289*	*25*	*479*	*1*
17:00:00	*188*	*362*	*18*	*568*	*5*
18:00:00	*126*	*323*	*16*	*465*	*0*
S Totals:	850	1703	127	2680	14

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds	East/West Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	*0*	*0*	*0*	*0*	*0*	*0*
8:00:00	*11*	*213*	*11*	*235*	*0*	*686*
9:00:00	*21*	*303*	*41*	*365*	*0*	*793*
11:00:00	*0*	*0*	*0*	*0*	*0*	*0*
12:00:00	*24*	*201*	*24*	*249*	*0*	*623*
13:00:00	*19*	*189*	*36*	*244*	*1*	*691*
14:00:00	*16*	*228*	*20*	*264*	*0*	*761*
15:00:00	*0*	*0*	*0*	*0*	*0*	*0*
16:00:00	*23*	*259*	*33*	*315*	*0*	*914*
17:00:00	*21*	*382*	*72*	*475*	*0*	*1103*
18:00:00	*22*	*368*	*58*	*448*	*0*	*1076*
Totals:	157	2143	295	2595	1	6647

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*80*	*285*	*86*	*451*	*4*
9:00:00	*117*	*242*	*69*	*428*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*100*	*201*	*73*	*374*	*0*
13:00:00	*113*	*243*	*91*	*447*	*4*
14:00:00	*134*	*244*	*119*	*497*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*192*	*299*	*108*	*599*	*2*
17:00:00	*222*	*321*	*85*	*628*	*5*
18:00:00	*266*	*261*	*101*	*628*	*0*
W Totals:	1224	2096	732	4052	15

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*8:00*	*9:00*	*12:00*	*13:00*	*14:00*	*16:00*	*17:00*	*18:00*
Crossing Values:	*375*	*416*	*277*	*317*	*285*	*483*	*577*	*472*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500024

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	14	14	45	45	39	39	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	31	17	100	55	98	59	0	0	2	1	1	1	0	0	0	0	0	0	0	0
7:45:00	41	10	179	79	168	70	0	0	8	6	1	0	0	0	0	0	0	0	0	0
8:00:00	51	10	255	76	237	69	0	0	10	2	2	1	0	0	0	0	0	0	0	0
8:15:00	61	10	330	75	295	58	0	0	14	4	3	1	0	0	0	0	1	1	0	0
8:30:00	72	11	398	68	367	72	0	0	17	3	7	4	0	0	0	0	1	0	0	0
8:45:00	86	14	468	70	438	71	0	0	21	4	7	0	0	0	1	1	1	0	0	0
9:00:00	98	12	551	83	495	57	0	0	23	2	12	5	0	0	1	0	1	0	0	0
9:15:00	98	0	551	0	495	0	0	0	23	0	12	0	0	0	1	0	1	0	0	0
11:00:00	98	0	551	0	495	0	0	0	23	0	12	0	0	0	1	0	1	0	0	0
11:15:00	102	4	591	40	525	30	0	0	26	3	12	0	0	0	1	0	2	1	0	0
11:30:00	105	3	638	47	560	35	0	0	26	0	13	1	0	0	1	0	3	1	0	0
11:45:00	109	4	677	39	605	45	0	0	26	0	13	0	0	0	1	0	3	0	0	0
12:00:00	112	3	733	56	646	41	0	0	27	1	14	1	0	0	1	0	3	0	0	0
12:15:00	119	7	781	48	685	39	0	0	27	0	15	1	0	0	2	1	3	0	0	0
12:30:00	127	8	834	53	719	34	0	0	28	1	16	1	0	0	2	0	3	0	1	1
12:45:00	137	10	875	41	748	29	0	0	31	3	17	1	0	0	2	0	3	0	1	0
13:00:00	143	6	920	45	785	37	0	0	35	4	21	4	0	0	2	0	3	0	1	0
13:15:00	148	5	958	38	822	37	0	0	37	2	21	0	0	0	2	0	3	0	1	0
13:30:00	153	5	995	37	853	31	1	1	39	2	23	2	0	0	2	0	3	0	1	0
13:45:00	157	4	1034	39	883	30	1	0	41	2	24	1	0	0	2	0	3	0	1	0
14:00:00	161	4	1075	41	915	32	1	0	43	2	25	1	0	0	3	1	3	0	1	0
14:15:00	161	0	1075	0	915	0	1	0	43	0	25	0	0	0	3	0	3	0	1	0
15:00:00	161	0	1075	0	915	0	1	0	43	0	25	0	0	0	3	0	3	0	1	0
15:15:00	168	7	1125	50	954	39	1	0	44	1	27	2	0	0	3	0	3	0	1	0
15:30:00	172	4	1179	54	1005	51	1	0	44	0	27	0	0	0	3	0	3	0	1	0
15:45:00	177	5	1235	56	1056	51	3	2	44	0	28	1	0	0	3	0	3	0	1	0
16:00:00	186	9	1292	57	1106	50	3	0	46	2	30	2	0	0	3	0	3	0	1	0
16:15:00	192	6	1351	59	1142	36	3	0	49	3	32	2	0	0	4	1	3	0	2	1
16:30:00	197	5	1413	62	1199	57	4	1	52	3	35	3	0	0	4	0	4	1	2	0
16:45:00	201	4	1462	49	1253	54	4	0	53	1	36	1	0	0	4	0	4	0	2	0
17:00:00	207	6	1522	60	1293	40	4	0	54	1	36	0	0	0	4	0	4	0	3	1
17:15:00	215	8	1576	54	1351	58	4	0	54	0	37	1	0	0	4	0	4	0	3	0
17:30:00	220	5	1620	44	1402	51	4	0	54	0	37	0	0	0	4	0	4	0	4	1
17:45:00	225	5	1681	61	1450	48	5	1	54	0	38	1	0	0	4	0	4	0	4	0
18:00:00	229	4	1740	59	1498	48	5	0	54	0	38	0	0	0	4	0	4	0	4	0
18:15:00	229	0	1740	0	1498	0	5	0	54	0	38	0	0	0	4	0	4	0	4	0
18:15:15	229	0	1740	0	1498	0	5	0	54	0	38	0	0	0	4	0	4	0	4	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500024

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	38	38	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	3	1	78	40	2	0	0	0	8	7	0	0	0	0	2	2	0	0	0	0
7:45:00	6	3	128	50	6	4	1	1	11	3	0	0	0	0	2	0	0	0	0	0
8:00:00	8	2	197	69	11	5	3	2	14	3	0	0	0	0	2	0	0	0	0	0
8:15:00	9	1	272	75	14	3	5	2	17	3	2	2	0	0	2	0	0	0	0	0
8:30:00	13	4	354	82	23	9	7	2	19	2	2	0	0	0	2	0	0	0	0	0
8:45:00	18	5	413	59	41	18	7	0	26	7	2	0	0	0	2	0	0	0	0	0
9:00:00	24	6	485	72	48	7	8	1	29	3	4	2	0	0	2	0	0	0	0	0
9:15:00	24	0	485	0	48	0	8	0	29	0	4	0	0	0	2	0	0	0	0	0
11:00:00	24	0	485	0	48	0	8	0	29	0	4	0	0	0	2	0	0	0	0	0
11:15:00	30	6	525	40	57	9	9	1	30	1	4	0	0	0	2	0	0	0	0	0
11:30:00	34	4	562	37	62	5	11	2	36	6	4	0	0	0	3	1	0	0	0	0
11:45:00	37	3	608	46	67	5	12	1	37	1	4	0	0	0	3	0	0	0	0	0
12:00:00	43	6	670	62	72	5	13	1	44	7	4	0	0	0	3	0	0	0	0	0
12:15:00	46	3	724	54	83	11	15	2	44	0	4	0	0	0	5	2	0	0	0	0
12:30:00	49	3	759	35	91	8	15	0	47	3	4	0	0	0	5	0	0	0	1	1
12:45:00	55	6	804	45	98	7	16	1	50	3	4	0	0	0	5	0	0	0	1	0
13:00:00	58	3	848	44	108	10	17	1	53	3	4	0	0	0	5	0	0	0	1	0
13:15:00	58	0	905	57	112	4	17	0	59	6	4	0	0	0	5	0	0	0	1	0
13:30:00	60	2	960	55	116	4	18	1	66	7	4	0	0	0	5	0	0	0	1	0
13:45:00	65	5	1006	46	121	5	19	1	68	2	5	1	0	0	5	0	0	0	1	0
14:00:00	71	6	1058	52	127	6	20	1	69	1	5	0	0	0	7	2	0	0	1	0
14:15:00	71	0	1058	0	127	0	20	0	69	0	5	0	0	0	7	0	0	0	1	0
15:00:00	71	0	1058	0	127	0	20	0	69	0	5	0	0	0	7	0	0	0	1	0
15:15:00	76	5	1106	48	138	11	20	0	71	2	5	0	0	0	7	0	0	0	1	0
15:30:00	81	5	1158	52	143	5	21	1	72	1	5	0	0	0	7	0	0	0	1	0
15:45:00	85	4	1235	77	151	8	21	0	76	4	5	0	0	0	7	0	0	0	1	0
16:00:00	92	7	1301	66	160	9	22	1	84	8	5	0	0	0	8	1	0	0	1	0
16:15:00	98	6	1388	87	182	22	23	1	86	2	6	1	0	0	8	0	0	0	1	0
16:30:00	105	7	1491	103	197	15	24	1	87	1	7	1	0	0	10	2	0	0	1	0
16:45:00	106	1	1593	102	216	19	24	0	90	3	7	0	0	0	10	0	0	0	1	0
17:00:00	110	4	1670	77	230	14	25	1	94	4	7	0	0	0	11	1	0	0	1	0
17:15:00	119	9	1768	98	245	15	25	0	95	1	7	0	0	0	11	0	0	0	1	0
17:30:00	122	3	1858	90	258	13	27	2	98	3	7	0	0	0	12	1	0	0	1	0
17:45:00	124	2	1948	90	273	15	27	0	98	0	7	0	0	0	12	0	0	0	1	0
18:00:00	130	6	2033	85	288	15	27	0	98	0	7	0	0	0	12	0	0	0	1	0
18:15:00	130	0	2033	0	288	0	27	0	98	0	7	0	0	0	12	0	0	0	1	0
18:15:15	130	0	2033	0	288	0	27	0	98	0	7	0	0	0	12	0	0	0	1	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500024

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	11	11	15	15	3	3	2	2	1	1	2	2	0	0	0	0	0	0	1	1
7:30:00	23	12	34	19	3	0	3	1	3	2	2	0	0	0	0	0	0	0	2	1
7:45:00	34	11	62	28	3	0	4	1	6	3	4	2	0	0	0	0	0	0	6	4
8:00:00	46	12	86	24	9	6	9	5	8	2	5	1	0	0	0	0	0	0	6	0
8:15:00	61	15	123	37	12	3	10	1	13	5	7	2	0	0	0	0	0	0	6	0
8:30:00	76	15	150	27	14	2	10	0	17	4	9	2	0	0	1	1	0	0	6	0
8:45:00	89	13	188	38	16	2	12	2	21	4	10	1	0	0	1	0	0	0	6	0
9:00:00	100	11	213	25	17	1	14	2	25	4	10	0	0	0	1	0	0	0	6	0
9:15:00	100	0	213	0	17	0	14	0	25	0	10	0	0	0	1	0	0	0	6	0
11:00:00	100	0	213	0	17	0	14	0	25	0	10	0	0	0	1	0	0	0	6	0
11:15:00	118	18	249	36	17	0	15	1	29	4	10	0	0	0	1	0	0	0	7	1
11:30:00	143	25	269	20	20	3	16	1	31	2	10	0	0	0	1	0	0	0	7	0
11:45:00	156	13	310	41	21	1	16	0	38	7	12	2	0	0	1	0	0	0	7	0
12:00:00	172	16	345	35	26	5	19	3	39	1	13	1	0	0	1	0	0	0	7	0
12:15:00	197	25	387	42	27	1	22	3	41	2	14	1	0	0	1	0	0	0	8	1
12:30:00	216	19	425	38	30	3	23	1	42	1	18	4	0	0	1	0	0	0	8	0
12:45:00	231	15	470	45	30	0	27	4	43	1	19	1	0	0	2	1	0	0	8	0
13:00:00	248	17	511	41	32	2	28	1	45	2	21	2	0	0	2	0	0	0	8	0
13:15:00	267	19	549	38	36	4	30	2	47	2	22	1	0	0	2	0	0	0	8	0
13:30:00	286	19	591	42	39	3	31	1	49	2	22	0	0	0	2	0	0	0	8	0
13:45:00	308	22	633	42	42	3	34	3	50	1	22	0	0	0	2	0	0	0	8	0
14:00:00	335	27	677	44	45	3	36	2	50	0	23	1	0	0	2	0	0	0	8	0
14:15:00	335	0	677	0	45	0	36	0	50	0	23	0	0	0	2	0	0	0	8	0
15:00:00	335	0	677	0	45	0	36	0	50	0	23	0	0	0	2	0	0	0	8	0
15:15:00	388	53	756	79	50	5	39	3	51	1	23	0	0	0	2	0	0	0	8	0
15:30:00	410	22	811	55	56	6	42	3	51	0	23	0	0	0	3	1	0	0	8	0
15:45:00	452	42	886	75	64	8	44	2	54	3	24	1	0	0	3	0	0	0	9	1
16:00:00	489	37	961	75	69	5	47	3	54	0	24	0	0	0	3	0	0	0	9	0
16:15:00	540	51	1048	87	76	7	50	3	54	0	25	1	0	0	3	0	0	0	12	3
16:30:00	611	71	1159	111	77	1	52	2	57	3	26	1	0	0	4	1	0	0	13	1
16:45:00	649	38	1236	77	80	3	56	4	59	2	28	2	0	0	5	1	0	0	14	1
17:00:00	666	17	1315	79	81	1	57	1	60	1	30	2	1	1	5	0	0	0	14	0
17:15:00	707	41	1405	90	86	5	59	2	61	1	31	1	1	0	5	0	0	0	14	0
17:30:00	743	36	1491	86	87	1	60	1	62	1	31	0	1	0	6	1	0	0	14	0
17:45:00	769	26	1576	85	91	4	61	1	62	0	31	0	3	2	7	1	0	0	14	0
18:00:00	785	16	1633	57	95	4	62	1	63	1	32	1	3	0	7	0	0	0	14	0
18:15:00	785	0	1633	0	95	0	62	0	63	0	32	0	3	0	7	0	0	0	14	0
18:15:15	785	0	1633	0	95	0	62	0	63	0	32	0	3	0	7	0	0	0	14	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500024

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	15	15	59	59	11	11	1	1	3	3	3	3	0	0	0	0	0	0	0	0
7:30:00	28	13	118	59	29	18	1	0	7	4	4	1	0	0	1	1	0	0	3	3
7:45:00	52	24	191	73	46	17	3	2	9	2	7	3	0	0	2	1	0	0	3	0
8:00:00	76	24	264	73	78	32	4	1	19	10	8	1	0	0	2	0	0	0	4	1
8:15:00	99	23	339	75	99	21	8	4	25	6	8	0	0	0	2	0	0	0	4	0
8:30:00	128	29	390	51	119	20	8	0	27	2	9	1	0	0	2	0	0	0	4	0
8:45:00	158	30	446	56	128	9	9	1	29	2	9	0	0	0	2	0	0	0	4	0
9:00:00	187	29	493	47	145	17	10	1	32	3	10	1	0	0	2	0	0	0	4	0
9:15:00	187	0	493	0	145	0	10	0	32	0	10	0	0	0	2	0	0	0	4	0
11:00:00	187	0	493	0	145	0	10	0	32	0	10	0	0	0	2	0	0	0	4	0
11:15:00	209	22	546	53	162	17	11	1	35	3	14	4	0	0	2	0	0	0	4	0
11:30:00	226	17	591	45	179	17	11	0	41	6	15	1	0	0	2	0	0	0	4	0
11:45:00	256	30	629	38	191	12	13	2	43	2	17	2	0	0	2	0	0	0	4	0
12:00:00	284	28	681	52	209	18	13	0	45	2	19	2	0	0	2	0	0	0	4	0
12:15:00	314	30	741	60	232	23	14	1	46	1	20	1	1	1	2	0	0	0	5	1
12:30:00	346	32	794	53	246	14	14	0	49	3	22	2	1	0	3	1	0	0	7	2
12:45:00	365	19	853	59	268	22	15	1	51	2	23	1	1	0	3	0	0	0	8	1
13:00:00	393	28	909	56	294	26	15	0	59	8	25	2	2	1	3	0	0	0	8	0
13:15:00	427	34	961	52	317	23	17	2	63	4	26	1	2	0	3	0	0	0	8	0
13:30:00	464	37	1025	64	340	23	17	0	66	3	27	1	2	0	3	0	0	0	8	0
13:45:00	496	32	1086	61	371	31	18	1	68	2	30	3	2	0	3	0	1	1	8	0
14:00:00	523	27	1141	55	405	34	19	1	71	3	32	2	2	0	3	0	1	0	8	0
14:15:00	523	0	1141	0	405	0	19	0	71	0	32	0	2	0	3	0	1	0	8	0
15:00:00	523	0	1141	0	405	0	19	0	71	0	32	0	2	0	3	0	1	0	8	0
15:15:00	563	40	1213	72	419	14	22	3	77	6	32	0	2	0	4	1	1	0	8	0
15:30:00	614	51	1281	68	441	22	22	0	81	4	34	2	2	0	4	0	1	0	10	2
15:45:00	655	41	1362	81	470	29	23	1	85	4	36	2	2	0	4	0	1	0	10	0
16:00:00	710	55	1419	57	509	39	24	1	91	6	36	0	2	0	4	0	1	0	10	0
16:15:00	764	54	1499	80	528	19	25	1	95	4	37	1	2	0	4	0	1	0	12	2
16:30:00	810	46	1567	68	543	15	25	0	99	4	38	1	2	0	4	0	1	0	13	1
16:45:00	881	71	1653	86	570	27	26	1	99	0	38	0	2	0	4	0	3	2	15	2
17:00:00	930	49	1729	76	588	18	26	0	102	3	40	2	2	0	4	0	3	0	15	0
17:15:00	999	69	1801	72	609	21	27	1	102	0	40	0	2	0	5	1	3	0	15	0
17:30:00	1068	69	1868	67	638	29	27	0	105	3	40	0	2	0	6	1	3	0	15	0
17:45:00	1132	64	1923	55	658	20	28	1	106	1	40	0	2	0	6	0	3	0	15	0
18:00:00	1193	61	1982	59	688	30	29	1	108	2	41	1	2	0	6	0	3	0	15	0
18:15:00	1193	0	1982	0	688	0	29	0	108	0	41	0	2	0	6	0	3	0	15	0
18:15:15	1193	0	1982	0	688	0	29	0	108	0	41	0	2	0	6	0	3	0	15	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

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

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

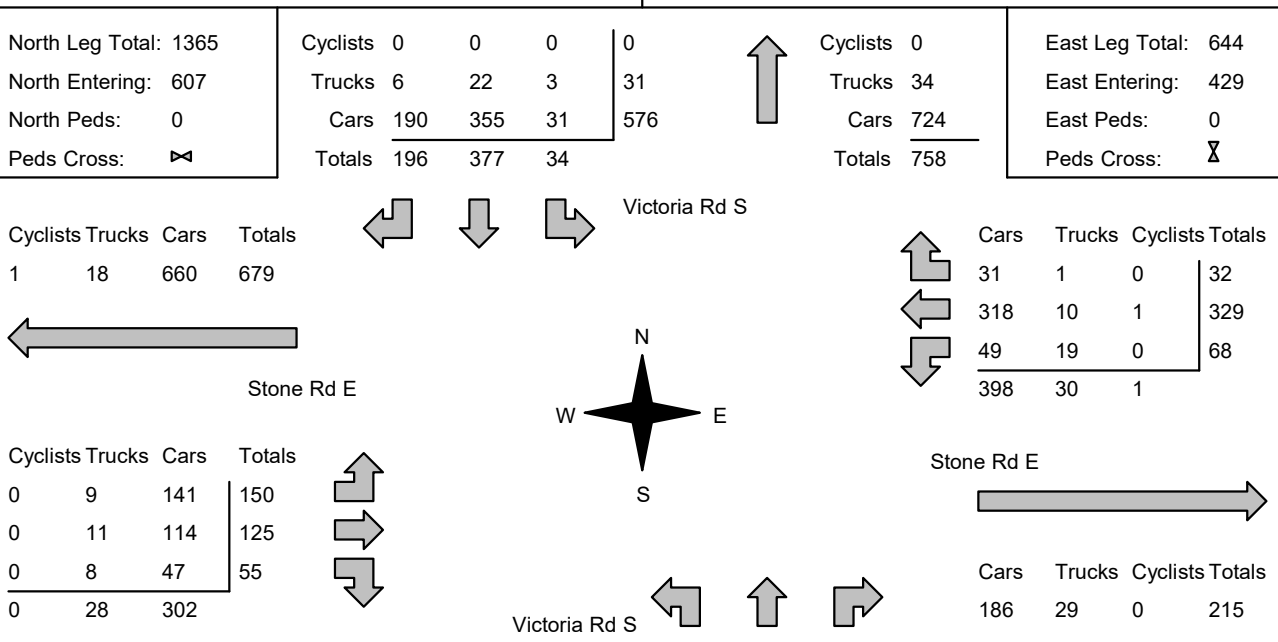
Municipality: Guelph
Site #: 2205500028
Intersection: Victoria Rd S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

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

One Hour Peak
From: 12:30:00
To: 13:30:00

Municipality: Guelph
Site #: 2205500028
Intersection: Victoria Rd S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S

North Leg Total: 1169
North Entering: 570
North Peds: 1
Peds Cross: ⋈

Cyclists	1	2	2	5
Trucks	3	17	3	23
Cars	184	332	26	542
Totals	188	351	31	

Cyclists	0
Trucks	23
Cars	576
Totals	599

East Leg Total: 565
East Entering: 265
East Peds: 1
Peds Cross: ⧖

Victoria Rd S

Cyclists	Trucks	Cars	Totals
1	10	441	452

Cars	Trucks	Cyclists	Totals
32	5	0	37
177	6	0	183
29	16	0	45
238	27	0	

Stone Rd E

N
W E
S

Cyclists	Trucks	Cars	Totals
0	6	210	216
0	12	211	223
1	3	86	90
1	21	507	

Stone Rd E

Cars	Trucks	Cyclists	Totals
268	29	3	300

Victoria Rd S

Peds Cross: ⧖
West Peds: 2
West Entering: 529
West Leg Total: 981

Cars	447
Trucks	36
Cyclists	3
Totals	486

Cars	80	334	31	445
Trucks	1	12	14	27
Cyclists	0	0	1	1
Totals	81	346	46	

Peds Cross: ⋈
South Peds: 0
South Entering: 473
South Leg Total: 959

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

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

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

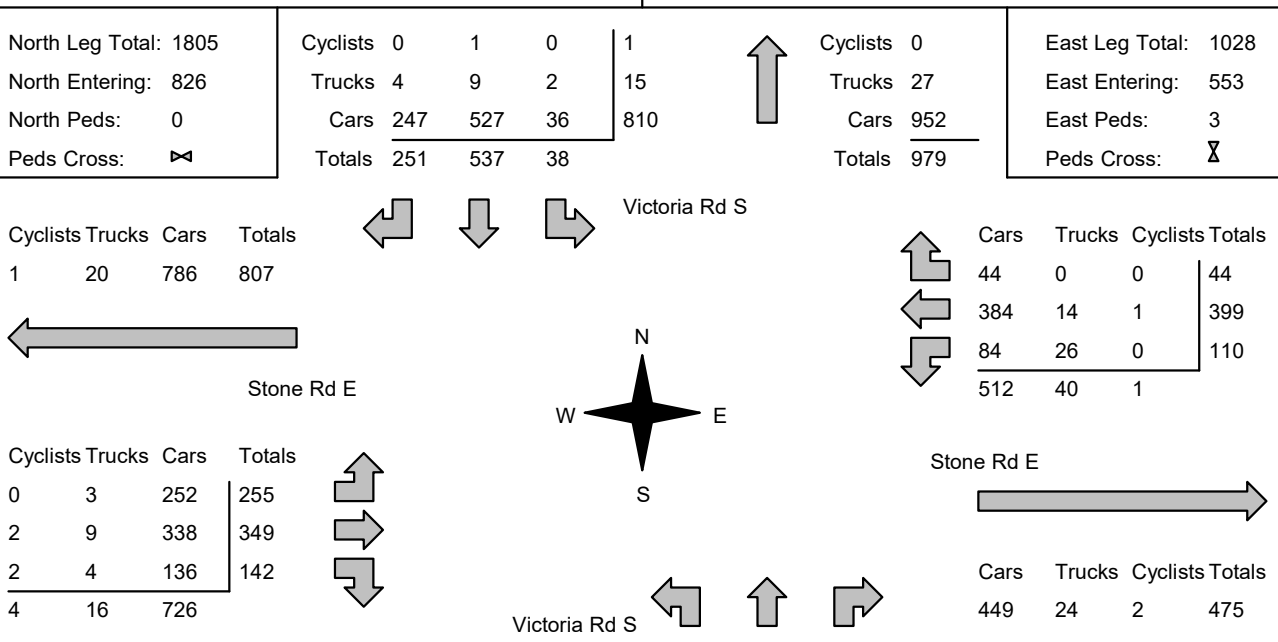
Municipality: Guelph
Site #: 2205500028
Intersection: Victoria Rd S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

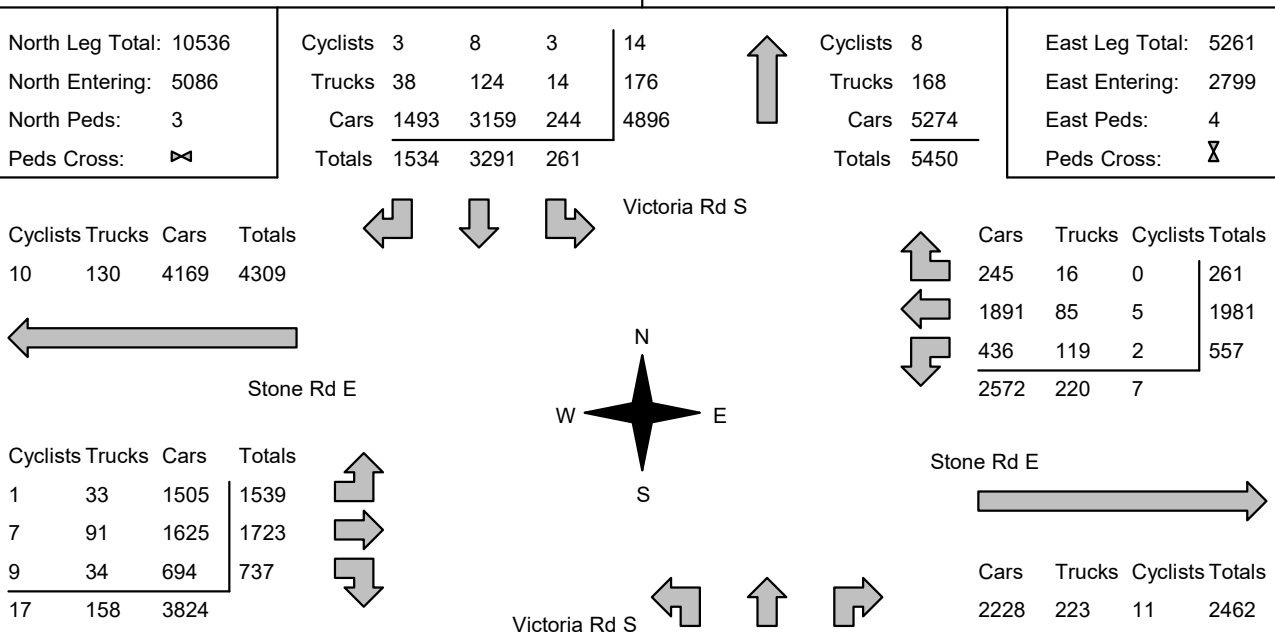
Municipality: Guelph
Site #: 2205500028
Intersection: Victoria Rd S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Victoria Rd S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Victoria Rd S & Stone Rd E | **Count Date:** 10-Nov-22 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*27*	*368*	*98*	*493*	*0*
9:00:00	*34*	*377*	*196*	*607*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*25*	*320*	*189*	*534*	*1*
13:00:00	*33*	*347*	*198*	*578*	*0*
14:00:00	*36*	*337*	*182*	*555*	*1*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*39*	*477*	*198*	*714*	*1*
17:00:00	*45*	*533*	*232*	*810*	*0*
18:00:00	*22*	*532*	*241*	*795*	*0*
Totals:	261	3291	1534	5086	3

North/South Total Approaches: *0*, *928*, *1393*, *0*, *997*, *1050*, *1046*, *0*, *1362*, *1542*, *1690*, 10008

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*50*	*330*	*55*	*435*	*0*
9:00:00	*154*	*576*	*56*	*786*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*86*	*333*	*44*	*463*	*1*
13:00:00	*77*	*343*	*52*	*472*	*0*
14:00:00	*77*	*356*	*58*	*491*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*82*	*495*	*71*	*648*	*0*
17:00:00	*110*	*548*	*74*	*732*	*2*
18:00:00	*158*	*669*	*68*	*895*	*2*
S Totals:	794	3650	478	4922	5

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*66*	*159*	*22*	*247*	*0*
9:00:00	*68*	*329*	*32*	*429*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*43*	*205*	*28*	*276*	*0*
13:00:00	*63*	*220*	*29*	*312*	*0*
14:00:00	*52*	*174*	*35*	*261*	*1*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*75*	*245*	*38*	*358*	*0*
17:00:00	*92*	*332*	*43*	*467*	*2*
18:00:00	*98*	*317*	*34*	*449*	*1*
Totals:	557	1981	261	2799	4

East/West Total Approaches: *0*, *486*, *759*, *0*, *729*, *756*, *791*, *0*, *931*, *1159*, *1187*, 6798

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*79*	*135*	*25*	*239*	*3*
9:00:00	*150*	*125*	*55*	*330*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*193*	*182*	*78*	*453*	*1*
13:00:00	*179*	*179*	*86*	*444*	*2*
14:00:00	*212*	*217*	*101*	*530*	*4*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*228*	*236*	*109*	*573*	*0*
17:00:00	*237*	*315*	*140*	*692*	*2*
18:00:00	*261*	*334*	*143*	*738*	*2*
W Totals:	1539	1723	737	3999	14

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*8:00*	*9:00*	*12:00*	*13:00*	*14:00*	*16:00*	*17:00*	*18:00*
Crossing Values:	*304*	*547*	*443*	*462*	*482*	*549*	*663*	*695*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500028

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	76	76	15	15	0	0	2	2	1	1	0	0	0	0	0	0	0	0
7:30:00	9	8	147	71	35	20	0	0	8	6	2	1	0	0	1	1	0	0	0	0
7:45:00	17	8	240	93	56	21	0	0	11	3	3	1	0	0	1	0	0	0	0	0
8:00:00	26	9	352	112	94	38	1	1	15	4	3	0	0	0	1	0	1	1	0	0
8:15:00	32	6	443	91	141	47	1	0	20	5	4	1	0	0	1	0	1	0	0	0
8:30:00	39	7	520	77	178	37	1	0	24	4	5	1	0	0	1	0	1	0	0	0
8:45:00	44	5	626	106	228	50	3	2	29	5	8	3	0	0	1	0	1	0	0	0
9:00:00	57	13	707	81	284	56	4	1	37	8	9	1	0	0	1	0	1	0	0	0
9:15:00	57	0	707	0	284	0	4	0	37	0	9	0	0	0	1	0	1	0	0	0
11:00:00	57	0	707	0	284	0	4	0	37	0	9	0	0	0	1	0	1	0	0	0
11:15:00	60	3	780	73	330	46	4	0	40	3	10	1	0	0	1	0	2	1	0	0
11:30:00	63	3	860	80	372	42	5	1	45	5	10	0	0	0	1	0	2	0	0	0
11:45:00	74	11	930	70	411	39	6	1	50	5	13	3	0	0	2	1	2	0	0	0
12:00:00	80	6	1010	80	465	54	6	0	53	3	16	3	0	0	2	0	2	0	1	1
12:15:00	93	13	1106	96	519	54	6	0	56	3	17	1	0	0	2	0	2	0	1	0
12:30:00	100	7	1177	71	561	42	6	0	60	4	18	1	1	1	2	0	2	0	1	0
12:45:00	107	7	1253	76	605	44	7	1	64	4	20	2	1	0	2	0	2	0	1	0
13:00:00	110	3	1343	90	659	54	7	0	66	2	20	0	2	1	3	1	2	0	1	0
13:15:00	118	8	1436	93	707	48	8	1	74	8	21	1	2	0	4	1	2	0	2	1
13:30:00	126	8	1509	73	745	38	9	1	77	3	21	0	3	1	4	0	3	1	2	0
13:45:00	132	6	1584	75	782	37	10	1	79	2	22	1	3	0	5	1	3	0	2	0
14:00:00	141	9	1657	73	836	54	11	1	87	8	24	2	3	0	5	0	3	0	2	0
14:15:00	141	0	1657	0	836	0	11	0	87	0	24	0	3	0	5	0	3	0	2	0
15:00:00	141	0	1657	0	836	0	11	0	87	0	24	0	3	0	5	0	3	0	2	0
15:15:00	148	7	1775	118	878	42	11	0	91	4	27	3	3	0	6	1	3	0	3	1
15:30:00	159	11	1859	84	928	50	11	0	93	2	27	0	3	0	6	0	3	0	3	0
15:45:00	167	8	2006	147	982	54	12	1	98	5	29	2	3	0	6	0	3	0	3	0
16:00:00	179	12	2115	109	1027	45	12	0	105	7	31	2	3	0	6	0	3	0	3	0
16:15:00	194	15	2239	124	1077	50	12	0	111	6	32	1	3	0	7	1	3	0	3	0
16:30:00	203	9	2379	140	1135	58	13	1	112	1	32	0	3	0	8	1	3	0	3	0
16:45:00	214	11	2514	135	1194	59	14	1	115	3	33	1	3	0	8	0	3	0	3	0
17:00:00	222	8	2633	119	1255	61	14	0	118	3	35	2	3	0	8	0	3	0	3	0
17:15:00	230	8	2766	133	1324	69	14	0	120	2	36	1	3	0	8	0	3	0	3	0
17:30:00	237	7	2898	132	1388	64	14	0	120	0	37	1	3	0	8	0	3	0	3	0
17:45:00	240	3	3014	116	1437	49	14	0	123	3	38	1	3	0	8	0	3	0	3	0
18:00:00	244	4	3159	145	1493	56	14	0	124	1	38	0	3	0	8	0	3	0	3	0
18:15:00	244	0	3159	0	1493	0	14	0	124	0	38	0	3	0	8	0	3	0	3	0
18:15:15	244	0	3159	0	1493	0	14	0	124	0	38	0	3	0	8	0	3	0	3	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500028

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	9	9	20	20	1	1	3	3	3	3	0	0	0	0	0	0	0	0	0	0
7:30:00	19	10	46	26	4	3	5	2	8	5	0	0	0	0	0	0	0	0	0	0
7:45:00	36	17	81	35	12	8	6	1	13	5	0	0	0	0	0	0	0	0	0	0
8:00:00	53	17	141	60	22	10	13	7	18	5	0	0	0	0	0	0	0	0	0	0
8:15:00	66	13	226	85	24	2	18	5	22	4	0	0	0	0	0	0	0	0	0	0
8:30:00	78	12	297	71	36	12	22	4	23	1	0	0	0	0	0	0	0	0	0	0
8:45:00	88	10	380	83	48	12	32	10	25	2	0	0	0	0	0	0	0	0	0	0
9:00:00	102	14	459	79	53	5	32	0	28	3	1	1	0	0	1	1	0	0	0	0
9:15:00	102	0	459	0	53	0	32	0	28	0	1	0	0	0	1	0	0	0	0	0
11:00:00	102	0	459	0	53	0	32	0	28	0	1	0	0	0	1	0	0	0	0	0
11:15:00	105	3	510	51	58	5	36	4	32	4	2	1	0	0	1	0	0	0	0	0
11:30:00	110	5	561	51	65	7	39	3	33	1	2	0	0	0	1	0	0	0	0	0
11:45:00	122	12	599	38	65	0	39	0	37	4	3	1	0	0	1	0	0	0	0	0
12:00:00	138	16	650	51	76	11	39	0	42	5	6	3	0	0	1	0	0	0	0	0
12:15:00	152	14	707	57	83	7	41	2	46	4	6	0	0	0	1	0	0	0	0	0
12:30:00	171	19	757	50	86	3	44	3	49	3	7	1	1	1	2	1	0	0	0	0
12:45:00	177	6	811	54	93	7	48	4	49	0	9	2	1	0	2	0	0	0	0	0
13:00:00	186	9	859	48	101	8	53	5	52	3	10	1	1	0	2	0	0	0	0	0
13:15:00	195	9	896	37	109	8	56	3	54	2	11	1	1	0	2	0	0	0	1	1
13:30:00	200	5	934	38	118	9	60	4	55	1	12	1	1	0	2	0	0	0	1	0
13:45:00	212	12	977	43	125	7	64	4	56	1	14	2	1	0	2	0	0	0	1	0
14:00:00	222	10	1025	48	132	7	69	5	59	3	14	0	1	0	3	1	0	0	1	0
14:15:00	222	0	1025	0	132	0	69	0	59	0	14	0	1	0	3	0	0	0	1	0
15:00:00	222	0	1025	0	132	0	69	0	59	0	14	0	1	0	3	0	0	0	1	0
15:15:00	238	16	1079	54	143	11	73	4	63	4	14	0	1	0	4	1	0	0	1	0
15:30:00	259	21	1127	48	151	8	77	4	63	0	14	0	1	0	4	0	0	0	1	0
15:45:00	268	9	1188	61	156	5	79	2	65	2	15	1	1	0	4	0	0	0	1	0
16:00:00	284	16	1261	73	168	12	82	3	67	2	16	1	1	0	4	0	0	0	1	0
16:15:00	304	20	1323	62	179	11	89	7	68	1	16	0	2	1	4	0	0	0	1	0
16:30:00	322	18	1427	104	191	12	94	5	72	4	16	0	2	0	5	1	0	0	1	0
16:45:00	343	21	1519	92	202	11	100	6	73	1	16	0	2	0	5	0	0	0	2	1
17:00:00	353	10	1583	64	211	9	104	4	76	3	16	0	2	0	5	0	0	0	3	1
17:15:00	388	35	1707	124	223	12	115	11	82	6	16	0	2	0	5	0	0	0	4	1
17:30:00	406	18	1772	65	227	4	118	3	83	1	16	0	2	0	5	0	0	0	4	0
17:45:00	417	11	1835	63	236	9	119	1	84	1	16	0	2	0	5	0	0	0	4	0
18:00:00	436	19	1891	56	245	9	119	0	85	1	16	0	2	0	5	0	0	0	4	0
18:15:00	436	0	1891	0	245	0	119	0	85	0	16	0	2	0	5	0	0	0	4	0
18:15:15	436	0	1891	0	245	0	119	0	85	0	16	0	2	0	5	0	0	0	4	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500028

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	4	37	37	6	6	0	0	1	1	6	6	0	0	1	1	0	0	0	0
7:30:00	14	10	108	71	15	9	0	0	2	1	13	7	0	0	2	1	0	0	0	0
7:45:00	27	13	215	107	22	7	1	1	4	2	18	5	0	0	2	0	0	0	0	0
8:00:00	49	22	322	107	35	13	1	0	6	2	20	2	0	0	2	0	0	0	0	0
8:15:00	79	30	448	126	49	14	1	0	9	3	23	3	0	0	2	0	0	0	0	0
8:30:00	131	52	585	137	61	12	1	0	18	9	29	6	0	0	2	0	0	0	0	0
8:45:00	153	22	719	134	70	9	2	1	25	7	32	3	0	0	2	0	0	0	0	0
9:00:00	201	48	874	155	76	6	3	1	30	5	35	3	0	0	2	0	0	0	0	0
9:15:00	201	0	874	0	76	0	3	0	30	0	35	0	0	0	2	0	0	0	0	0
11:00:00	201	0	874	0	76	0	3	0	30	0	35	0	0	0	2	0	0	0	0	0
11:15:00	229	28	957	83	84	8	3	0	36	6	37	2	0	0	2	0	0	0	1	1
11:30:00	248	19	1038	81	88	4	3	0	41	5	42	5	0	0	2	0	0	0	1	0
11:45:00	263	15	1110	72	95	7	3	0	50	9	45	3	0	0	2	0	0	0	1	0
12:00:00	287	24	1186	76	106	11	3	0	51	1	49	4	0	0	2	0	0	0	1	0
12:15:00	299	12	1269	83	119	13	3	0	55	4	54	5	0	0	2	0	0	0	1	0
12:30:00	319	20	1345	76	128	9	3	0	59	4	60	6	0	0	3	1	0	0	1	0
12:45:00	344	25	1422	77	136	8	3	0	66	7	61	1	0	0	3	0	1	1	1	0
13:00:00	364	20	1510	88	142	6	3	0	69	3	64	3	0	0	3	0	1	0	1	0
13:15:00	388	24	1580	70	150	8	3	0	70	1	66	2	0	0	3	0	1	0	1	0
13:30:00	399	11	1679	99	159	9	4	1	71	1	74	8	0	0	3	0	1	0	1	0
13:45:00	417	18	1775	96	173	14	4	0	75	4	77	3	0	0	3	0	1	0	1	0
14:00:00	440	23	1852	77	183	10	4	0	82	7	81	4	0	0	4	1	1	0	1	0
14:15:00	440	0	1852	0	183	0	4	0	82	0	81	0	0	0	4	0	1	0	1	0
15:00:00	440	0	1852	0	183	0	4	0	82	0	81	0	0	0	4	0	1	0	1	0
15:15:00	458	18	1948	96	197	14	4	0	84	2	86	5	1	1	5	1	1	0	1	0
15:30:00	474	16	2078	130	210	13	4	0	86	2	90	4	1	0	5	0	1	0	1	0
15:45:00	488	14	2188	110	221	11	4	0	88	2	94	4	1	0	5	0	1	0	1	0
16:00:00	520	32	2338	150	237	16	4	0	90	2	98	4	2	1	5	0	1	0	1	0
16:15:00	539	19	2457	119	248	11	5	1	92	2	103	5	2	0	6	1	1	0	1	0
16:30:00	568	29	2608	151	268	20	5	0	98	6	107	4	2	0	6	0	1	0	2	1
16:45:00	593	25	2726	118	280	12	5	0	102	4	108	1	2	0	6	0	1	0	3	1
17:00:00	629	36	2869	143	296	16	5	0	106	4	113	5	2	0	6	0	1	0	3	0
17:15:00	694	65	3113	244	323	27	7	2	116	10	116	3	2	0	6	0	1	0	5	2
17:30:00	734	40	3229	116	340	17	7	0	116	0	117	1	2	0	6	0	1	0	5	0
17:45:00	762	28	3356	127	350	10	7	0	118	2	117	0	2	0	7	1	1	0	5	0
18:00:00	785	23	3524	168	359	9	7	0	119	1	118	1	2	0	7	0	1	0	5	0
18:15:00	785	0	3524	0	359	0	7	0	119	0	118	0	2	0	7	0	1	0	5	0
18:15:15	785	0	3524	0	359	0	7	0	119	0	118	0	2	0	7	0	1	0	5	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500028

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	18	18	19	19	4	4	1	1	2	2	1	1	0	0	0	0	0	0	0	0
7:30:00	30	12	54	35	11	7	1	0	4	2	2	1	0	0	1	1	0	0	2	2
7:45:00	47	17	83	29	15	4	2	1	7	3	2	0	0	0	1	0	0	0	2	0
8:00:00	76	29	126	43	21	6	3	1	8	1	4	2	0	0	1	0	0	0	3	1
8:15:00	98	22	151	25	29	8	6	3	8	0	5	1	0	0	1	0	0	0	3	0
8:30:00	140	42	182	31	46	17	8	2	9	1	8	3	0	0	1	0	0	0	3	0
8:45:00	180	40	214	32	58	12	10	2	16	7	9	1	0	0	1	0	0	0	3	0
9:00:00	217	37	240	26	68	10	12	2	19	3	12	3	0	0	1	0	0	0	3	0
9:15:00	217	0	240	0	68	0	12	0	19	0	12	0	0	0	1	0	0	0	3	0
11:00:00	217	0	240	0	68	0	12	0	19	0	12	0	0	0	1	0	0	0	3	0
11:15:00	250	33	280	40	82	14	13	1	25	6	13	1	0	0	1	0	0	0	3	0
11:30:00	291	41	308	28	101	19	13	0	29	4	13	0	0	0	1	0	0	0	3	0
11:45:00	350	59	358	50	123	22	14	1	34	5	14	1	0	0	1	0	0	0	4	1
12:00:00	407	57	404	46	142	19	15	1	36	2	15	1	0	0	2	1	1	1	4	0
12:15:00	444	37	437	33	168	26	18	3	39	3	16	1	0	0	2	0	1	0	5	1
12:30:00	480	36	474	37	177	9	18	0	42	3	17	1	0	0	2	0	1	0	6	1
12:45:00	532	52	537	63	202	25	19	1	43	1	17	0	0	0	2	0	1	0	6	0
13:00:00	581	49	573	36	224	22	20	1	46	3	18	1	0	0	2	0	2	1	6	0
13:15:00	632	51	632	59	240	16	23	3	52	6	19	1	0	0	2	0	2	0	6	0
13:30:00	690	58	685	53	263	23	24	1	54	2	20	1	0	0	2	0	2	0	8	2
13:45:00	742	52	725	40	292	29	25	1	59	5	20	0	0	0	2	0	4	2	9	1
14:00:00	788	46	775	50	319	27	25	0	61	2	22	2	0	0	2	0	4	0	10	1
14:15:00	788	0	775	0	319	0	25	0	61	0	22	0	0	0	2	0	4	0	10	0
15:00:00	788	0	775	0	319	0	25	0	61	0	22	0	0	0	2	0	4	0	10	0
15:15:00	851	63	824	49	339	20	26	1	65	4	24	2	0	0	2	0	4	0	10	0
15:30:00	902	51	875	51	364	25	27	1	68	3	25	1	0	0	2	0	4	0	10	0
15:45:00	959	57	936	61	391	27	28	1	72	4	26	1	0	0	2	0	5	1	10	0
16:00:00	1013	54	998	62	422	31	28	0	74	2	27	1	0	0	2	0	5	0	10	0
16:15:00	1068	55	1063	65	450	28	28	0	79	5	28	1	0	0	4	2	6	1	10	0
16:30:00	1136	68	1143	80	483	33	28	0	81	2	30	2	0	0	4	0	7	1	12	2
16:45:00	1184	48	1229	86	529	46	30	2	82	1	30	0	0	0	5	1	7	0	12	0
17:00:00	1248	64	1299	70	556	27	30	0	85	3	31	1	0	0	5	0	7	0	12	0
17:15:00	1320	72	1401	102	586	30	31	1	88	3	32	1	0	0	6	1	8	1	12	0
17:30:00	1390	70	1477	76	626	40	31	0	89	1	33	1	0	0	6	0	8	0	12	0
17:45:00	1461	71	1572	95	660	34	32	1	90	1	33	0	1	1	6	0	9	1	14	2
18:00:00	1505	44	1625	53	694	34	33	1	91	1	34	1	1	0	7	1	9	0	14	0
18:15:00	1505	0	1625	0	694	0	33	0	91	0	34	0	1	0	7	0	9	0	14	0
18:15:15	1505	0	1625	0	694	0	33	0	91	0	34	0	1	0	7	0	9	0	14	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-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

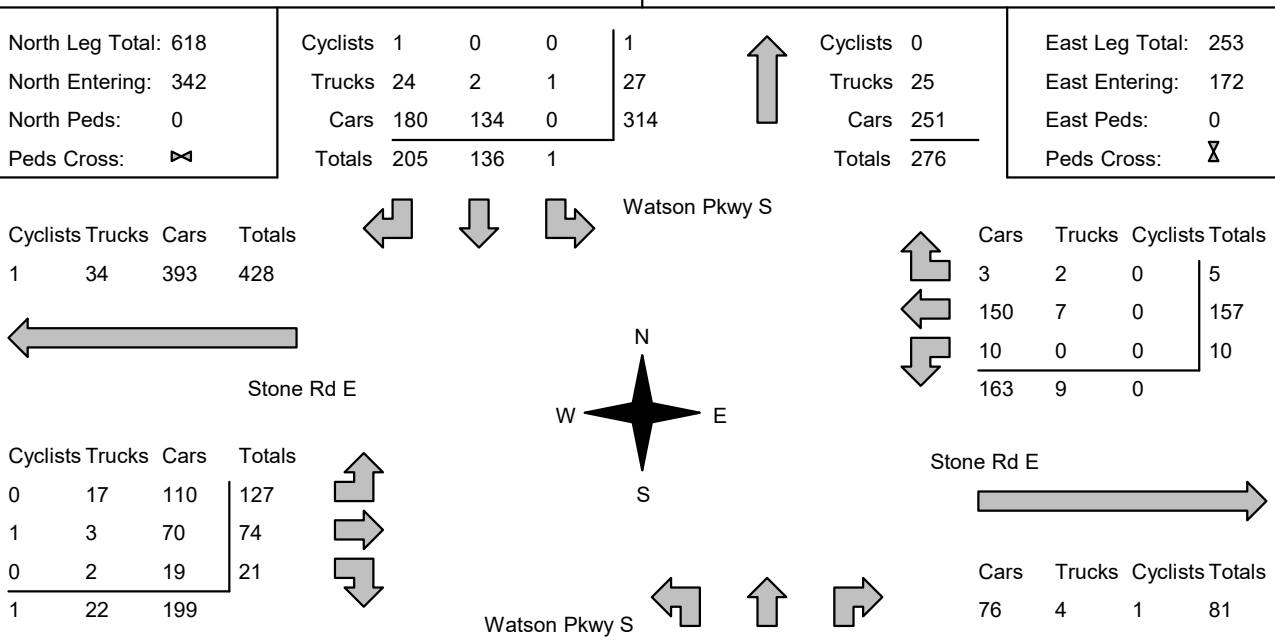
Municipality: Guelph
Site #: 2205500030
Intersection: Watson Pkwy S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Watson Pkwy S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Mid-day Peak Diagram

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

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

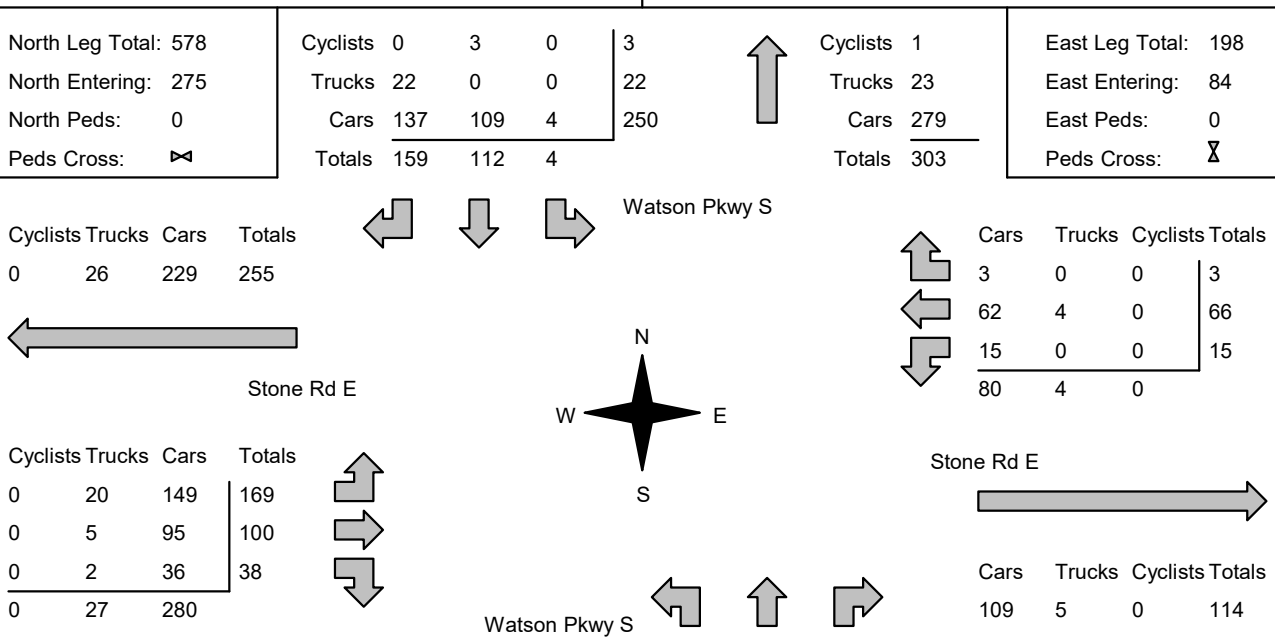
Municipality: Guelph
Site #: 2205500030
Intersection: Watson Pkwy S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Watson Pkwy S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

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

One Hour Peak
From: 15:45:00
To: 16:45:00

Municipality: Guelph
Site #: 2205500030
Intersection: Watson Pkwy S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Watson Pkwy S runs N/S

North Leg Total: 968
North Entering: 577
North Peds: 0
Peds Cross: ⋈

Cyclists	2	0	0	2
Trucks	21	1	2	24
Cars	301	246	4	551
Totals	324	247	6	

Cyclists	2
Trucks	23
Cars	366
Totals	391

East Leg Total: 286
East Entering: 109
East Peds: 0
Peds Cross: ⧖

Watson Pkwy S

Cyclists	Trucks	Cars	Totals
3	29	445	477

Stone Rd E

Cyclists	Trucks	Cars	Totals
1	19	186	206
1	1	152	154
1	1	65	67
3	21	403	

Cars	Trucks	Cyclists	Totals
2	1	0	3
86	8	1	95
11	0	0	11
99	9	1	

N
W E
S

Stone Rd E

Cars	Trucks	Cyclists	Totals
171	4	2	177

Watson Pkwy S

Peds Cross: ⧖
West Peds: 0
West Entering: 427
West Leg Total: 904

Cars	322
Trucks	2
Cyclists	1
Totals	325

Cars	58	178	15	251
Trucks	0	3	1	4
Cyclists	0	1	1	2
Totals	58	182	17	

Peds Cross: ⋈
South Peds: 0
South Entering: 257
South Leg Total: 582

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

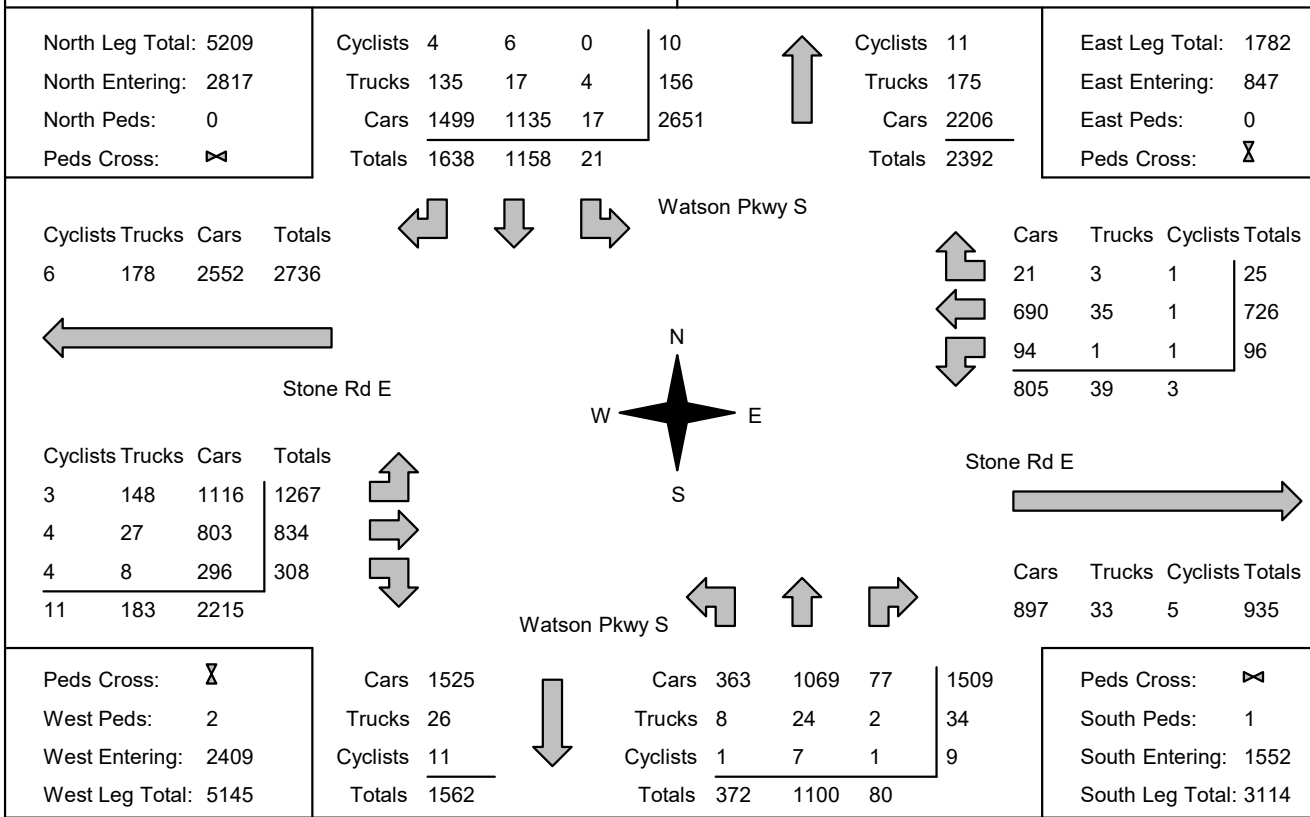
Municipality: Guelph
Site #: 2205500030
Intersection: Watson Pkwy S & Stone Rd E
TFR File #: 1
Count date: 10-Nov-22

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Watson Pkwy S runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Watson Pkwy S & Stone Rd E | **Count Date:** 10-Nov-22 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*1*	*148*	*162*	*311*	*0*
9:00:00	*1*	*130*	*211*	*342*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*3*	*95*	*168*	*266*	*0*
13:00:00	*1*	*100*	*179*	*280*	*0*
14:00:00	*4*	*112*	*159*	*275*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*5*	*168*	*235*	*408*	*0*
17:00:00	*2*	*239*	*316*	*557*	*0*
18:00:00	*4*	*166*	*208*	*378*	*0*
Totals:	21	1158	1638	2817	0

North/South Total Approaches: *4369*

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*28*	*108*	*11*	*147*	*0*
9:00:00	*64*	*134*	*8*	*206*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*38*	*83*	*4*	*125*	*0*
13:00:00	*29*	*107*	*6*	*142*	*0*
14:00:00	*30*	*131*	*10*	*171*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*52*	*175*	*10*	*237*	*0*
17:00:00	*58*	*177*	*16*	*251*	*0*
18:00:00	*73*	*185*	*15*	*273*	*1*
S Totals:	372	1100	80	1552	1

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*11*	*77*	*3*	*91*	*0*
9:00:00	*13*	*152*	*4*	*169*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*7*	*82*	*2*	*91*	*0*
13:00:00	*8*	*84*	*2*	*94*	*0*
14:00:00	*15*	*66*	*3*	*84*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*18*	*79*	*3*	*100*	*0*
17:00:00	*13*	*97*	*5*	*115*	*0*
18:00:00	*11*	*89*	*3*	*103*	*0*
Totals:	96	726	25	847	0

East/West Total Approaches: *3256*

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*105*	*72*	*20*	*197*	*0*
9:00:00	*115*	*64*	*24*	*203*	*0*
11:00:00	*0*	*0*	*0*	*0*	*0*
12:00:00	*130*	*79*	*43*	*252*	*1*
13:00:00	*150*	*81*	*29*	*260*	*0*
14:00:00	*169*	*100*	*38*	*307*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*169*	*115*	*43*	*327*	*0*
17:00:00	*210*	*160*	*67*	*437*	*0*
18:00:00	*219*	*163*	*44*	*426*	*1*
W Totals:	1267	834	308	2409	2

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*8:00*	*9:00*	*12:00*	*13:00*	*14:00*	*16:00*	*17:00*	*18:00*
Crossing Values:	*193*	*280*	*219*	*242*	*284*	*302*	*383*	*394*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500030

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	20	20	20	20	1	1	3	3	7	7	0	0	0	0	0	0	0	0
7:30:00	0	0	63	43	55	35	1	0	3	0	9	2	0	0	0	0	0	0	0	0
7:45:00	0	0	100	37	98	43	1	0	5	2	13	4	0	0	0	0	0	0	0	0
8:00:00	0	0	143	43	140	42	1	0	5	0	22	9	0	0	0	0	0	0	0	0
8:15:00	0	0	176	33	182	42	1	0	6	1	29	7	0	0	0	0	0	0	0	0
8:30:00	0	0	208	32	228	46	2	1	7	1	34	5	0	0	0	0	0	0	0	0
8:45:00	0	0	234	26	278	50	2	0	7	0	37	3	0	0	0	0	1	1	0	0
9:00:00	0	0	271	37	335	57	2	0	7	0	37	0	0	0	0	0	1	0	0	0
9:15:00	0	0	271	0	335	0	2	0	7	0	37	0	0	0	0	0	1	0	0	0
11:00:00	0	0	271	0	335	0	2	0	7	0	37	0	0	0	0	0	1	0	0	0
11:15:00	1	1	293	22	369	34	2	0	8	1	42	5	0	0	0	0	1	0	0	0
11:30:00	1	0	317	24	409	40	2	0	9	1	42	0	0	0	0	0	1	0	0	0
11:45:00	3	2	338	21	438	29	2	0	9	0	46	4	0	0	0	0	1	0	0	0
12:00:00	3	0	362	24	491	53	2	0	11	2	49	3	0	0	0	0	1	0	0	0
12:15:00	4	1	393	31	532	41	2	0	11	0	55	6	0	0	0	0	2	1	0	0
12:30:00	4	0	409	16	576	44	2	0	13	2	58	3	0	0	0	0	2	0	0	0
12:45:00	4	0	438	29	614	38	2	0	13	0	62	4	0	0	1	1	2	0	0	0
13:00:00	4	0	459	21	651	37	2	0	13	0	67	5	0	0	1	0	2	0	0	0
13:15:00	5	1	484	25	682	31	2	0	13	0	72	5	0	0	1	0	2	0	0	0
13:30:00	6	1	509	25	714	32	2	0	13	0	78	6	0	0	1	0	2	0	0	0
13:45:00	8	2	544	35	747	33	2	0	13	0	80	2	0	0	1	0	2	0	0	0
14:00:00	8	0	568	24	788	41	2	0	13	0	89	9	0	0	4	3	2	0	0	0
14:15:00	8	0	568	0	788	0	2	0	13	0	89	0	0	0	4	0	2	0	0	0
15:00:00	8	0	568	0	788	0	2	0	13	0	89	0	0	0	4	0	2	0	0	0
15:15:00	8	0	608	40	846	58	2	0	14	1	95	6	0	0	4	0	2	0	0	0
15:30:00	8	0	640	32	887	41	2	0	14	0	98	3	0	0	4	0	2	0	0	0
15:45:00	9	1	688	48	944	57	2	0	16	2	100	2	0	0	4	0	2	0	0	0
16:00:00	12	3	733	45	1007	63	3	1	16	0	105	5	0	0	4	0	2	0	0	0
16:15:00	12	0	815	82	1089	82	4	1	17	1	112	7	0	0	4	0	4	2	0	0
16:30:00	13	1	881	66	1171	82	4	0	17	0	118	6	0	0	4	0	4	0	0	0
16:45:00	13	0	934	53	1245	74	4	0	17	0	121	3	0	0	4	0	4	0	0	0
17:00:00	13	0	969	35	1299	54	4	0	17	0	127	6	0	0	6	2	4	0	0	0
17:15:00	13	0	1025	56	1361	62	4	0	17	0	131	4	0	0	6	0	4	0	0	0
17:30:00	14	1	1079	54	1407	46	4	0	17	0	133	2	0	0	6	0	4	0	0	0
17:45:00	15	1	1104	25	1451	44	4	0	17	0	134	1	0	0	6	0	4	0	0	0
18:00:00	17	2	1135	31	1499	48	4	0	17	0	135	1	0	0	6	0	4	0	0	0
18:15:00	17	0	1135	0	1499	0	4	0	17	0	135	0	0	0	6	0	4	0	0	0
18:15:15	17	0	1135	0	1499	0	4	0	17	0	135	0	0	0	6	0	4	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500030

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	5	5	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	2	2	19	14	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7:45:00	7	5	39	20	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:00:00	11	4	76	37	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:15:00	15	4	118	42	3	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0
8:30:00	16	1	157	39	5	2	0	0	2	0	1	0	0	0	0	0	0	0	0	0
8:45:00	17	1	189	32	5	0	0	0	8	6	2	1	0	0	0	0	0	0	0	0
9:00:00	24	7	220	31	5	0	0	0	9	1	2	0	0	0	0	0	0	0	0	0
9:15:00	24	0	220	0	5	0	0	0	9	0	2	0	0	0	0	0	0	0	0	0
11:00:00	24	0	220	0	5	0	0	0	9	0	2	0	0	0	0	0	0	0	0	0
11:15:00	27	3	245	25	6	1	0	0	9	0	2	0	0	0	0	0	0	0	0	0
11:30:00	29	2	258	13	6	0	0	0	10	1	2	0	0	0	0	0	0	0	0	0
11:45:00	29	0	279	21	6	0	0	0	12	2	2	0	0	0	0	0	0	0	0	0
12:00:00	31	2	299	20	7	1	0	0	12	0	2	0	0	0	0	0	0	0	0	0
12:15:00	32	1	313	14	7	0	0	0	12	0	2	0	0	0	0	0	0	0	0	0
12:30:00	34	2	339	26	8	1	0	0	13	1	2	0	0	0	0	0	0	0	0	0
12:45:00	38	4	358	19	9	1	0	0	15	2	2	0	0	0	0	0	0	0	0	0
13:00:00	39	1	379	21	9	0	0	0	16	1	2	0	0	0	0	0	0	0	0	0
13:15:00	44	5	392	13	10	1	0	0	17	1	2	0	0	0	0	0	0	0	0	0
13:30:00	48	4	411	19	10	0	0	0	19	2	2	0	0	0	0	0	0	0	0	0
13:45:00	53	5	430	19	11	1	0	0	20	1	2	0	0	0	0	0	0	0	0	0
14:00:00	54	1	441	11	12	1	0	0	20	0	2	0	0	0	0	0	0	0	0	0
14:15:00	54	0	441	0	12	0	0	0	20	0	2	0	0	0	0	0	0	0	0	0
15:00:00	54	0	441	0	12	0	0	0	20	0	2	0	0	0	0	0	0	0	0	0
15:15:00	59	5	454	13	14	2	0	0	21	1	2	0	0	0	0	0	0	0	0	0
15:30:00	60	1	474	20	14	0	1	1	22	1	2	0	0	0	0	0	0	0	0	0
15:45:00	68	8	493	19	15	1	1	0	23	1	2	0	0	0	0	0	0	0	0	0
16:00:00	71	3	514	21	15	0	1	0	26	3	2	0	0	0	0	0	0	0	0	0
16:15:00	73	2	530	16	16	1	1	0	26	0	3	1	0	0	0	0	0	0	0	0
16:30:00	75	2	550	20	17	1	1	0	29	3	3	0	0	0	0	0	0	0	0	0
16:45:00	79	4	579	29	17	0	1	0	31	2	3	0	0	0	1	1	0	0	0	0
17:00:00	83	4	605	26	18	1	1	0	31	0	3	0	1	1	1	0	1	1	0	0
17:15:00	88	5	629	24	19	1	1	0	32	1	3	0	1	0	1	0	1	0	0	0
17:30:00	90	2	648	19	20	1	1	0	35	3	3	0	1	0	1	0	1	0	0	0
17:45:00	93	3	669	21	20	0	1	0	35	0	3	0	1	0	1	0	1	0	0	0
18:00:00	94	1	690	21	21	1	1	0	35	0	3	0	1	0	1	0	1	0	0	0
18:15:00	94	0	690	0	21	0	1	0	35	0	3	0	1	0	1	0	1	0	0	0
18:15:15	94	0	690	0	21	0	1	0	35	0	3	0	1	0	1	0	1	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500030

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	16	16	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	5	3	47	31	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	11	6	75	28	8	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	26	15	106	31	11	3	2	2	2	1	0	0	0	0	0	0	0	0	0	0
8:15:00	39	13	141	35	13	2	2	0	5	3	0	0	0	0	0	0	0	0	0	0
8:30:00	57	18	187	46	13	0	3	1	7	2	0	0	0	0	0	0	0	0	0	0
8:45:00	74	17	213	26	14	1	3	0	7	0	0	0	0	0	0	0	0	0	0	0
9:00:00	88	14	235	22	19	5	4	1	7	0	0	0	0	0	0	0	0	0	0	0
9:15:00	88	0	235	0	19	0	4	0	7	0	0	0	0	0	0	0	0	0	0	0
11:00:00	88	0	235	0	19	0	4	0	7	0	0	0	0	0	0	0	0	0	0	0
11:15:00	97	9	259	24	19	0	4	0	7	0	0	0	0	0	0	0	0	0	0	0
11:30:00	105	8	272	13	20	1	5	1	8	1	0	0	0	0	0	0	0	0	0	0
11:45:00	114	9	292	20	20	0	6	1	10	2	0	0	0	0	1	1	0	0	0	0
12:00:00	124	10	314	22	22	2	6	0	10	0	1	1	0	0	1	0	0	0	0	0
12:15:00	133	9	337	23	25	3	6	0	11	1	1	0	0	0	1	0	0	0	0	0
12:30:00	135	2	366	29	26	1	8	2	11	0	1	0	0	0	2	1	0	0	0	0
12:45:00	146	11	395	29	27	1	8	0	12	1	1	0	0	0	2	0	0	0	0	0
13:00:00	151	5	417	22	28	1	8	0	13	1	1	0	0	0	2	0	0	0	0	0
13:15:00	156	5	447	30	31	3	8	0	15	2	1	0	0	0	2	0	0	0	0	0
13:30:00	162	6	480	33	34	3	8	0	15	0	1	0	0	0	3	1	0	0	0	0
13:45:00	171	9	513	33	36	2	8	0	15	0	1	0	0	0	3	0	0	0	0	0
14:00:00	181	10	544	31	38	2	8	0	16	1	1	0	0	0	3	0	0	0	0	0
14:15:00	181	0	544	0	38	0	8	0	16	0	1	0	0	0	3	0	0	0	0	0
15:00:00	181	0	544	0	38	0	8	0	16	0	1	0	0	0	3	0	0	0	0	0
15:15:00	194	13	583	39	42	4	8	0	17	1	1	0	1	1	3	0	0	0	0	0
15:30:00	204	10	620	37	42	0	8	0	20	3	1	0	1	0	3	0	0	0	0	0
15:45:00	218	14	670	50	45	3	8	0	21	1	1	0	1	0	3	0	0	0	0	0
16:00:00	232	14	713	43	48	3	8	0	22	1	1	0	1	0	3	0	0	0	0	0
16:15:00	242	10	756	43	54	6	8	0	22	0	1	0	1	0	3	0	0	0	0	0
16:30:00	260	18	811	55	58	4	8	0	23	1	2	1	1	0	3	0	0	0	0	0
16:45:00	276	16	848	37	60	2	8	0	24	1	2	0	1	0	4	1	1	1	0	0
17:00:00	290	14	886	38	62	2	8	0	24	0	2	0	1	0	5	1	1	0	0	0
17:15:00	307	17	932	46	64	2	8	0	24	0	2	0	1	0	5	0	1	0	1	1
17:30:00	322	15	988	56	71	7	8	0	24	0	2	0	1	0	5	0	1	0	1	0
17:45:00	348	26	1031	43	75	4	8	0	24	0	2	0	1	0	7	2	1	0	1	0
18:00:00	363	15	1069	38	77	2	8	0	24	0	2	0	1	0	7	0	1	0	1	0
18:15:00	363	0	1069	0	77	0	8	0	24	0	2	0	1	0	7	0	1	0	1	0
18:15:15	363	0	1069	0	77	0	8	0	24	0	2	0	1	0	7	0	1	0	1	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 10-Nov-22 Site #: 2205500030

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	8	8	14	14	2	2	5	5	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	32	24	29	15	10	8	10	5	6	4	0	0	0	0	0	0	0	0	0	0
7:45:00	54	22	44	15	14	4	14	4	8	2	1	1	0	0	0	0	0	0	0	0
8:00:00	88	34	63	19	19	5	17	3	9	1	1	0	0	0	0	0	0	0	0	0
8:15:00	113	25	82	19	21	2	19	2	9	0	2	1	0	0	0	0	0	0	0	0
8:30:00	140	27	94	12	27	6	25	6	10	1	2	0	0	0	1	1	0	0	0	0
8:45:00	164	24	114	20	33	6	31	6	11	1	3	1	0	0	1	0	0	0	0	0
9:00:00	187	23	123	9	41	8	33	2	12	1	3	0	0	0	1	0	0	0	0	0
9:15:00	187	0	123	0	41	0	33	0	12	0	3	0	0	0	1	0	0	0	0	0
11:00:00	187	0	123	0	41	0	33	0	12	0	3	0	0	0	1	0	0	0	0	0
11:15:00	215	28	142	19	48	7	38	5	13	1	3	0	0	0	1	0	0	0	0	0
11:30:00	229	14	157	15	56	8	45	7	14	1	3	0	0	0	1	0	0	0	1	1
11:45:00	260	31	176	19	74	18	52	7	15	1	3	0	0	0	1	0	0	0	1	0
12:00:00	292	32	198	22	83	9	58	6	16	1	3	0	0	0	1	0	1	1	1	0
12:15:00	322	30	214	16	96	13	63	5	16	0	3	0	0	0	1	0	1	0	1	0
12:30:00	351	29	234	20	102	6	73	10	16	0	3	0	0	0	1	0	2	1	1	0
12:45:00	397	46	258	24	107	5	74	1	18	2	3	0	0	0	2	1	2	0	1	0
13:00:00	420	23	276	18	111	4	80	6	18	0	3	0	0	0	2	0	2	0	1	0
13:15:00	457	37	305	29	122	11	87	7	18	0	3	0	0	0	2	0	2	0	1	0
13:30:00	501	44	328	23	128	6	94	7	20	2	3	0	0	0	2	0	2	0	1	0
13:45:00	537	36	349	21	133	5	97	3	21	1	5	2	0	0	2	0	2	0	1	0
14:00:00	569	32	371	22	147	14	100	3	23	2	5	0	0	0	2	0	2	0	1	0
14:15:00	569	0	371	0	147	0	100	0	23	0	5	0	0	0	2	0	2	0	1	0
15:00:00	569	0	371	0	147	0	100	0	23	0	5	0	0	0	2	0	2	0	1	0
15:15:00	602	33	399	28	155	8	106	6	25	2	6	1	0	0	3	1	2	0	1	0
15:30:00	637	35	421	22	165	10	109	3	25	0	7	1	1	1	3	0	2	0	1	0
15:45:00	677	40	453	32	173	8	113	4	25	0	7	0	1	0	3	0	2	0	1	0
16:00:00	718	41	482	29	188	15	119	6	26	1	7	0	1	0	3	0	2	0	1	0
16:15:00	764	46	514	32	205	17	124	5	26	0	8	1	1	0	3	0	3	1	1	0
16:30:00	818	54	564	50	216	11	130	6	26	0	8	0	2	1	3	0	3	0	1	0
16:45:00	863	45	605	41	238	22	132	2	26	0	8	0	2	0	4	1	3	0	1	0
17:00:00	907	44	640	35	253	15	139	7	27	1	8	0	2	0	4	0	3	0	1	0
17:15:00	970	63	690	50	262	9	142	3	27	0	8	0	3	1	4	0	3	0	2	1
17:30:00	1022	52	737	47	277	15	145	3	27	0	8	0	3	0	4	0	3	0	2	0
17:45:00	1080	58	777	40	290	13	146	1	27	0	8	0	3	0	4	0	4	1	2	0
18:00:00	1116	36	803	26	296	6	148	2	27	0	8	0	3	0	4	0	4	0	2	0
18:15:00	1116	0	803	0	296	0	148	0	27	0	8	0	3	0	4	0	4	0	2	0
18:15:15	1116	0	803	0	296	0	148	0	27	0	8	0	3	0	4	0	4	0	2	0

Stone Rd E @ Watson Pkwy S

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

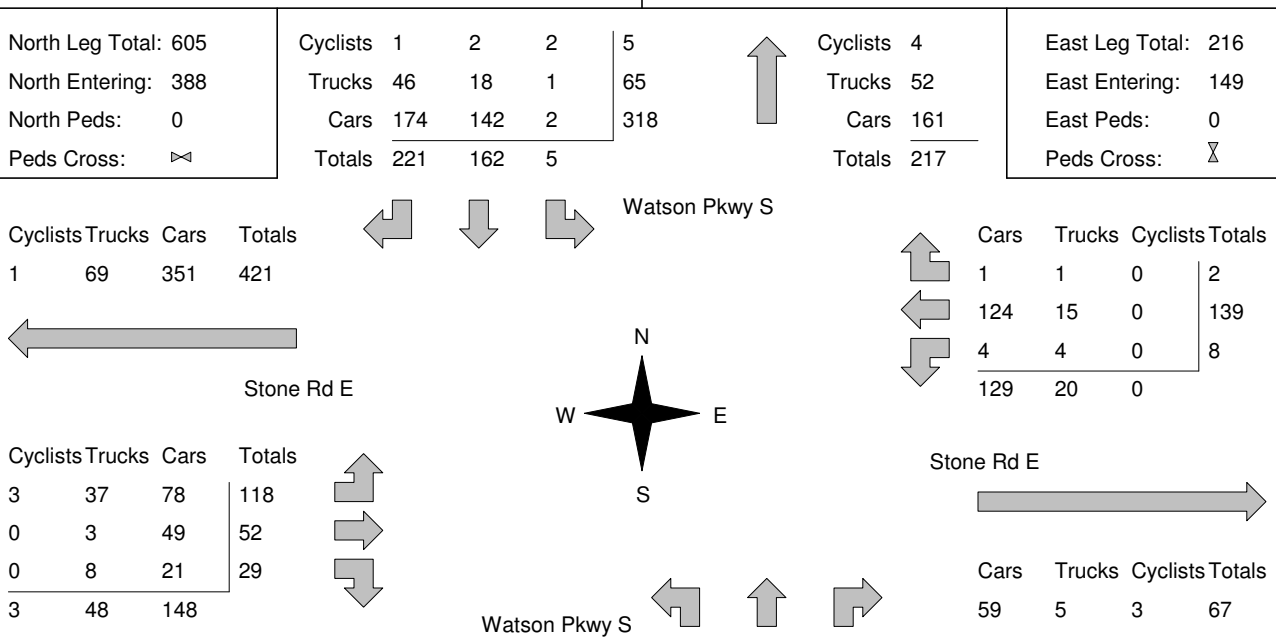
Municipality: Guelph
Site #: 0000000000
Intersection: Stone Rd E & Watson Pkwy S
TFR File #: 1
Count date: 26-Jul-2018

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Stone Rd E runs W/E



Comments

Stone Rd E @ Watson Pkwy S

Mid-day Peak Diagram

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

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

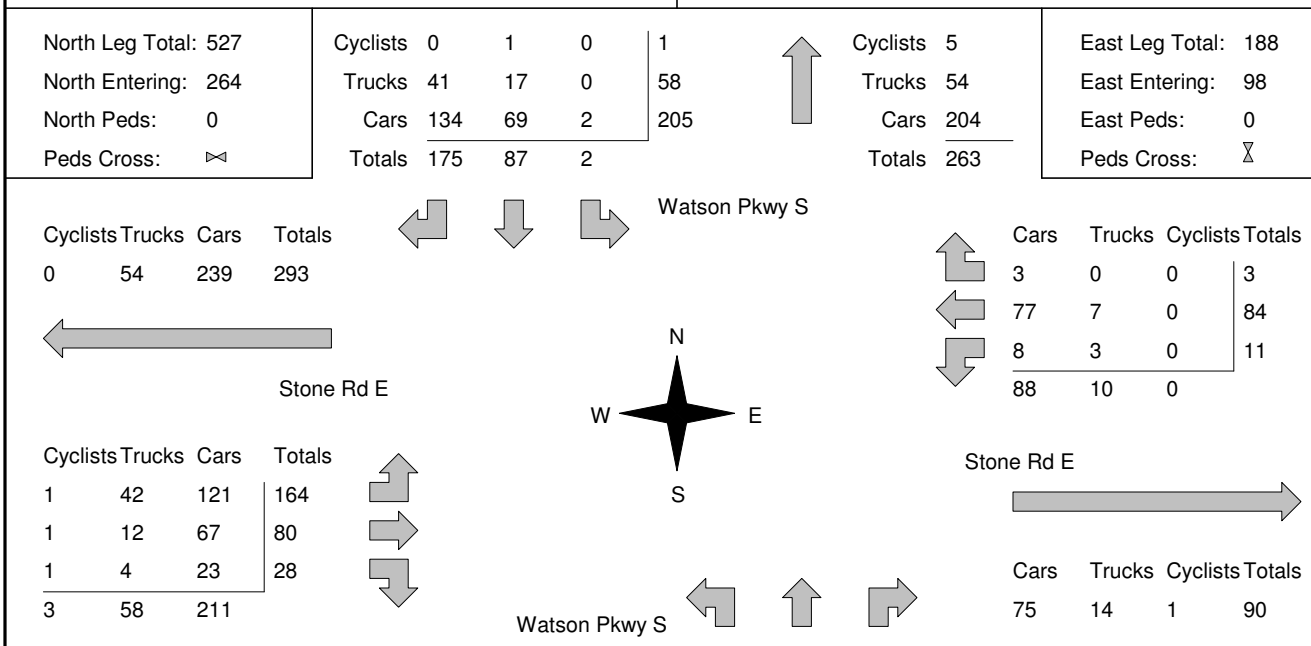
Municipality: Guelph
Site #: 0000000000
Intersection: Stone Rd E & Watson Pkwy S
TFR File #: 1
Count date: 26-Jul-2018

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Stone Rd E runs W/E



Comments

Stone Rd E @ Watson Pkwy S

Afternoon Peak Diagram

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

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

Municipality: Guelph
Site #: 0000000000
Intersection: Stone Rd E & Watson Pkwy S
TFR File #: 1
Count date: 26-Jul-2018

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Stone Rd E runs W/E

North Leg Total:	767
North Entering:	363
North Peds:	0
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	32	27	0	59
Cars	158	145	1	304
Totals	190	172	1	

Cyclists	2			
Trucks	53			
Cars	349			
Totals	404			

East Leg Total:	318
East Entering:	119
East Peds:	0
Peds Cross:	⧖

Watson Pkwy S

Cyclists	Trucks	Cars	Totals
0	50	279	329

Cars	Trucks	Cyclists	Totals
4	1	0	5
89	15	0	104
7	3	0	10
100	19	0	

Stone Rd E

N
W E
S

Cyclists	Trucks	Cars	Totals
1	32	184	217
1	13	169	183
1	7	61	69
3	52	414	

Stone Rd E

Cars	Trucks	Cyclists	Totals
178	20	1	199

Watson Pkwy S

Peds Cross:	⧖
West Peds:	0
West Entering:	469
West Leg Total:	798

Cars	213			
Trucks	37			
Cyclists	1			
Totals	251			

Cars	32	161	8	201
Trucks	3	20	7	30
Cyclists	0	1	0	1
Totals	35	182	15	

Peds Cross:	⋈
South Peds:	0
South Entering:	232
South Leg Total:	483

Comments

Stone Rd E @ Watson Pkwy S

Eight Hour Peak Diagram

Eight Hour Peak
From: 7:45:00
To: 15:45:00

Municipality: Guelph
Site #: 0000000000
Intersection: Stone Rd E & Watson Pkwy S
TFR File #: 1
Count date: 26-Jul-2018

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Stone Rd E runs W/E

North Leg Total:	2765
North Entering:	1534
North Peds:	0
Peds Cross:	⋈

Cyclists	7	8	2	17
Trucks	205	88	4	297
Cars	728	482	10	1220
Totals	940	578	16	

Cyclists	14
Trucks	265
Cars	952
Totals	1231

East Leg Total:	911
East Entering:	487
East Peds:	1
Peds Cross:	⧖

Watson Pkwy S

Cyclists	Trucks	Cars	Totals
10	279	1256	1545

Cars	Trucks	Cyclists	Totals
12	6	0	18
378	45	2	425
33	11	0	44
423	62	2	

Stone Rd E

N
W E
S

Cyclists	Trucks	Cars	Totals
5	184	536	725
4	36	321	361
4	23	105	132
13	243	962	

Stone Rd E

Cars	Trucks	Cyclists	Totals
366	49	9	424

Watson Pkwy S

Peds Cross:	⧖
West Peds:	0
West Entering:	1218
West Leg Total:	2763

Cars	620
Trucks	122
Cyclists	12
Totals	754

Cars	150	404	35	589
Trucks	29	75	9	113
Cyclists	1	9	3	13
Totals	180	488	47	

Peds Cross:	⋈
South Peds:	1
South Entering:	715
South Leg Total:	1469

Comments

Stone Rd E @ Watson Pkwy S

Total Count Diagram

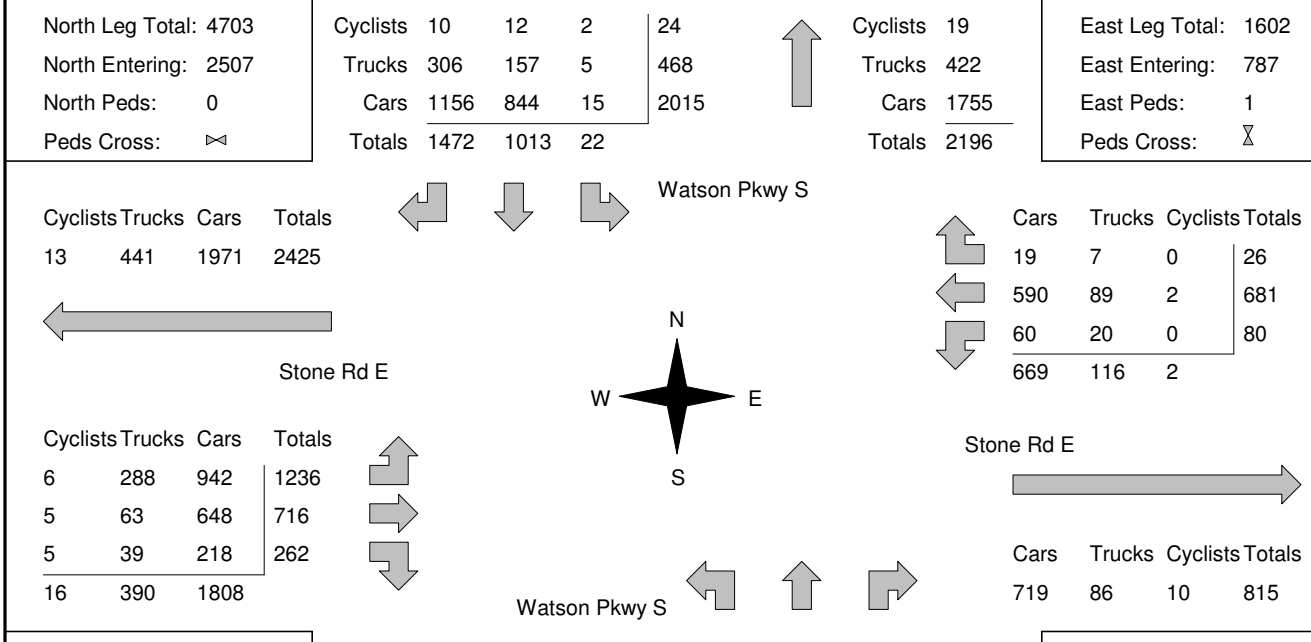
Municipality: Guelph
Site #: 0000000000
Intersection: Stone Rd E & Watson Pkwy S
TFR File #: 1
Count date: 26-Jul-2018

Weather conditions:
Sunny

Person(s) who counted:
Tanya

**** Signalized Intersection ****

Major Road: Stone Rd E runs W/E



Comments

Stone Rd E @ Watson Pkwy S
Traffic Count Summary

Intersection: Stone Rd E & Watson Pkwy S | **Count Date:** 26-Jul-2018 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	133	137	271	0	387
9:00:00	6	140	223	369	0	537
11:00:00	0	0	0	0	0	0
12:00:00	3	90	163	256	0	369
13:00:00	2	89	150	241	0	358
14:00:00	2	87	175	264	0	402
15:00:00	0	0	0	0	0	0
16:00:00	2	178	237	417	0	607
17:00:00	1	173	219	393	0	620
18:00:00	5	123	168	296	0	510
Totals:	22	1013	1472	2507	0	3790

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	28	80	8	116	0
9:00:00	69	92	7	168	0
11:00:00	0	0	0	0	0
12:00:00	18	91	4	113	0
13:00:00	23	82	12	117	1
14:00:00	34	96	8	138	0
15:00:00	0	0	0	0	0
16:00:00	32	141	17	190	0
17:00:00	40	176	11	227	0
18:00:00	28	176	10	214	1
Totals:	272	934	77	1283	2

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	11	103	2	116	0	280
9:00:00	10	135	2	147	0	351
11:00:00	0	0	0	0	0	0
12:00:00	9	61	4	74	1	296
13:00:00	6	63	7	76	0	311
14:00:00	11	84	3	98	0	370
15:00:00	0	0	0	0	0	0
16:00:00	7	61	2	70	0	379
17:00:00	15	94	5	114	0	547
18:00:00	11	80	1	92	0	467
Totals:	80	681	26	787	1	3001

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	92	50	22	164	0
9:00:00	118	54	32	204	0
11:00:00	0	0	0	0	0
12:00:00	145	54	23	222	0
13:00:00	144	67	24	235	0
14:00:00	164	80	28	272	0
15:00:00	0	0	0	0	0
16:00:00	161	118	30	309	0
17:00:00	211	163	59	433	0
18:00:00	201	130	44	375	0
Totals:	1236	716	262	2214	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	162	215	113	114	132	212	217	209

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Victoria Rd S From North					Woodlawn Rd E From East					Victoria Rd S From South					Victoria Rd E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	34	115	0	0	149	0	0	0	0	0	0	61	5	0	66	4	0	16	0	20	235
07:15 AM	37	142	0	0	179	0	0	0	0	0	0	90	12	0	102	7	0	10	0	17	298
07:30 AM	55	155	0	0	210	0	0	0	0	0	0	127	13	0	140	4	0	16	0	20	370
07:45 AM	100	140	0	0	240	0	0	0	0	0	0	152	21	0	173	10	0	15	0	25	438
Total	226	552	0	0	778	0	0	0	0	0	0	430	51	0	481	25	0	57	0	82	1341
08:00 AM	118	147	0	0	265	0	0	0	0	0	0	145	22	1	168	7	0	20	0	27	460
08:15 AM	129	136	0	0	265	0	0	0	0	0	0	195	40	0	235	10	0	30	0	40	540
08:30 AM	97	145	0	0	242	0	0	0	0	0	0	184	29	0	213	14	0	33	0	47	502
08:45 AM	103	159	0	0	262	0	0	0	0	0	0	183	33	0	216	13	0	35	0	48	526
Total	447	587	0	0	1034	0	0	0	0	0	0	707	124	1	832	44	0	118	0	162	2028
11:00 AM	50	136	0	0	186	0	0	0	0	0	0	107	13	0	120	13	0	24	0	37	343
11:15 AM	34	128	0	0	162	0	0	0	0	0	0	108	19	0	127	13	0	36	0	49	338
11:30 AM	43	100	0	0	143	0	0	0	0	0	0	122	10	0	132	10	0	33	0	43	318
11:45 AM	32	88	0	0	120	0	0	0	0	0	0	129	10	0	139	8	0	46	0	54	313
Total	159	452	0	0	611	0	0	0	0	0	0	466	52	0	518	44	0	139	0	183	1312
12:00 PM	33	124	0	0	157	0	0	0	0	0	0	133	8	0	141	11	0	41	0	52	350
12:15 PM	27	120	0	0	147	0	0	0	0	0	0	134	8	0	142	12	0	40	0	52	341
12:30 PM	42	113	0	0	155	0	0	0	0	0	0	114	10	0	124	10	0	29	0	39	318
12:45 PM	43	107	0	0	150	0	0	0	0	0	0	142	18	0	160	18	0	52	0	70	380
Total	145	464	0	0	609	0	0	0	0	0	0	523	44	0	567	51	0	162	0	213	1389
01:00 PM	45	127	0	0	172	0	0	0	0	0	0	111	9	0	120	15	0	49	1	65	357
01:15 PM	38	121	0	0	159	0	0	0	0	0	0	101	12	0	113	12	0	35	0	47	319
01:30 PM	38	103	0	0	141	0	0	0	0	0	0	107	8	1	116	10	0	42	0	52	309
01:45 PM	37	110	0	0	147	0	0	0	0	0	0	112	12	0	124	12	0	27	0	39	310
Total	158	461	0	0	619	0	0	0	0	0	0	431	41	1	473	49	0	153	1	203	1295
03:00 PM	41	117	0	0	158	0	0	0	0	0	0	184	18	0	202	8	0	65	0	73	433
03:15 PM	50	148	0	2	200	0	0	0	0	0	0	211	12	0	223	15	0	42	0	57	480

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019

Groups Printed- Cars - Trucks - Heavys - Cyclists

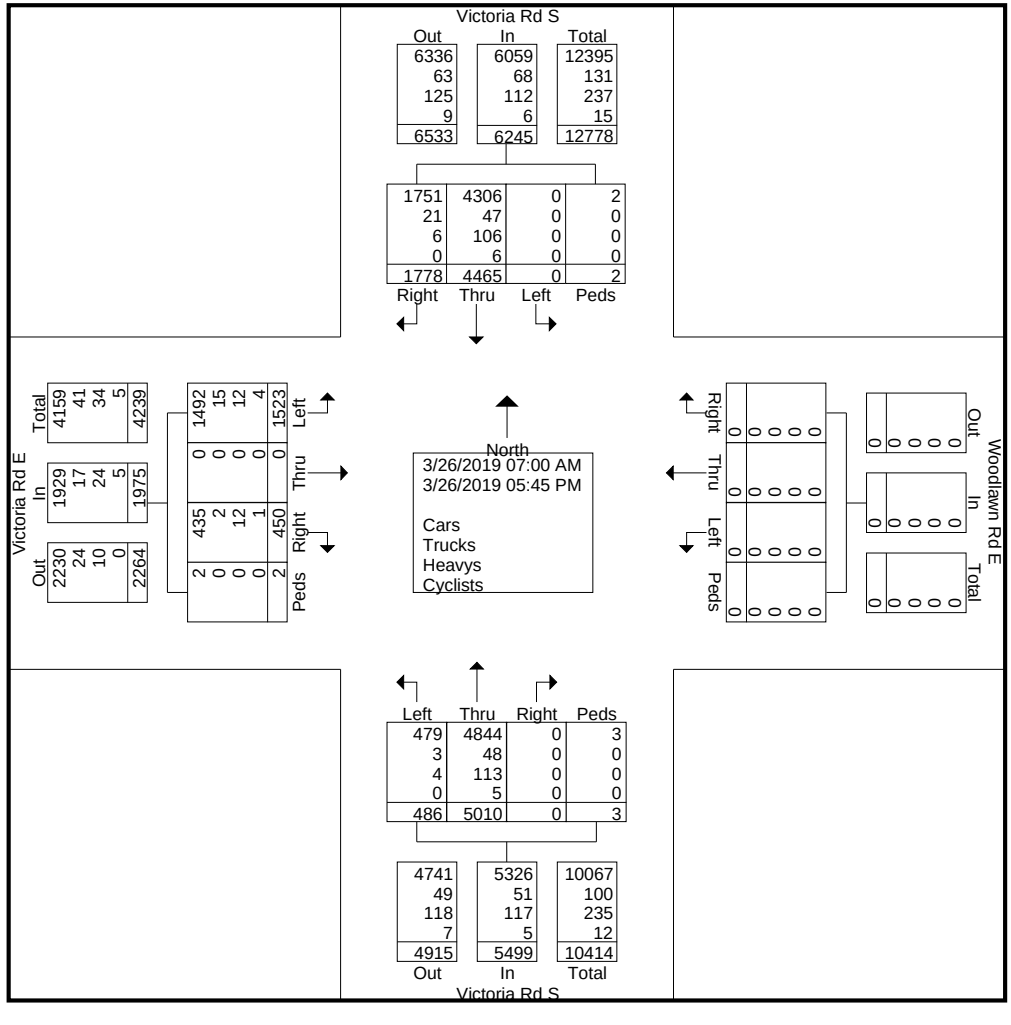
	Victoria Rd S From North					Woodlawn Rd E From East					Victoria Rd S From South					Victoria Rd E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	71	192	0	0	263	0	0	0	0	0	0	175	14	0	189	23	0	62	0	85	537
03:45 PM	44	162	0	0	206	0	0	0	0	0	0	161	11	0	172	30	0	75	0	105	483
Total	206	619	0	2	827	0	0	0	0	0	0	731	55	0	786	76	0	244	0	320	1933
04:00 PM	47	147	0	0	194	0	0	0	0	0	0	196	17	0	213	18	0	90	0	108	515
04:15 PM	56	164	0	0	220	0	0	0	0	0	0	214	10	0	224	16	0	87	0	103	547
04:30 PM	64	176	0	0	240	0	0	0	0	0	0	233	11	1	245	25	0	91	0	116	601
04:45 PM	63	183	0	0	246	0	0	0	0	0	0	224	19	0	243	17	0	82	0	99	588
Total	230	670	0	0	900	0	0	0	0	0	0	867	57	1	925	76	0	350	0	426	2251
05:00 PM	65	179	0	0	244	0	0	0	0	0	0	237	14	0	251	22	0	98	0	120	615
05:15 PM	32	118	0	0	150	0	0	0	0	0	0	204	15	0	219	30	0	77	1	108	477
05:30 PM	62	199	0	0	261	0	0	0	0	0	0	224	18	0	242	17	0	70	0	87	590
05:45 PM	48	164	0	0	212	0	0	0	0	0	0	190	15	0	205	16	0	55	0	71	488
Total	207	660	0	0	867	0	0	0	0	0	0	855	62	0	917	85	0	300	1	386	2170
Grand Total	1778	4465	0	2	6245	0	0	0	0	0	0	5010	486	3	5499	450	0	1523	2	1975	13719
Apprch %	28.5	71.5	0	0		0	0	0	0		0	91.1	8.8	0.1		22.8	0	77.1	0.1		
Total %	13	32.5	0	0	45.5	0	0	0	0	0	0	36.5	3.5	0	40.1	3.3	0	11.1	0	14.4	
Cars	1751	4306	0	2	6059	0	0	0	0	0	0	4844	479	3	5326	435	0	1492	2	1929	13314
% Cars	98.5	96.4	0	100	97	0	0	0	0	0	0	96.7	98.6	100	96.9	96.7	0	98	100	97.7	97
Trucks	21	47	0	0	68	0	0	0	0	0	0	48	3	0	51	2	0	15	0	17	136
% Trucks	1.2	1.1	0	0	1.1	0	0	0	0	0	0	1	0.6	0	0.9	0.4	0	1	0	0.9	1
Heavys	6	106	0	0	112	0	0	0	0	0	0	113	4	0	117	12	0	12	0	24	253
% Heavys	0.3	2.4	0	0	1.8	0	0	0	0	0	0	2.3	0.8	0	2.1	2.7	0	0.8	0	1.2	1.8
Cyclists	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	1	0	4	0	5	16
% Cyclists	0	0.1	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.1	0.2	0	0.3	0	0.3	0.1

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 3



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019

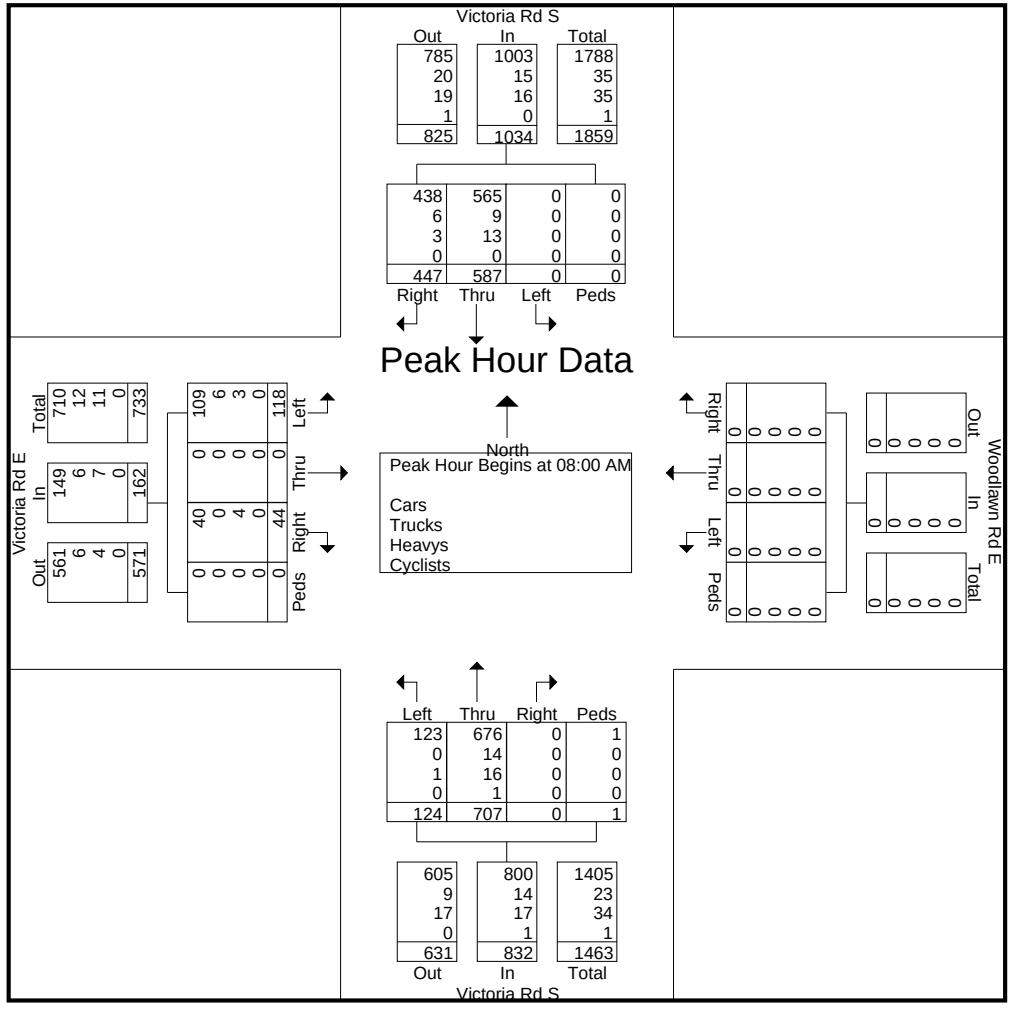
	Victoria Rd S From North					Woodlawn Rd E From East					Victoria Rd S From South					Victoria Rd E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	118	147	0	0	**265**	0	0	0	0	0	0	145	22	**1**	168	7	0	20	0	27	460
08:15 AM	**129**	136	0	0	265	0	0	0	0	0	0	**195**	**40**	0	**235**	10	0	30	0	40	**540**
08:30 AM	97	145	0	0	242	0	0	0	0	0	0	184	29	0	213	**14**	0	33	0	47	502
08:45 AM	103	**159**	0	0	262	0	0	0	0	0	0	183	33	0	216	13	0	**35**	0	**48**	526
Total Volume	447	587	0	0	1034	0	0	0	0	0	0	707	124	1	832	44	0	118	0	162	2028
% App. Total	43.2	56.8	0	0		0	0	0	0		0	85	14.9	0.1		27.2	0	72.8	0		
PHF	.866	.923	.000	.000	.975	.000	.000	.000	.000	.000	.000	.906	.775	.250	.885	.786	.000	.843	.000	.844	.939
Cars	438	565	0	0	1003	0	0	0	0	0	0	676	123	1	800	40	0	109	0	149	1952
% Cars	98.0	96.3	0	0	97.0	0	0	0	0	0	0	95.6	99.2	100	96.2	90.9	0	92.4	0	92.0	96.3
Trucks	6	9	0	0	15	0	0	0	0	0	0	14	0	0	14	0	0	6	0	6	35
% Trucks	1.3	1.5	0	0	1.5	0	0	0	0	0	0	2.0	0	0	1.7	0	0	5.1	0	3.7	1.7
Heavys	3	13	0	0	16	0	0	0	0	0	0	16	1	0	17	4	0	3	0	7	40
% Heavys	0.7	2.2	0	0	1.5	0	0	0	0	0	0	2.3	0.8	0	2.0	9.1	0	2.5	0	4.3	2.0
Cyclists	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 5

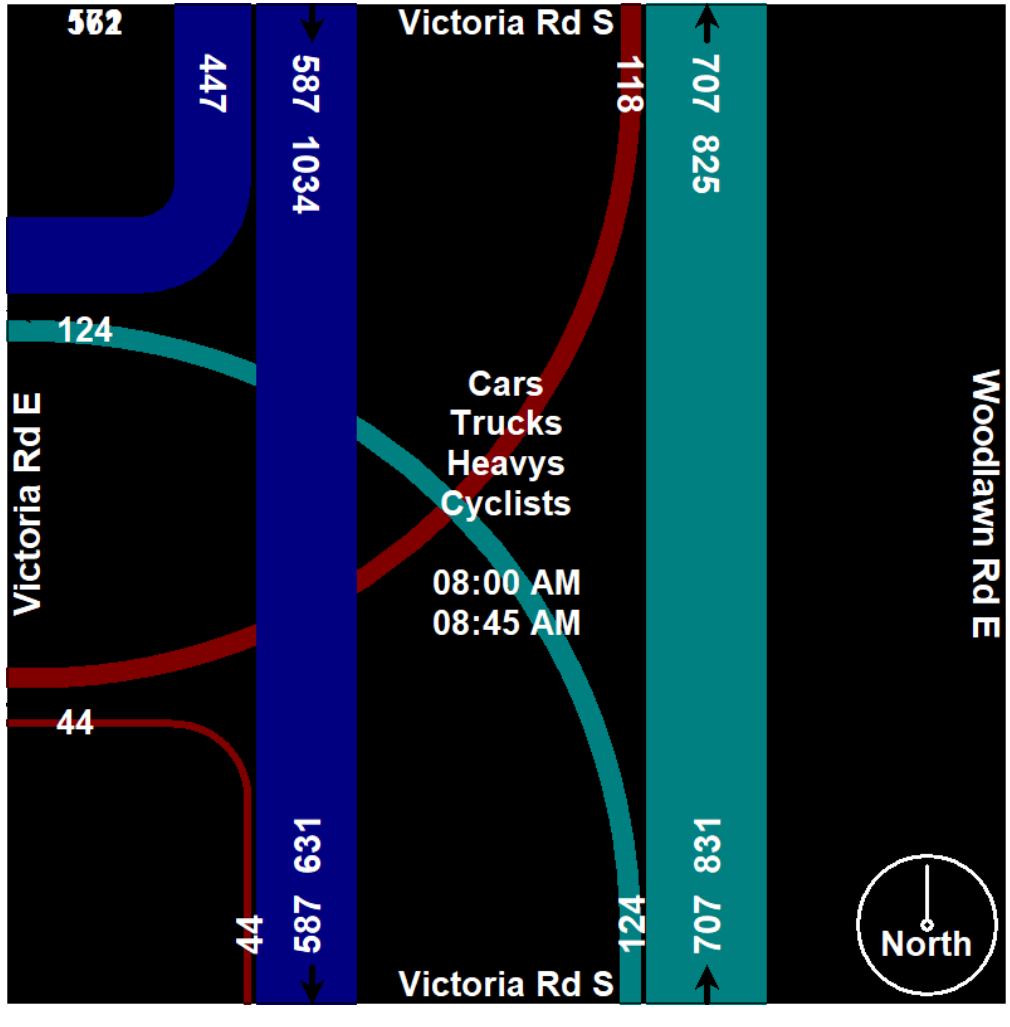


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 6



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019

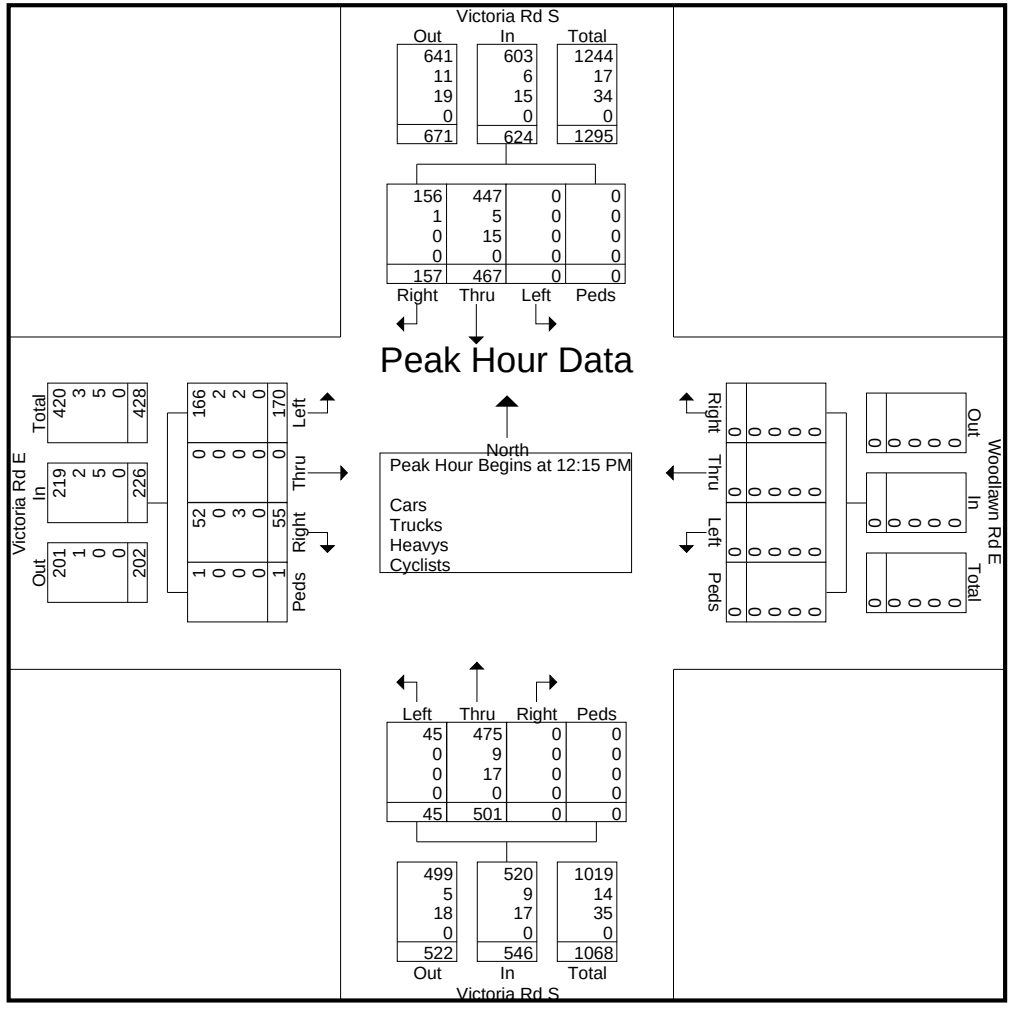
	Victoria Rd S From North					Woodlawn Rd E From East					Victoria Rd S From South					Victoria Rd E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	27	120	0	0	147	0	0	0	0	0	0	134	8	0	142	12	0	40	0	52	341
12:30 PM	42	113	0	0	155	0	0	0	0	0	0	114	10	0	124	10	0	29	0	39	318
12:45 PM	43	107	0	0	150	0	0	0	0	0	0	**142**	**18**	0	**160**	**18**	0	**52**	0	**70**	**380**
01:00 PM	**45**	**127**	0	0	**172**	0	0	0	0	0	0	111	9	0	120	15	0	49	**1**	65	357
Total Volume	157	467	0	0	624	0	0	0	0	0	0	501	45	0	546	55	0	170	1	226	1396
% App. Total	25.2	74.8	0	0		0	0	0	0		0	91.8	8.2	0		24.3	0	75.2	0.4		
PHF	.872	.919	.000	.000	.907	.000	.000	.000	.000	.000	.000	.882	.625	.000	.853	.764	.000	.817	.250	.807	.918
Cars	156	447	0	0	603	0	0	0	0	0	0	475	45	0	520	52	0	166	1	219	1342
% Cars	99.4	95.7	0	0	96.6	0	0	0	0	0	0	94.8	100	0	95.2	94.5	0	97.6	100	96.9	96.1
Trucks	1	5	0	0	6	0	0	0	0	0	0	9	0	0	9	0	0	2	0	2	17
% Trucks	0.6	1.1	0	0	1.0	0	0	0	0	0	0	1.8	0	0	1.6	0	0	1.2	0	0.9	1.2
Heavys	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	3	0	2	0	5	37
% Heavys	0	3.2	0	0	2.4	0	0	0	0	0	0	3.4	0	0	3.1	5.5	0	1.2	0	2.2	2.7
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 8

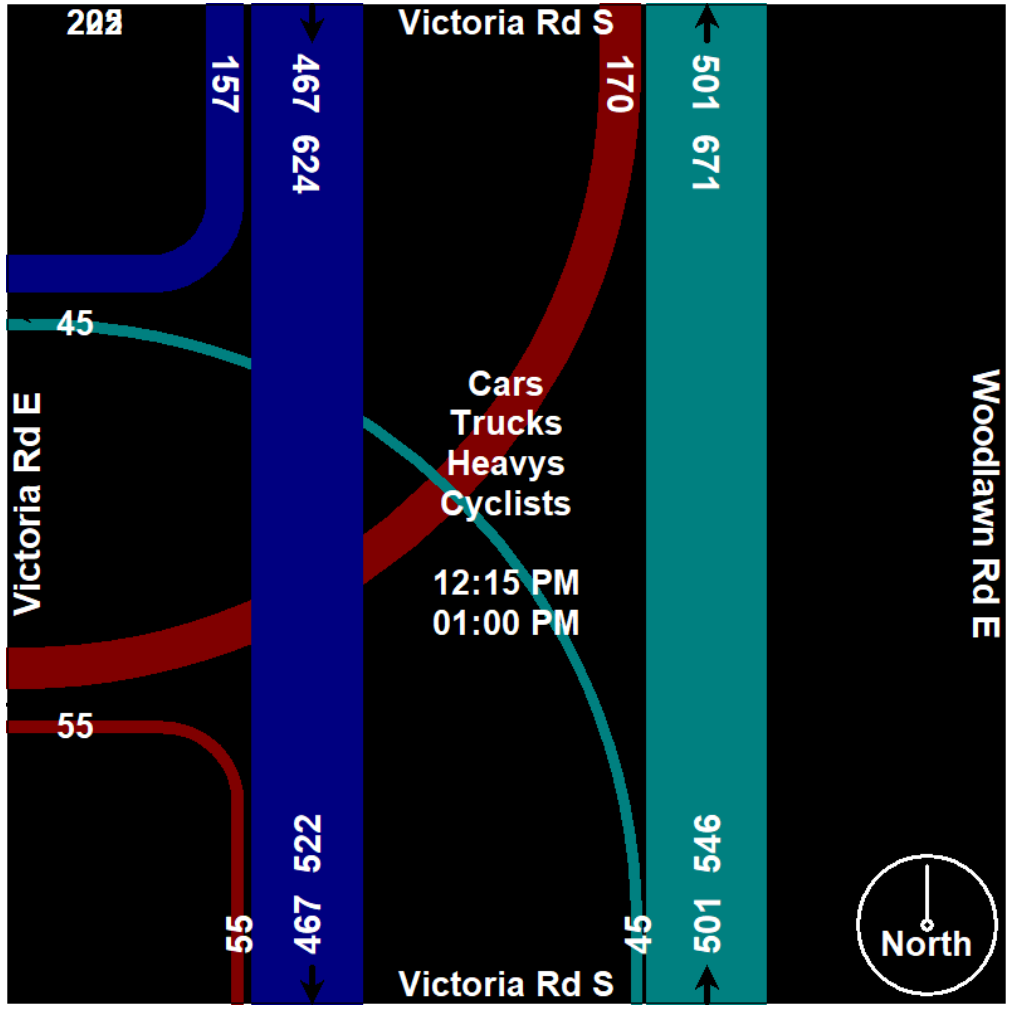


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 9



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5
"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 10

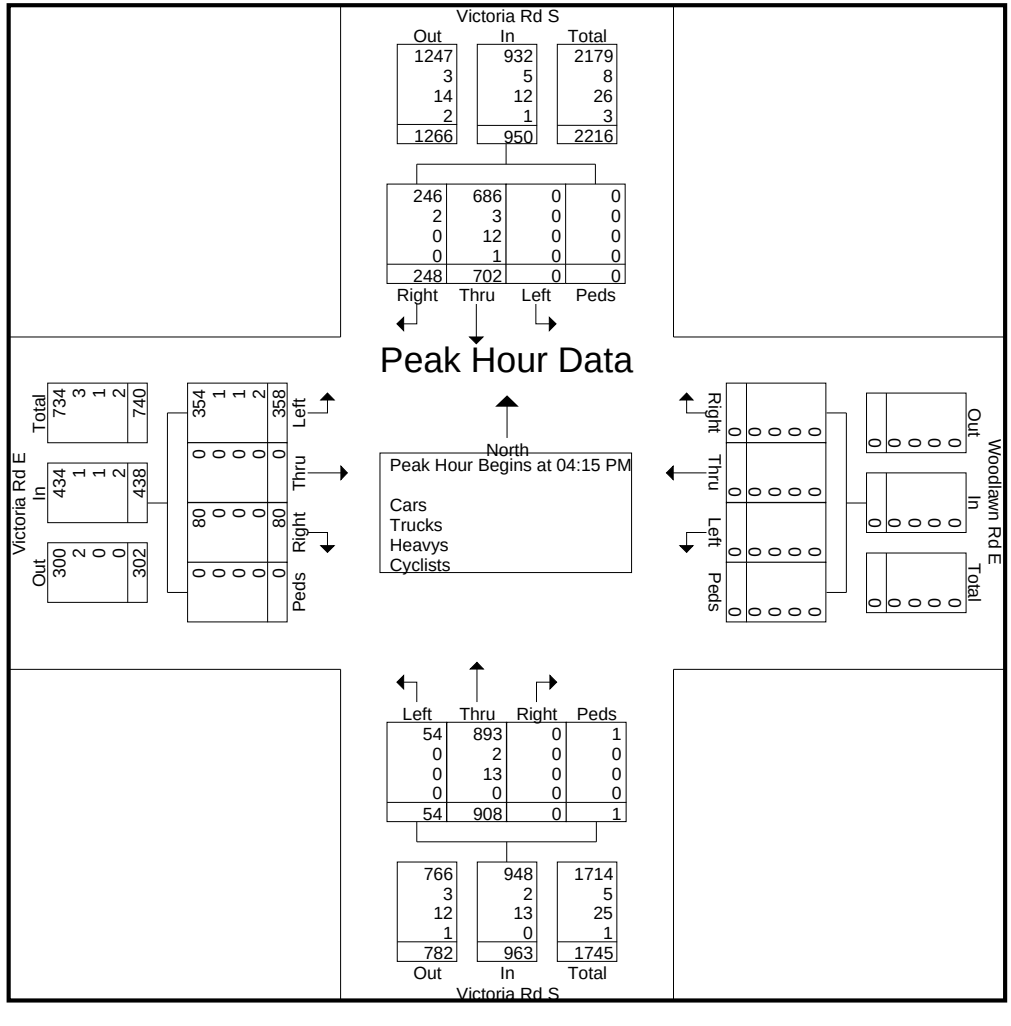
	Victoria Rd S From North					Woodlawn Rd E From East					Victoria Rd S From South					Victoria Rd E From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	56	164	0	0	220	0	0	0	0	0	0	214	10	0	224	16	0	87	0	103	547
04:30 PM	64	176	0	0	240	0	0	0	0	0	0	233	11	**1**	245	**25**	0	91	0	116	601
04:45 PM	63	**183**	0	0	**246**	0	0	0	0	0	0	224	**19**	0	243	17	0	82	0	99	588
05:00 PM	**65**	179	0	0	244	0	0	0	0	0	0	**237**	14	0	**251**	22	0	**98**	0	**120**	**615**
Total Volume	248	702	0	0	950	0	0	0	0	0	0	908	54	1	963	80	0	358	0	438	2351
% App. Total	26.1	73.9	0	0		0	0	0	0		0	94.3	5.6	0.1		18.3	0	81.7	0		
PHF	.954	.959	.000	.000	.965	.000	.000	.000	.000	.000	.000	.958	.711	.250	.959	.800	.000	.913	.000	.913	.956
Cars	246	686	0	0	932	0	0	0	0	0	0	893	54	1	948	80	0	354	0	434	2314
% Cars	99.2	97.7	0	0	98.1	0	0	0	0	0	0	98.3	100	100	98.4	100	0	98.9	0	99.1	98.4
Trucks	2	3	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	8
% Trucks	0.8	0.4	0	0	0.5	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0.3	0	0.2	0.3
Heavys	0	12	0	0	12	0	0	0	0	0	0	13	0	0	13	0	0	1	0	1	26
% Heavys	0	1.7	0	0	1.3	0	0	0	0	0	0	1.4	0	0	1.3	0	0	0.3	0	0.2	1.1
Cyclists	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3
% Cyclists	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.5	0.1

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 11

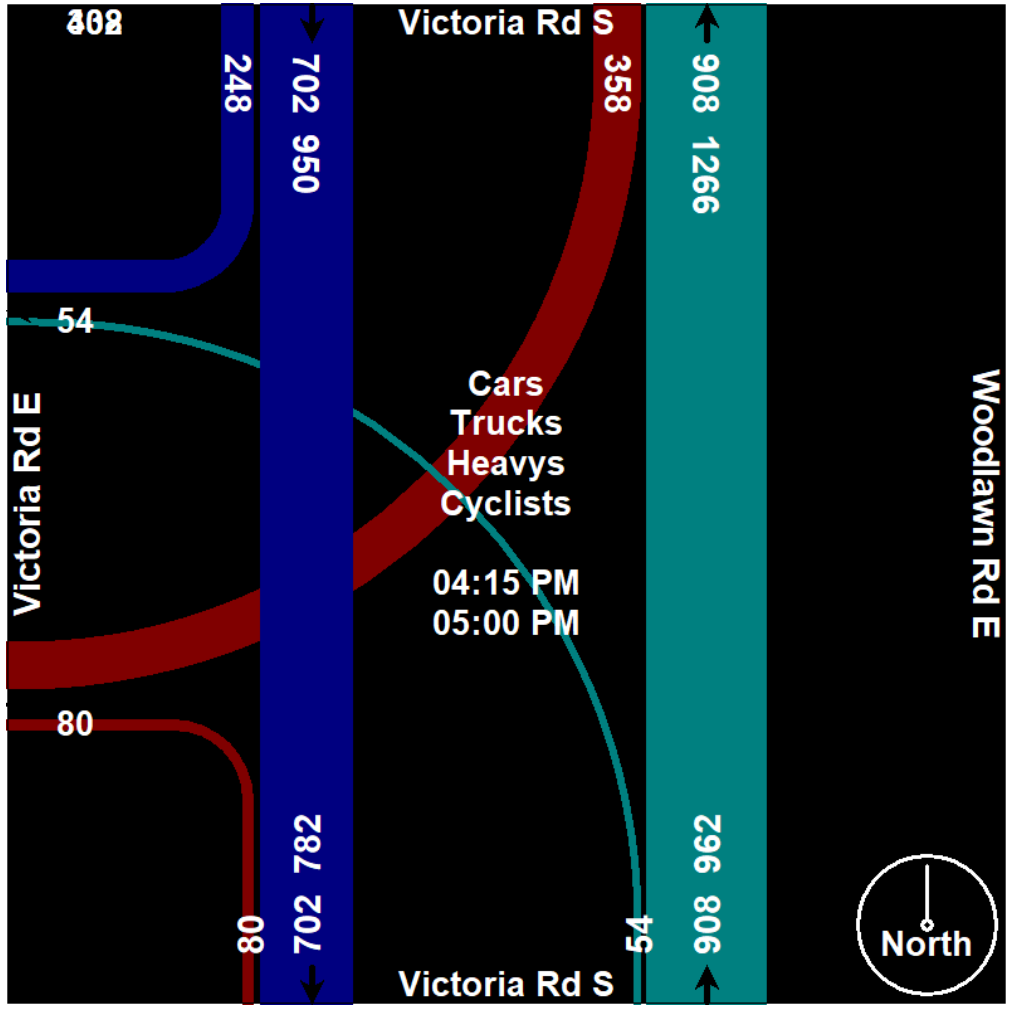


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Victoria Rd S at College Ave E
Site Code : 00000000
Start Date : 3/26/2019
Page No : 12



Victoria Road & Stone Road

Morning Peak Diagram

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

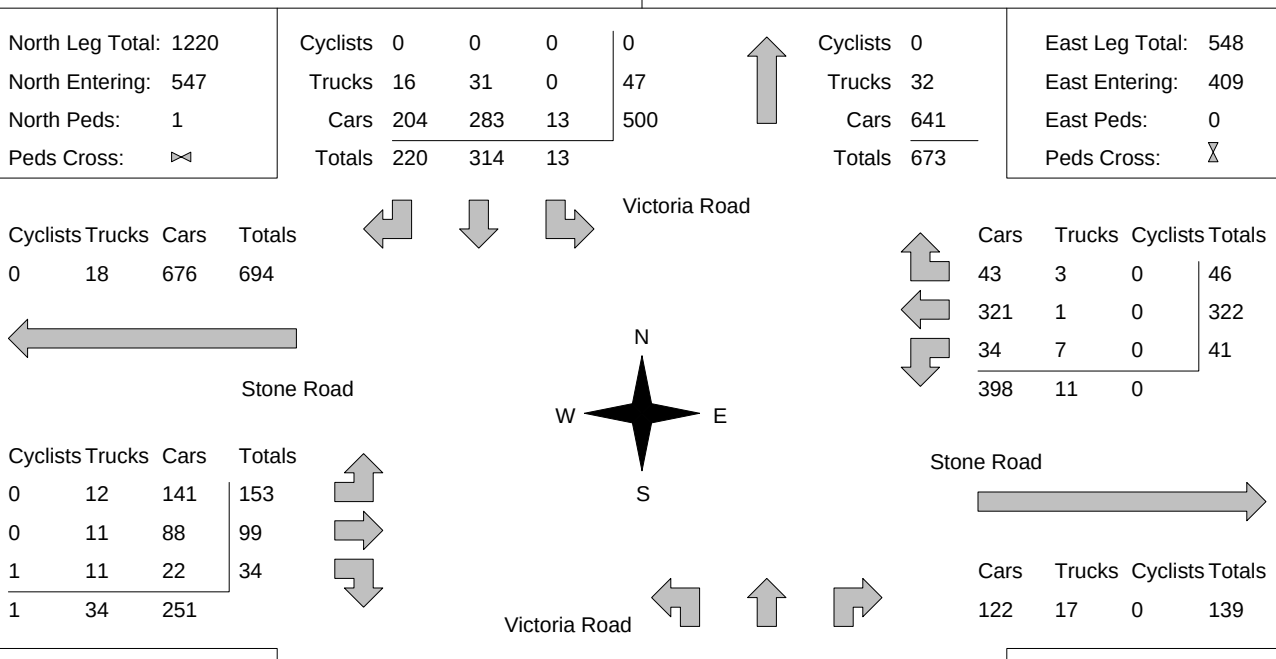
One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Guelph
Site #: 0000001308
Intersection: Victoria Road & Stone Road
TFR File #: 1
Count date: 1-Apr-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Victoria Road runs N/S



Comments

Victoria Road & Stone Road

Mid-day Peak Diagram

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

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

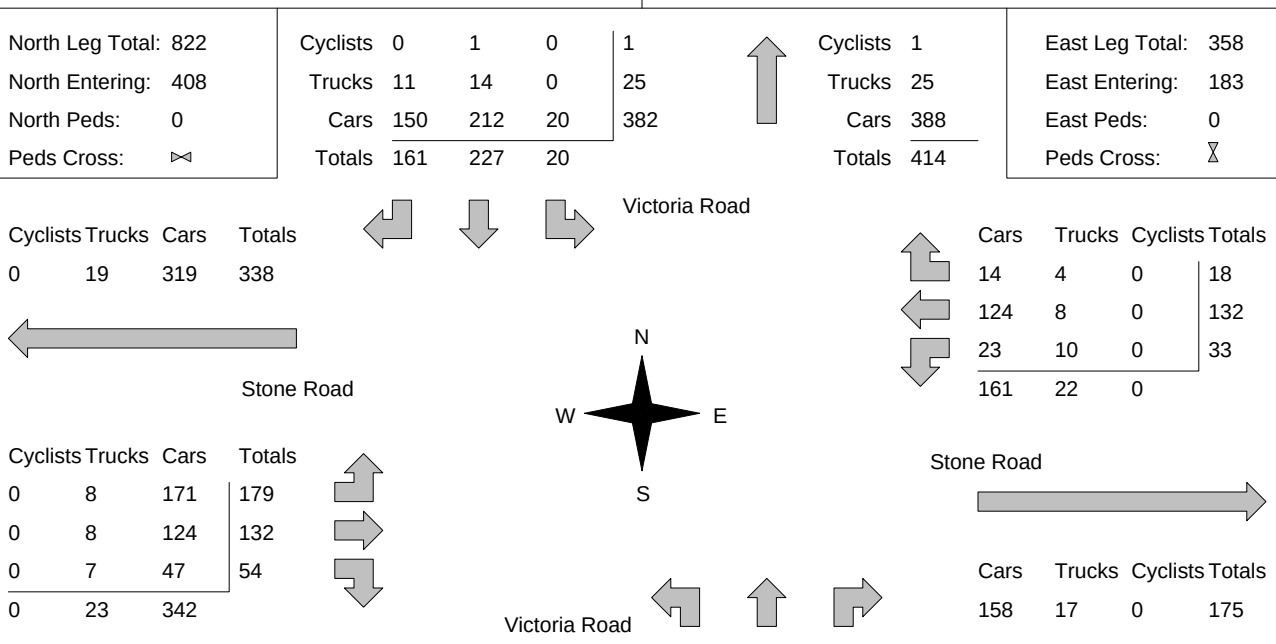
Municipality: Guelph
Site #: 0000001308
Intersection: Victoria Road & Stone Road
TFR File #: 1
Count date: 1-Apr-2014

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Victoria Road runs N/S



Comments

Victoria Road & Stone Road

Afternoon Peak Diagram

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

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

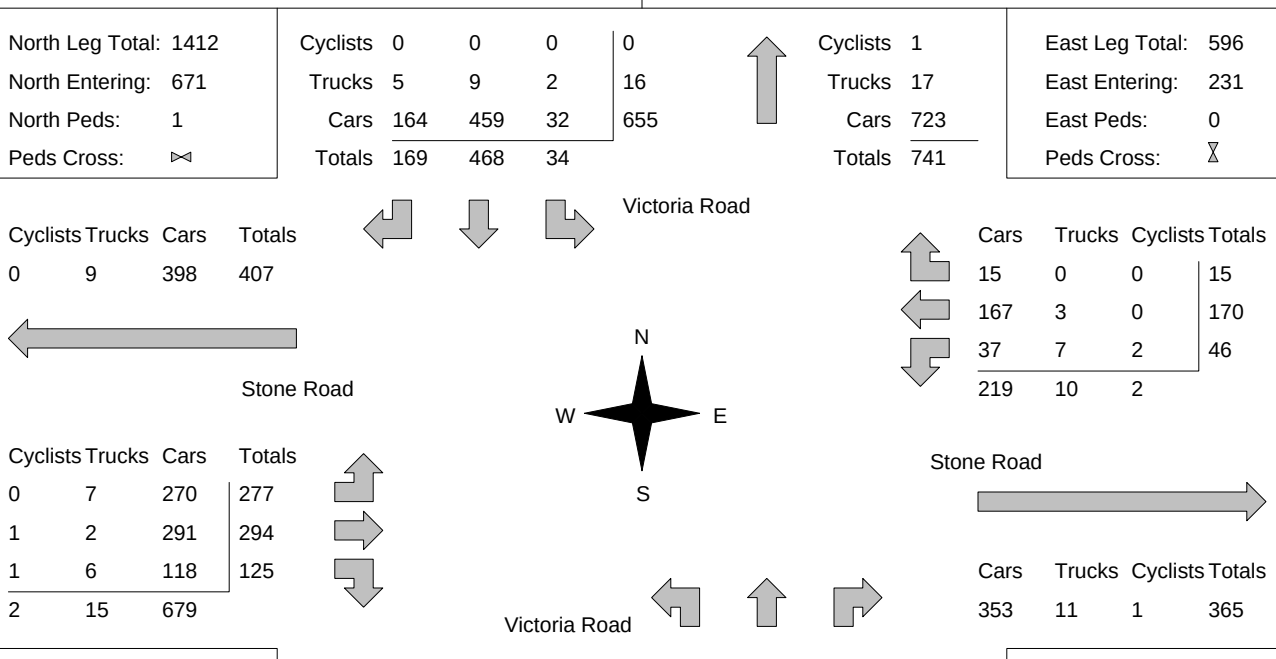
Municipality: Guelph
Site #: 0000001308
Intersection: Victoria Road & Stone Road
TFR File #: 1
Count date: 1-Apr-2014

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Victoria Road runs N/S



Comments

Victoria Road & Stone Road

Total Count Diagram

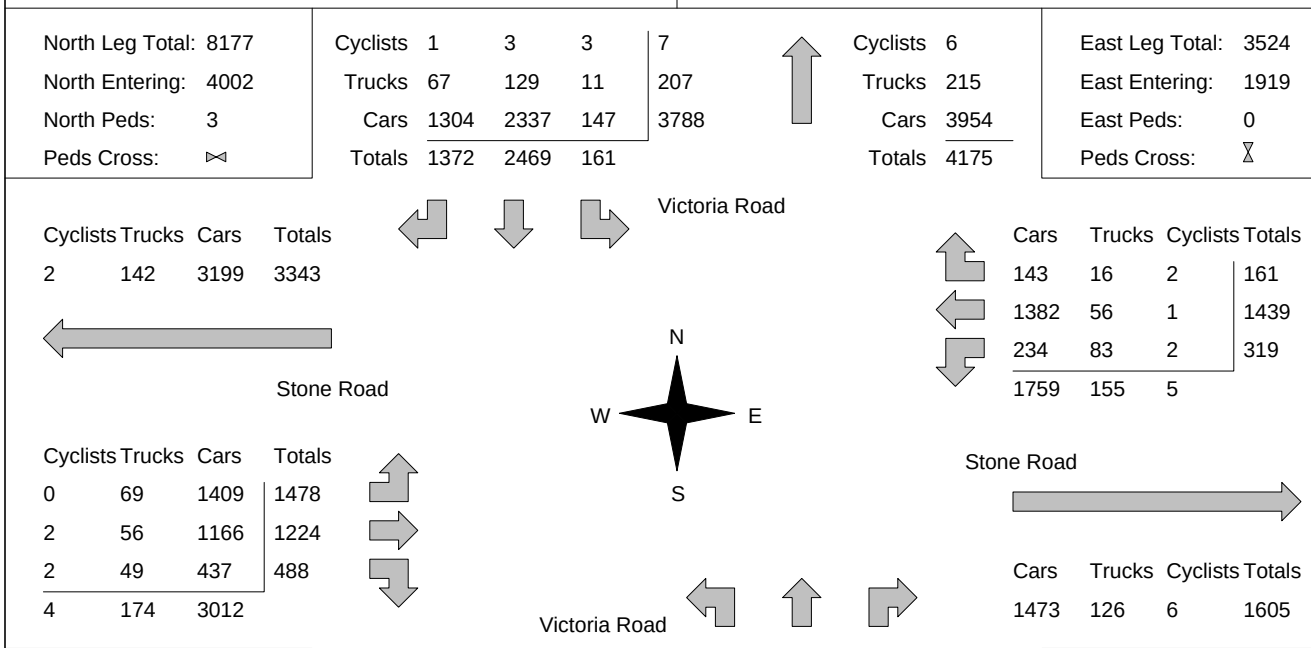
Municipality: Guelph
Site #: 0000001308
Intersection: Victoria Road & Stone Road
TFR File #: 1
Count date: 1-Apr-2014

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Victoria Road runs N/S



Comments

Victoria Road & Stone Road
Traffic Count Summary

Intersection: Victoria Road & Stone Road | **Count Date:** 1-Apr-2014 | **Municipality:** Guelph

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	10	334	122	466	0	831
9:00:00	13	314	220	547	1	1200
11:00:00	0	0	0	0	0	0
12:00:00	13	195	177	385	0	648
13:00:00	19	218	155	392	0	673
14:00:00	20	227	161	408	0	693
15:00:00	0	0	0	0	0	0
16:00:00	30	338	209	577	1	1022
17:00:00	29	405	166	600	0	1104
18:00:00	27	438	162	627	1	1119
Totals:	161	2469	1372	4002	3	7290

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	57	281	27	365	0
9:00:00	152	474	27	653	0
11:00:00	0	0	0	0	0
12:00:00	52	189	22	263	0
13:00:00	50	203	28	281	0
14:00:00	45	217	23	285	0
15:00:00	0	0	0	0	0
16:00:00	47	377	21	445	0
17:00:00	70	406	28	504	8
18:00:00	59	389	44	492	2
Totals:	532	2536	220	3288	10

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	40	167	13	220	0	435
9:00:00	41	322	46	409	0	695
11:00:00	0	0	0	0	0	0
12:00:00	29	135	15	179	0	484
13:00:00	25	125	18	168	0	492
14:00:00	33	132	18	183	0	548
15:00:00	0	0	0	0	0	0
16:00:00	56	211	21	288	0	730
17:00:00	50	190	15	255	0	891
18:00:00	45	157	15	217	0	834
Totals:	319	1439	161	1919	0	5109

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	93	105	17	215	0
9:00:00	153	99	34	286	0
11:00:00	0	0	0	0	0
12:00:00	178	85	42	305	0
13:00:00	154	110	60	324	0
14:00:00	179	132	54	365	0
15:00:00	0	0	0	0	0
16:00:00	215	172	55	442	0
17:00:00	257	256	123	636	0
18:00:00	249	265	103	617	0
Totals:	1478	1224	488	3190	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	300	517	342	304	344	483	571	562

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Watson Rd From North					York Rd From East					Watson Rd From South					York Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	3	63	0	67	4	36	6	0	46	5	2	3	0	10	17	71	0	0	88	211
07:15 AM	1	9	57	0	67	2	40	4	0	46	4	3	5	0	12	9	78	0	0	87	212
07:30 AM	1	6	53	0	60	9	81	4	0	94	8	3	2	0	13	8	68	1	0	77	244
07:45 AM	2	18	41	0	61	9	75	12	0	96	6	4	4	0	14	19	81	0	0	100	271
Total	5	36	214	0	255	24	232	26	0	282	23	12	14	0	49	53	298	1	0	352	938
08:00 AM	2	5	43	0	50	6	88	8	0	102	2	1	2	0	5	7	75	1	0	83	240
08:15 AM	3	5	26	0	34	11	85	8	0	104	2	0	7	0	9	9	61	0	0	70	217
08:30 AM	1	15	22	0	38	10	104	12	0	126	1	0	8	0	9	13	68	0	0	81	254
08:45 AM	1	6	18	0	25	10	95	4	0	109	9	0	10	0	19	12	76	0	0	88	241
Total	7	31	109	0	147	37	372	32	0	441	14	1	27	0	42	41	280	1	0	322	952
11:00 AM	0	5	13	0	18	8	50	5	0	63	6	2	3	0	11	5	42	1	0	48	140
11:15 AM	1	5	7	0	13	6	55	4	0	65	5	2	6	0	13	9	49	2	0	60	151
11:30 AM	1	2	7	0	10	4	47	2	0	53	3	3	7	0	13	7	53	0	0	60	136
11:45 AM	0	2	6	0	8	6	55	5	0	66	5	4	10	0	19	7	60	0	0	67	160
Total	2	14	33	0	49	24	207	16	0	247	19	11	26	0	56	28	204	3	0	235	587
12:00 PM	1	3	8	0	12	10	72	3	0	85	5	13	19	0	37	11	53	2	0	66	200
12:15 PM	0	7	8	0	15	5	59	4	1	69	9	2	7	0	18	12	38	0	0	50	152
12:30 PM	1	2	9	0	12	4	65	5	0	74	3	2	10	0	15	12	55	0	0	67	168
12:45 PM	0	8	14	0	22	11	49	10	0	70	11	3	8	0	22	9	66	0	0	75	189
Total	2	20	39	0	61	30	245	22	1	298	28	20	44	0	92	44	212	2	0	258	709
01:00 PM	1	4	10	0	15	7	54	7	0	68	6	6	5	0	17	8	61	0	0	69	169
01:15 PM	0	1	7	0	8	9	54	0	0	63	4	5	5	0	14	4	42	0	0	46	131
01:30 PM	0	4	5	0	9	7	59	9	0	75	13	3	4	0	20	8	59	0	0	67	171
01:45 PM	0	3	6	0	9	8	58	6	0	72	5	4	9	0	18	6	60	0	0	66	165
Total	1	12	28	0	41	31	225	22	0	278	28	18	23	0	69	26	222	0	0	248	636
03:00 PM	1	2	2	0	5	13	64	2	0	79	12	9	16	0	37	11	59	0	0	70	191
03:15 PM	0	3	6	0	9	9	80	5	0	94	5	8	13	0	26	11	70	0	0	81	210

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019

Groups Printed- Cars - Trucks - Heavys - Cyclists

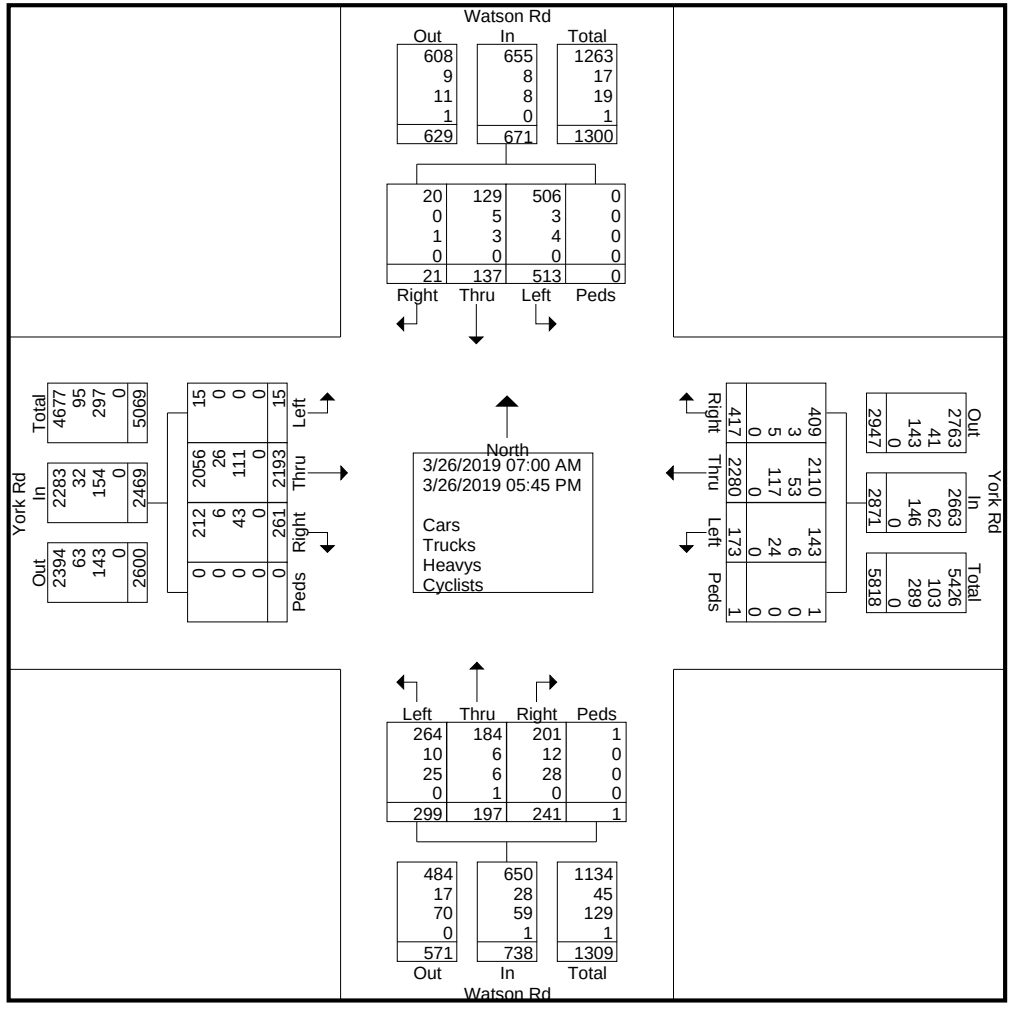
	Watson Rd From North					York Rd From East					Watson Rd From South					York Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	1	2	9	0	12	14	67	4	0	85	6	12	15	0	33	8	70	0	0	78	208
03:45 PM	0	2	9	0	11	22	70	3	0	95	11	7	10	0	28	9	95	0	0	104	238
Total	2	9	26	0	37	58	281	14	0	353	34	36	54	0	124	39	294	0	0	333	847
04:00 PM	1	4	3	0	8	14	83	5	0	102	15	20	29	0	64	4	83	0	0	87	261
04:15 PM	0	3	10	0	13	30	91	5	0	126	17	11	18	0	46	3	81	1	0	85	270
04:30 PM	1	0	11	0	12	26	98	8	0	132	15	27	32	0	74	8	96	2	0	106	324
04:45 PM	0	2	9	0	11	30	91	2	0	123	17	12	11	0	40	2	104	1	0	107	281
Total	2	9	33	0	44	100	363	20	0	483	64	70	90	0	224	17	364	4	0	385	1136
05:00 PM	0	1	7	0	8	31	91	2	0	124	9	21	10	1	41	3	85	1	0	89	262
05:15 PM	0	3	7	0	10	27	86	5	0	118	11	3	5	0	19	3	80	1	0	84	231
05:30 PM	0	0	11	0	11	38	84	5	0	127	7	4	5	0	16	4	87	1	0	92	246
05:45 PM	0	2	6	0	8	17	94	9	0	120	4	1	1	0	6	3	67	1	0	71	205
Total	0	6	31	0	37	113	355	21	0	489	31	29	21	1	82	13	319	4	0	336	944
Grand Total	21	137	513	0	671	417	2280	173	1	2871	241	197	299	1	738	261	2193	15	0	2469	6749
Apprch %	3.1	20.4	76.5	0		14.5	79.4	6	0		32.7	26.7	40.5	0.1		10.6	88.8	0.6	0		
Total %	0.3	2	7.6	0	9.9	6.2	33.8	2.6	0	42.5	3.6	2.9	4.4	0	10.9	3.9	32.5	0.2	0	36.6	
Cars	20	129	506	0	655	409	2110	143	1	2663	201	184	264	1	650	212	2056	15	0	2283	6251
% Cars	95.2	94.2	98.6	0	97.6	98.1	92.5	82.7	100	92.8	83.4	93.4	88.3	100	88.1	81.2	93.8	100	0	92.5	92.6
Trucks	0	5	3	0	8	3	53	6	0	62	12	6	10	0	28	6	26	0	0	32	130
% Trucks	0	3.6	0.6	0	1.2	0.7	2.3	3.5	0	2.2	5	3	3.3	0	3.8	2.3	1.2	0	0	1.3	1.9
Heavys	1	3	4	0	8	5	117	24	0	146	28	6	25	0	59	43	111	0	0	154	367
% Heavys	4.8	2.2	0.8	0	1.2	1.2	5.1	13.9	0	5.1	11.6	3	8.4	0	8	16.5	5.1	0	0	6.2	5.4
Cyclists	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.1	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 3



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019

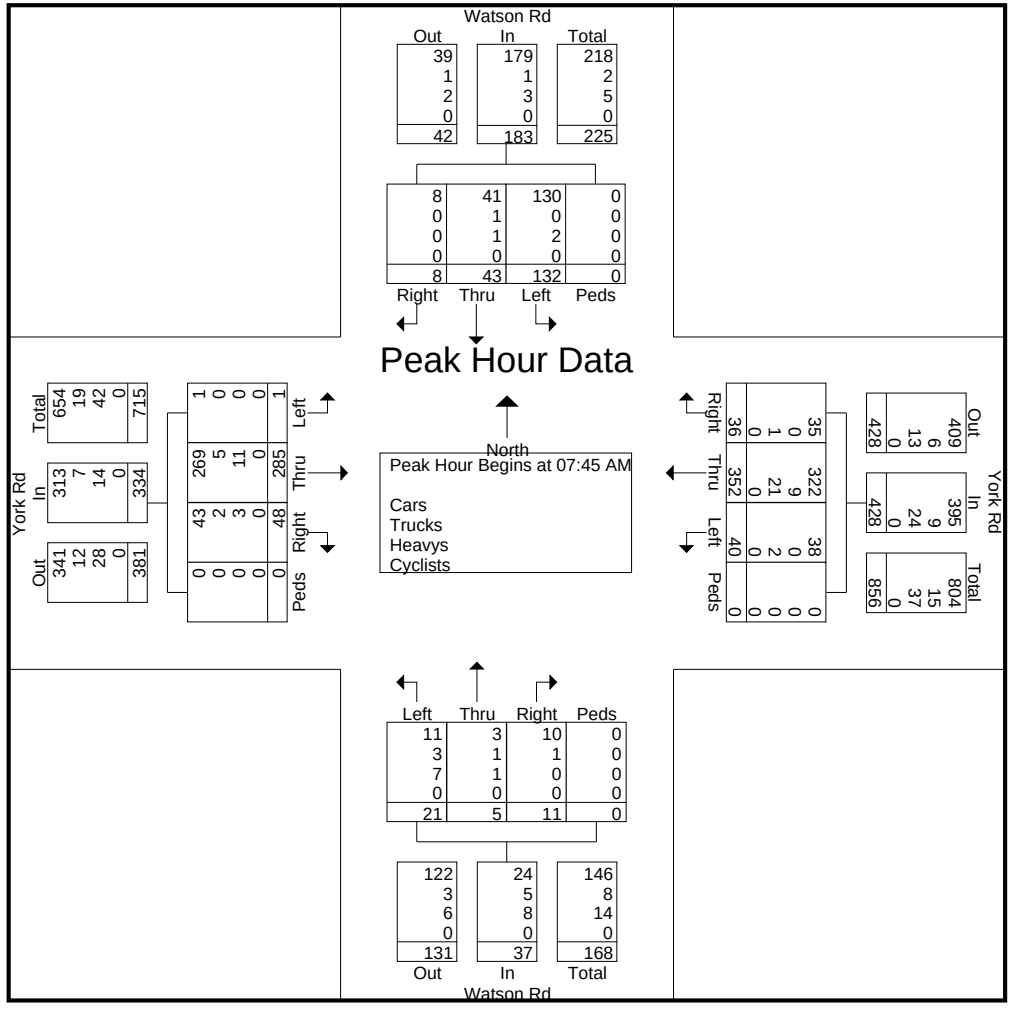
	Watson Rd From North					York Rd From East					Watson Rd From South					York Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	**18**	41	0	**61**	9	75	**12**	0	96	**6**	**4**	4	0	**14**	**19**	**81**	0	0	**100**	**271**
08:00 AM	2	5	**43**	0	50	6	88	8	0	102	2	1	2	0	5	7	75	**1**	0	83	240
08:15 AM	**3**	5	26	0	34	**11**	85	8	0	104	2	0	7	0	9	9	61	0	0	70	217
08:30 AM	1	15	22	0	38	10	**104**	12	0	**126**	1	0	**8**	0	9	13	68	0	0	81	254
Total Volume	8	43	132	0	183	36	352	40	0	428	11	5	21	0	37	48	285	1	0	334	982
% App. Total	4.4	23.5	72.1	0		8.4	82.2	9.3	0		29.7	13.5	56.8	0		14.4	85.3	0.3	0		
PHF	.667	.597	.767	.000	.750	.818	.846	.833	.000	.849	.458	.313	.656	.000	.661	.632	.880	.250	.000	.835	.906
Cars	8	41	130	0	179	35	322	38	0	395	10	3	11	0	24	43	269	1	0	313	911
% Cars	100	95.3	98.5	0	97.8	97.2	91.5	95.0	0	92.3	90.9	60.0	52.4	0	64.9	89.6	94.4	100	0	93.7	92.8
Trucks	0	1	0	0	1	0	9	0	0	9	1	1	3	0	5	2	5	0	0	7	22
% Trucks	0	2.3	0	0	0.5	0	2.6	0	0	2.1	9.1	20.0	14.3	0	13.5	4.2	1.8	0	0	2.1	2.2
Heavys	0	1	2	0	3	1	21	2	0	24	0	1	7	0	8	3	11	0	0	14	49
% Heavys	0	2.3	1.5	0	1.6	2.8	6.0	5.0	0	5.6	0	20.0	33.3	0	21.6	6.3	3.9	0	0	4.2	5.0
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 5

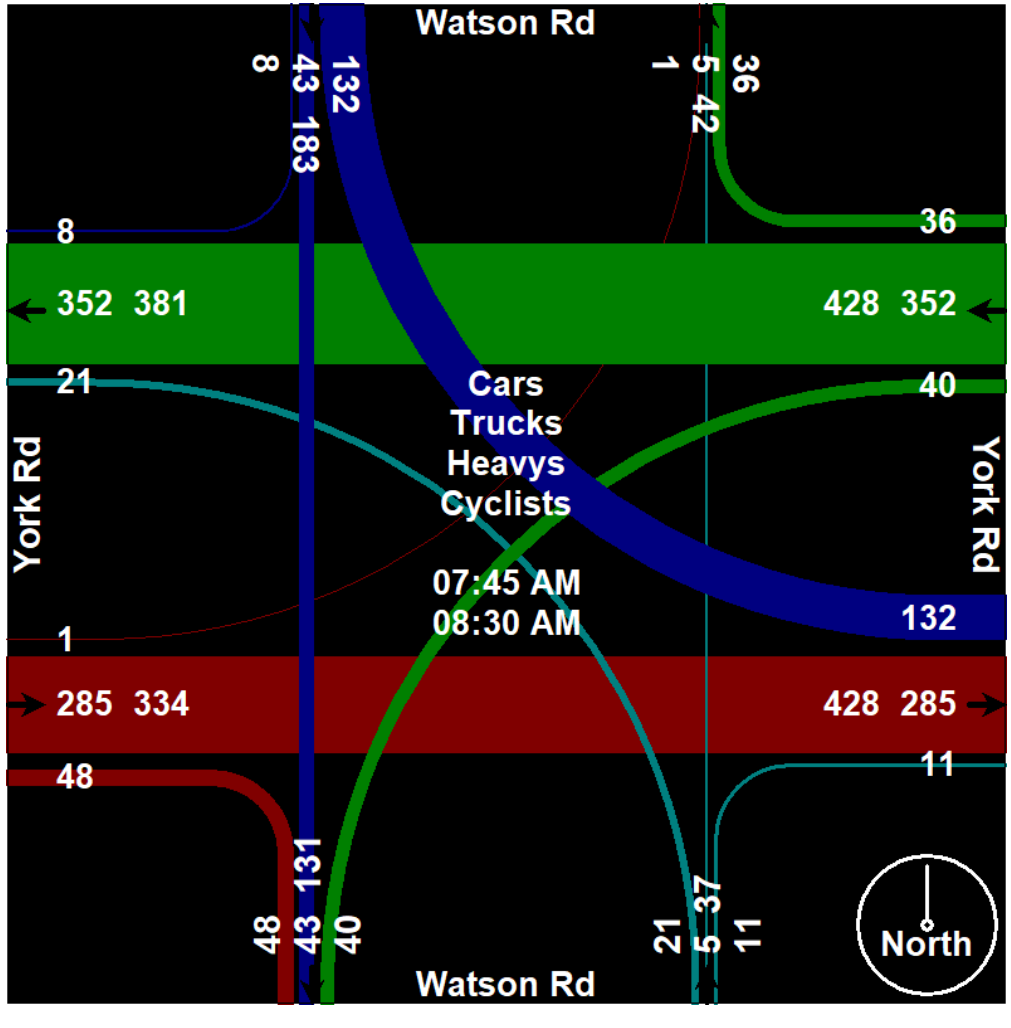


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 6



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019

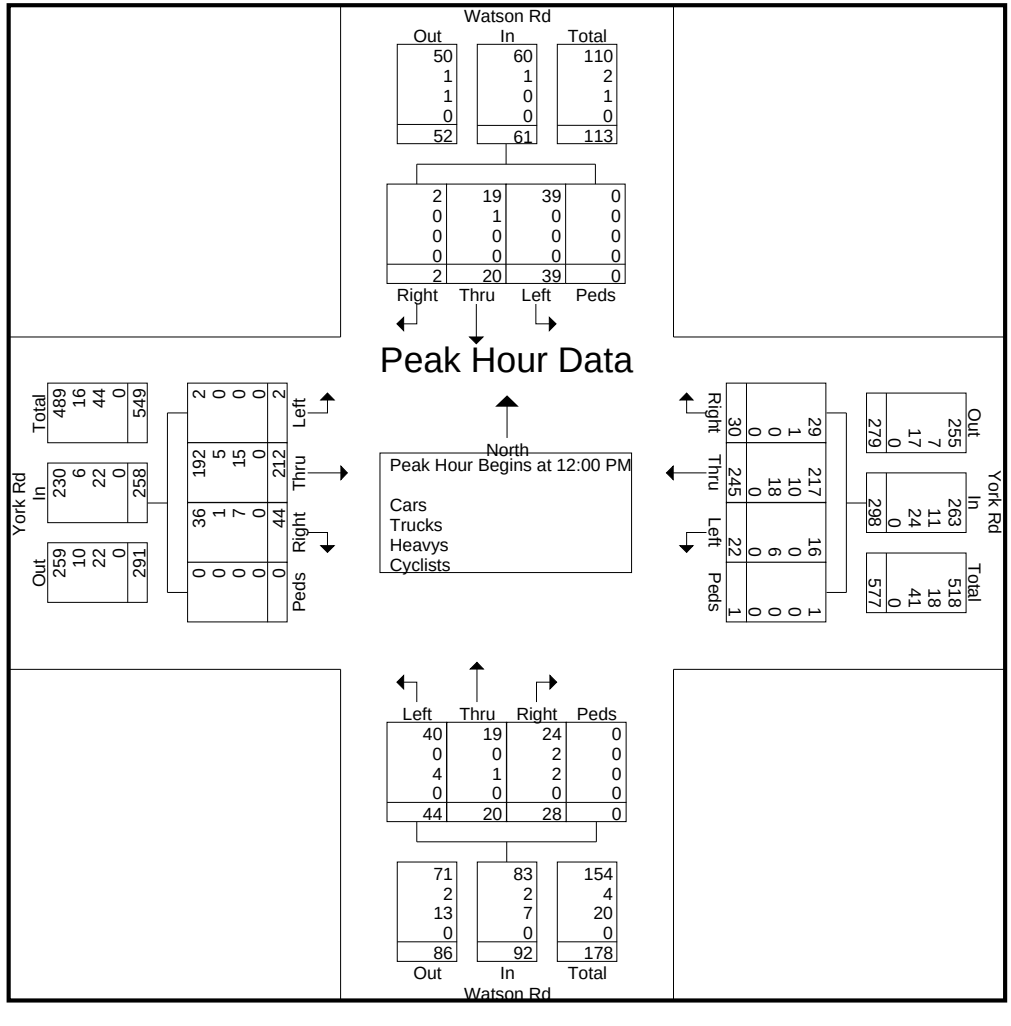
	Watson Rd From North					York Rd From East					Watson Rd From South					York Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	**1**	3	8	0	12	10	**72**	3	0	**85**	5	**13**	**19**	0	**37**	11	53	**2**	0	66	**200**
12:15 PM	0	7	8	0	15	5	59	4	**1**	69	9	2	7	0	18	**12**	38	0	0	50	152
12:30 PM	1	2	9	0	12	4	65	5	0	74	3	2	10	0	15	12	55	0	0	67	168
12:45 PM	0	**8**	**14**	0	**22**	**11**	49	**10**	0	70	**11**	3	8	0	22	9	**66**	0	0	**75**	189
Total Volume	2	20	39	0	61	30	245	22	1	298	28	20	44	0	92	44	212	2	0	258	709
% App. Total	3.3	32.8	63.9	0		10.1	82.2	7.4	0.3		30.4	21.7	47.8	0		17.1	82.2	0.8	0		
PHF	.500	.625	.696	.000	.693	.682	.851	.550	.250	.876	.636	.385	.579	.000	.622	.917	.803	.250	.000	.860	.886
Cars	2	19	39	0	60	29	217	16	1	263	24	19	40	0	83	36	192	2	0	230	636
% Cars	100	95.0	100	0	98.4	96.7	88.6	72.7	100	88.3	85.7	95.0	90.9	0	90.2	81.8	90.6	100	0	89.1	89.7
Trucks	0	1	0	0	1	1	10	0	0	11	2	0	0	0	2	1	5	0	0	6	20
% Trucks	0	5.0	0	0	1.6	3.3	4.1	0	0	3.7	7.1	0	0	0	2.2	2.3	2.4	0	0	2.3	2.8
Heavys	0	0	0	0	0	0	18	6	0	24	2	1	4	0	7	7	15	0	0	22	53
% Heavys	0	0	0	0	0	0	7.3	27.3	0	8.1	7.1	5.0	9.1	0	7.6	15.9	7.1	0	0	8.5	7.5
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 8

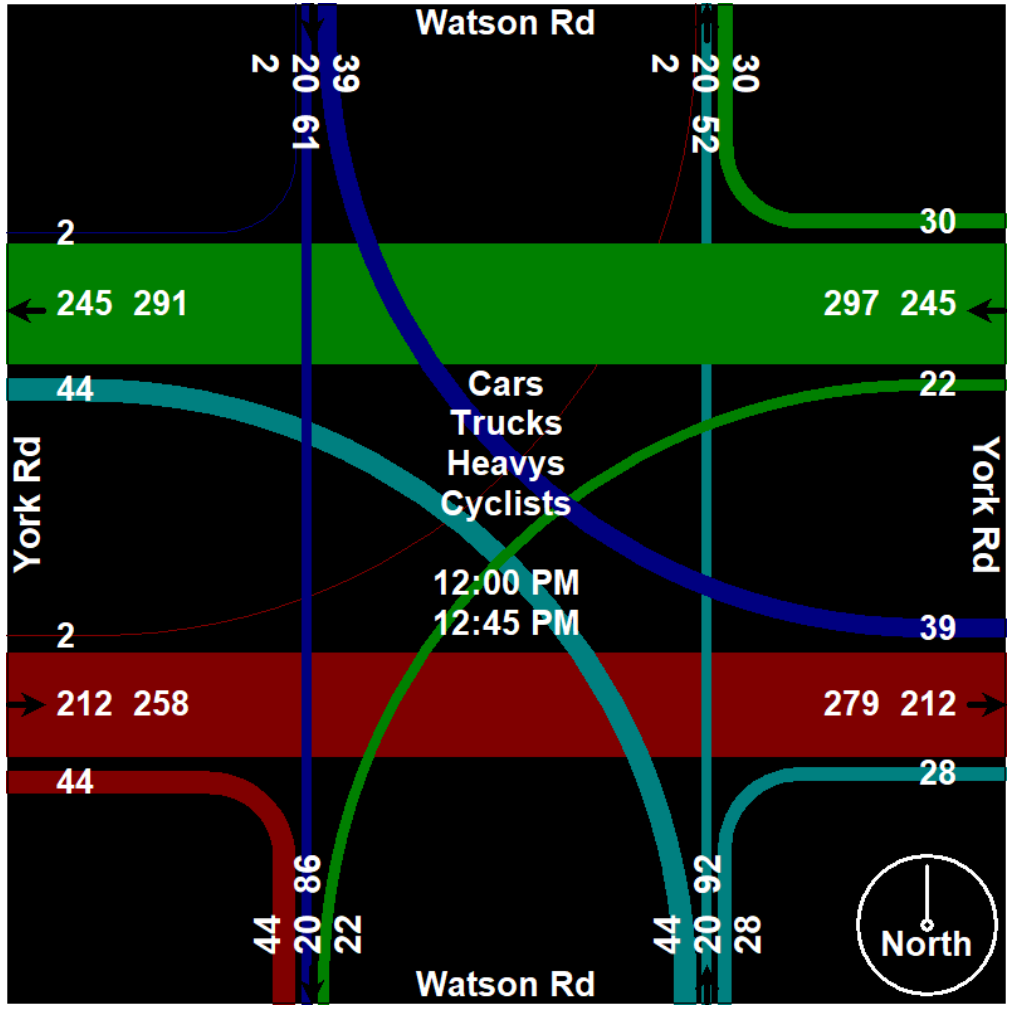


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 9



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019

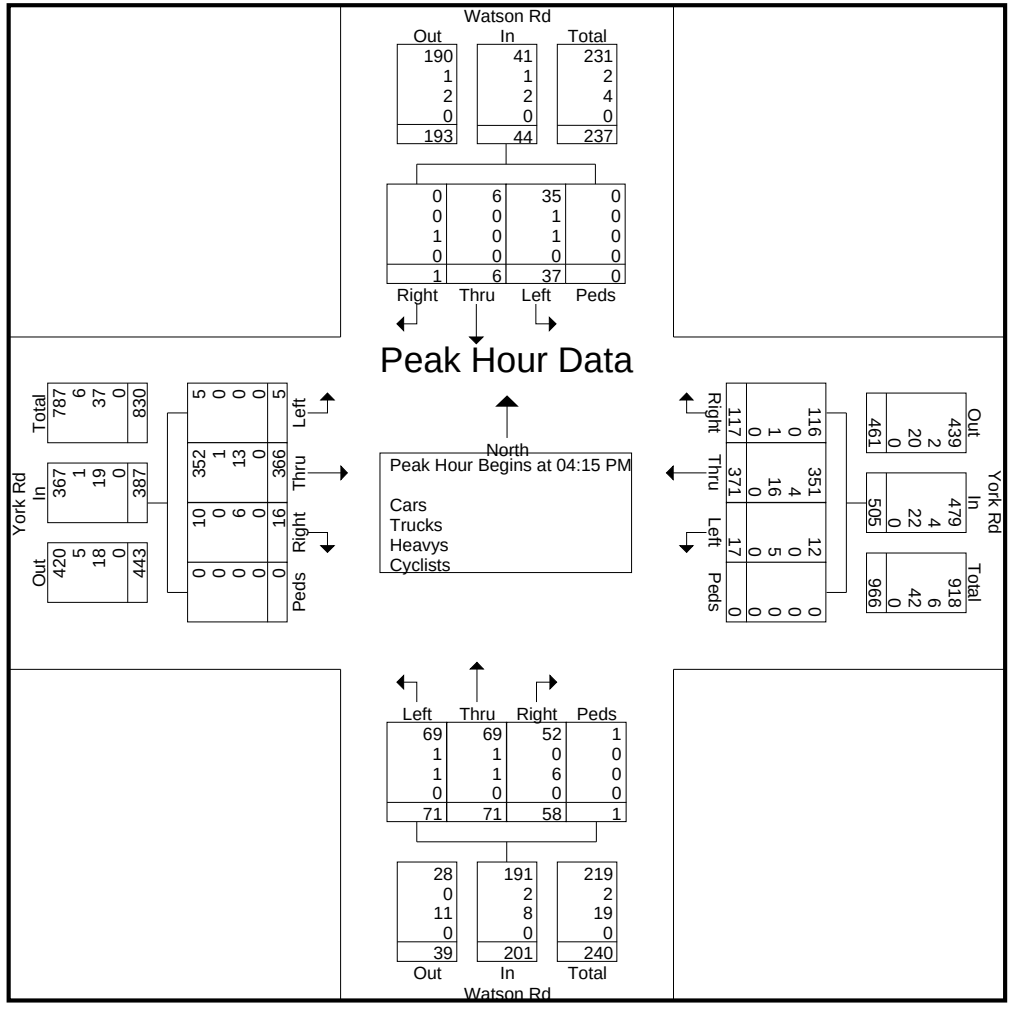
	Watson Rd From North					York Rd From East					Watson Rd From South					York Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	**3**	10	0	**13**	30	91	5	0	126	**17**	11	18	0	46	3	81	1	0	85	270
04:30 PM	**1**	0	**11**	0	12	26	**98**	**8**	0	**132**	15	**27**	**32**	0	**74**	**8**	96	**2**	0	106	**324**
04:45 PM	0	2	9	0	11	30	91	2	0	123	17	12	11	0	40	2	**104**	1	0	**107**	281
05:00 PM	0	1	7	0	8	**31**	91	2	0	124	9	21	10	**1**	41	3	85	1	0	89	262
Total Volume	1	6	37	0	44	117	371	17	0	505	58	71	71	1	201	16	366	5	0	387	1137
% App. Total	2.3	13.6	84.1	0		23.2	73.5	3.4	0		28.9	35.3	35.3	0.5		4.1	94.6	1.3	0		
PHF	.250	.500	.841	.000	.846	.944	.946	.531	.000	.956	.853	.657	.555	.250	.679	.500	.880	.625	.000	.904	.877
Cars	0	6	35	0	41	116	351	12	0	479	52	69	69	1	191	10	352	5	0	367	1078
% Cars	0	100	94.6	0	93.2	99.1	94.6	70.6	0	94.9	89.7	97.2	97.2	100	95.0	62.5	96.2	100	0	94.8	94.8
Trucks	0	0	1	0	1	0	4	0	0	4	0	1	1	0	2	0	1	0	0	1	8
% Trucks	0	0	2.7	0	2.3	0	1.1	0	0	0.8	0	1.4	1.4	0	1.0	0	0.3	0	0	0.3	0.7
Heavys	1	0	1	0	2	1	16	5	0	22	6	1	1	0	8	6	13	0	0	19	51
% Heavys	100	0	2.7	0	4.5	0.9	4.3	29.4	0	4.4	10.3	1.4	1.4	0	4.0	37.5	3.6	0	0	4.9	4.5
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 11

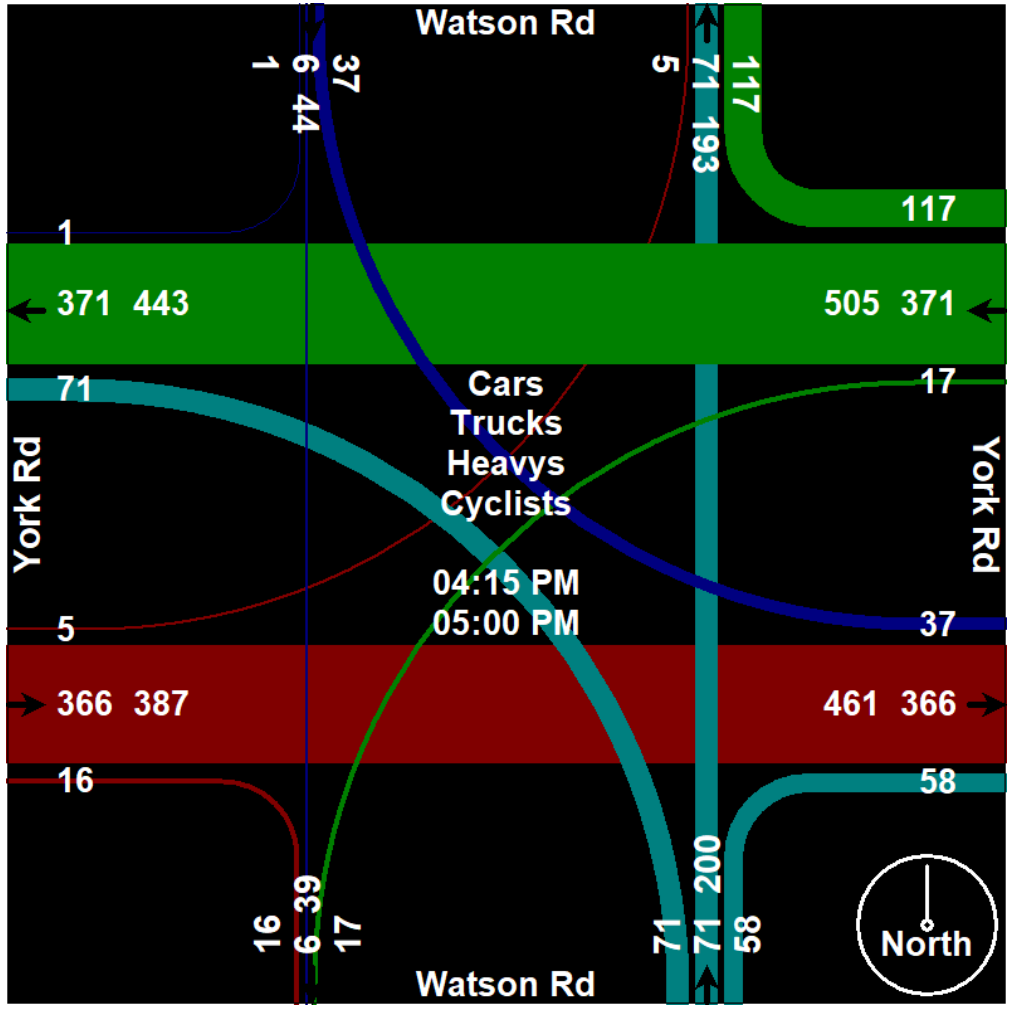


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Watson Rd at York Rd
Site Code : 00000000
Start Date : 3/26/2019
Page No : 12



GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (2 . VICTORIA RD SOUTH & COLLEGE AVE EAST)

Start Time	N Approach VICTORIA RD S					S Approach VICTORIA RD S					W Approach COLLEGE AVE E					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	20	91	0	0	111	57	11	0	0	68	10	15	0	0	25	204	
07:15:00	32	92	0	0	124	73	7	0	0	80	2	12	0	0	14	218	
07:30:00	51	127	0	0	178	96	10	0	0	106	17	15	0	0	32	316	
07:45:00	82	146	0	0	228	140	17	0	0	157	5	33	0	0	38	423	1161
08:00:00	82	97	0	0	179	136	23	0	0	159	9	28	0	0	37	375	1332
08:15:00	120	124	0	0	244	159	34	0	0	193	11	33	0	0	44	481	1595
08:30:00	72	128	0	0	200	147	27	0	0	174	13	34	0	0	47	421	1700
08:45:00	81	159	0	0	240	181	36	0	0	217	8	36	0	0	44	501	1778
BREAK																	
16:00:00	52	156	0	0	208	187	14	0	0	201	19	72	0	0	91	500	
16:15:00	52	165	0	0	217	212	18	0	0	230	26	87	0	5	113	560	
16:30:00	58	177	0	0	235	193	21	0	0	214	30	87	0	0	117	566	
16:45:00	51	188	0	0	239	179	23	0	1	202	15	78	0	0	93	534	2160
17:00:00	51	137	0	0	188	188	17	0	0	205	18	67	0	0	85	478	2138
17:15:00	65	146	0	0	211	189	15	0	0	204	30	75	0	0	105	520	2098
17:30:00	51	150	0	0	201	187	13	0	0	200	16	69	0	0	85	486	2018
17:45:00	63	138	0	0	201	157	22	0	0	179	10	61	0	0	71	451	1935
Grand Total	983	2221	0	0	3204	2481	308	0	1	2789	239	802	0	5	1041	**7034**	-
Approach%	30.7%	69.3%	0%		-	89%	11%	0%		-	23%	77%	0%		-	**-**	-
Totals %	14%	31.6%	0%		45.6%	35.3%	4.4%	0%		39.7%	3.4%	11.4%	0%		14.8%	**-**	-
Heavy	16	65	0		-	71	6	0		-	5	10	0		-	**-**	-
Heavy %	1.6%	2.9%	0%		-	2.9%	1.9%	0%		-	2.1%	1.2%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.5 °C)

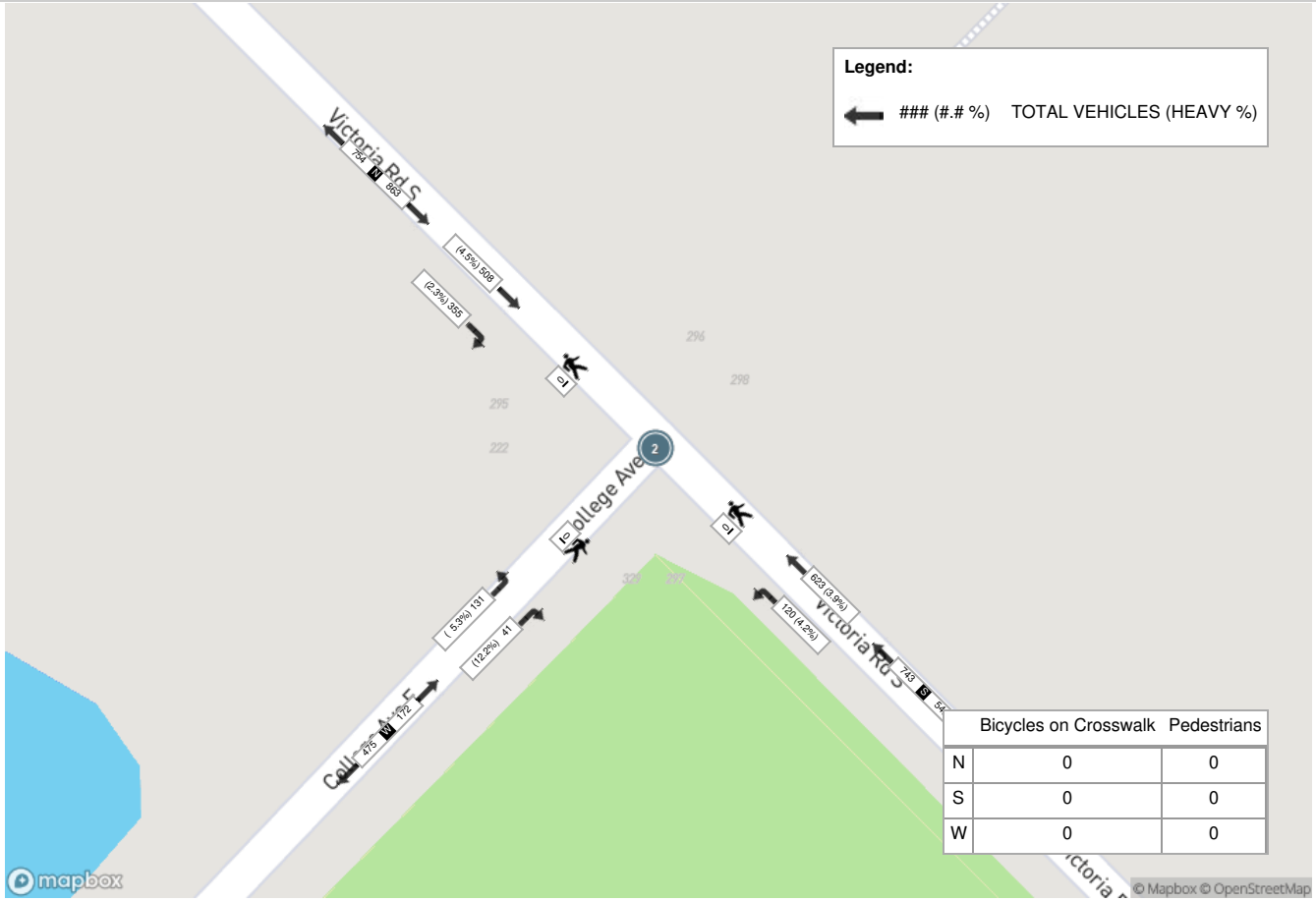
Start Time	N Approach VICTORIA RD S					S Approach VICTORIA RD S					W Approach COLLEGE AVE E					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
08:00:00	82	97	0	0	179	136	23	0	0	159	9	28	0	0	37	375
08:15:00	120	124	0	0	244	159	34	0	0	193	11	33	0	0	44	481
08:30:00	72	128	0	0	200	147	27	0	0	174	13	34	0	0	47	421
08:45:00	81	159	0	0	240	181	36	0	0	217	8	36	0	0	44	501
Grand Total	355	508	0	0	863	623	120	0	0	743	41	131	0	0	172	**1778**
Approach%	41.1%	58.9%	0%		-	83.8%	16.2%	0%		-	23.8%	76.2%	0%		-	**-**
Totals %	20%	28.6%	0%		48.5%	35%	6.7%	0%		41.8%	2.3%	7.4%	0%		9.7%	**-**
PHF	0.74	0.8	0		0.88	0.86	0.83	0		0.86	0.79	0.91	0		0.91	**-**
Heavy	8	23	0		31	24	5	0		29	5	7	0		12	**-**
Heavy %	2.3%	4.5%	0%		3.6%	3.9%	4.2%	0%		3.9%	12.2%	5.3%	0%		7%	**-**
Lights	345	485	0		830	599	115	0		714	36	124	0		160	**-**
Lights %	97.2%	95.5%	0%		96.2%	96.1%	95.8%	0%		96.1%	87.8%	94.7%	0%		93%	**-**
Single-Unit Trucks	5	12	0		17	13	1	0		14	1	5	0		6	**-**
Single-Unit Trucks %	1.4%	2.4%	0%		2%	2.1%	0.8%	0%		1.9%	2.4%	3.8%	0%		3.5%	**-**
Buses	3	7	0		10	9	4	0		13	3	2	0		5	**-**
Buses %	0.8%	1.4%	0%		1.2%	1.4%	3.3%	0%		1.7%	7.3%	1.5%	0%		2.9%	**-**
Articulated Trucks	0	4	0		4	2	0	0		2	1	0	0		1	**-**
Articulated Trucks %	0%	0.8%	0%		0.5%	0.3%	0%	0%		0.3%	2.4%	0%	0%		0.6%	**-**
Bicycles on Road	2	0	0		2	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0.6%	0%	0%		0.2%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach VICTORIA RD S					S Approach VICTORIA RD S					W Approach COLLEGE AVE E					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
16:00:00	52	156	0	0	208	187	14	0	0	201	19	72	0	0	91	500
16:15:00	52	165	0	0	217	212	18	0	0	230	26	87	0	5	113	560
16:30:00	58	177	0	0	235	193	21	0	0	214	30	87	0	0	117	566
16:45:00	51	188	0	0	239	179	23	0	1	202	15	78	0	0	93	534
Grand Total	213	686	0	0	899	771	76	0	1	847	90	324	0	5	414	**2160**
Approach%	23.7%	76.3%	0%		-	91%	9%	0%		-	21.7%	78.3%	0%		-	**-**
Totals %	9.9%	31.8%	0%		41.6%	35.7%	3.5%	0%		39.2%	4.2%	15%	0%		19.2%	**-**
PHF	0.92	0.91	0		0.94	0.91	0.83	0		0.92	0.75	0.93	0		0.88	**-**
Heavy	1	16	0		17	18	0	0		18	0	1	0		1	**-**
Heavy %	0.5%	2.3%	0%		1.9%	2.3%	0%	0%		2.1%	0%	0.3%	0%		0.2%	**-**
Lights	212	670	0		882	751	76	0		827	90	323	0		413	**-**
Lights %	99.5%	97.7%	0%		98.1%	97.4%	100%	0%		97.6%	100%	99.7%	0%		99.8%	**-**
Single-Unit Trucks	0	10	0		10	7	0	0		7	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.5%	0%		1.1%	0.9%	0%	0%		0.8%	0%	0%	0%		0%	**-**
Buses	1	4	0		5	5	0	0		5	0	1	0		1	**-**
Buses %	0.5%	0.6%	0%		0.6%	0.6%	0%	0%		0.6%	0%	0.3%	0%		0.2%	**-**
Articulated Trucks	0	2	0		2	6	0	0		6	0	0	0		0	**-**
Articulated Trucks %	0%	0.3%	0%		0.2%	0.8%	0%	0%		0.7%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0		0	2	0	0		2	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	0.3%	0%	0%		0.2%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	83.3%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	16.7%		-	-	-	0%		**-**

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

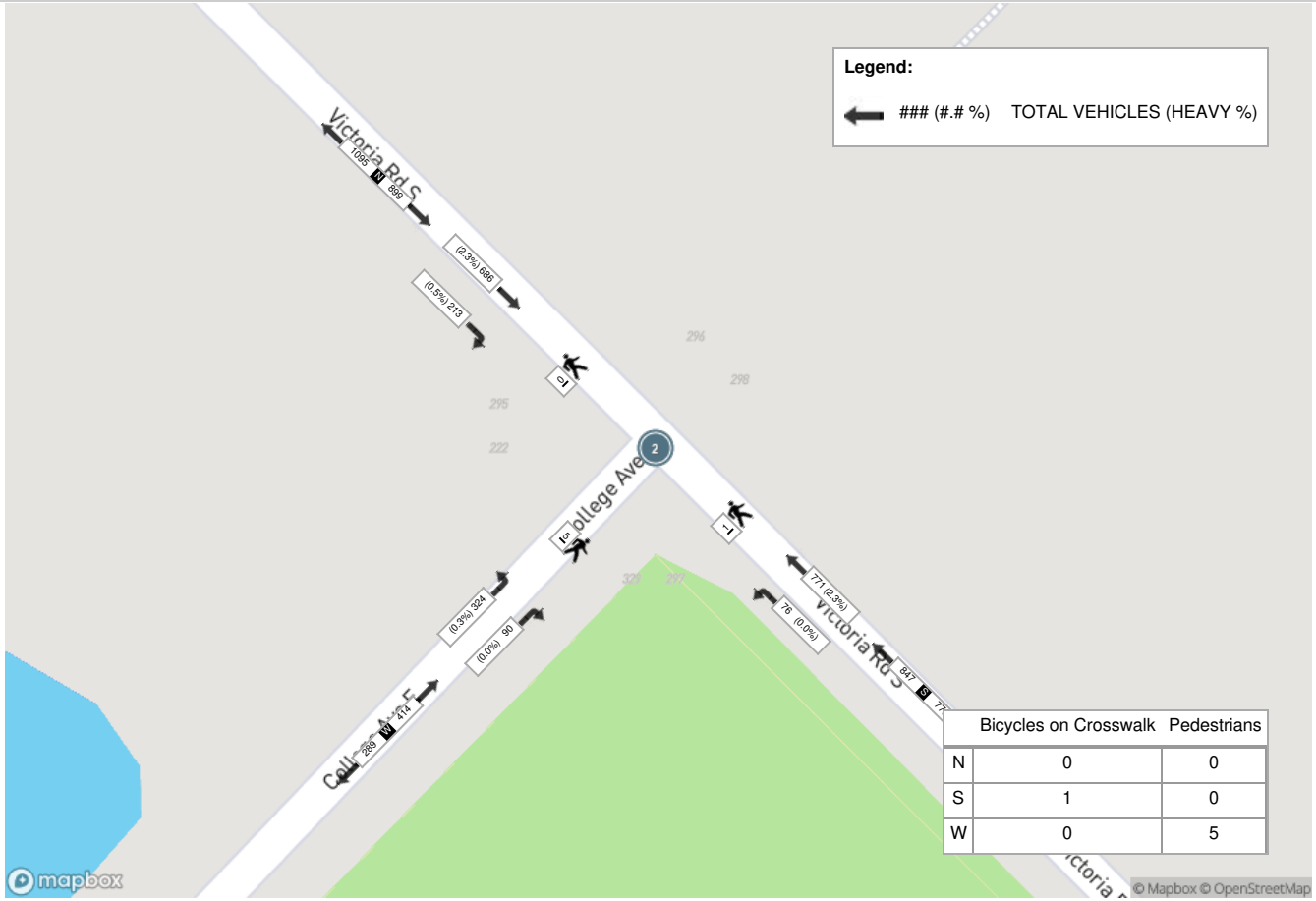
Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.5 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
W	0	0

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	1	0
W	0	5

Spectrum

Turning Movement Count
Location Name: VICTORIA RD SOUTH & STONE RD EAST
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (3 . VICTORIA RD SOUTH & STONE RD EAST)

Start Time	N Approach VICTORIA RD						E Approach STONE RD E						S Approach VICTORIA RD						W Approach STONE RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	14	70	3	0	0	87	2	16	13	0	0	31	16	52	7	0	0	75	8	21	17	0	0	46	239	
07:15:00	23	81	2	0	0	106	4	28	10	0	0	42	11	65	7	0	0	83	4	29	12	0	2	45	276	
07:30:00	30	109	8	0	0	147	4	32	15	0	0	51	11	91	9	0	0	111	6	29	22	0	0	57	366	
07:45:00	33	92	11	0	0	136	6	63	19	0	0	88	17	115	23	0	0	155	9	45	33	0	0	87	466	1347
08:00:00	36	73	5	0	0	114	9	70	14	0	0	93	13	125	21	0	0	159	8	32	27	0	0	67	433	1541
08:15:00	46	77	10	0	0	133	3	91	12	0	0	106	26	153	47	0	0	226	11	25	36	0	0	72	537	1802
08:30:00	43	90	3	0	0	136	8	56	15	0	0	79	12	138	33	0	0	183	12	29	37	0	1	78	476	1912
08:45:00	60	101	5	0	0	166	14	88	20	0	0	122	13	145	30	0	0	188	12	22	37	0	0	71	547	1993
BREAK																										
16:00:00	47	122	10	0	0	179	10	73	16	0	0	99	18	142	23	0	0	183	35	63	67	0	0	165	626	
16:15:00	47	127	9	0	0	183	10	106	21	0	0	137	20	145	23	0	0	188	29	79	63	0	1	171	679	
16:30:00	64	133	7	0	0	204	8	78	22	0	0	108	19	113	25	0	0	157	43	100	79	0	0	222	691	
16:45:00	67	134	10	0	0	211	9	86	18	0	0	113	12	144	35	0	0	191	31	65	56	0	0	152	667	2663
17:00:00	50	99	3	0	0	152	3	75	19	0	0	97	17	141	32	0	0	190	33	83	69	0	0	185	624	2661
17:15:00	50	128	7	0	0	185	8	55	19	0	0	82	20	114	16	0	0	150	32	78	80	0	0	190	607	2589
17:30:00	42	113	7	0	0	162	5	56	9	0	0	70	8	131	17	0	0	156	37	76	73	0	0	186	574	2472
17:45:00	47	121	2	0	0	170	8	46	17	0	0	71	15	119	28	0	0	162	25	61	58	0	0	144	547	2352
Grand Total	699	1670	102	0	0	2471	111	1019	259	0	0	1389	248	1933	376	0	0	2557	335	837	766	0	4	1938	**8355**	-
Approach%	28.3%	67.6%	4.1%	0%		-	8%	73.4%	18.6%	0%		-	9.7%	75.6%	14.7%	0%		-	17.3%	43.2%	39.5%	0%		-	**-**	-
Totals %	8.4%	20%	1.2%	0%		29.6%	1.3%	12.2%	3.1%	0%		16.6%	3%	23.1%	4.5%	0%		30.6%	4%	10%	9.2%	0%		23.2%	**-**	-
Heavy	22	47	1	0		-	1	36	58	0		-	54	56	5	0		-	19	38	20	0		-	**-**	-
Heavy %	3.1%	2.8%	1%	0%		-	0.9%	3.5%	22.4%	0%		-	21.8%	2.9%	1.3%	0%		-	5.7%	4.5%	2.6%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.5 °C)

Start Time	N Approach VICTORIA RD						E Approach STONE RD E						S Approach VICTORIA RD						W Approach STONE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	36	73	5	0	0	114	9	70	14	0	0	93	13	125	21	0	0	159	8	32	27	0	0	67	433
08:15:00	46	77	10	0	0	133	3	91	12	0	0	106	26	153	47	0	0	226	11	25	36	0	0	72	537
08:30:00	43	90	3	0	0	136	8	56	15	0	0	79	12	138	33	0	0	183	12	29	37	0	1	78	476
08:45:00	60	101	5	0	0	166	14	88	20	0	0	122	13	145	30	0	0	188	12	22	37	0	0	71	547
Grand Total	185	341	23	0	0	549	34	305	61	0	0	400	64	561	131	0	0	756	43	108	137	0	1	288	**1993**
Approach%	33.7%	62.1%	4.2%	0%		-	8.5%	76.3%	15.3%	0%		-	8.5%	74.2%	17.3%	0%		-	14.9%	37.5%	47.6%	0%		-	**-**
Totals %	9.3%	17.1%	1.2%	0%		27.5%	1.7%	15.3%	3.1%	0%		20.1%	3.2%	28.1%	6.6%	0%		37.9%	2.2%	5.4%	6.9%	0%		14.5%	**-**
PHF	0.77	0.84	0.58	0		0.83	0.61	0.84	0.76	0		0.82	0.62	0.92	0.7	0		0.84	0.9	0.84	0.93	0		0.92	**-**
Heavy	10	16	0	0		26	0	14	20	0		34	18	21	2	0		41	7	18	5	0		30	**-**
Heavy %	5.4%	4.7%	0%	0%		4.7%	0%	4.6%	32.8%	0%		8.5%	28.1%	3.7%	1.5%	0%		5.4%	16.3%	16.7%	3.6%	0%		10.4%	**-**
Lights	175	325	23	0		523	34	291	41	0		366	46	540	129	0		715	36	90	132	0		258	**-**
Lights %	94.6%	95.3%	100%	0%		95.3%	100%	95.4%	67.2%	0%		91.5%	71.9%	96.3%	98.5%	0%		94.6%	83.7%	83.3%	96.4%	0%		89.6%	**-**
Single-Unit Trucks	6	6	0	0		12	0	6	7	0		13	8	9	0	0		17	1	9	1	0		11	**-**
Single-Unit Trucks %	3.2%	1.8%	0%	0%		2.2%	0%	2%	11.5%	0%		3.3%	12.5%	1.6%	0%	0%		2.2%	2.3%	8.3%	0.7%	0%		3.8%	**-**
Buses	2	7	0	0		9	0	1	6	0		7	2	9	2	0		13	6	2	4	0		12	**-**
Buses %	1.1%	2.1%	0%	0%		1.6%	0%	0.3%	9.8%	0%		1.8%	3.1%	1.6%	1.5%	0%		1.7%	14%	1.9%	2.9%	0%		4.2%	**-**
Articulated Trucks	2	3	0	0		5	0	7	7	0		14	8	3	0	0		11	0	7	0	0		7	**-**
Articulated Trucks %	1.1%	0.9%	0%	0%		0.9%	0%	2.3%	11.5%	0%		3.5%	12.5%	0.5%	0%	0%		1.5%	0%	6.5%	0%	0%		2.4%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		**-**

Spectrum

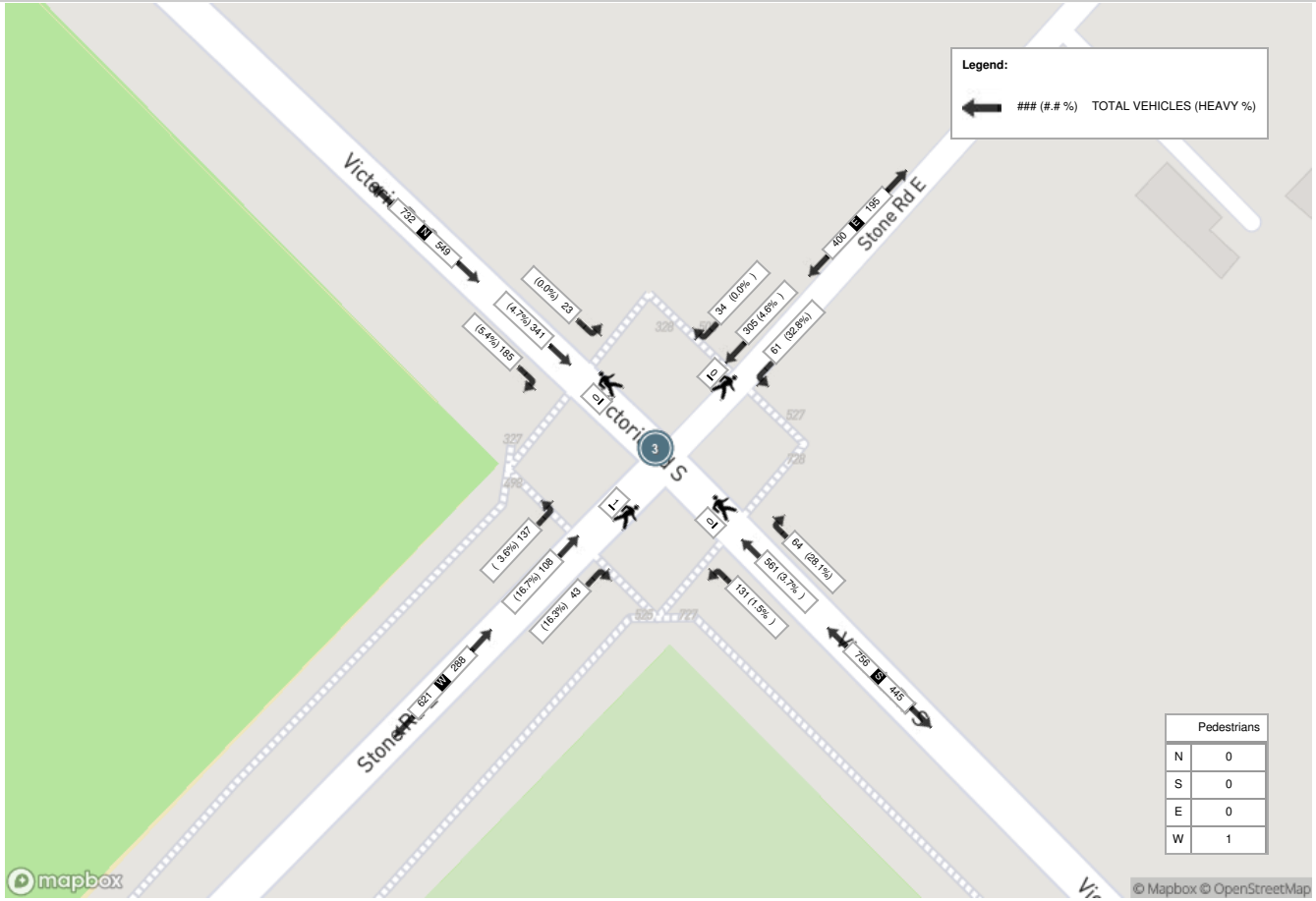
Turning Movement Count
Location Name: VICTORIA RD SOUTH & STONE RD EAST
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

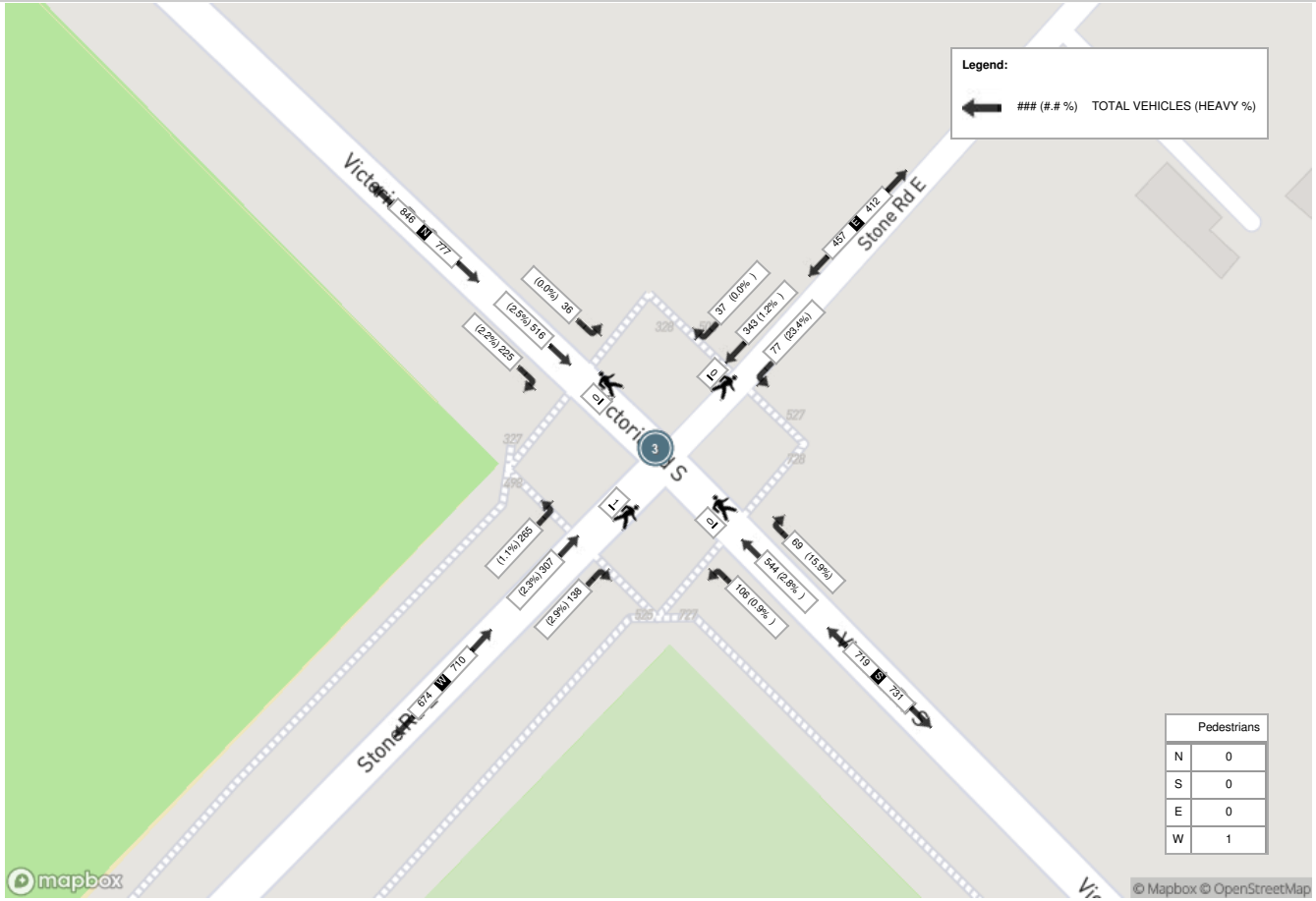
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach VICTORIA RD						E Approach STONE RD E						S Approach VICTORIA RD						W Approach STONE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	47	122	10	0	0	179	10	73	16	0	0	99	18	142	23	0	0	183	35	63	67	0	0	165	626
16:15:00	47	127	9	0	0	183	10	106	21	0	0	137	20	145	23	0	0	188	29	79	63	0	1	171	679
16:30:00	64	133	7	0	0	204	8	78	22	0	0	108	19	113	25	0	0	157	43	100	79	0	0	222	691
16:45:00	67	134	10	0	0	211	9	86	18	0	0	113	12	144	35	0	0	191	31	65	56	0	0	152	667
Grand Total	225	516	36	0	0	777	37	343	77	0	0	457	69	544	106	0	0	719	138	307	265	0	1	710	**2663**
Approach%	29%	66.4%	4.6%	0%		-	8.1%	75.1%	16.8%	0%		-	9.6%	75.7%	14.7%	0%		-	19.4%	43.2%	37.3%	0%		-	**-**
Totals %	8.4%	19.4%	1.4%	0%		29.2%	1.4%	12.9%	2.9%	0%		17.2%	2.6%	20.4%	4%	0%		27%	5.2%	11.5%	10%	0%		26.7%	**-**
PHF	0.84	0.96	0.9	0		0.92	0.93	0.81	0.88	0		0.83	0.86	0.94	0.76	0		0.94	0.8	0.77	0.84	0		0.8	**-**
Heavy	5	13	0	0		18	0	4	18	0		22	11	15	1	0		27	4	7	3	0		14	**-**
Heavy %	2.2%	2.5%	0%	0%		2.3%	0%	1.2%	23.4%	0%		4.8%	15.9%	2.8%	0.9%	0%		3.8%	2.9%	2.3%	1.1%	0%		2%	**-**
Lights	220	503	36	0		759	37	339	59	0		435	58	529	105	0		692	134	300	261	0		695	**-**
Lights %	97.8%	97.5%	100%	0%		97.7%	100%	98.8%	76.6%	0%		95.2%	84.1%	97.2%	99.1%	0%		96.2%	97.1%	97.7%	98.5%	0%		97.9%	**-**
Single-Unit Trucks	2	8	0	0		10	0	0	3	0		3	1	6	0	0		7	0	2	1	0		3	**-**
Single-Unit Trucks %	0.9%	1.6%	0%	0%		1.3%	0%	0%	3.9%	0%		0.7%	1.4%	1.1%	0%	0%		1%	0%	0.7%	0.4%	0%		0.4%	**-**
Buses	3	2	0	0		5	0	3	11	0		14	4	4	1	0		9	4	2	2	0		8	**-**
Buses %	1.3%	0.4%	0%	0%		0.6%	0%	0.9%	14.3%	0%		3.1%	5.8%	0.7%	0.9%	0%		1.3%	2.9%	0.7%	0.8%	0%		1.1%	**-**
Articulated Trucks	0	3	0	0		3	0	1	4	0		5	6	5	0	0		11	0	3	0	0		3	**-**
Articulated Trucks %	0%	0.6%	0%	0%		0.4%	0%	0.3%	5.2%	0%		1.1%	8.7%	0.9%	0%	0%		1.5%	0%	1%	0%	0%		0.4%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0.4%	0%		0.1%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		**-**

Peak Hour: 08:00 AM - 09:00 AM **Weather: Light Snow (-2.5 °C)**



Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (0.37 °C)**



Spectrum

Turning Movement Count
Location Name: VICTORIA RD SOUTH & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (1 . VICTORIA RD SOUTH & YORK RD)

Start Time	N Approach VICTORIA RD S						E Approach YORK RD						S Approach VICTORIA RD S						W Approach YORK RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	4	80	4	0	1	88	2	29	16	0	1	47	23	53	19	0	0	95	16	42	9	0	0	67	297	
07:15:00	5	93	1	0	0	99	0	41	33	0	0	74	26	52	20	0	0	98	29	52	3	0	0	84	355	
07:30:00	5	142	3	0	2	150	0	39	43	0	0	82	29	81	23	0	0	133	22	36	5	0	0	63	428	
07:45:00	12	147	2	0	1	161	1	43	53	0	1	97	33	113	33	0	0	179	40	47	8	0	1	95	532	1612
08:00:00	6	145	1	0	0	152	3	52	33	0	0	88	28	118	42	0	0	188	28	42	6	0	0	76	504	1819
08:15:00	10	155	2	0	0	167	3	50	53	0	3	106	28	131	36	0	0	195	57	45	10	0	0	112	580	2044
08:30:00	12	150	5	0	1	167	4	55	48	0	2	107	31	130	52	0	0	213	44	45	7	0	0	96	583	2199
08:45:00	10	184	4	0	0	198	3	65	43	0	0	111	36	141	46	0	0	223	35	44	11	1	0	91	623	2290
BREAK																										
16:00:00	11	154	6	0	0	171	5	84	35	0	2	124	50	188	48	0	0	286	52	60	18	0	5	130	711	
16:15:00	15	149	7	0	4	171	7	88	36	0	2	131	47	206	50	0	0	303	43	65	8	0	1	116	721	
16:30:00	16	151	7	0	0	174	9	91	52	0	4	152	66	200	59	0	0	325	46	57	12	0	2	115	766	
16:45:00	10	165	4	0	4	179	10	71	41	0	3	122	41	194	55	0	0	290	35	56	12	0	1	103	694	2892
17:00:00	27	146	7	0	7	180	5	78	38	0	4	121	42	194	51	0	0	287	37	55	10	0	5	102	690	2871
17:15:00	19	135	3	0	4	157	7	83	41	0	2	131	48	190	40	0	0	278	41	39	12	0	4	92	658	2808
17:30:00	17	163	2	0	0	182	6	52	42	0	0	100	38	199	53	0	0	290	39	54	15	0	1	108	680	2722
17:45:00	22	154	4	0	3	180	4	62	38	0	1	104	39	165	45	0	0	249	38	40	14	0	2	92	625	2653
Grand Total	201	2313	62	0	27	2576	69	983	645	0	25	1697	605	2355	672	0	0	3632	602	779	160	1	22	1542	**9447**	-
Approach%	7.8%	89.8%	2.4%	0%		-	4.1%	57.9%	38%	0%		-	16.7%	64.8%	18.5%	0%		-	39%	50.5%	10.4%	0.1%		-	**-**	-
Totals %	2.1%	24.5%	0.7%	0%		27.3%	0.7%	10.4%	6.8%	0%		18%	6.4%	24.9%	7.1%	0%		38.4%	6.4%	8.2%	1.7%	0%		16.3%	**-**	-
Heavy	11	46	5	0		-	2	61	21	0		-	23	46	13	0		-	13	57	3	0		-	**-**	-
Heavy %	5.5%	2%	8.1%	0%		-	2.9%	6.2%	3.3%	0%		-	3.8%	2%	1.9%	0%		-	2.2%	7.3%	1.9%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: VICTORIA RD SOUTH & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.5 °C)

Start Time	N Approach VICTORIA RD S						E Approach YORK RD						S Approach VICTORIA RD S						W Approach YORK RD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	6	145	1	0	0	152	3	52	33	0	0	88	28	118	42	0	0	188	28	42	6	0	0	76	504
08:15:00	10	155	2	0	0	167	3	50	53	0	3	106	28	131	36	0	0	195	57	45	10	0	0	112	580
08:30:00	12	150	5	0	1	167	4	55	48	0	2	107	31	130	52	0	0	213	44	45	7	0	0	96	583
08:45:00	10	184	4	0	0	198	3	65	43	0	0	111	36	141	46	0	0	223	35	44	11	1	0	91	623
Grand Total	38	634	12	0	1	684	13	222	177	0	5	412	123	520	176	0	0	819	164	176	34	1	0	375	**2290**
Approach%	5.6%	92.7%	1.8%	0%		-	3.2%	53.9%	43%	0%		-	15%	63.5%	21.5%	0%		-	43.7%	46.9%	9.1%	0.3%		-	**-**
Totals %	1.7%	27.7%	0.5%	0%		29.9%	0.6%	9.7%	7.7%	0%		18%	5.4%	22.7%	7.7%	0%		35.8%	7.2%	7.7%	1.5%	0%		16.4%	**-**
PHF	0.79	0.86	0.6	0		0.86	0.81	0.85	0.83	0		0.93	0.85	0.92	0.85	0		0.92	0.72	0.98	0.77	0.25		0.84	**-**
Heavy	4	18	1	0		23	1	18	8	0		27	5	18	8	0		31	4	19	2	0		25	**-**
Heavy %	10.5%	2.8%	8.3%	0%		3.4%	7.7%	8.1%	4.5%	0%		6.6%	4.1%	3.5%	4.5%	0%		3.8%	2.4%	10.8%	5.9%	0%		6.7%	**-**
Lights	34	616	11	0		661	12	204	169	0		385	118	502	168	0		788	160	157	32	1		350	**-**
Lights %	89.5%	97.2%	91.7%	0%		96.6%	92.3%	91.9%	95.5%	0%		93.4%	95.9%	96.5%	95.5%	0%		96.2%	97.6%	89.2%	94.1%	100%		93.3%	**-**
Single-Unit Trucks	1	8	0	0		9	1	11	6	0		18	3	12	3	0		18	3	9	1	0		13	**-**
Single-Unit Trucks %	2.6%	1.3%	0%	0%		1.3%	7.7%	5%	3.4%	0%		4.4%	2.4%	2.3%	1.7%	0%		2.2%	1.8%	5.1%	2.9%	0%		3.5%	**-**
Buses	2	7	1	0		10	0	4	2	0		6	1	6	3	0		10	1	3	0	0		4	**-**
Buses %	5.3%	1.1%	8.3%	0%		1.5%	0%	1.8%	1.1%	0%		1.5%	0.8%	1.2%	1.7%	0%		1.2%	0.6%	1.7%	0%	0%		1.1%	**-**
Articulated Trucks	1	3	0	0		4	0	3	0	0		3	1	0	2	0		3	0	7	1	0		8	**-**
Articulated Trucks %	2.6%	0.5%	0%	0%		0.6%	0%	1.4%	0%	0%		0.7%	0.8%	0%	1.1%	0%		0.4%	0%	4%	2.9%	0%		2.1%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	16.7%		-	-	-	-	83.3%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

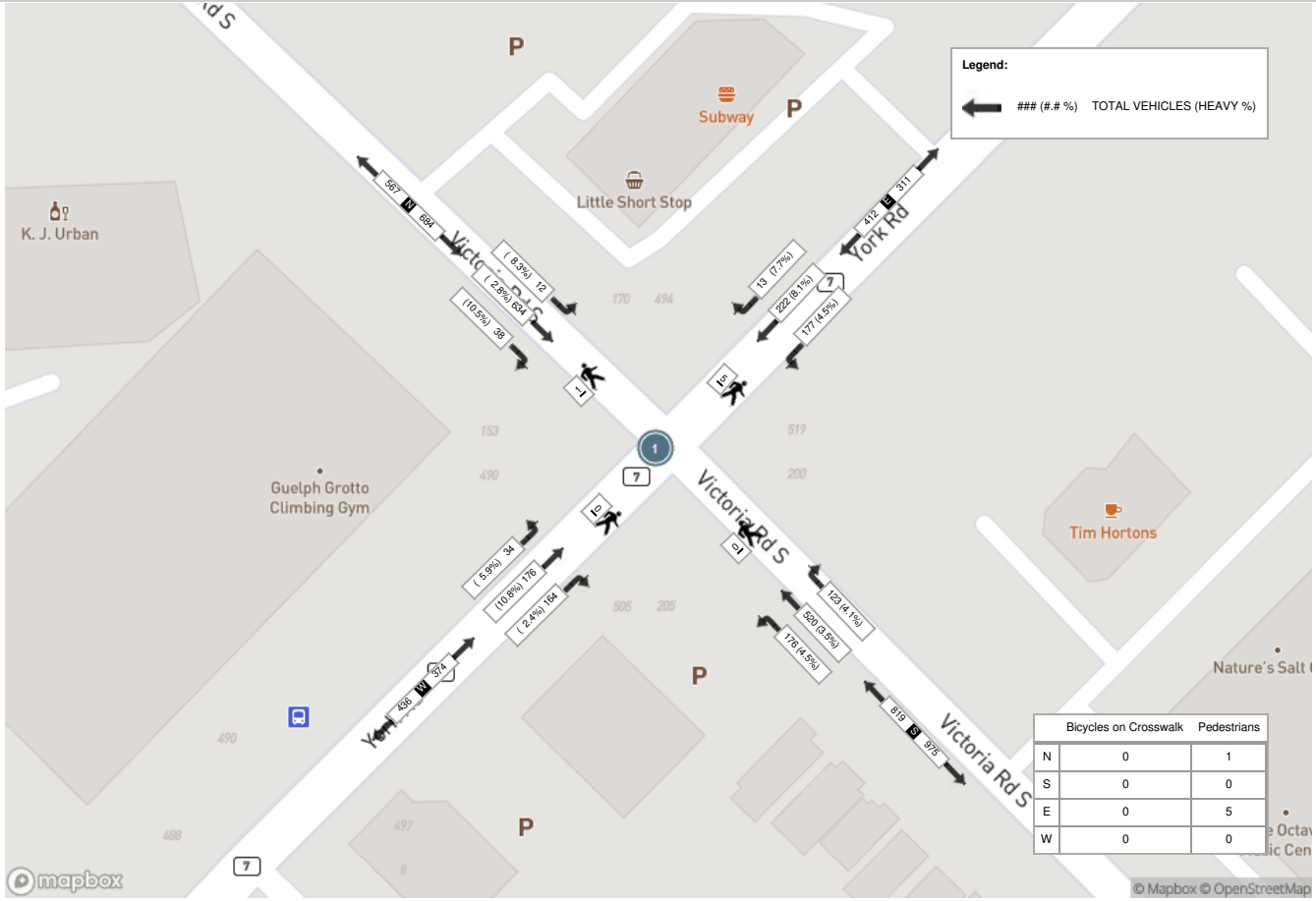
Turning Movement Count
Location Name: VICTORIA RD SOUTH & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

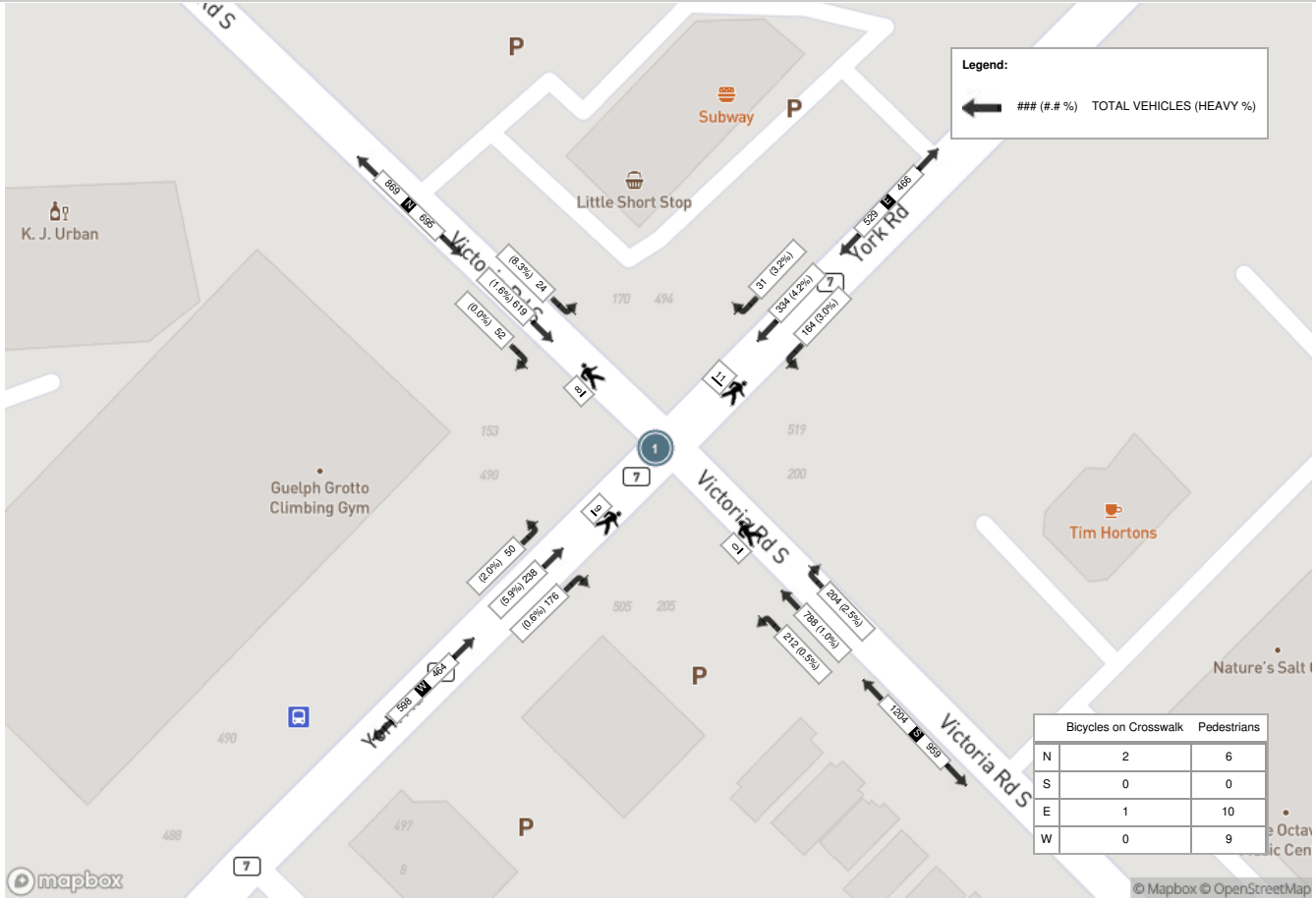
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach VICTORIA RD S						E Approach YORK RD						S Approach VICTORIA RD S						W Approach YORK RD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	11	154	6	0	0	171	5	84	35	0	2	124	50	188	48	0	0	286	52	60	18	0	5	130	711
16:15:00	15	149	7	0	4	171	7	88	36	0	2	131	47	206	50	0	0	303	43	65	8	0	1	116	721
16:30:00	16	151	7	0	0	174	9	91	52	0	4	152	66	200	59	0	0	325	46	57	12	0	2	115	766
16:45:00	10	165	4	0	4	179	10	71	41	0	3	122	41	194	55	0	0	290	35	56	12	0	1	103	694
Grand Total	52	619	24	0	8	695	31	334	164	0	11	529	204	788	212	0	0	1204	176	238	50	0	9	464	**2892**
Approach%	7.5%	89.1%	3.5%	0%		-	5.9%	63.1%	31%	0%		-	16.9%	65.4%	17.6%	0%		-	37.9%	51.3%	10.8%	0%		-	**-**
Totals %	1.8%	21.4%	0.8%	0%		24%	1.1%	11.5%	5.7%	0%		18.3%	7.1%	27.2%	7.3%	0%		41.6%	6.1%	8.2%	1.7%	0%		16%	**-**
PHF	0.81	0.94	0.86	0		0.97	0.78	0.92	0.79	0		0.87	0.77	0.96	0.9	0		0.93	0.85	0.92	0.69	0		0.89	**-**
Heavy	0	10	2	0		12	1	14	5	0		20	5	8	1	0		14	1	14	1	0		16	**-**
Heavy %	0%	1.6%	8.3%	0%		1.7%	3.2%	4.2%	3%	0%		3.8%	2.5%	1%	0.5%	0%		1.2%	0.6%	5.9%	2%	0%		3.4%	**-**
Lights	51	609	22	0		682	30	320	159	0		509	199	780	211	0		1190	175	224	49	0		448	**-**
Lights %	98.1%	98.4%	91.7%	0%		98.1%	96.8%	95.8%	97%	0%		96.2%	97.5%	99%	99.5%	0%		98.8%	99.4%	94.1%	98%	0%		96.6%	**-**
Single-Unit Trucks	0	6	2	0		8	0	8	3	0		11	0	3	1	0		4	1	5	1	0		7	**-**
Single-Unit Trucks %	0%	1%	8.3%	0%		1.2%	0%	2.4%	1.8%	0%		2.1%	0%	0.4%	0.5%	0%		0.3%	0.6%	2.1%	2%	0%		1.5%	**-**
Buses	0	1	0	0		1	1	2	2	0		5	4	2	0	0		6	0	6	0	0		6	**-**
Buses %	0%	0.2%	0%	0%		0.1%	3.2%	0.6%	1.2%	0%		0.9%	2%	0.3%	0%	0%		0.5%	0%	2.5%	0%	0%		1.3%	**-**
Articulated Trucks	0	3	0	0		3	0	4	0	0		4	1	3	0	0		4	0	3	0	0		3	**-**
Articulated Trucks %	0%	0.5%	0%	0%		0.4%	0%	1.2%	0%	0%		0.8%	0.5%	0.4%	0%	0%		0.3%	0%	1.3%	0%	0%		0.6%	**-**
Bicycles on Road	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	1.9%	0%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	21.4%		-	-	-	-	35.7%		-	-	-	-	0%		-	-	-	-	32.1%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	7.1%		-	-	-	-	3.6%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM **Weather: Light Snow (-2.5 °C)**



Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (0.37 °C)**



	Bicycles on Crosswalk	Pedestrians
N	2	6
S	0	0
E	1	10
W	0	9

Spectrum

Turning Movement Count
Location Name: WATSON PARKWAY & WATSON RD / DUNLOP DR
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (5 . WATSON PARKWAY & WATSON RD / DUNLOP DR)

Start Time	N Approach WATSON PKWY S						E Approach WATSON RD S						S Approach WATSON PKWY S						W Approach DUNLOP DR						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	8	38	0	0	0	46	0	1	10	0	0	11	10	34	11	0	0	55	2	0	2	0	0	4	116	
07:15:00	9	46	0	0	1	55	1	0	5	0	0	6	11	30	7	0	0	48	1	2	9	0	0	12	121	
07:30:00	8	79	0	0	0	87	0	2	5	0	0	7	18	29	5	0	0	52	0	0	3	0	0	3	149	
07:45:00	9	81	1	0	0	91	0	1	12	0	0	13	22	32	10	0	0	64	3	2	4	0	0	9	177	563
08:00:00	4	71	0	0	1	75	1	4	11	0	0	16	16	57	4	0	0	77	4	3	8	0	0	15	183	630
08:15:00	16	78	0	0	0	94	1	0	9	0	0	10	15	34	9	0	0	58	4	1	3	0	0	8	170	679
08:30:00	8	60	2	0	1	70	1	2	7	0	0	10	8	43	5	0	0	56	1	1	11	0	0	13	149	679
08:45:00	10	79	1	0	1	90	2	1	4	0	0	7	9	33	6	0	0	48	5	0	2	0	0	7	152	654
BREAK																										
16:00:00	11	69	1	0	0	81	3	2	21	0	0	26	6	51	5	0	0	62	55	6	62	0	0	123	292	
16:15:00	7	78	0	0	0	85	2	2	11	0	0	15	15	87	6	0	0	108	55	10	72	0	0	137	345	
16:30:00	5	82	1	0	0	88	0	0	43	0	0	43	8	94	0	0	0	102	15	3	25	0	0	43	276	
16:45:00	6	72	0	0	0	78	0	0	16	0	0	16	10	90	2	0	0	102	12	2	9	0	0	23	219	1132
17:00:00	5	55	1	0	0	61	1	3	21	0	0	25	5	93	3	1	0	102	24	3	18	0	0	45	233	1073
17:15:00	1	51	1	0	5	53	1	0	7	0	0	8	5	100	3	0	0	108	13	1	23	0	0	37	206	934
17:30:00	9	72	0	0	0	81	2	2	3	0	0	7	6	75	3	0	0	84	8	2	7	0	0	17	189	847
17:45:00	5	60	1	0	1	66	1	1	7	0	0	9	5	69	2	0	0	76	2	1	6	0	0	9	160	788
Grand Total	121	1071	9	0	10	1201	16	21	192	0	0	229	169	951	81	1	0	1202	204	37	264	0	0	505	**3137**	-
Approach%	10.1%	89.2%	0.7%	0%		-	7%	9.2%	83.8%	0%		-	14.1%	79.1%	6.7%	0.1%		-	40.4%	7.3%	52.3%	0%		-	**-**	-
Totals %	3.9%	34.1%	0.3%	0%		38.3%	0.5%	0.7%	6.1%	0%		7.3%	5.4%	30.3%	2.6%	0%		38.3%	6.5%	1.2%	8.4%	0%		16.1%	**-**	-
Heavy	24	44	1	0		-	12	13	25	0		-	24	39	20	0		-	15	12	27	0		-	**-**	-
Heavy %	19.8%	4.1%	11.1%	0%		-	75%	61.9%	13%	0%		-	14.2%	4.1%	24.7%	0%		-	7.4%	32.4%	10.2%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: WATSON PARKWAY & WATSON RD / DUNLOP DR
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Light Snow (-2.5 °C)

Start Time	N Approach WATSON PKWY S						E Approach WATSON RD S						S Approach WATSON PKWY S						W Approach DUNLOP DR						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	9	81	1	0	0	91	0	1	12	0	0	13	22	32	10	0	0	64	3	2	4	0	0	9	177
08:00:00	4	71	0	0	1	75	1	4	11	0	0	16	16	57	4	0	0	77	4	3	8	0	0	15	183
08:15:00	16	78	0	0	0	94	1	0	9	0	0	10	15	34	9	0	0	58	4	1	3	0	0	8	170
08:30:00	8	60	2	0	1	70	1	2	7	0	0	10	8	43	5	0	0	56	1	1	11	0	0	13	149
Grand Total	37	290	3	0	2	330	3	7	39	0	0	49	61	166	28	0	0	255	12	7	26	0	0	45	**679**
Approach%	11.2%	87.9%	0.9%	0%		-	6.1%	14.3%	79.6%	0%		-	23.9%	65.1%	11%	0%		-	26.7%	15.6%	57.8%	0%		-	**-**
Totals %	5.4%	42.7%	0.4%	0%		48.6%	0.4%	1%	5.7%	0%		7.2%	9%	24.4%	4.1%	0%		37.6%	1.8%	1%	3.8%	0%		6.6%	**-**
PHF	0.58	0.9	0.38	0		0.88	0.75	0.44	0.81	0		0.77	0.69	0.73	0.7	0		0.83	0.75	0.58	0.59	0		0.75	**-**
Heavy	7	17	1	0		25	2	3	11	0		16	7	16	10	0		33	6	6	8	0		20	**-**
Heavy %	18.9%	5.9%	33.3%	0%		7.6%	66.7%	42.9%	28.2%	0%		32.7%	11.5%	9.6%	35.7%	0%		12.9%	50%	85.7%	30.8%	0%		44.4%	**-**
Lights	28	273	2	0		303	1	4	28	0		33	54	150	18	0		222	6	1	18	0		25	**-**
Lights %	75.7%	94.1%	66.7%	0%		91.8%	33.3%	57.1%	71.8%	0%		67.3%	88.5%	90.4%	64.3%	0%		87.1%	50%	14.3%	69.2%	0%		55.6%	**-**
Single-Unit Trucks	1	8	1	0		10	0	1	4	0		5	4	9	4	0		17	2	4	2	0		8	**-**
Single-Unit Trucks %	2.7%	2.8%	33.3%	0%		3%	0%	14.3%	10.3%	0%		10.2%	6.6%	5.4%	14.3%	0%		6.7%	16.7%	57.1%	7.7%	0%		17.8%	**-**
Buses	0	3	0	0		3	2	0	4	0		6	1	3	0	0		4	0	0	0	0		0	**-**
Buses %	0%	1%	0%	0%		0.9%	66.7%	0%	10.3%	0%		12.2%	1.6%	1.8%	0%	0%		1.6%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	6	6	0	0		12	0	2	3	0		5	2	4	6	0		12	4	2	6	0		12	**-**
Articulated Trucks %	16.2%	2.1%	0%	0%		3.6%	0%	28.6%	7.7%	0%		10.2%	3.3%	2.4%	21.4%	0%		4.7%	33.3%	28.6%	23.1%	0%		26.7%	**-**
Bicycles on Road	2	0	0	0		2	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	5.4%	0%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

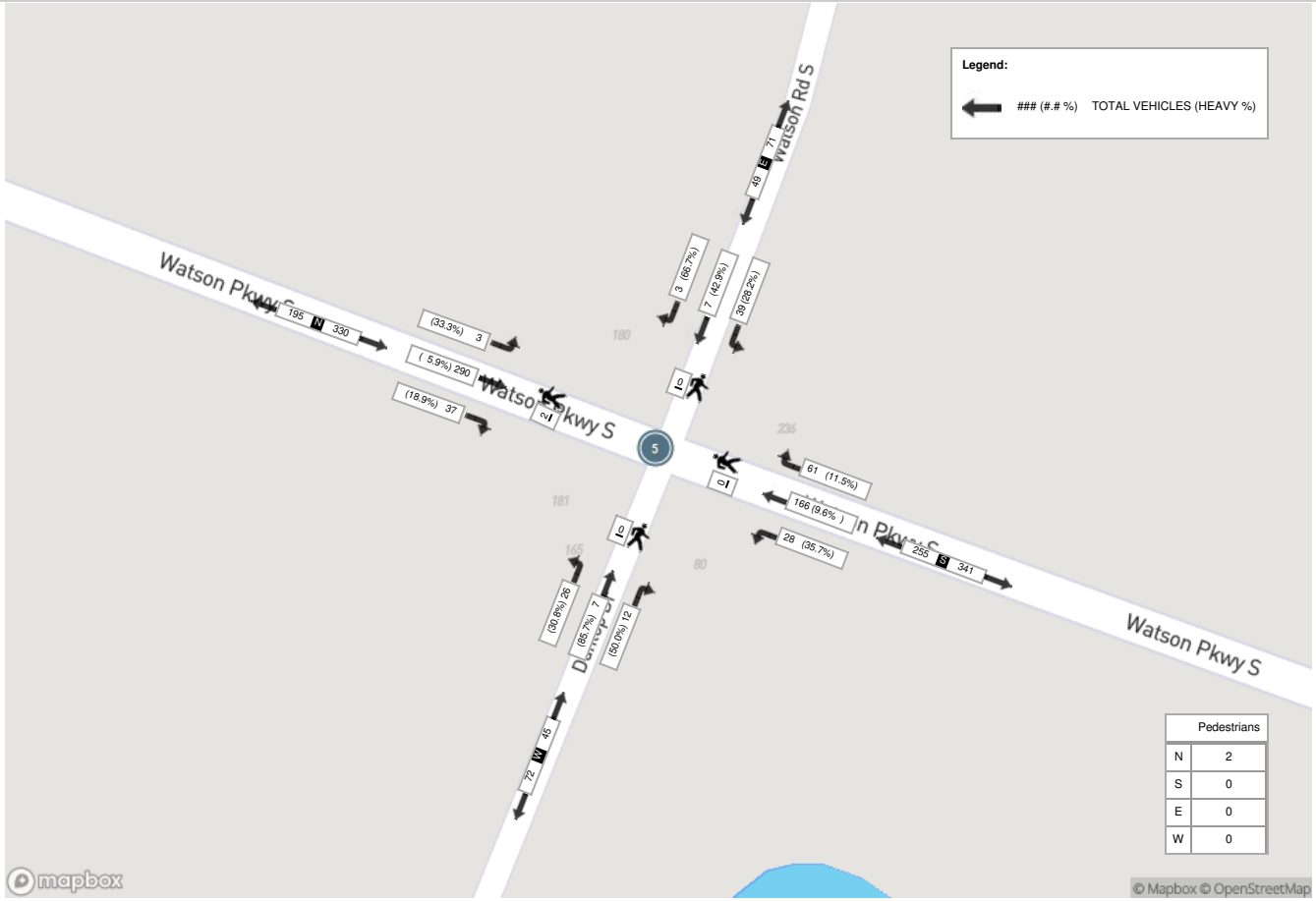
Turning Movement Count
Location Name: WATSON PARKWAY & WATSON RD / DUNLOP DR
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

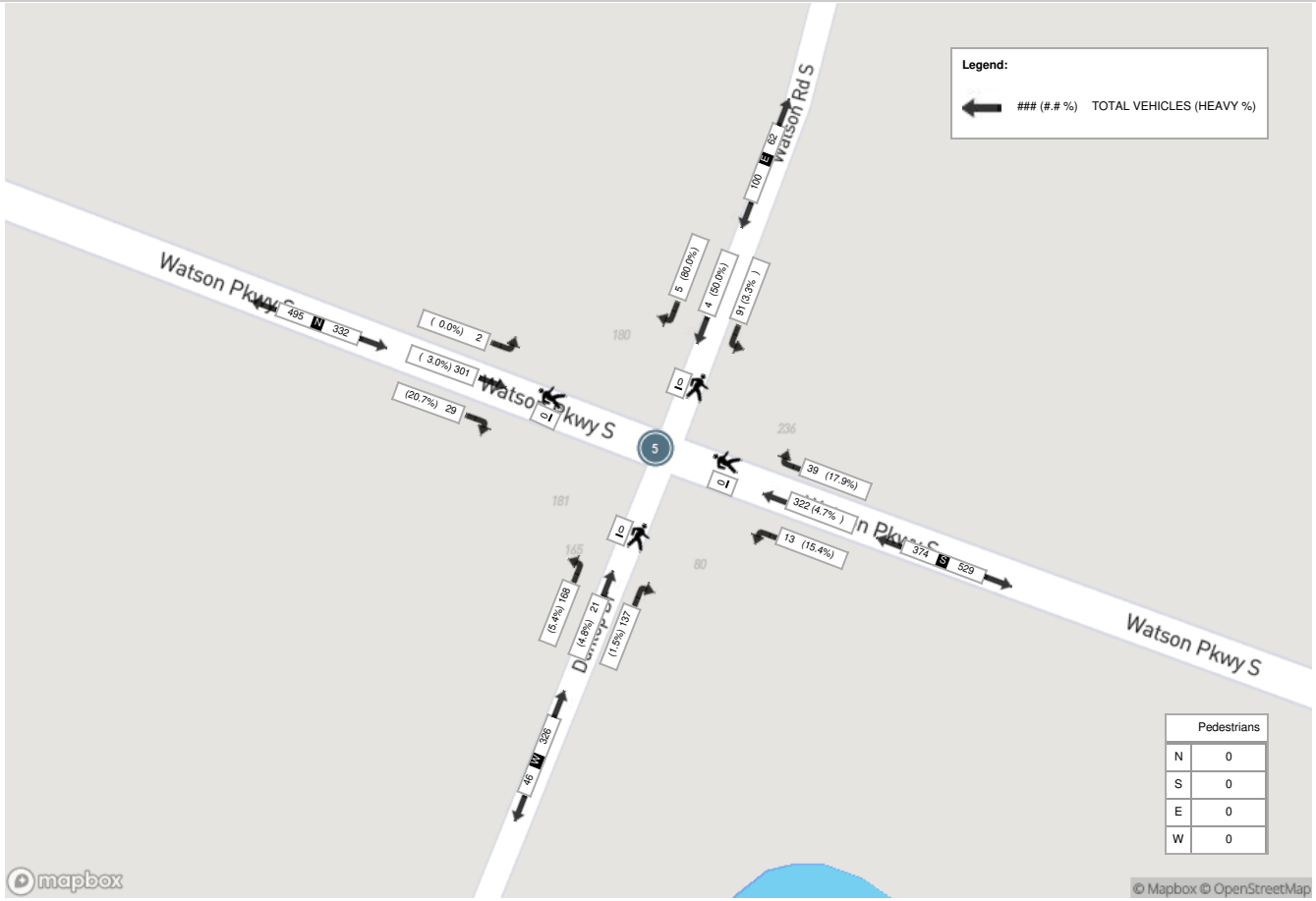
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach WATSON PKWY S						E Approach WATSON RD S						S Approach WATSON PKWY S						W Approach DUNLOP DR						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	11	69	1	0	0	81	3	2	21	0	0	26	6	51	5	0	0	62	55	6	62	0	0	123	292
16:15:00	7	78	0	0	0	85	2	2	11	0	0	15	15	87	6	0	0	108	55	10	72	0	0	137	345
16:30:00	5	82	1	0	0	88	0	0	43	0	0	43	8	94	0	0	0	102	15	3	25	0	0	43	276
16:45:00	6	72	0	0	0	78	0	0	16	0	0	16	10	90	2	0	0	102	12	2	9	0	0	23	219
Grand Total	29	301	2	0	0	332	5	4	91	0	0	100	39	322	13	0	0	374	137	21	168	0	0	326	**1132**
Approach%	8.7%	90.7%	0.6%	0%		-	5%	4%	91%	0%		-	10.4%	86.1%	3.5%	0%		-	42%	6.4%	51.5%	0%		-	**-**
Totals %	2.6%	26.6%	0.2%	0%		29.3%	0.4%	0.4%	8%	0%		8.8%	3.4%	28.4%	1.1%	0%		33%	12.1%	1.9%	14.8%	0%		28.8%	**-**
PHF	0.66	0.92	0.5	0		0.94	0.42	0.5	0.53	0		0.58	0.65	0.86	0.54	0		0.87	0.62	0.53	0.58	0		0.59	**-**
Heavy	6	9	0	0		15	4	2	3	0		9	7	15	2	0		24	2	1	9	0		12	**-**
Heavy %	20.7%	3%	0%	0%		4.5%	80%	50%	3.3%	0%		9%	17.9%	4.7%	15.4%	0%		6.4%	1.5%	4.8%	5.4%	0%		3.7%	**-**
Lights	23	292	2	0		317	1	2	88	0		91	32	307	11	0		350	135	20	159	0		314	**-**
Lights %	79.3%	97%	100%	0%		95.5%	20%	50%	96.7%	0%		91%	82.1%	95.3%	84.6%	0%		93.6%	98.5%	95.2%	94.6%	0%		96.3%	**-**
Single-Unit Trucks	4	1	0	0		5	2	1	1	0		4	2	4	0	0		6	1	1	4	0		6	**-**
Single-Unit Trucks %	13.8%	0.3%	0%	0%		1.5%	40%	25%	1.1%	0%		4%	5.1%	1.2%	0%	0%		1.6%	0.7%	4.8%	2.4%	0%		1.8%	**-**
Buses	0	4	0	0		4	2	0	2	0		4	2	7	0	0		9	0	0	0	0		0	**-**
Buses %	0%	1.3%	0%	0%		1.2%	40%	0%	2.2%	0%		4%	5.1%	2.2%	0%	0%		2.4%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	2	4	0	0		6	0	1	0	0		1	3	4	2	0		9	1	0	5	0		6	**-**
Articulated Trucks %	6.9%	1.3%	0%	0%		1.8%	0%	25%	0%	0%		1%	7.7%	1.2%	15.4%	0%		2.4%	0.7%	0%	3%	0%		1.8%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:45 AM - 08:45 AM **Weather: Light Snow (-2.5 °C)**



Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (0.37 °C)**



Spectrum

Turning Movement Count
Location Name: WATSON PARKWAY & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (4 . WATSON PARKWAY & YORK RD)

Start Time	N Approach WATSON PKWY N						E Approach YORK RD						S Approach WATSON PKWY S						W Approach YORK RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	22	37	16	0	0	75	2	27	4	0	0	33	7	13	11	0	1	31	21	65	16	0	0	102	241	
07:15:00	39	37	14	0	1	90	1	46	5	0	0	52	6	20	16	0	0	42	17	74	17	0	1	108	292	
07:30:00	69	79	15	0	0	163	1	56	6	0	0	63	1	19	15	0	0	35	23	67	17	0	0	107	368	
07:45:00	75	82	8	0	0	165	4	62	1	0	0	67	5	24	11	0	0	40	27	58	24	0	0	109	381	1282
08:00:00	43	67	12	0	0	122	8	72	5	0	0	85	6	39	21	0	0	66	20	75	29	0	0	124	397	1438
08:15:00	70	73	7	0	0	150	5	63	4	0	0	72	4	26	12	0	1	42	25	58	33	0	0	116	380	1526
08:30:00	81	70	14	0	0	165	6	89	2	0	0	97	4	26	24	0	0	54	24	42	37	0	0	103	419	1577
08:45:00	77	71	9	0	0	157	5	79	5	0	0	89	3	22	20	0	0	45	18	49	37	0	0	104	395	1591
BREAK																										
16:00:00	45	57	10	0	0	112	24	95	7	0	0	126	5	80	50	0	2	135	19	71	52	0	1	142	515	
16:15:00	53	68	4	0	1	125	10	81	4	0	0	95	5	86	64	0	2	155	15	95	58	0	3	168	543	
16:30:00	58	69	5	0	0	132	20	94	6	0	0	120	3	84	50	0	1	137	22	68	67	0	2	157	546	
16:45:00	39	49	2	0	0	90	21	89	6	0	0	116	5	92	24	0	0	121	20	84	71	0	1	175	502	2106
17:00:00	55	39	6	0	0	100	12	75	11	0	0	98	2	88	33	0	1	123	20	52	51	0	2	123	444	2035
17:15:00	55	36	5	0	0	96	15	78	8	0	0	101	3	92	39	0	0	134	11	67	69	0	0	147	478	1970
17:30:00	52	58	7	0	0	117	23	74	3	0	0	100	1	72	21	0	0	94	31	59	60	0	0	150	461	1885
17:45:00	43	45	6	0	1	94	10	85	3	0	0	98	0	58	18	0	0	76	21	57	54	0	0	132	400	1783
Grand Total	876	937	140	0	3	1953	167	1165	80	0	0	1412	60	841	429	0	8	1330	334	1041	692	0	10	2067	**6762**	-
Approach%	44.9%	48%	7.2%	0%		-	11.8%	82.5%	5.7%	0%		-	4.5%	63.2%	32.3%	0%		-	16.2%	50.4%	33.5%	0%		-	**-**	-
Totals %	13%	13.9%	2.1%	0%		28.9%	2.5%	17.2%	1.2%	0%		20.9%	0.9%	12.4%	6.3%	0%		19.7%	4.9%	15.4%	10.2%	0%		30.6%	**-**	-
Heavy	22	23	3	0		-	7	58	16	0		-	8	25	42	0		-	26	72	19	0		-	**-**	-
Heavy %	2.5%	2.5%	2.1%	0%		-	4.2%	5%	20%	0%		-	13.3%	3%	9.8%	0%		-	7.8%	6.9%	2.7%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: WATSON PARKWAY & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.5 °C)

Start Time	N Approach WATSON PKWY N						E Approach YORK RD						S Approach WATSON PKWY S						W Approach YORK RD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
08:00:00	43	67	12	0	0	122	8	72	5	0	0	85	6	39	21	0	0	66	20	75	29	0	0	124	397
08:15:00	70	73	7	0	0	150	5	63	4	0	0	72	4	26	12	0	1	42	25	58	33	0	0	116	380
08:30:00	81	70	14	0	0	165	6	89	2	0	0	97	4	26	24	0	0	54	24	42	37	0	0	103	419
08:45:00	77	71	9	0	0	157	5	79	5	0	0	89	3	22	20	0	0	45	18	49	37	0	0	104	395
Grand Total	271	281	42	0	0	594	24	303	16	0	0	343	17	113	77	0	1	207	87	224	136	0	0	447	**1591**
Approach%	45.6%	47.3%	7.1%	0%		-	7%	88.3%	4.7%	0%		-	8.2%	54.6%	37.2%	0%		-	19.5%	50.1%	30.4%	0%		-	**-**
Totals %	17%	17.7%	2.6%	0%		37.3%	1.5%	19%	1%	0%		21.6%	1.1%	7.1%	4.8%	0%		13%	5.5%	14.1%	8.5%	0%		28.1%	**-**
PHF	0.84	0.96	0.75	0		0.9	0.75	0.85	0.8	0		0.88	0.71	0.72	0.8	0		0.78	0.87	0.75	0.92	0		0.9	**-**
Heavy	7	10	2	0		19	2	25	3	0		30	1	11	9	0		21	9	24	9	0		42	**-**
Heavy %	2.6%	3.6%	4.8%	0%		3.2%	8.3%	8.3%	18.8%	0%		8.7%	5.9%	9.7%	11.7%	0%		10.1%	10.3%	10.7%	6.6%	0%		9.4%	**-**
Lights	264	271	40	0		575	22	278	13	0		313	16	102	68	0		186	77	200	127	0		404	**-**
Lights %	97.4%	96.4%	95.2%	0%		96.8%	91.7%	91.7%	81.3%	0%		91.3%	94.1%	90.3%	88.3%	0%		89.9%	88.5%	89.3%	93.4%	0%		90.4%	**-**
Single-Unit Trucks	2	4	2	0		8	1	13	1	0		15	1	5	4	0		10	7	10	3	0		20	**-**
Single-Unit Trucks %	0.7%	1.4%	4.8%	0%		1.3%	4.2%	4.3%	6.3%	0%		4.4%	5.9%	4.4%	5.2%	0%		4.8%	8%	4.5%	2.2%	0%		4.5%	**-**
Buses	5	0	0	0		5	1	10	1	0		12	0	2	4	0		6	1	7	6	0		14	**-**
Buses %	1.8%	0%	0%	0%		0.8%	4.2%	3.3%	6.3%	0%		3.5%	0%	1.8%	5.2%	0%		2.9%	1.1%	3.1%	4.4%	0%		3.1%	**-**
Articulated Trucks	0	6	0	0		6	0	2	1	0		3	0	4	1	0		5	1	7	0	0		8	**-**
Articulated Trucks %	0%	2.1%	0%	0%		1%	0%	0.7%	6.3%	0%		0.9%	0%	3.5%	1.3%	0%		2.4%	1.1%	3.1%	0%	0%		1.8%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.1%	0%	0%	0%		0.2%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

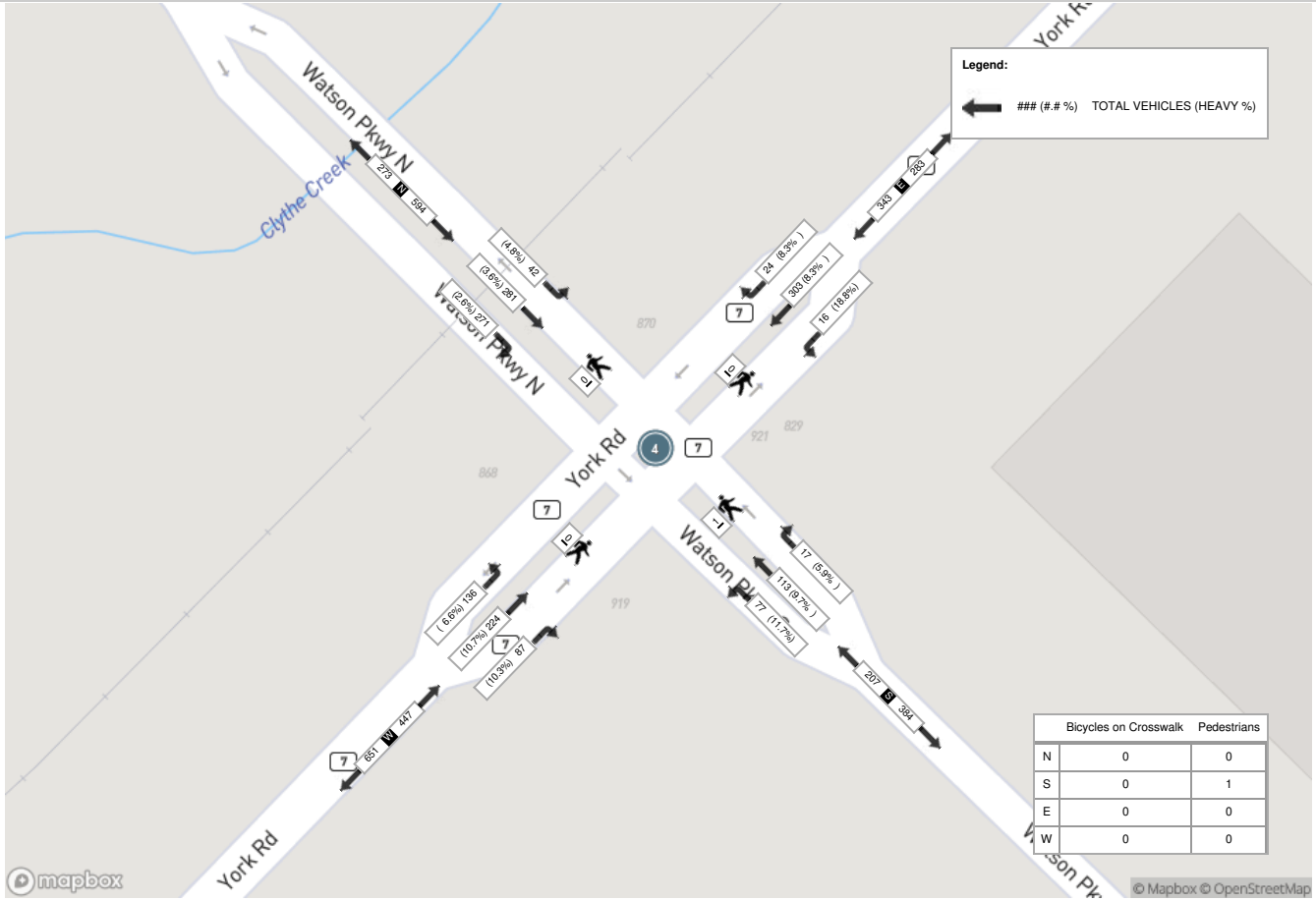
Turning Movement Count
Location Name: WATSON PARKWAY & YORK RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach WATSON PKWY N						E Approach YORK RD						S Approach WATSON PKWY S						W Approach YORK RD						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	45	57	10	0	0	112	24	95	7	0	0	126	5	80	50	0	2	135	19	71	52	0	1	142	515
16:15:00	53	68	4	0	1	125	10	81	4	0	0	95	5	86	64	0	2	155	15	95	58	0	3	168	543
16:30:00	58	69	5	0	0	132	20	94	6	0	0	120	3	84	50	0	1	137	22	68	67	0	2	157	546
16:45:00	39	49	2	0	0	90	21	89	6	0	0	116	5	92	24	0	0	121	20	84	71	0	1	175	502
Grand Total	195	243	21	0	1	459	75	359	23	0	0	457	18	342	188	0	5	548	76	318	248	0	7	642	**2106**
Approach%	42.5%	52.9%	4.6%	0%		-	16.4%	78.6%	5%	0%		-	3.3%	62.4%	34.3%	0%		-	11.8%	49.5%	38.6%	0%		-	**-**
Totals %	9.3%	11.5%	1%	0%		21.8%	3.6%	17%	1.1%	0%		21.7%	0.9%	16.2%	8.9%	0%		26%	3.6%	15.1%	11.8%	0%		30.5%	**-**
PHF	0.84	0.88	0.53	0		0.87	0.78	0.94	0.82	0		0.91	0.9	0.93	0.73	0		0.88	0.86	0.84	0.87	0		0.92	**-**
Heavy	8	9	0	0		17	3	14	4	0		21	3	6	18	0		27	5	13	2	0		20	**-**
Heavy %	4.1%	3.7%	0%	0%		3.7%	4%	3.9%	17.4%	0%		4.6%	16.7%	1.8%	9.6%	0%		4.9%	6.6%	4.1%	0.8%	0%		3.1%	**-**
Lights	186	234	21	0		441	72	345	19	0		436	14	336	170	0		520	71	305	246	0		622	**-**
Lights %	95.4%	96.3%	100%	0%		96.1%	96%	96.1%	82.6%	0%		95.4%	77.8%	98.2%	90.4%	0%		94.9%	93.4%	95.9%	99.2%	0%		96.9%	**-**
Single-Unit Trucks	0	3	0	0		3	2	3	3	0		8	0	4	7	0		11	3	6	0	0		9	**-**
Single-Unit Trucks %	0%	1.2%	0%	0%		0.7%	2.7%	0.8%	13%	0%		1.8%	0%	1.2%	3.7%	0%		2%	3.9%	1.9%	0%	0%		1.4%	**-**
Buses	7	4	0	0		11	0	8	0	0		8	0	0	11	0		11	0	6	2	0		8	**-**
Buses %	3.6%	1.6%	0%	0%		2.4%	0%	2.2%	0%	0%		1.8%	0%	0%	5.9%	0%		2%	0%	1.9%	0.8%	0%		1.2%	**-**
Articulated Trucks	1	2	0	0		3	1	3	1	0		5	3	2	0	0		5	2	1	0	0		3	**-**
Articulated Trucks %	0.5%	0.8%	0%	0%		0.7%	1.3%	0.8%	4.3%	0%		1.1%	16.7%	0.6%	0%	0%		0.9%	2.6%	0.3%	0%	0%		0.5%	**-**
Bicycles on Road	1	0	0	0		1	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0.5%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	5.6%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	7	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	38.5%		-	-	-	-	53.8%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	7.7%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

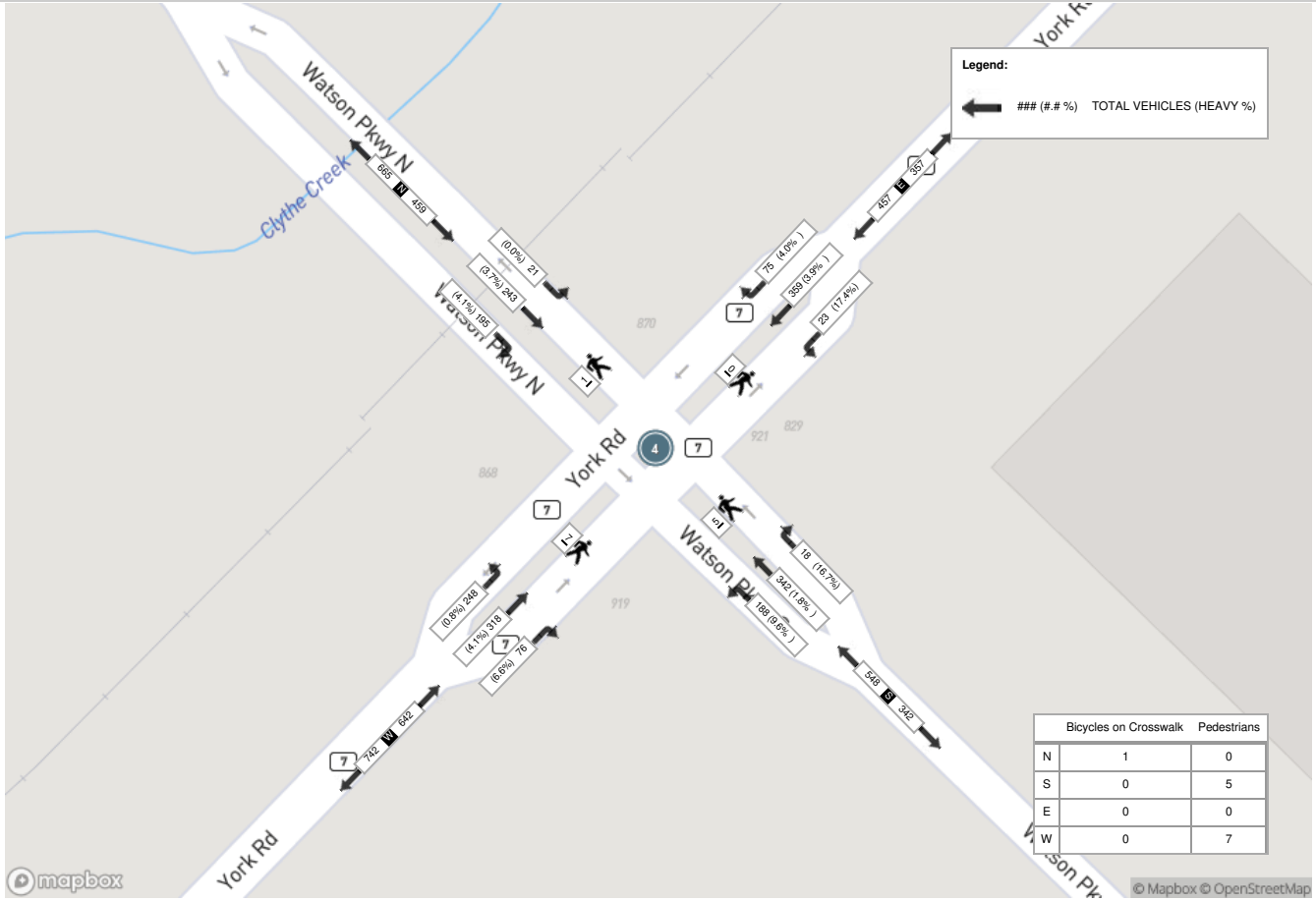
Peak Hour: 08:00 AM - 09:00 AM **Weather: Light Snow (-2.5 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	1
E	0	0
W	0	0

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (0.37 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	0
S	0	5
E	0	0
W	0	7

Spectrum

Turning Movement Count
Location Name: WATSON PKWY & STONE RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

Turning Movement Count (6 . WATSON PKWY & STONE RD)

Start Time	N Approach WATSON PKWY S						E Approach STONE RD E						S Approach WATSON PKWY S						W Approach STONE RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	30	18	0	0	0	48	1	3	0	0	0	4	0	27	2	0	0	29	1	11	23	0	0	35	116	
07:15:00	21	32	0	0	0	53	1	16	1	0	0	18	3	20	7	0	0	30	2	18	25	0	0	45	146	
07:30:00	37	44	0	0	0	81	0	15	2	0	0	17	3	28	3	0	0	34	6	16	24	0	0	46	178	
07:45:00	58	41	1	0	0	100	2	26	4	0	0	32	3	28	12	0	0	43	12	13	32	0	0	57	232	672
08:00:00	49	40	0	0	0	89	0	21	0	0	0	21	2	39	18	0	0	59	3	14	43	0	0	60	229	785
08:15:00	44	37	1	0	0	82	1	38	2	0	0	41	3	29	10	0	0	42	10	13	31	0	0	54	219	858
08:30:00	37	27	1	0	0	65	0	32	6	0	0	38	1	28	19	0	0	48	6	13	27	0	0	46	197	877
08:45:00	62	29	0	0	0	91	1	28	3	0	0	32	2	28	19	0	0	49	7	8	17	0	0	32	204	849
BREAK																										
16:00:00	74	60	0	0	0	134	1	24	2	0	0	27	3	35	8	0	0	46	17	36	36	0	0	89	296	
16:15:00	88	64	1	0	0	153	0	24	5	0	0	29	4	48	9	0	0	61	8	45	49	0	0	102	345	
16:30:00	82	51	2	0	0	135	0	19	4	0	0	23	2	49	7	0	0	58	15	40	61	0	0	116	332	
16:45:00	63	37	0	0	0	100	0	35	2	0	0	37	5	56	7	0	0	68	13	34	46	0	0	93	298	1271
17:00:00	59	41	0	0	0	100	0	28	4	0	0	32	3	48	6	0	0	57	17	34	47	0	0	98	287	1262
17:15:00	49	30	1	0	0	80	1	18	6	0	0	25	8	44	6	0	0	58	10	31	58	0	0	99	262	1179
17:30:00	45	32	0	0	0	77	0	14	5	0	0	19	0	37	10	0	0	47	16	41	43	0	0	100	243	1090
17:45:00	37	32	0	0	0	69	0	21	2	0	0	23	3	42	8	0	0	53	10	24	41	0	0	75	220	1012
Grand Total	835	615	7	0	0	1457	8	362	48	0	0	418	45	586	151	0	0	782	153	391	603	0	0	1147	**3804**	-
Approach%	57.3%	42.2%	0.5%	0%		-	1.9%	86.6%	11.5%	0%		-	5.8%	74.9%	19.3%	0%		-	13.3%	34.1%	52.6%	0%		-	**-**	-
Totals %	22%	16.2%	0.2%	0%		38.3%	0.2%	9.5%	1.3%	0%		11%	1.2%	15.4%	4%	0%		20.6%	4%	10.3%	15.9%	0%		30.2%	**-**	-
Heavy	69	9	3	0		-	2	18	1	0		-	3	13	4	0		-	5	14	67	0		-	**-**	-
Heavy %	8.3%	1.5%	42.9%	0%		-	25%	5%	2.1%	0%		-	6.7%	2.2%	2.6%	0%		-	3.3%	3.6%	11.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Light Snow (-2.5 °C)

Start Time	N Approach WATSON PKWY S						E Approach STONE RD E						S Approach WATSON PKWY S						W Approach STONE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	58	41	1	0	0	100	2	26	4	0	0	32	3	28	12	0	0	43	12	13	32	0	0	57	232
08:00:00	49	40	0	0	0	89	0	21	0	0	0	21	2	39	18	0	0	59	3	14	43	0	0	60	229
08:15:00	44	37	1	0	0	82	1	38	2	0	0	41	3	29	10	0	0	42	10	13	31	0	0	54	219
08:30:00	37	27	1	0	0	65	0	32	6	0	0	38	1	28	19	0	0	48	6	13	27	0	0	46	197
Grand Total	188	145	3	0	0	336	3	117	12	0	0	132	9	124	59	0	0	192	31	53	133	0	0	217	**877**
Approach%	56%	43.2%	0.9%	0%		-	2.3%	88.6%	9.1%	0%		-	4.7%	64.6%	30.7%	0%		-	14.3%	24.4%	61.3%	0%		-	**-**
Totals %	21.4%	16.5%	0.3%	0%		38.3%	0.3%	13.3%	1.4%	0%		15.1%	1%	14.1%	6.7%	0%		21.9%	3.5%	6%	15.2%	0%		24.7%	**-**
PHF	0.81	0.88	0.75	0		0.84	0.38	0.77	0.5	0		0.8	0.75	0.79	0.78	0		0.81	0.65	0.95	0.77	0		0.9	**-**
Heavy	28	5	3	0		36	1	5	1	0		7	1	5	3	0		9	3	2	26	0		31	**-**
Heavy %	14.9%	3.4%	100%	0%		10.7%	33.3%	4.3%	8.3%	0%		5.3%	11.1%	4%	5.1%	0%		4.7%	9.7%	3.8%	19.5%	0%		14.3%	**-**
Lights	160	140	0	0		300	2	112	11	0		125	8	119	56	0		183	28	51	107	0		186	**-**
Lights %	85.1%	96.6%	0%	0%		89.3%	66.7%	95.7%	91.7%	0%		94.7%	88.9%	96%	94.9%	0%		95.3%	90.3%	96.2%	80.5%	0%		85.7%	**-**
Single-Unit Trucks	12	2	1	0		15	0	0	0	0		0	1	3	1	0		5	2	1	10	0		13	**-**
Single-Unit Trucks %	6.4%	1.4%	33.3%	0%		4.5%	0%	0%	0%	0%		0%	11.1%	2.4%	1.7%	0%		2.6%	6.5%	1.9%	7.5%	0%		6%	**-**
Buses	2	3	2	0		7	1	4	1	0		6	0	2	2	0		4	1	1	2	0		4	**-**
Buses %	1.1%	2.1%	66.7%	0%		2.1%	33.3%	3.4%	8.3%	0%		4.5%	0%	1.6%	3.4%	0%		2.1%	3.2%	1.9%	1.5%	0%		1.8%	**-**
Articulated Trucks	14	0	0	0		14	0	1	0	0		1	0	0	0	0		0	0	0	14	0		14	**-**
Articulated Trucks %	7.4%	0%	0%	0%		4.2%	0%	0.9%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0%	10.5%	0%		6.5%	**-**

Spectrum

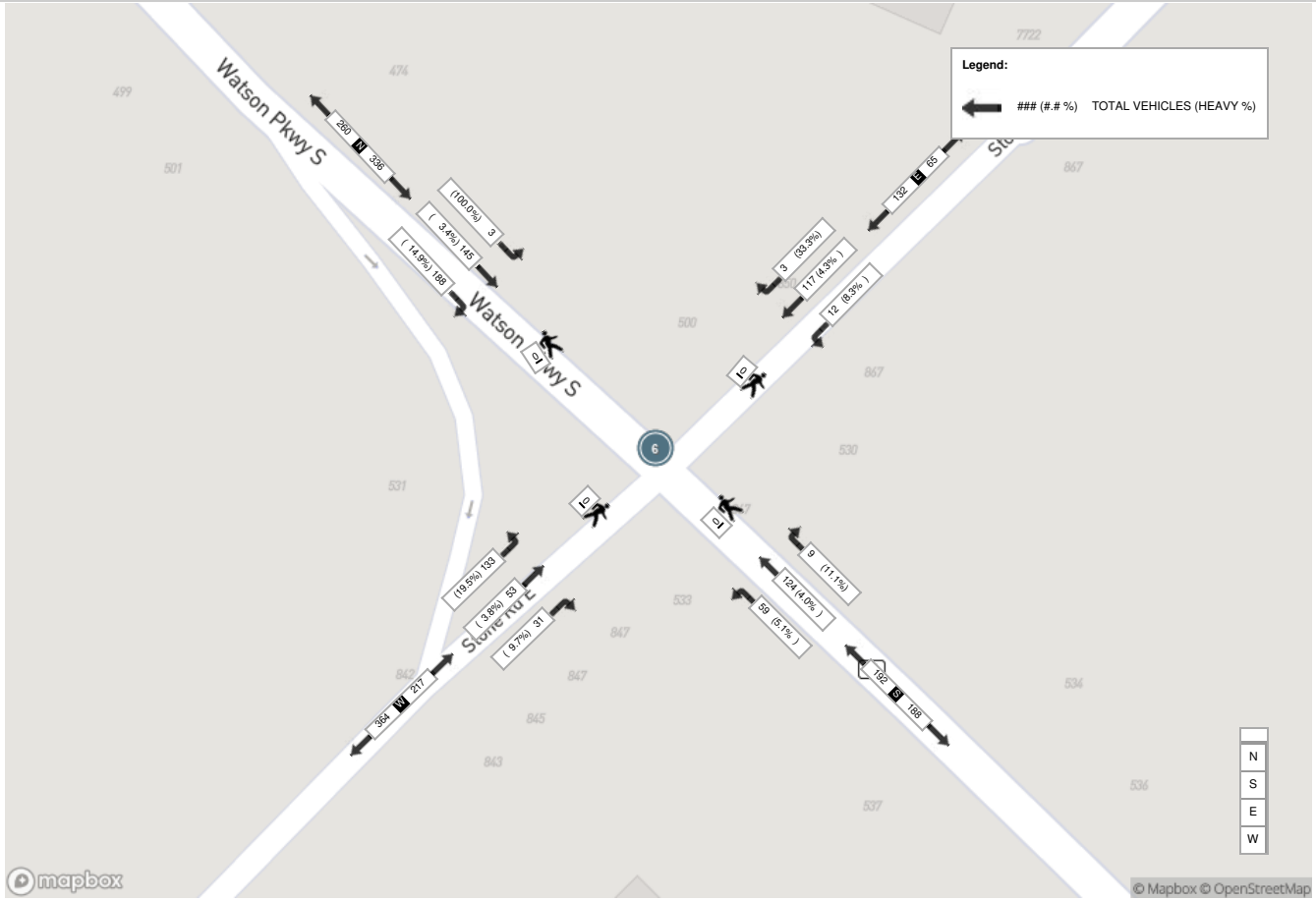
Turning Movement Count
Location Name: WATSON PKWY & STONE RD
Date: Wed, Nov 16, 2022 Deployment Lead: Peter Ilias

GHD
210 140 ALLSTATE PARKWAY
MARKHAM ONTARIO, L3R
578
CANADA

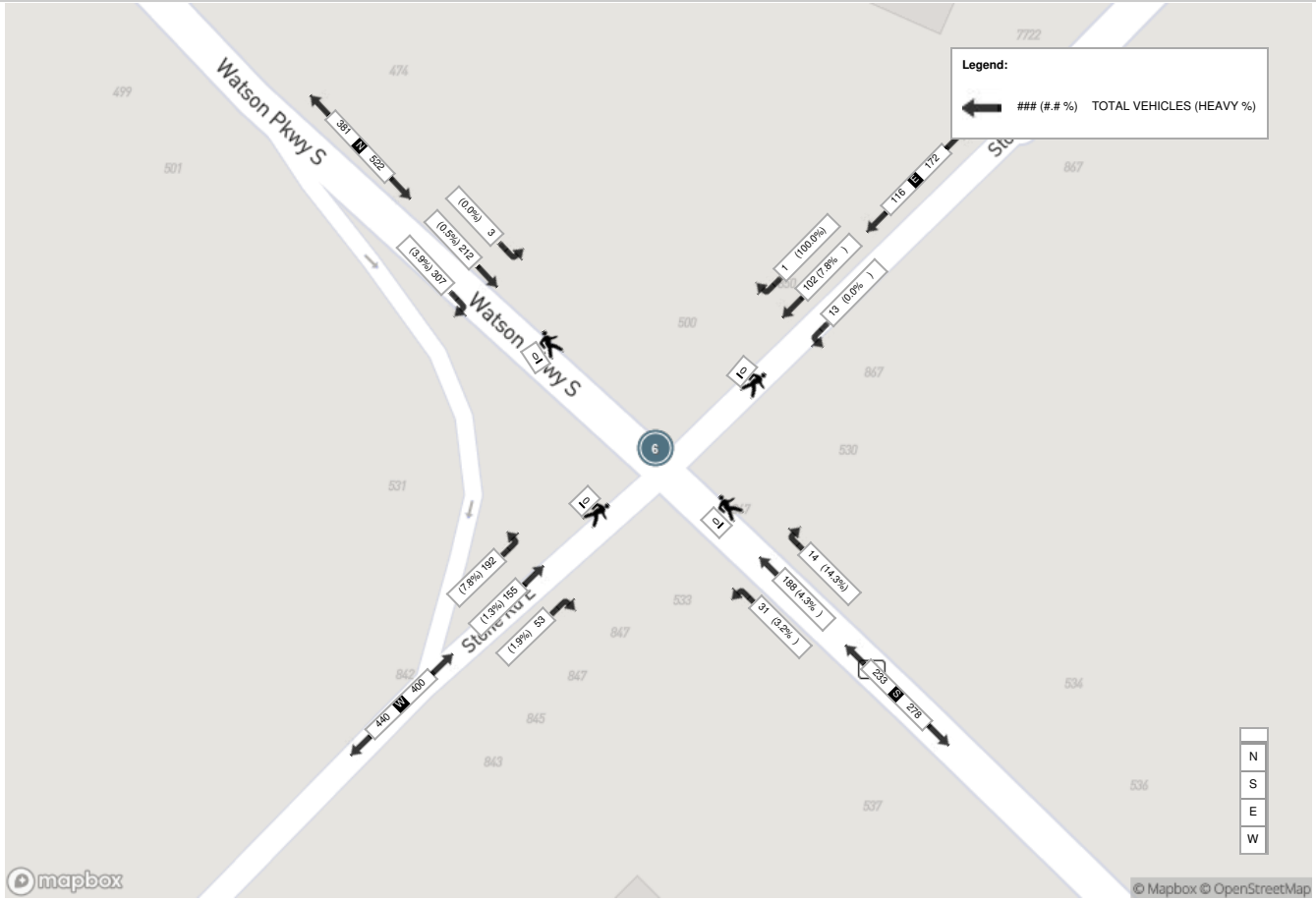
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (0.37 °C)

Start Time	N Approach WATSON PKWY S						E Approach STONE RD E						S Approach WATSON PKWY S						W Approach STONE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	74	60	0	0	0	134	1	24	2	0	0	27	3	35	8	0	0	46	17	36	36	0	0	89	296
16:15:00	88	64	1	0	0	153	0	24	5	0	0	29	4	48	9	0	0	61	8	45	49	0	0	102	345
16:30:00	82	51	2	0	0	135	0	19	4	0	0	23	2	49	7	0	0	58	15	40	61	0	0	116	332
16:45:00	63	37	0	0	0	100	0	35	2	0	0	37	5	56	7	0	0	68	13	34	46	0	0	93	298
Grand Total	307	212	3	0	0	522	1	102	13	0	0	116	14	188	31	0	0	233	53	155	192	0	0	400	**1271**
Approach%	58.8%	40.6%	0.6%	0%		-	0.9%	87.9%	11.2%	0%		-	6%	80.7%	13.3%	0%		-	13.3%	38.8%	48%	0%		-	**-**
Totals %	24.2%	16.7%	0.2%	0%		41.1%	0.1%	8%	1%	0%		9.1%	1.1%	14.8%	2.4%	0%		18.3%	4.2%	12.2%	15.1%	0%		31.5%	**-**
PHF	0.87	0.83	0.38	0		0.85	0.25	0.73	0.65	0		0.78	0.7	0.84	0.86	0		0.86	0.78	0.86	0.79	0		0.86	**-**
Heavy	12	1	0	0		13	1	8	0	0		9	2	8	1	0		11	1	2	15	0		18	**-**
Heavy %	3.9%	0.5%	0%	0%		2.5%	100%	7.8%	0%	0%		7.8%	14.3%	4.3%	3.2%	0%		4.7%	1.9%	1.3%	7.8%	0%		4.5%	**-**
Lights	295	211	3	0		509	0	94	13	0		107	12	180	30	0		222	52	153	177	0		382	**-**
Lights %	96.1%	99.5%	100%	0%		97.5%	0%	92.2%	100%	0%		92.2%	85.7%	95.7%	96.8%	0%		95.3%	98.1%	98.7%	92.2%	0%		95.5%	**-**
Single-Unit Trucks	2	1	0	0		3	0	2	0	0		2	1	5	1	0		7	0	1	2	0		3	**-**
Single-Unit Trucks %	0.7%	0.5%	0%	0%		0.6%	0%	2%	0%	0%		1.7%	7.1%	2.7%	3.2%	0%		3%	0%	0.6%	1%	0%		0.8%	**-**
Buses	5	0	0	0		5	1	6	0	0		7	1	2	0	0		3	1	1	5	0		7	**-**
Buses %	1.6%	0%	0%	0%		1%	100%	5.9%	0%	0%		6%	7.1%	1.1%	0%	0%		1.3%	1.9%	0.6%	2.6%	0%		1.8%	**-**
Articulated Trucks	5	0	0	0		5	0	0	0	0		0	0	1	0	0		1	0	0	8	0		8	**-**
Articulated Trucks %	1.6%	0%	0%	0%		1%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	0%	0%	4.2%	0%		2%	**-**

Peak Hour: 07:45 AM - 08:45 AM **Weather: Light Snow (-2.5 °C)**



Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (0.37 °C)**



CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date			**Prepared Date:**	**Aug. 13, 2021**	
Database Rev	**Field**		**Completed By:**	**I.T.**	
Timing Card / Field rev			**Checked By:**		

Location:	**Victoria Rd. @ College Ave.**						**TIME PERIOD (sec.) (Green+Amber+All Red)**		
Phase #	**Direction**	**Vehicle Minimum (sec.)**	**Pedestrian Minimum (sec.)**		**Amber (sec.)**	**All Red (sec.)**	**Day MAX**	**Night MAX**	
			WALK	**FDWALK**					
1									
2	**NB - Victoria Rd.**	7.0	17.0	15.0	4.0	2.0	42.0	42.0	
3									
4	**EB - College Ave.**	7.0	7.0	9.0	4.0	2.0	16.0	16.0	
5	**NBLT - Victoria Rd.**	7.0			3.0		No set Max		
6	**EB - College Ave.**	7.0	17.0	15.0	4.0	2.0	42.0	42.0	
7									
8									

System Control	No				
Local Control	Yes	**TIME (M-F)**	**PEAK**	**CYCLE LENGTH (sec.)**	**OFFSET (sec.)**
Semi-Actuated Mode	No	**7:00 - 18:00**	**Day local**	**Varies**	**N/A**
Note: P+P = Protected Permissive Phase		**18:00 - 7:00**	**Night local**	**Varies**	**N/A**
Prot. = Fully Protected Phase					

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date	From Field		Prepared Date:	November.03, 2022
			Completed By:	
			Checked By:	

Location:	Victoria Road @ York Road									
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	GREEN TIME PERIOD (sec.)			
			WALK	FDWALK			Free Period	2 Period	11 Period	
1	SBLT-Victoria	6.0			3.0		7.0	9.0	10.0	
2	NB Through (Victoria Rd)	10.0	8.0	16.0	4.0	2.0	24.0	32.0	50.0	
3	WBLT-York	6.0			3.0		7.0	9.0	10.0	
4	EB Through (York)	10.0	8.0	16.0	4.0	2.0	24.0	30.0	30.0	
5	NBLT-Victoria	6.0			3.0		7.0	9.0	20.0	
6	SB Through (Victoria Rd)	10.0	8.0	16.0	4.0	2.0	24.0	32.0	40.0	
7	EBLT-York	6.0			3.0		7.0	9.0	10.0	
8	WB Through (York)	10.0	8.0	16.0	4.0	2.0	24.0	30.0	30.0	

System Control	No
Local Control	Yes

TIME (M-F)	Period	CYCLE LENGTH (sec.)	OFFSET (sec.)
21:00- 07:00	Free		
07:00-10:15	11	100	15
10:15 -14:00	2	80	5
14:00-21:00	11	100	15
TIME (S-S)	**Period**	**CYCLE LENGTH (sec.)**	**OFFSET (sec.)**
00:00- 09:00	Free	free	
09:00 - 19:00	11	100	15
19:00 - 00:00		free	

Note: P+P = Protected Permissive Phase
Prot. = Fully Protected Phase

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date	From Field		Prepared Date:	December. 06, 2018
			Completed By:	Sh.H
			Checked By:	

Location:	Victoria Road South at Stone Road East						GREEN TIME PERIOD (sec.)			
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	Free MAX	1		
			WALK	FDWALK						
1	SBLT	7.0			3.0		7.0	Omit		
2	NB	10.0	10.0	19.0	4.0	2.0	29.0	29.0		
3	EBLT	7.0			3.0		7.0	Omit		
4	WB	10.0	10.0	19.0	4.0	2.0	29.0	29.0		
5	NBLT	7.0			3.0		7.0	Omit		
6	SB	10.0	10.0	19.0	4.0	2.0	29.0	29.0		
7	WBLT	7.0			3.0		7.0	7.0		
8	EB	10.0	10.0	19.0	4.0	2.0	29.0	29.0		

System Control	No
Local Control	Yes
Fully-Actuated Mode	Yes

TIME (M-S)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
0:00-7:00	1		
7:00-19:00	Free		
19:00 0:00	1		

Note: P+P = Protected Permissive Phase
Prot. = Fully Protected Phase

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date			**Prepared Date:**	**Aug. 13, 2021**	
Database Rev	**Field**		**Completed By:**	**I.T.**	
Timing Card / Field rev			**Checked By:**		

Location:	**Watson Pkwy. @ Dunlop Dr./Watson Rd.**						**TIME PERIOD (sec.) (Green+Amber+All Red)**		
Phase #	**Direction**	**Vehicle Minimum (sec.)**	**Pedestrian Minimum (sec.)**		**Amber (sec.)**	**All Red (sec.)**	**Local MAX**	**MAX**	**MAX**
			WALK	**FDWALK**					
1									
2	**NB - Watson Pkwy.**	10.0	19.0	10.0	4.0	2.0	29.0		
3									
4	**WB - Watson Rd.**	7.0	7.0	10.0	4.0	2.0	24.0		
5									
6	**SB - Watson Pkwy.**	10.0	19.0	10.0	4.0	2.0	29.0		
7									
8	**EB - Dunlop Dr.**	7.0	7.0	10.0	4.0	2.0	24.0		

System Control	No
Local Control	Yes
Semi-Actuated Mode	Yes

Note: P+P = Protected Permissive Phase

Prot. = Fully Protected Phase

TIME (M-F)	**PEAK**	**CYCLE LENGTH (sec.)**	**OFFSET (sec.)**
All day	**Local**	**Varies**	**N/A**

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date			Prepared Date:	Aug. 13, 2021
Database Rev	Field		Completed By:	I.T.
Timing Card / Field rev			Checked By:	

Location:	York Rd. @ Watson Pkwy.								
							TIME PERIOD (sec.) (Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	Day local MAX	Night local MAX	
			WALK	FDWALK					
1	WBLT - York Rd.	6.0			3.0		10.0		
2	EB - York Rd.	10.0	9.0	19.0	4.0	2.0	28.0	28.0	
3	SBLT - Watson Pkwy.	6.0			3.0		6.0		
4	NB - Watson Pkwy.	7.0	8.0	17.0	4.0	2.0	25.0	25.0	
5	EBLT - York Rd.	6.0			3.0		10.0		
6	WB - York Rd.	10.0	9.0	19.0	4.0	2.0	28.0	28.0	
7	NBLT - Watson Pkwy.	6.0			3.0		6.0		
8	SB - Watson Pkwy.	7.0	8.0	17.0	4.0	2.0	25.0	25.0	

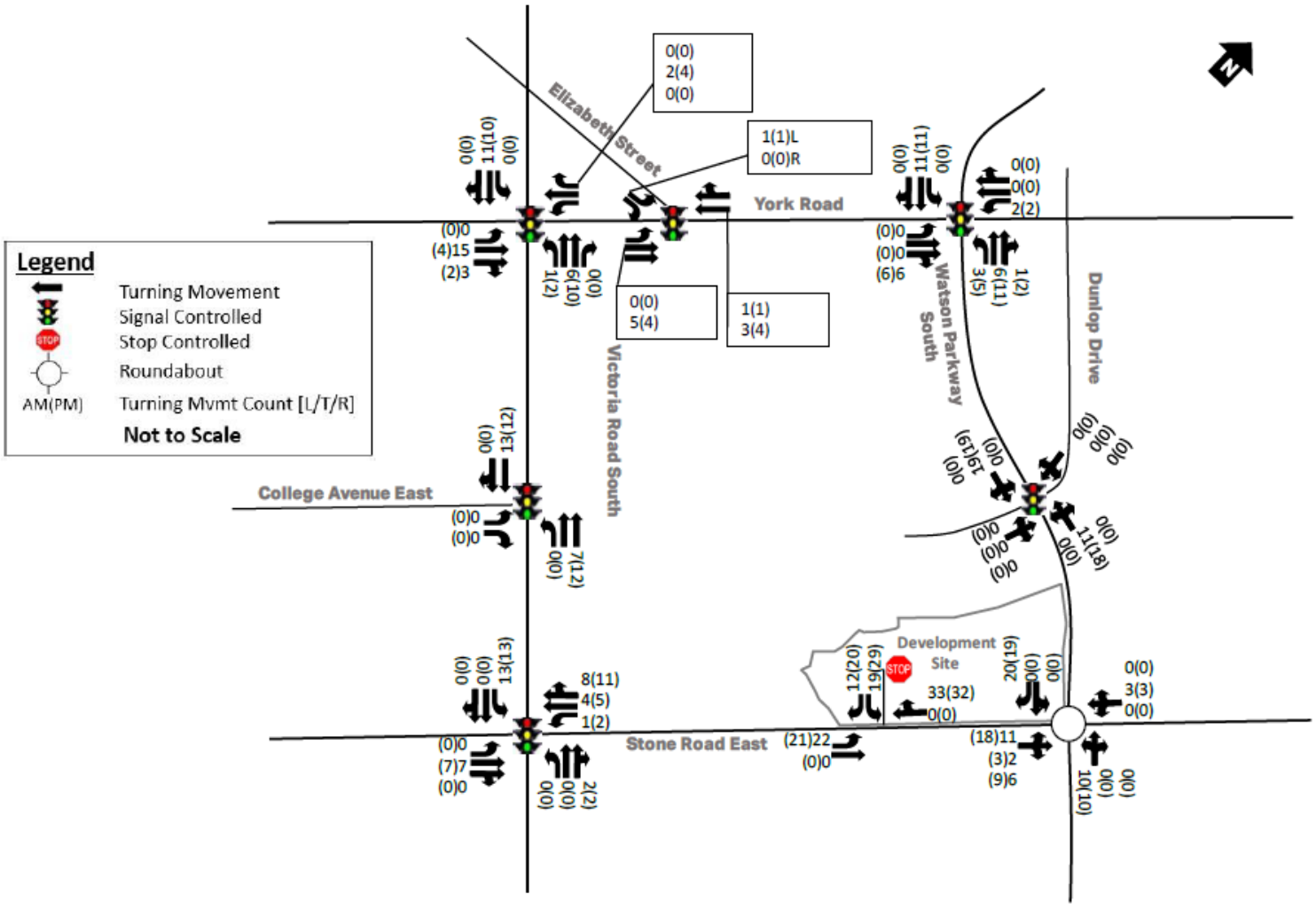
System Control	No				
Local Control	Yes	TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
Semi-Actuated Mode	Yes	7:00 - 21:00	Day local	Varies	N/A
Note: P+P = Protected Permissive Phase		21:00 - 7:00	Night local	Varies	N/A
Prot. = Fully Protected Phase					

Appendix D

Background Development Site Traffic

Guelph Transit Operation Campus

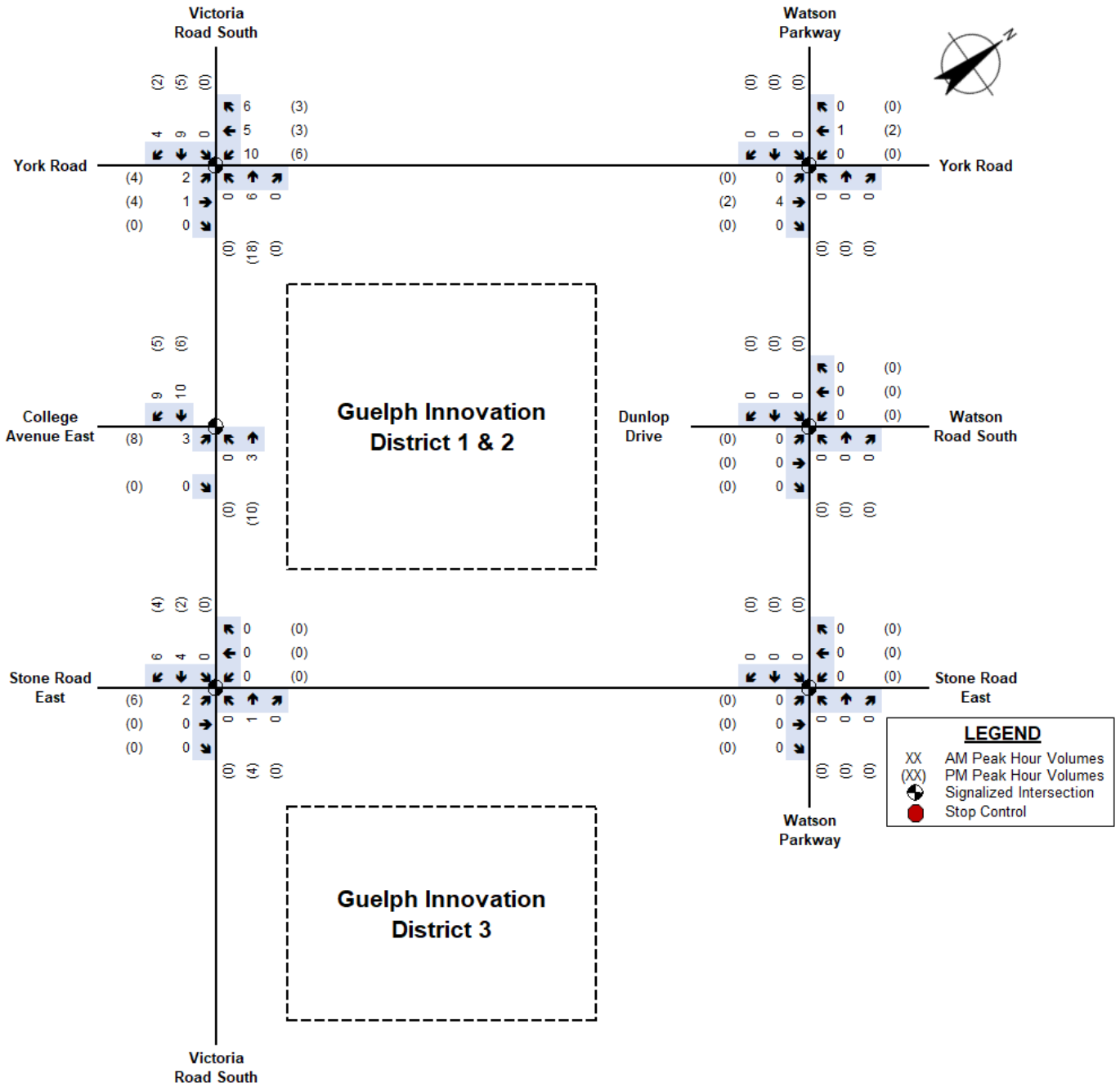
Figure 9: Development-Generated Traffic Volumes



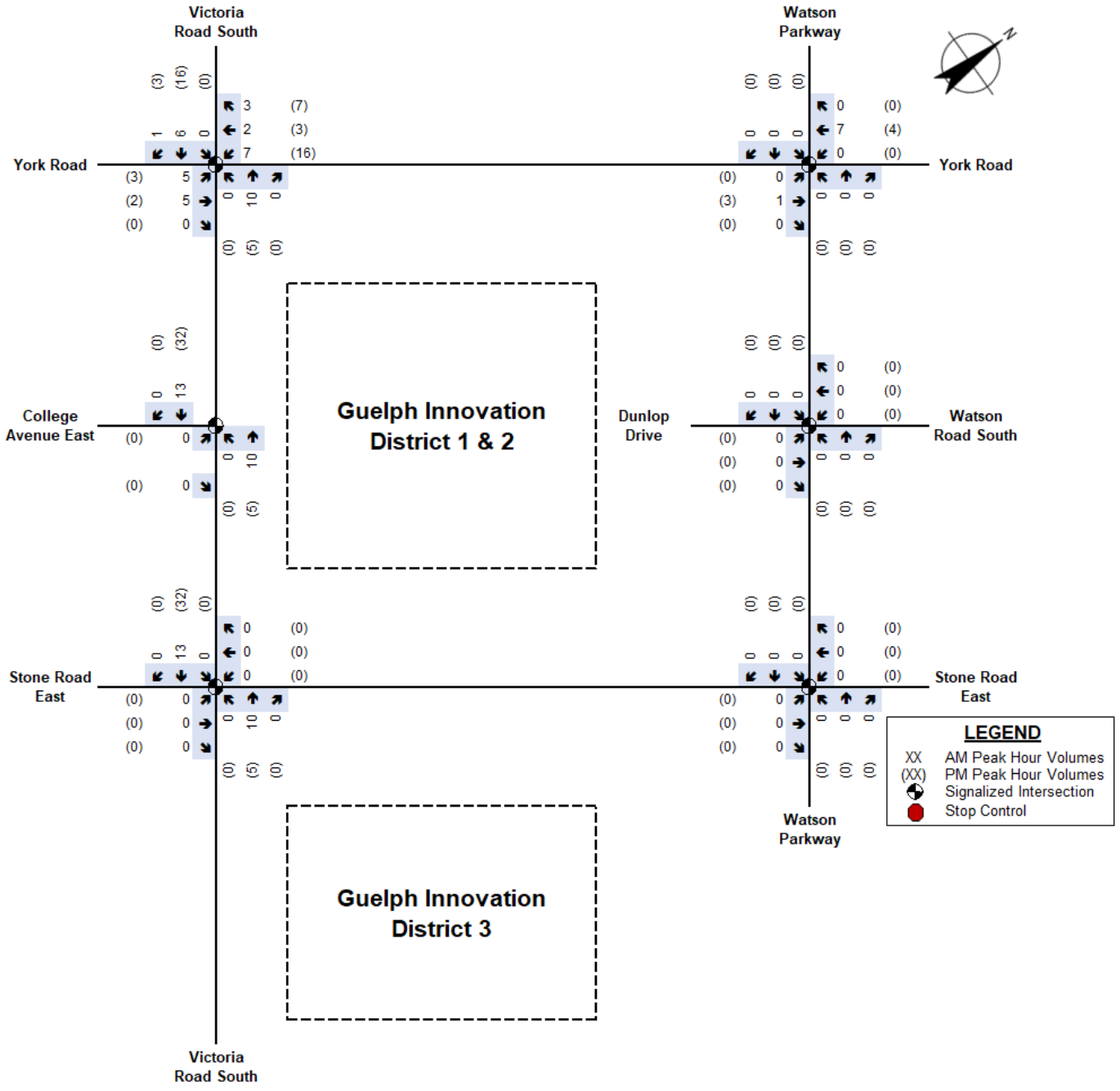
York Elizabeth Land Use Study

Table 1 *Site Trip Generation – York Elizabeth Land Use Study*

Number of Dwelling Units/ Employees	Land Use	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
30 dwelling units	Single Family Detached (LUC #210)	Per unit (Fitted Line Equation)	Ln(T) = 0.91 Ln(X) + 0.12			Ln(T) = 0.94 Ln(X) + 0.27		
		Directional Ratio	25%	75%	-	63%	37%	-
		Primary Trips	**6**	**19**	**25**	**21**	**12**	**33**
28 dwelling units	Multifamily Housing (Low-Rise) (LUC #220)	Per unit (Fitted Line Equation)	T = 0.31(X) + 22.85			T = 0.43(X) + 20.55		
		Directional Ratio	24%	76%	-	63%	37%	-
		Primary Trips	**8**	**24**	**32**	**21**	**12**	**33**
150 employees	Warehousing (LUC #150)	Per unit (Average Rate)	0.17			0.18		
		Directional Ratio	72%	28%	-	36%	64%	-
		Primary Trips	**66**	**26**	**92**	**36**	**63**	**99**
		Total Trips	**80**	**69**	**149**	**78**	**87**	**165**

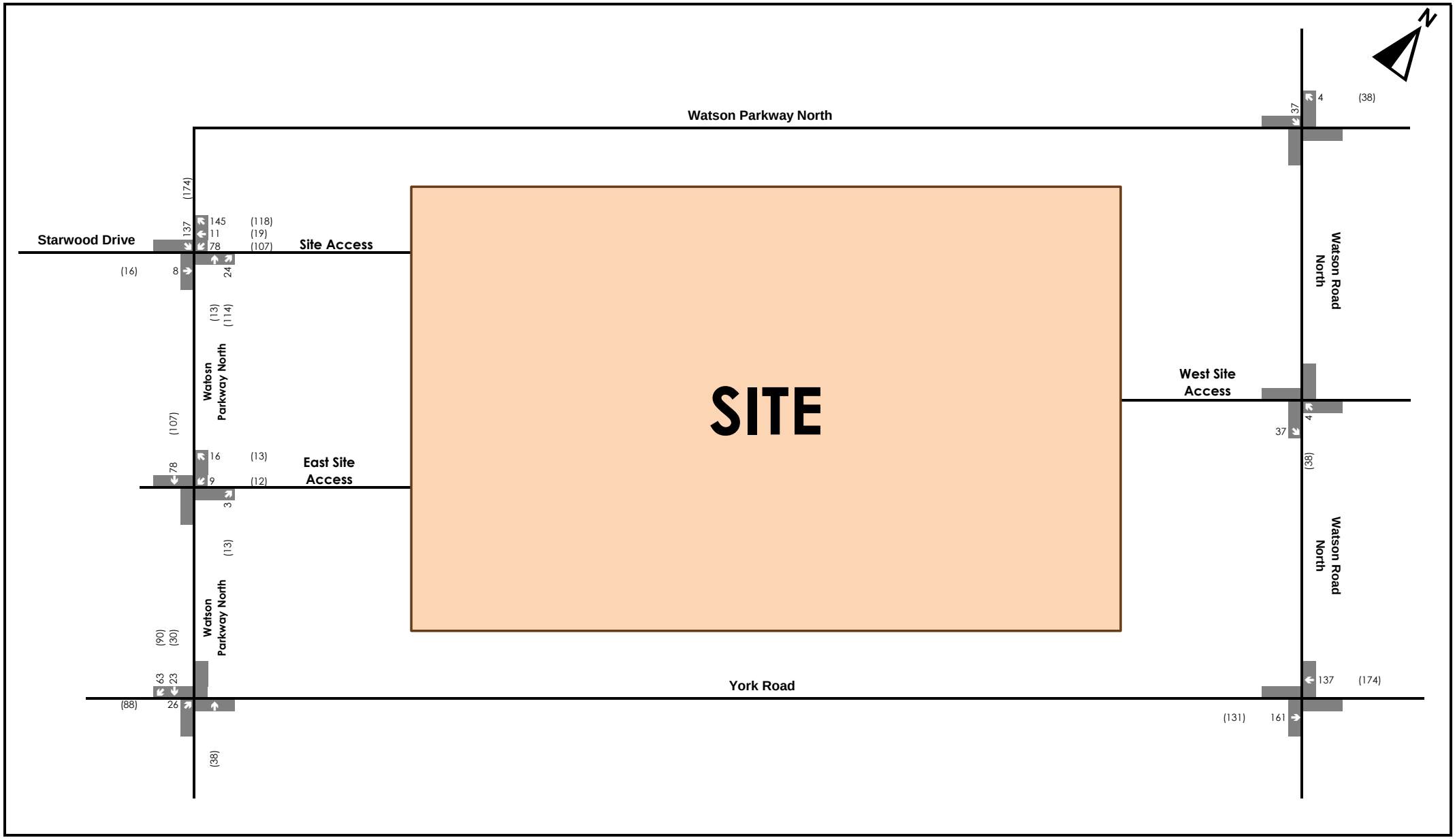


York Elizabeth Land Use Study – Residential Trips



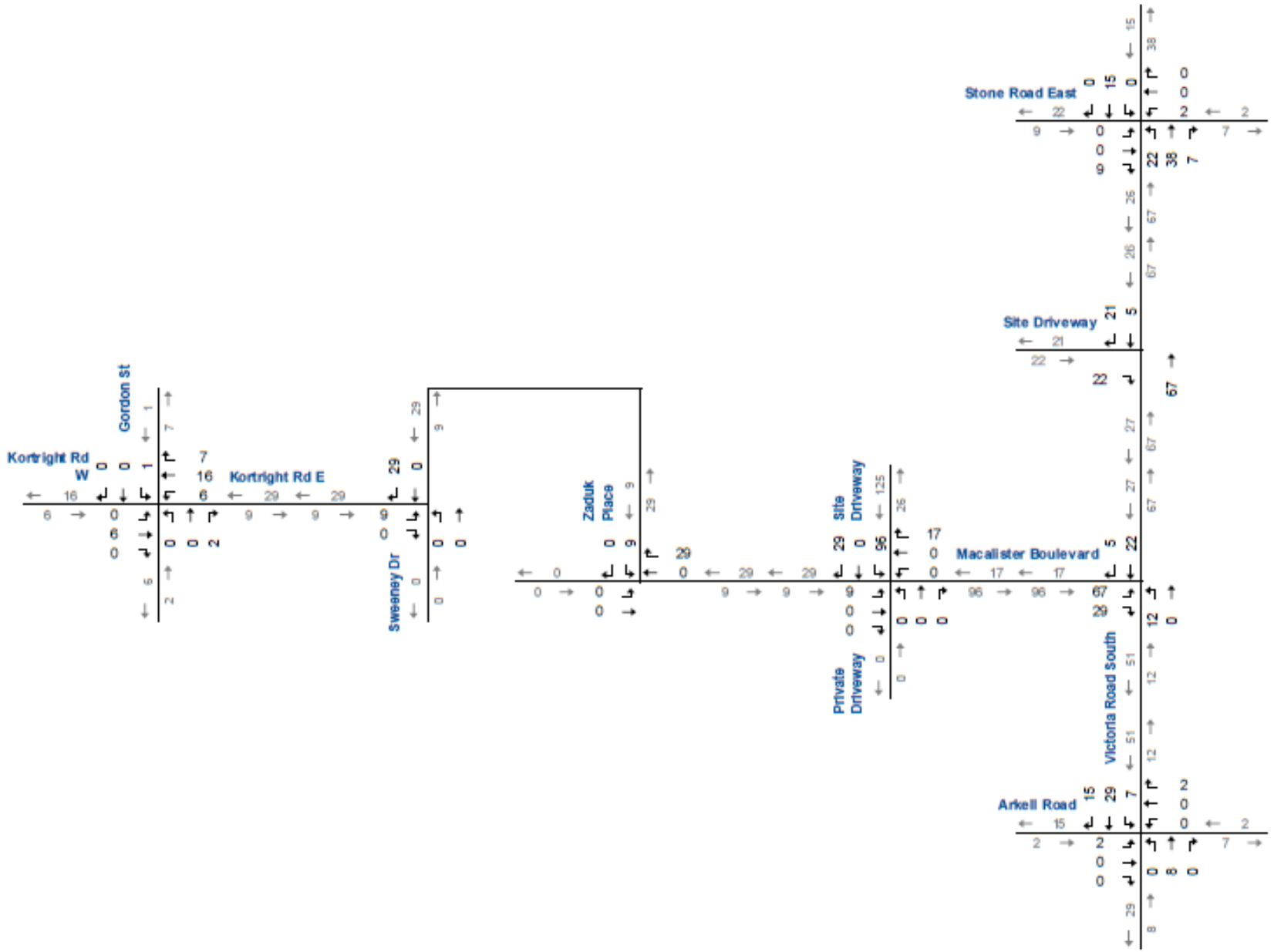
York Elizabeth Land Use Study – Employment Trips

115 Watson Parkway



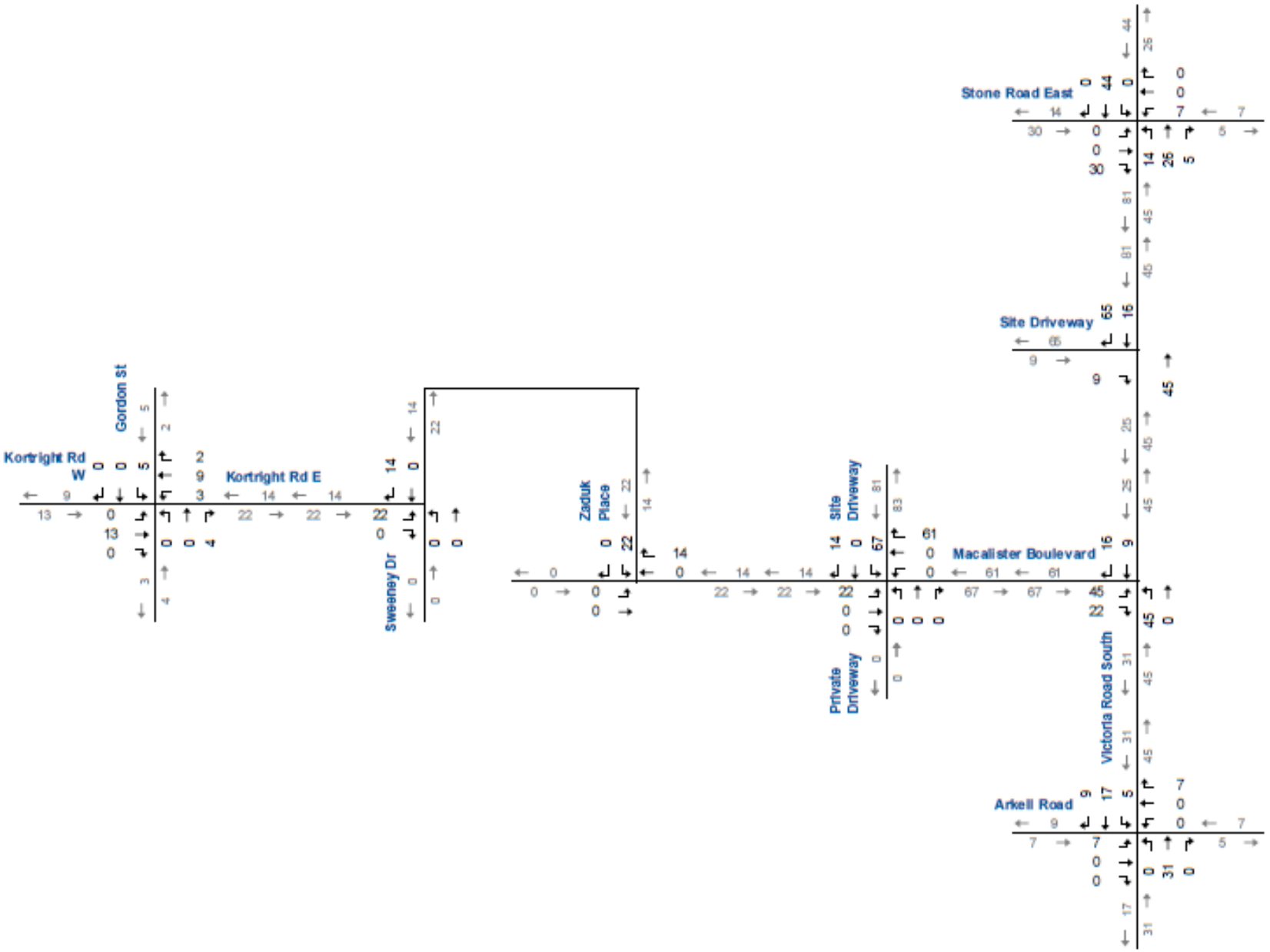
Legend	115 Watson Parkway North	CROZIER CONSULTING ENGINEERS	Figure 8
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Trip Assignment		Project No. 2358-6526 Date. 2023-09-21 Analyst. S.A

855 and 927 Victoria Road



NTS

RIRO Access Scenario
Site Generated Traffic Volumes – AM Peak Hour



NTS

RIRO Access Scenario
Site Generated Traffic Volumes – PM Peak Hour

GID Block 3

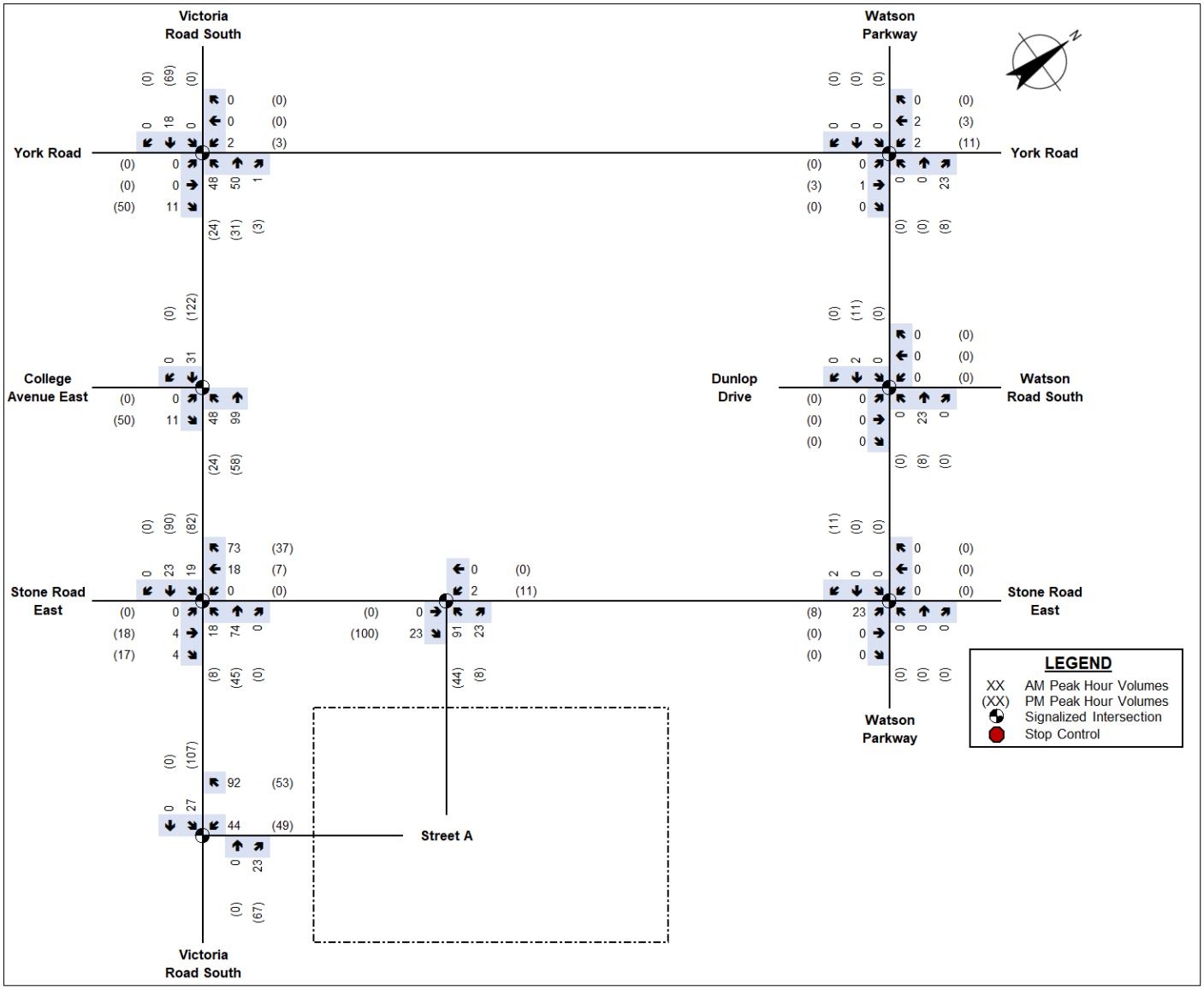


Figure 17 Total Site Trips

6. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2031, 2036, and 2041 planning horizon was derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 18, Figure 19,** and **Figure 20**.

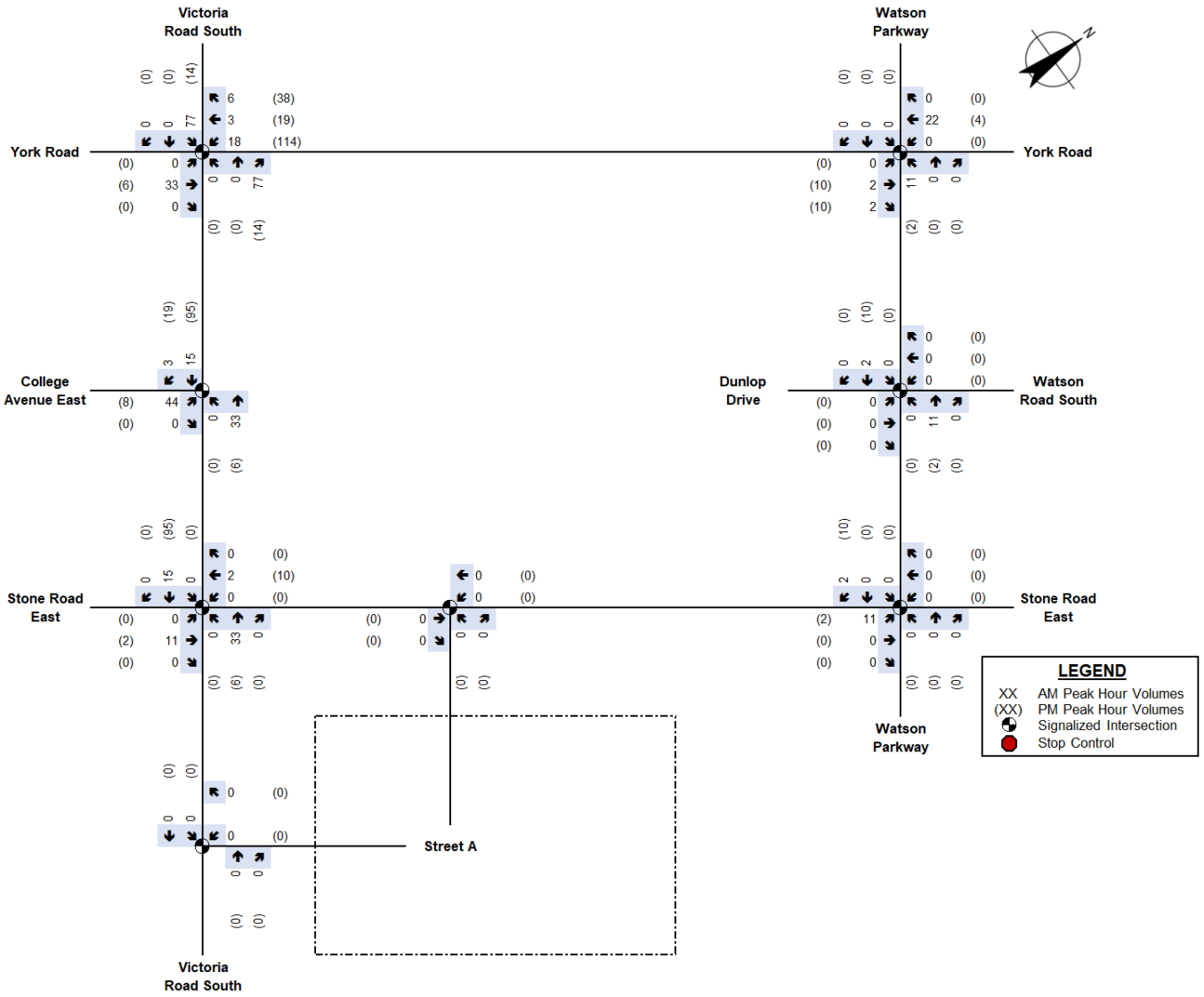
GID Block 4

	Average Rate			AM			PM	
			In	Out	Total	In	Out	Total
	750	LUC 710	**324**	**44**	**368**	**57**	**281**	**338**
	Fitted Line Equation							
	750	LUC 710	314	43	357	56	271	327
			314	43	357	56	271	327

ITE to Projected Trip Gen (MODAL SPLIT - AUTO ONLY)

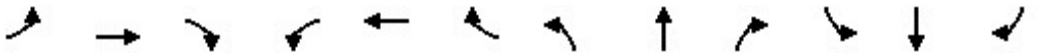
Factor 70% , 70% from Future Projection (TMP), 95% for ITE taken from Handbook

			AM			PM	
		In	Out	Total	In	Out	Total
		220	30	250	39	190	229



Appendix E

Synchro Outputs



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	176	164	177	222	13	176	520	123	12	634	38
Future Volume (vph)	34	176	164	177	222	13	176	520	123	12	634	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3462	0
Flt Permitted	0.463			0.557			0.223			0.440		
Satd. Flow (perm)	829	1712	1583	1008	1759	1476	404	3471	1525	772	3462	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178			131			134		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	37	191	178	192	241	14	191	565	134	13	689	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	191	178	192	241	14	191	565	134	13	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	
Total Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	20.0	50.0	50.0	10.0	40.0	
Total Split (%)	10.0%	30.0%	30.0%	10.0%	30.0%	30.0%	20.0%	50.0%	50.0%	10.0%	40.0%	
Maximum Green (s)	7.0	24.0	24.0	7.0	24.0	24.0	17.0	44.0	44.0	7.0	34.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0	8.0		8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	34.0	24.0	24.0	34.0	24.0	24.0	57.0	44.0	44.0	44.0	34.0	
Actuated g/C Ratio	0.34	0.24	0.24	0.34	0.24	0.24	0.57	0.44	0.44	0.44	0.34	
v/c Ratio	0.11	0.47	0.35	0.49	0.57	0.03	0.42	0.37	0.18	0.03	0.62	
Control Delay	21.2	36.9	6.8	28.2	39.7	0.2	13.5	19.6	3.6	10.4	30.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.2	36.9	6.8	28.2	39.7	0.2	13.5	19.6	3.6	10.4	30.0	
LOS	C	D	A	C	D	A	B	B	A	B	C	
Approach Delay		22.3			33.5			15.9			29.7	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 15 (15%), Referenced to phase 1:SBL and 5:NBL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 70.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	191	178	192	241	14	191	565	134	13	730
v/c Ratio	0.11	0.47	0.35	0.49	0.57	0.03	0.42	0.37	0.18	0.03	0.62
Control Delay	21.2	36.9	6.8	28.2	39.7	0.2	13.5	19.6	3.6	10.4	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	36.9	6.8	28.2	39.7	0.2	13.5	19.6	3.6	10.4	30.0
Queue Length 50th (m)	4.8	33.5	0.0	27.4	43.5	0.0	17.7	39.4	0.0	1.1	64.2
Queue Length 95th (m)	11.6	55.2	16.8	45.4	69.2	0.0	29.2	53.1	10.5	3.7	84.2
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	343	410	515	392	422	453	453	1527	746	402	1181
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.35	0.49	0.57	0.03	0.42	0.37	0.18	0.03	0.62

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	176	164	177	222	13	176	520	123	12	634	38
Future Volume (vph)	34	176	164	177	222	13	176	520	123	12	634	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1476	1719	3471	1525	1669	3460	
Flt Permitted	0.46	1.00	1.00	0.56	1.00	1.00	0.22	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	830	1712	1583	1008	1759	1476	404	3471	1525	773	3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	191	178	192	241	14	191	565	134	13	689	41
RTOR Reduction (vph)	0	0	135	0	0	11	0	0	75	0	5	0
Lane Group Flow (vph)	37	191	43	192	241	3	191	565	59	13	725	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	31.0	24.0	24.0	31.0	24.0	24.0	54.0	44.0	44.0	41.0	34.0	
Effective Green, g (s)	31.0	24.0	24.0	31.0	24.0	24.0	54.0	44.0	44.0	41.0	34.0	
Actuated g/C Ratio	0.31	0.24	0.24	0.31	0.24	0.24	0.54	0.44	0.44	0.41	0.34	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Grp Cap (vph)	318	410	379	362	422	354	441	1527	671	379	1176	
v/s Ratio Prot	0.01	0.11		c0.04	c0.14		c0.07	0.16		0.00	c0.21	
v/s Ratio Perm	0.03		0.03	0.13		0.00	0.16		0.04	0.01		
v/c Ratio	0.12	0.47	0.11	0.53	0.57	0.01	0.43	0.37	0.09	0.03	0.62	
Uniform Delay, d1	24.5	32.5	29.7	27.4	33.5	28.9	13.5	18.7	16.3	17.5	27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	3.8	0.6	5.5	5.5	0.0	3.1	0.7	0.3	0.2	2.4	
Delay (s)	25.2	36.3	30.3	32.9	39.0	29.0	16.5	19.4	16.6	17.7	30.0	
Level of Service	C	D	C	C	D	C	B	B	B	B	C	
Approach Delay (s)		32.6			36.0			18.4			29.8	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

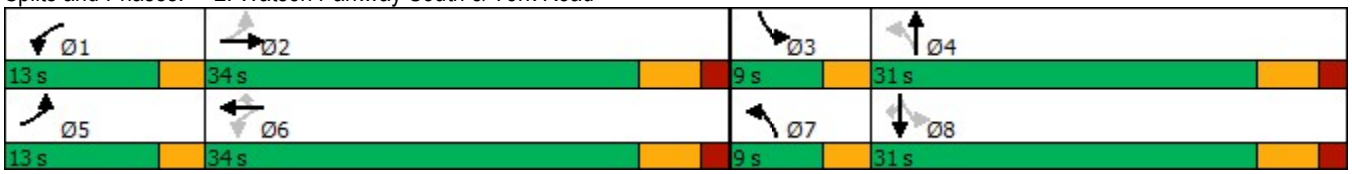
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	224	87	16	303	24	77	113	17	42	281	271
Future Volume (vph)	136	224	87	16	303	24	77	113	17	42	281	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.958				0.850		0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1634	0	1517	1759	1495	1612	1701	0	1719	1827	1568
Flt Permitted	0.446			0.562			0.368			0.669		
Satd. Flow (perm)	792	1634	0	897	1759	1495	624	1701	0	1211	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				113		9				285
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	143	236	92	17	319	25	81	119	18	44	296	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	328	0	17	319	25	81	137	0	44	296	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

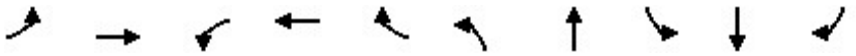
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	13.0	34.0		13.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	14.9%	39.1%		14.9%	39.1%	39.1%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	10.0	28.0		10.0	28.0	28.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	41.5	36.7		36.9	29.1	29.1	25.8	19.4		25.2	17.6	17.6
Actuated g/C Ratio	0.55	0.49		0.49	0.39	0.39	0.34	0.26		0.34	0.23	0.23
v/c Ratio	0.26	0.41		0.03	0.47	0.04	0.27	0.31		0.10	0.69	0.49
Control Delay	11.5	16.0		10.4	23.9	0.1	18.4	24.6		16.0	36.5	6.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	11.5	16.0		10.4	23.9	0.1	18.4	24.6		16.0	36.5	6.4
LOS	B	B		B	C	A	B	C		B	D	A
Approach Delay		14.6			21.6			22.3			21.3	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 75.2
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Watson Parkway South & York Road





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	328	17	319	25	81	137	44	296	285
v/c Ratio	0.26	0.41	0.03	0.47	0.04	0.27	0.31	0.10	0.69	0.49
Control Delay	11.5	16.0	10.4	23.9	0.1	18.4	24.6	16.0	36.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	16.0	10.4	23.9	0.1	18.4	24.6	16.0	36.5	6.4
Queue Length 50th (m)	10.4	27.3	1.1	39.6	0.0	8.3	17.2	4.4	43.9	0.0
Queue Length 95th (m)	23.4	68.5	4.7	72.8	0.0	17.2	32.5	10.7	70.0	18.1
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	561	809	558	681	648	296	594	448	632	728
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.41	0.03	0.47	0.04	0.27	0.23	0.10	0.47	0.39

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	224	87	16	303	24	77	113	17	42	281	271
Future Volume (vph)	136	224	87	16	303	24	77	113	17	42	281	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1634		1516	1759	1495	1612	1701		1719	1827	1568
Flt Permitted	0.45	1.00		0.56	1.00	1.00	0.37	1.00		0.67	1.00	1.00
Satd. Flow (perm)	792	1634		898	1759	1495	625	1701		1211	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	236	92	17	319	25	81	119	18	44	296	285
RTOR Reduction (vph)	0	13	0	0	0	15	0	7	0	0	0	219
Lane Group Flow (vph)	143	315	0	17	319	10	81	130	0	44	296	66
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	40.9	36.7		32.1	30.9	30.9	23.8	19.4		21.4	18.2	18.2
Effective Green, g (s)	40.9	36.7		32.1	30.9	30.9	23.8	19.4		21.4	18.2	18.2
Actuated g/C Ratio	0.52	0.47		0.41	0.39	0.39	0.30	0.25		0.27	0.23	0.23
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	492	763		376	692	588	244	420		350	423	363
v/s Ratio Prot	c0.03	0.19		0.00	c0.18		c0.02	0.08		0.01	c0.16	
v/s Ratio Perm	0.13			0.02		0.01	0.08			0.03		0.04
v/c Ratio	0.29	0.41		0.05	0.46	0.02	0.33	0.31		0.13	0.70	0.18
Uniform Delay, d1	10.2	13.8		13.9	17.6	14.5	20.4	24.1		21.3	27.6	24.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	1.7		0.0	2.2	0.1	0.8	0.4		0.2	5.0	0.2
Delay (s)	10.6	15.4		13.9	19.8	14.6	21.2	24.5		21.5	32.7	24.4
Level of Service	B	B		B	B	B	C	C		C	C	C
Approach Delay (s)		14.0			19.2			23.3			28.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

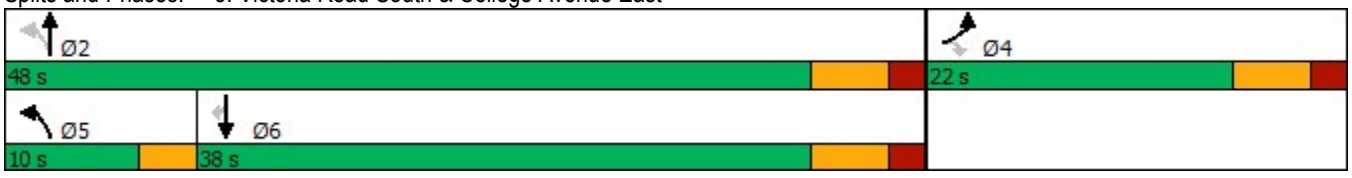


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	131	41	120	623	508	355
Future Volume (vph)	131	41	120	623	508	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	30.0			45.0
Storage Lanes	1	1	1			1
Taper Length (m)	30.0		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1719	1442	1736	1827	1810	1583
Flt Permitted	0.950		0.279			
Satd. Flow (perm)	1719	1442	510	1827	1810	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		46				399
Link Speed (k/h)	60			70	70	
Link Distance (m)	1138.0			861.9	313.3	
Travel Time (s)	68.3			44.3	16.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	12%	4%	4%	5%	2%
Adj. Flow (vph)	147	46	135	700	571	399
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	46	135	700	571	399
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	2.0
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)	2.0	2.0	2.0	0.6	0.6	2.0
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)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	22.0	22.0	10.0	38.0	38.0	38.0
Total Split (s)	22.0	22.0	10.0	48.0	38.0	38.0
Total Split (%)	31.4%	31.4%	14.3%	68.6%	54.3%	54.3%
Maximum Green (s)	16.0	16.0	7.0	42.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	Max	Max	Max
Walk Time (s)	7.0	7.0		17.0	17.0	17.0
Flash Dont Walk (s)	9.0	9.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	16.0	16.0	45.0	42.0	34.0	34.0
Actuated g/C Ratio	0.23	0.23	0.64	0.60	0.49	0.49
v/c Ratio	0.38	0.13	0.30	0.64	0.65	0.41
Control Delay	26.1	8.4	6.7	12.5	18.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	8.4	6.7	12.5	18.8	2.8
LOS	C	A	A	B	B	A
Approach Delay	21.9			11.5	12.2	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	147	46	135	700	571	399
v/c Ratio	0.38	0.13	0.30	0.64	0.65	0.41
Control Delay	26.1	8.4	6.7	12.5	18.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	8.4	6.7	12.5	18.8	2.8
Queue Length 50th (m)	17.2	0.0	6.2	55.5	59.5	0.0
Queue Length 95th (m)	32.4	7.4	11.9	87.2	93.0	13.2
Internal Link Dist (m)	1114.0			837.9	289.3	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	392	365	450	1096	879	974
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.13	0.30	0.64	0.65	0.41

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	131	41	120	623	508	355
Future Volume (vph)	131	41	120	623	508	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Lane Util. Factor	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	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1442	1736	1827	1810	1583
Flt Permitted	0.95	1.00	0.28	1.00	1.00	1.00
Satd. Flow (perm)	1719	1442	511	1827	1810	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	147	46	135	700	571	399
RTOR Reduction (vph)	0	36	0	0	0	207
Lane Group Flow (vph)	147	10	135	700	571	192
Heavy Vehicles (%)	5%	12%	4%	4%	5%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	42.6	42.6	34.0	34.0
Effective Green, g (s)	16.0	16.0	42.6	42.6	34.0	34.0
Actuated g/C Ratio	0.23	0.23	0.60	0.60	0.48	0.48
Clearance Time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	389	326	405	1102	871	762
v/s Ratio Prot	c0.09		0.03	c0.38	0.32	
v/s Ratio Perm		0.01	0.17			0.12
v/c Ratio	0.38	0.03	0.33	0.64	0.66	0.25
Uniform Delay, d1	23.1	21.3	7.7	9.0	13.9	10.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.2	0.5	2.8	3.8	0.8
Delay (s)	25.9	21.4	8.2	11.8	17.7	11.6
Level of Service	C	C	A	B	B	B
Approach Delay (s)	24.8			11.2	15.2	
Approach LOS	C			B	B	

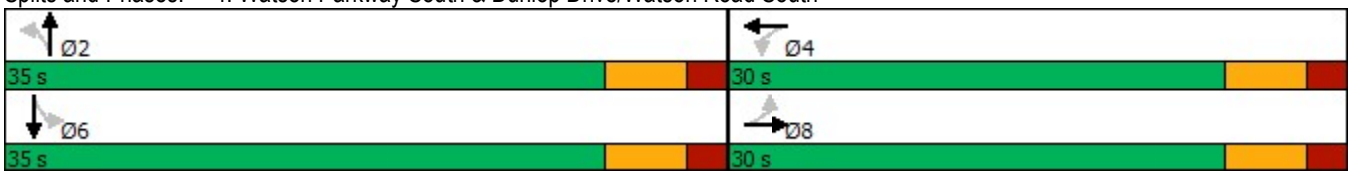
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	7	12	39	7	3	28	166	61	3	290	37
Future Volume (vph)	26	7	12	39	7	3	28	166	61	3	290	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.964			0.992			0.967			0.985	
Flt Protected		0.972			0.962			0.995				
Satd. Flow (prot)	0	1228	0	0	1367	0	0	1613	0	0	1738	0
Flt Permitted		0.849			0.969			0.945			0.998	
Satd. Flow (perm)	0	1070	0	0	1377	0	0	1532	0	0	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			3			32			13	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	28	8	13	42	8	3	30	178	66	3	312	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	53	0	0	274	0	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.0	24.0		24.0	24.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		8.1			8.1			40.0			40.0	
Actuated g/C Ratio		0.17			0.17			0.83			0.83	
v/c Ratio		0.26			0.23			0.21			0.25	
Control Delay		17.4			18.8			3.7			4.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.4			18.8			3.7			4.0	
LOS		B			B			A			A	
Approach Delay		17.4			18.8			3.7			4.0	
Approach LOS		B			B			A			A	

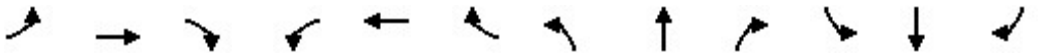
Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 48.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.26			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 48.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	49	53	274	355
v/c Ratio	0.26	0.23	0.21	0.25
Control Delay	17.4	18.8	3.7	4.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.4	18.8	3.7	4.0
Queue Length 50th (m)	2.2	3.1	0.0	0.0
Queue Length 95th (m)	10.3	11.7	21.3	29.0
Internal Link Dist (m)	532.5	629.7	854.3	1040.7
Turn Bay Length (m)				
Base Capacity (vph)	544	693	1276	1440
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.08	0.21	0.25

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	7	12	39	7	3	28	166	61	3	290	37
Future Volume (vph)	26	7	12	39	7	3	28	166	61	3	290	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.96			0.99			0.97			0.98	
Flt Protected		0.97			0.96			0.99			1.00	
Satd. Flow (prot)		1226			1367			1613			1737	
Flt Permitted		0.85			0.97			0.94			1.00	
Satd. Flow (perm)		1071			1377			1533			1734	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	28	8	13	42	8	3	30	178	66	3	312	40
RTOR Reduction (vph)	0	12	0	0	3	0	0	10	0	0	4	0
Lane Group Flow (vph)	0	37	0	0	50	0	0	264	0	0	351	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		3.7			3.7			36.2			36.2	
Effective Green, g (s)		3.7			3.7			36.2			36.2	
Actuated g/C Ratio		0.07			0.07			0.70			0.70	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		76			98			1069			1209	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.04			0.17			c0.20	
v/c Ratio		0.49			0.51			0.25			0.29	
Uniform Delay, d1		23.2			23.2			2.9			3.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.8			4.5			0.6			0.6	
Delay (s)		28.0			27.7			3.4			3.6	
Level of Service		C			C			A			A	
Approach Delay (s)		28.0			27.7			3.4			3.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

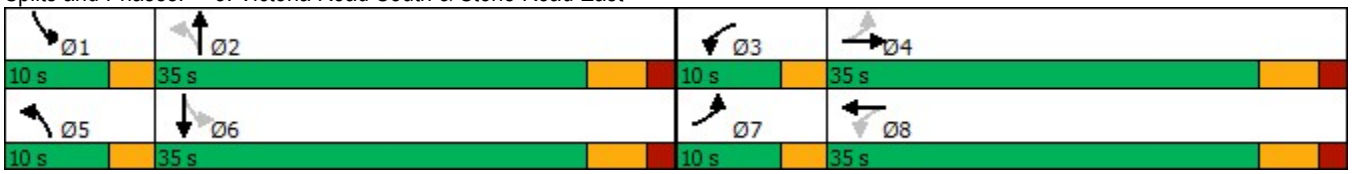
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	108	43	61	305	34	131	561	64	23	341	185
Future Volume (vph)	137	108	43	61	305	34	131	561	64	23	341	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		0.0	75.0		0.0	85.0		0.0	60.0		50.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00				1.00	
Frt		0.958			0.985			0.985			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	2963	0	1357	3403	0	1770	3340	0	1805	3241	0
Flt Permitted	0.420			0.647			0.354			0.390		
Satd. Flow (perm)	767	2963	0	924	3403	0	659	3340	0	741	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			14			14			119	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			194.4			485.6			861.9	
Travel Time (s)		73.1			11.7			25.0			44.3	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	151	119	47	67	335	37	144	616	70	25	375	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	166	0	67	372	0	144	686	0	25	578	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

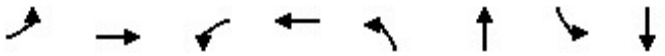
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		10.0			10.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.7	15.2		23.1	13.1		40.9	35.2		39.1	29.0	
Actuated g/C Ratio	0.32	0.20		0.31	0.18		0.55	0.47		0.53	0.39	
v/c Ratio	0.45	0.26		0.20	0.61		0.31	0.43		0.05	0.43	
Control Delay	21.7	19.6		17.9	31.5		10.0	15.2		8.2	14.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.7	19.6		17.9	31.5		10.0	15.2		8.2	14.4	
LOS	C	B		B	C		B	B		A	B	
Approach Delay		20.6			29.4			14.3			14.1	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 74.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 65.2% ICU Level of Service C
Analysis Period (min) 15

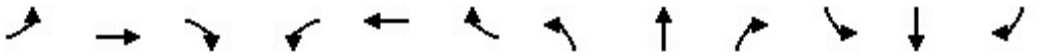
Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	151	166	67	372	144	686	25	578
v/c Ratio	0.45	0.26	0.20	0.61	0.31	0.43	0.05	0.43
Control Delay	21.7	19.6	17.9	31.5	10.0	15.2	8.2	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	19.6	17.9	31.5	10.0	15.2	8.2	14.4
Queue Length 50th (m)	15.4	7.9	6.6	25.7	9.1	28.5	1.5	24.4
Queue Length 95th (m)	28.6	16.2	14.9	39.1	19.3	58.8	5.1	41.0
Internal Link Dist (m)		1193.6		170.4		461.6		837.9
Turn Bay Length (m)	95.0		75.0		85.0		60.0	
Base Capacity (vph)	337	1188	328	1340	468	1591	490	1341
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.14	0.20	0.28	0.31	0.43	0.05	0.43

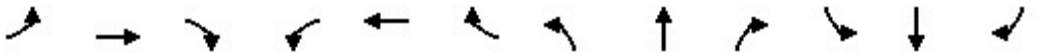
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	108	43	61	305	34	131	561	64	23	341	185
Future Volume (vph)	137	108	43	61	305	34	131	561	64	23	341	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00	0.99		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	2962		1357	3403		1769	3339		1805	3242	
Flt Permitted	0.42	1.00		0.65	1.00		0.35	1.00		0.39	1.00	
Satd. Flow (perm)	767	2962		924	3403		659	3339		740	3242	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	151	119	47	67	335	37	144	616	70	25	375	203
RTOR Reduction (vph)	0	38	0	0	11	0	0	8	0	0	71	0
Lane Group Flow (vph)	151	128	0	67	361	0	144	678	0	25	507	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.2	15.2		19.2	13.7		40.9	35.2		33.6	30.9	
Effective Green, g (s)	22.2	15.2		19.2	13.7		40.9	35.2		33.6	30.9	
Actuated g/C Ratio	0.29	0.20		0.25	0.18		0.53	0.46		0.44	0.40	
Clearance Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	310	587		262	608		453	1534		362	1307	
v/s Ratio Prot	c0.04	0.04		0.02	c0.11		c0.03	c0.20		0.00	0.16	
v/s Ratio Perm	0.10			0.05			0.14			0.03		
v/c Ratio	0.49	0.22		0.26	0.59		0.32	0.44		0.07	0.39	
Uniform Delay, d1	21.2	25.7		22.6	28.9		9.4	14.0		12.2	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.5	1.6		0.4	0.9		0.1	0.9	
Delay (s)	22.4	25.9		23.1	30.4		9.8	15.0		12.3	17.0	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		24.3			29.3			14.1			16.8	
Approach LOS		C			C			B			B	

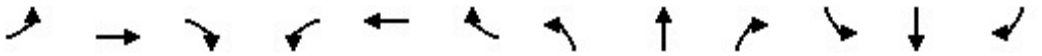
Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	53	31	12	117	3	59	124	9	3	145	188
Future Volume (vph)	133	53	31	12	117	3	59	124	9	3	145	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944			0.997			0.994				0.850
Flt Protected	0.950				0.995			0.985			0.999	
Satd. Flow (prot)	1504	1688	0	0	1795	0	0	1778	0	0	1810	1404
Flt Permitted	0.950				0.995			0.985			0.999	
Satd. Flow (perm)	1504	1688	0	0	1795	0	0	1778	0	0	1810	1404
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	140	56	33	13	123	3	62	131	9	3	153	198
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	89	0	0	139	0	0	202	0	0	156	198
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	133	53	31	12	117	3	59	124	9	3	145	188
Future Volume (vph)	133	53	31	12	117	3	59	124	9	3	145	188
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	140	56	33	13	123	3	62	131	9	3	153	198

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	140	89	139	202	156	198
Volume Left (vph)	140	0	13	62	3	0
Volume Right (vph)	0	33	3	9	0	198
Hadj (s)	0.84	-0.15	0.09	0.11	0.09	-0.34
Departure Headway (s)	6.5	5.5	5.5	5.3	5.3	3.2
Degree Utilization, x	0.25	0.14	0.21	0.30	0.23	0.18
Capacity (veh/h)	525	613	607	637	623	1121
Control Delay (s)	10.5	8.2	9.9	10.5	10.0	6.9
Approach Delay (s)	9.6		9.9	10.5	8.2	
Approach LOS	A		A	B	A	

Intersection Summary				
Delay	9.3			
Level of Service	A			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	133	53	31	12	117	3	59	124	9	3	145	188
Future Vol, veh/h	133	53	31	12	117	3	59	124	9	3	145	188
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	20	4	10	8	4	33	5	4	11	100	3	15
Mvmt Flow	140	56	33	13	123	3	62	131	9	3	153	198
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	11.8	12.2	13.1	12.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	31%	100%	0%	9%	2%	0%
Vol Thru, %	65%	0%	63%	89%	98%	0%
Vol Right, %	5%	0%	37%	2%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	133	84	132	148	188
LT Vol	59	133	0	12	3	0
Through Vol	124	0	53	117	145	0
RT Vol	9	0	31	3	0	188
Lane Flow Rate	202	140	88	139	156	198
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.361	0.283	0.153	0.261	0.337	0.297
Departure Headway (Hd)	6.433	7.285	6.237	6.766	7.787	5.396
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	493	573	529	461	665
Service Time	4.488	5.041	3.993	4.828	5.538	3.145
HCM Lane V/C Ratio	0.362	0.284	0.154	0.263	0.338	0.298
HCM Control Delay	13.1	12.9	10.1	12.2	14.5	10.4
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.6	1.2	0.5	1	1.5	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	238	176	164	334	31	212	788	204	24	619	52
Future Volume (vph)	50	238	176	164	334	31	212	788	204	24	619	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.98	1.00		0.97	1.00	1.00	
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1792	1599	1752	1827	1568	1787	3574	1568	1671	3492	0
Flt Permitted	0.259			0.441			0.232			0.315		
Satd. Flow (perm)	480	1792	1599	813	1827	1534	434	3574	1528	552	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187			131			170		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	8					8	9		11	11		9
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 (%)	2%	6%	1%	3%	4%	3%	1%	1%	3%	8%	2%	0%
Adj. Flow (vph)	53	253	187	174	355	33	226	838	217	26	659	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	253	187	174	355	33	226	838	217	26	714	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	
Total Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	20.0	50.0	50.0	10.0	40.0	
Total Split (%)	10.0%	30.0%	30.0%	10.0%	30.0%	30.0%	20.0%	50.0%	50.0%	10.0%	40.0%	
Maximum Green (s)	7.0	24.0	24.0	7.0	24.0	24.0	17.0	44.0	44.0	7.0	34.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0	8.0		8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	34.0	24.0	24.0	34.0	24.0	24.0	57.0	44.0	44.0	44.0	34.0	
Actuated g/C Ratio	0.34	0.24	0.24	0.34	0.24	0.24	0.57	0.44	0.44	0.44	0.34	
v/c Ratio	0.21	0.59	0.36	0.51	0.81	0.07	0.47	0.53	0.28	0.08	0.60	
Control Delay	22.7	40.1	6.8	28.7	51.9	0.3	14.1	22.0	5.7	10.9	29.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.7	40.1	6.8	28.7	51.9	0.3	14.1	22.0	5.7	10.9	29.5	
LOS	C	D	A	C	D	A	B	C	A	B	C	
Approach Delay		25.6			41.7			17.9			28.9	
Approach LOS		C			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 15 (15%), Referenced to phase 1:SBL and 5:NBL, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 73.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	53	253	187	174	355	33	226	838	217	26	714
v/c Ratio	0.21	0.59	0.36	0.51	0.81	0.07	0.47	0.53	0.28	0.08	0.60
Control Delay	22.7	40.1	6.8	28.7	51.9	0.3	14.1	22.0	5.7	10.9	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	40.1	6.8	28.7	51.9	0.3	14.1	22.0	5.7	10.9	29.5
Queue Length 50th (m)	6.9	45.8	0.0	24.5	68.6	0.0	21.3	64.0	5.4	2.2	62.1
Queue Length 95th (m)	15.3	72.4	17.2	41.2	#114.3	0.0	34.1	82.6	19.3	5.9	81.6
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	253	430	525	342	438	467	477	1572	767	321	1193
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	0.21	0.59	0.36	0.51	0.81	0.07	0.47	0.53	0.28	0.08	0.60

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	238	176	164	334	31	212	788	204	24	619	52
Future Volume (vph)	50	238	176	164	334	31	212	788	204	24	619	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1768	1792	1599	1752	1827	1534	1785	3574	1528	1669	3493	
Flt Permitted	0.26	1.00	1.00	0.44	1.00	1.00	0.23	1.00	1.00	0.31	1.00	
Satd. Flow (perm)	482	1792	1599	813	1827	1534	436	3574	1528	553	3493	
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)	53	253	187	174	355	33	226	838	217	26	659	55
RTOR Reduction (vph)	0	0	142	0	0	25	0	0	95	0	6	0
Lane Group Flow (vph)	53	253	45	174	355	8	226	838	122	26	708	0
Confl. Peds. (#/hr)	8					8	9		11	11		9
Heavy Vehicles (%)	2%	6%	1%	3%	4%	3%	1%	1%	3%	8%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	31.0	24.0	24.0	31.0	24.0	24.0	54.0	44.0	44.0	41.0	34.0	
Effective Green, g (s)	31.0	24.0	24.0	31.0	24.0	24.0	54.0	44.0	44.0	41.0	34.0	
Actuated g/C Ratio	0.31	0.24	0.24	0.31	0.24	0.24	0.54	0.44	0.44	0.41	0.34	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	
Lane Grp Cap (vph)	239	430	383	317	438	368	464	1572	672	304	1187	
v/s Ratio Prot	0.02	0.14		c0.04	c0.19		c0.08	0.23		0.01	c0.20	
v/s Ratio Perm	0.05		0.03	0.13		0.01	0.18		0.08	0.03		
v/c Ratio	0.22	0.59	0.12	0.55	0.81	0.02	0.49	0.53	0.18	0.09	0.60	
Uniform Delay, d1	25.4	33.6	29.7	27.1	35.9	29.0	13.6	20.5	17.0	17.7	27.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	5.8	0.6	6.7	15.0	0.1	3.6	1.3	0.6	0.6	2.2	
Delay (s)	27.5	39.4	30.3	33.8	50.8	29.1	17.3	21.8	17.6	18.3	29.5	
Level of Service	C	D	C	C	D	C	B	C	B	B	C	
Approach Delay (s)		34.7			44.3			20.3			29.1	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

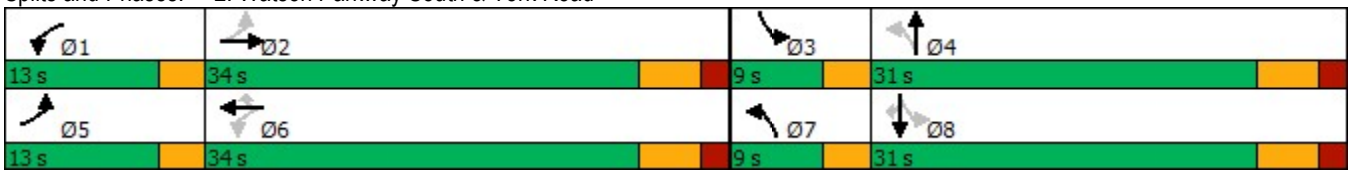
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	318	76	23	359	75	188	342	18	21	243	195
Future Volume (vph)	248	318	76	23	359	75	188	342	18	21	243	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	0.99					0.97
Frt		0.971				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1755	0	1543	1827	1553	1641	1834	0	1805	1827	1553
Flt Permitted	0.361			0.516			0.402			0.372		
Satd. Flow (perm)	679	1755	0	835	1827	1519	689	1834	0	707	1827	1503
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				113		3				203
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)	1		5	5		1	7					7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	7%	17%	4%	4%	10%	2%	17%	0%	4%	4%
Adj. Flow (vph)	258	331	79	24	374	78	196	356	19	22	253	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	410	0	24	374	78	196	375	0	22	253	203
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

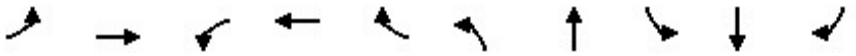
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	13.0	34.0		13.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	14.9%	39.1%		14.9%	39.1%	39.1%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	10.0	28.0		10.0	28.0	28.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.9	37.3		37.6	28.2	28.2	28.4	23.2		26.5	17.4	17.4
Actuated g/C Ratio	0.55	0.47		0.47	0.35	0.35	0.36	0.29		0.33	0.22	0.22
v/c Ratio	0.51	0.49		0.05	0.58	0.13	0.62	0.70		0.07	0.63	0.42
Control Delay	14.4	19.6		10.7	26.7	2.5	27.9	33.6		15.6	35.2	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	14.4	19.6		10.7	26.7	2.5	27.9	33.6		15.6	35.2	6.6
LOS	B	B		B	C	A	C	C		B	D	A
Approach Delay		17.6			21.9			31.6			22.1	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 79.5
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Watson Parkway South & York Road





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	258	410	24	374	78	196	375	22	253	203
v/c Ratio	0.51	0.49	0.05	0.58	0.13	0.62	0.70	0.07	0.63	0.42
Control Delay	14.4	19.6	10.7	26.7	2.5	27.9	33.6	15.6	35.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	19.6	10.7	26.7	2.5	27.9	33.6	15.6	35.2	6.6
Queue Length 50th (m)	18.7	35.1	1.5	45.8	0.0	21.8	48.9	2.2	36.5	0.0
Queue Length 95th (m)	40.4	89.7	5.9	85.8	5.0	37.4	90.3	6.6	59.5	15.6
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	515	831	523	647	611	318	582	319	578	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.49	0.05	0.58	0.13	0.62	0.64	0.07	0.44	0.33

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	318	76	23	359	75	188	342	18	21	243	195
Future Volume (vph)	248	318	76	23	359	75	188	342	18	21	243	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1755		1540	1827	1520	1637	1835		1805	1827	1504
Flt Permitted	0.36	1.00		0.52	1.00	1.00	0.40	1.00		0.37	1.00	1.00
Satd. Flow (perm)	679	1755		836	1827	1520	693	1835		708	1827	1504
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	258	331	79	24	374	78	196	356	19	22	253	203
RTOR Reduction (vph)	0	8	0	0	0	50	0	2	0	0	0	156
Lane Group Flow (vph)	258	402	0	24	374	28	196	373	0	22	253	47
Confl. Peds. (#/hr)	1		5	5		1	7					7
Heavy Vehicles (%)	1%	4%	7%	17%	4%	4%	10%	2%	17%	0%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	42.8	37.3		32.6	30.1	30.1	28.4	23.2		21.6	19.4	19.4
Effective Green, g (s)	42.8	37.3		32.6	30.1	30.1	28.4	23.2		21.6	19.4	19.4
Actuated g/C Ratio	0.51	0.45		0.39	0.36	0.36	0.34	0.28		0.26	0.23	0.23
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	478	786		348	660	549	304	511		212	426	350
v/s Ratio Prot	c0.06	0.23		0.00	0.20		c0.05	c0.20		0.00	0.14	
v/s Ratio Perm	c0.21			0.02		0.02	0.17			0.02		0.03
v/c Ratio	0.54	0.51		0.07	0.57	0.05	0.64	0.73		0.10	0.59	0.14
Uniform Delay, d1	12.4	16.4		15.6	21.3	17.3	22.2	27.2		23.3	28.4	25.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	2.4		0.1	3.5	0.2	4.6	5.2		0.2	2.2	0.2
Delay (s)	13.6	18.8		15.7	24.8	17.4	26.8	32.3		23.5	30.6	25.4
Level of Service	B	B		B	C	B	C	C		C	C	C
Approach Delay (s)		16.8			23.2			30.4			28.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

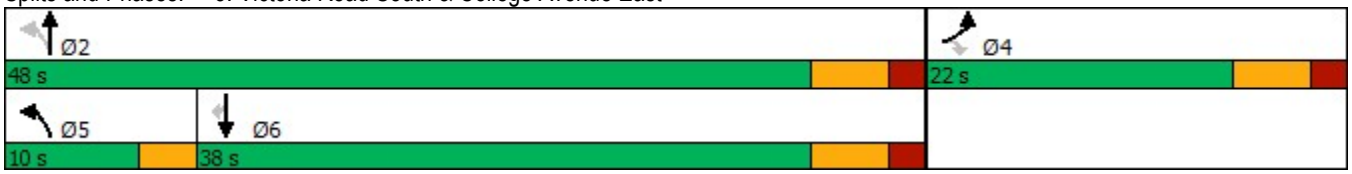


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	324	90	76	771	686	213
Future Volume (vph)	324	90	76	771	686	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	30.0			45.0
Storage Lanes	1	1	1			1
Taper Length (m)	30.0		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00			
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1863	1863	1599
Flt Permitted	0.950		0.164			
Satd. Flow (perm)	1805	1579	311	1863	1863	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		95				195
Link Speed (k/h)	60			70	70	
Link Distance (m)	1138.0			861.9	313.3	
Travel Time (s)	68.3			44.3	16.1	
Confl. Peds. (#/hr)		1	5			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Adj. Flow (vph)	341	95	80	812	722	224
Shared Lane Traffic (%)						
Lane Group Flow (vph)	341	95	80	812	722	224
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	2.0
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)	2.0	2.0	2.0	0.6	0.6	2.0
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)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	22.0	22.0	10.0	38.0	38.0	38.0
Total Split (s)	22.0	22.0	10.0	48.0	38.0	38.0
Total Split (%)	31.4%	31.4%	14.3%	68.6%	54.3%	54.3%
Maximum Green (s)	16.0	16.0	7.0	42.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	Max	Max	Max
Walk Time (s)	7.0	7.0		17.0	17.0	17.0
Flash Dont Walk (s)	9.0	9.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	16.0	16.0	45.0	42.0	34.0	34.0
Actuated g/C Ratio	0.23	0.23	0.64	0.60	0.49	0.49
v/c Ratio	0.83	0.22	0.23	0.73	0.80	0.26
Control Delay	45.0	7.0	6.3	14.8	25.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	7.0	6.3	14.8	25.0	3.6
LOS	D	A	A	B	C	A
Approach Delay	36.7			14.0	19.9	
Approach LOS	D			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.8		Intersection LOS: C	
Intersection Capacity Utilization 73.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	341	95	80	812	722	224
v/c Ratio	0.83	0.22	0.23	0.73	0.80	0.26
Control Delay	45.0	7.0	6.3	14.8	25.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	7.0	6.3	14.8	25.0	3.6
Queue Length 50th (m)	44.8	0.0	3.5	70.5	83.9	2.1
Queue Length 95th (m)	#87.1	10.7	7.8	113.8	#149.5	13.2
Internal Link Dist (m)	1114.0			837.9	289.3	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	412	434	349	1117	904	876
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.22	0.23	0.73	0.80	0.26

Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	324	90	76	771	686	213
Future Volume (vph)	324	90	76	771	686	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1805	1579	1805	1863	1863	1599
Flt Permitted	0.95	1.00	0.16	1.00	1.00	1.00
Satd. Flow (perm)	1805	1579	311	1863	1863	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	341	95	80	812	722	224
RTOR Reduction (vph)	0	73	0	0	0	101
Lane Group Flow (vph)	341	22	80	812	722	123
Confl. Peds. (#/hr)		1	5			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	16.0	16.0	42.6	42.6	34.0	34.0
Effective Green, g (s)	16.0	16.0	42.6	42.6	34.0	34.0
Actuated g/C Ratio	0.23	0.23	0.60	0.60	0.48	0.48
Clearance Time (s)	6.0	6.0	3.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	357	306	1124	897	770
v/s Ratio Prot	c0.19		0.02	c0.44	c0.39	
v/s Ratio Perm		0.01	0.14			0.08
v/c Ratio	0.83	0.06	0.26	0.72	0.80	0.16
Uniform Delay, d1	26.0	21.4	9.5	9.8	15.5	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.8	0.3	0.5	4.0	7.6	0.4
Delay (s)	43.9	21.7	9.9	13.9	23.1	10.7
Level of Service	D	C	A	B	C	B
Approach Delay (s)	39.0			13.5	20.2	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

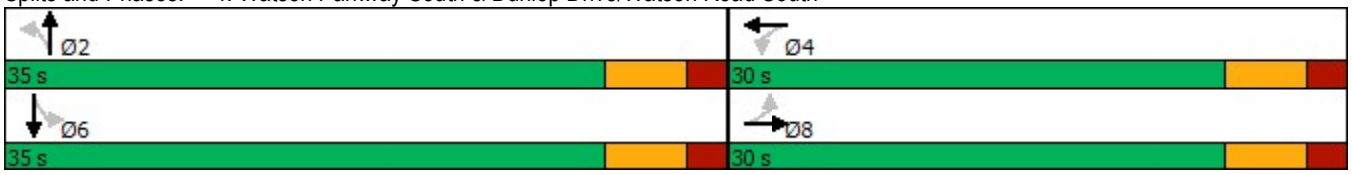
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	21	137	91	4	5	13	322	39	2	301	29
Future Volume (vph)	168	21	137	91	4	5	13	322	39	2	301	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943			0.993			0.986			0.988	
Flt Protected		0.975			0.956			0.998				
Satd. Flow (prot)	0	1684	0	0	1659	0	0	1752	0	0	1796	0
Flt Permitted		0.774			0.531			0.981			0.998	
Satd. Flow (perm)	0	1337	0	0	922	0	0	1722	0	0	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			5			12			9	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	5%	5%	2%	3%	50%	80%	15%	5%	18%	0%	3%	21%
Adj. Flow (vph)	205	26	167	111	5	6	16	393	48	2	367	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	0	0	122	0	0	457	0	0	404	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.0	24.0		24.0	24.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		19.6			19.6			29.2			29.2	
Actuated g/C Ratio		0.32			0.32			0.48			0.48	
v/c Ratio		0.84			0.41			0.55			0.47	
Control Delay		33.5			19.5			15.1			13.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		33.5			19.5			15.1			13.7	
LOS		C			B			B			B	
Approach Delay		33.5			19.5			15.1			13.7	
Approach LOS		C			B			B			B	

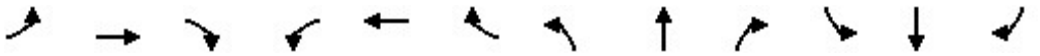
Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 60.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 55.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	398	122	457	404
v/c Ratio	0.84	0.41	0.55	0.47
Control Delay	33.5	19.5	15.1	13.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.5	19.5	15.1	13.7
Queue Length 50th (m)	36.0	10.4	37.6	31.6
Queue Length 95th (m)	58.0	20.7	58.4	49.6
Internal Link Dist (m)	532.5	629.7	854.3	1040.7
Turn Bay Length (m)				
Base Capacity (vph)	568	368	831	863
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	0.33	0.55	0.47

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	21	137	91	4	5	13	322	39	2	301	29
Future Volume (vph)	168	21	137	91	4	5	13	322	39	2	301	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.94			0.99			0.99			0.99	
Flt Protected		0.97			0.96			1.00			1.00	
Satd. Flow (prot)		1684			1661			1752			1796	
Flt Permitted		0.77			0.53			0.98			1.00	
Satd. Flow (perm)		1338			922			1722			1793	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	205	26	167	111	5	6	16	393	48	2	367	35
RTOR Reduction (vph)	0	43	0	0	3	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	355	0	0	119	0	0	451	0	0	399	0
Heavy Vehicles (%)	5%	5%	2%	3%	50%	80%	15%	5%	18%	0%	3%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		19.6			19.6			29.2			29.2	
Effective Green, g (s)		19.6			19.6			29.2			29.2	
Actuated g/C Ratio		0.32			0.32			0.48			0.48	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		431			297			827			861	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.13			c0.26			0.22	
v/c Ratio		0.82			0.40			0.55			0.46	
Uniform Delay, d1		19.0			16.0			11.1			10.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		12.1			0.9			2.6			1.8	
Delay (s)		31.1			16.9			13.7			12.4	
Level of Service		C			B			B			B	
Approach Delay (s)		31.1			16.9			13.7			12.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

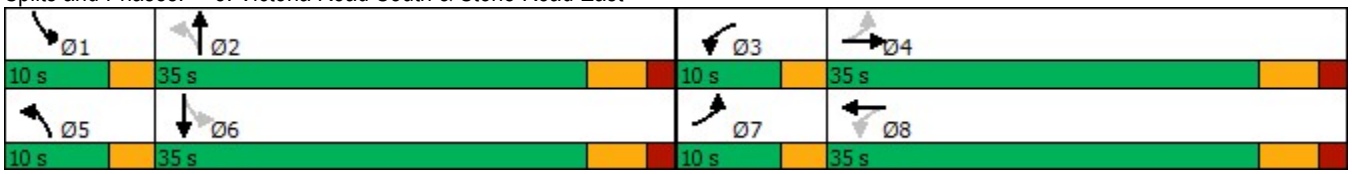
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	307	138	77	343	37	106	544	69	36	516	225
Future Volume (vph)	265	307	138	77	343	37	106	544	69	36	516	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		0.0	75.0		0.0	85.0		0.0	60.0		50.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00				1.00	
Frt		0.953			0.985			0.983			0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3363	0	1467	3524	0	1787	3397	0	1805	3344	0
Flt Permitted	0.403			0.435			0.261			0.373		
Satd. Flow (perm)	758	3363	0	672	3524	0	491	3397	0	709	3344	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			14			16			80	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			194.4			485.6			861.9	
Travel Time (s)		73.1			11.7			25.0			44.3	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	2%	3%	23%	1%	0%	1%	3%	16%	0%	3%	2%
Adj. Flow (vph)	276	320	144	80	357	39	110	567	72	38	538	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	464	0	80	396	0	110	639	0	38	772	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

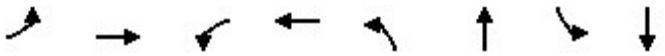
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (s)	10.0	35.0		10.0	35.0		10.0	35.0		10.0	35.0	
Total Split (%)	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	
Maximum Green (s)	7.0	29.0		7.0	29.0		7.0	29.0		7.0	29.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		10.0			10.0			10.0			10.0	
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.7	16.2		23.9	13.8		38.3	31.3		37.7	29.3	
Actuated g/C Ratio	0.34	0.22		0.33	0.19		0.52	0.43		0.52	0.40	
v/c Ratio	0.78	0.57		0.27	0.58		0.29	0.44		0.08	0.56	
Control Delay	36.6	24.9		18.5	30.0		10.6	16.9		8.8	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.6	24.9		18.5	30.0		10.6	16.9		8.8	17.9	
LOS	D	C		B	C		B	B		A	B	
Approach Delay		29.2			28.1			16.0			17.4	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 73
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	276	464	80	396	110	639	38	772
v/c Ratio	0.78	0.57	0.27	0.58	0.29	0.44	0.08	0.56
Control Delay	36.6	24.9	18.5	30.0	10.6	16.9	8.8	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	24.9	18.5	30.0	10.6	16.9	8.8	17.9
Queue Length 50th (m)	30.5	27.6	7.9	27.5	7.0	35.5	2.3	41.1
Queue Length 95th (m)	#60.8	42.6	16.9	41.1	16.0	55.5	7.0	64.5
Internal Link Dist (m)		1193.6		170.4		461.6		837.9
Turn Bay Length (m)	95.0		75.0		85.0		60.0	
Base Capacity (vph)	355	1399	297	1420	382	1463	471	1388
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.33	0.27	0.28	0.29	0.44	0.08	0.56

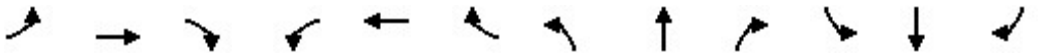
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	307	138	77	343	37	106	544	69	36	516	225
Future Volume (vph)	265	307	138	77	343	37	106	544	69	36	516	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.95		1.00	0.99		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3364		1467	3525		1787	3397		1805	3342	
Flt Permitted	0.40	1.00		0.44	1.00		0.26	1.00		0.37	1.00	
Satd. Flow (perm)	759	3364		672	3525		491	3397		709	3342	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	276	320	144	80	357	39	110	567	72	38	538	234
RTOR Reduction (vph)	0	67	0	0	11	0	0	9	0	0	48	0
Lane Group Flow (vph)	276	397	0	80	385	0	110	630	0	38	724	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	1%	2%	3%	23%	1%	0%	1%	3%	16%	0%	3%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.3	16.2		19.9	14.5		36.6	31.2		33.8	29.8	
Effective Green, g (s)	23.3	16.2		19.9	14.5		36.6	31.2		33.8	29.8	
Actuated g/C Ratio	0.31	0.22		0.27	0.19		0.49	0.42		0.45	0.40	
Clearance Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	334	728		236	683		333	1416		378	1331	
v/s Ratio Prot	c0.08	0.12		0.02	0.11		c0.02	0.19		0.01	c0.22	
v/s Ratio Perm	c0.18			0.07			0.14			0.04		
v/c Ratio	0.83	0.55		0.34	0.56		0.33	0.44		0.10	0.54	
Uniform Delay, d1	22.2	26.0		21.3	27.3		11.0	15.6		11.5	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.3	0.8		0.9	1.1		0.6	1.0		0.1	1.6	
Delay (s)	37.4	26.9		22.2	28.4		11.6	16.6		11.6	18.9	
Level of Service	D	C		C	C		B	B		B	B	
Approach Delay (s)		30.8			27.3			15.9			18.5	
Approach LOS		C			C			B			B	

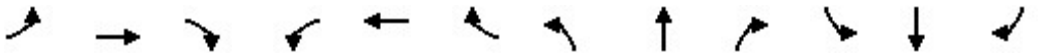
Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	155	53	13	102	1	31	188	14	3	212	307
Future Volume (vph)	192	155	53	13	102	1	31	188	14	3	212	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.999			0.992				0.850
Flt Protected	0.950				0.994			0.993			0.999	
Satd. Flow (prot)	1671	1805	0	0	1750	0	0	1792	0	0	1880	1553
Flt Permitted	0.950				0.994			0.993			0.999	
Satd. Flow (perm)	1671	1805	0	0	1750	0	0	1792	0	0	1880	1553
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	1%	2%	0%	8%	100%	3%	4%	14%	0%	1%	4%
Adj. Flow (vph)	209	168	58	14	111	1	34	204	15	3	230	334
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	226	0	0	126	0	0	253	0	0	233	334
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	192	155	53	13	102	1	31	188	14	3	212	307
Future Volume (vph)	192	155	53	13	102	1	31	188	14	3	212	307
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	168	58	14	111	1	34	204	15	3	230	334

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	209	226	126	253	233	334
Volume Left (vph)	209	0	14	34	3	0
Volume Right (vph)	0	58	1	15	0	334
Hadj (s)	0.64	-0.16	0.15	0.07	0.02	-0.53
Departure Headway (s)	6.9	6.0	6.4	6.0	6.0	3.2
Degree Utilization, x	0.40	0.38	0.23	0.42	0.39	0.30
Capacity (veh/h)	493	566	498	555	556	1113
Control Delay (s)	13.1	11.5	11.3	13.3	12.7	7.5
Approach Delay (s)	12.3		11.3	13.3	9.7	
Approach LOS	B		B	B	A	

Intersection Summary				
Delay	11.3			
Level of Service	B			
Intersection Capacity Utilization	51.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	192	155	53	13	102	1	31	188	14	3	212	307
Future Vol, veh/h	192	155	53	13	102	1	31	188	14	3	212	307
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	8	1	2	0	8	100	3	4	14	0	1	4
Mvmt Flow	209	168	58	14	111	1	34	204	15	3	230	334
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	2
HCM Control Delay	16.3	14.2	18.3	16.7
HCM LOS	C	B	C	C

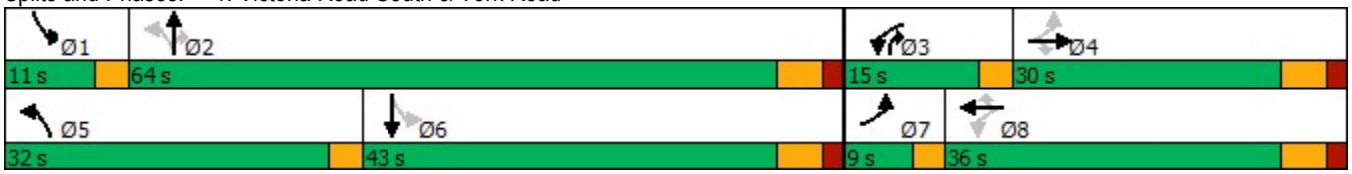
Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	13%	100%	0%	11%	1%	0%
Vol Thru, %	81%	0%	75%	88%	99%	0%
Vol Right, %	6%	0%	25%	1%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	192	208	116	215	307
LT Vol	31	192	0	13	3	0
Through Vol	188	0	155	102	212	0
RT Vol	14	0	53	1	0	307
Lane Flow Rate	253	209	226	126	234	334
Geometry Grp	6	7	7	6	7	7
Degree of Util (X)	0.522	0.458	0.445	0.28	0.455	0.584
Departure Headway (Hd)	7.424	7.908	7.092	8.001	7.007	6.301
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	455	509	449	514	574
Service Time	5.467	5.651	4.834	6.056	4.745	4.039
HCM Lane V/C Ratio	0.521	0.459	0.444	0.281	0.455	0.582
HCM Control Delay	18.3	17.2	15.4	14.2	15.5	17.6
HCM Lane LOS	C	C	C	B	C	C
HCM 95th-tile Q	3	2.4	2.3	1.1	2.3	3.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	239	184	226	303	23	201	615	140	13	728	47
Future Volume (vph)	44	239	184	226	303	23	201	615	140	13	728	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3457	0
Flt Permitted	0.419			0.244			0.218			0.398		
Satd. Flow (perm)	750	1712	1583	442	1759	1475	394	3471	1523	698	3457	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			109			152		6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	48	260	200	246	329	25	218	668	152	14	791	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	260	200	246	329	25	218	668	152	14	842	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	15.0	36.0	36.0	32.0	64.0	15.0	11.0	43.0	
Total Split (%)	7.5%	25.0%	25.0%	12.5%	30.0%	30.0%	26.7%	53.3%	12.5%	9.2%	35.8%	
Maximum Green (s)	6.0	24.0	24.0	12.0	30.0	30.0	29.0	58.0	12.0	8.0	37.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	29.1	22.0	20.0	38.1	28.0	28.0	64.8	58.3	73.4	55.1	45.9	
Actuated g/C Ratio	0.27	0.20	0.18	0.35	0.26	0.26	0.60	0.54	0.67	0.51	0.42	
v/c Ratio	0.19	0.75	0.50	0.83	0.73	0.05	0.56	0.36	0.14	0.03	0.58	
Control Delay	26.8	55.9	18.6	53.1	48.8	0.2	16.5	16.3	1.6	10.8	27.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.8	55.9	18.6	53.1	48.8	0.2	16.5	16.3	1.6	10.8	27.0	
LOS	C	E	B	D	D	A	B	B	A	B	C	
Approach Delay		38.4			48.5			14.2			26.7	
Approach LOS		D			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.9			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road

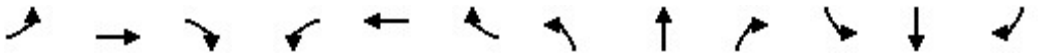




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	260	200	246	329	25	218	668	152	14	842
v/c Ratio	0.19	0.75	0.50	0.83	0.73	0.05	0.56	0.36	0.14	0.03	0.58
Control Delay	26.8	55.9	18.6	53.1	48.8	0.2	16.5	16.3	1.6	10.8	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	55.9	18.6	53.1	48.8	0.2	16.5	16.3	1.6	10.8	27.0
Queue Length 50th (m)	6.7	52.4	11.5	38.9	65.6	0.0	21.7	40.8	0.0	1.2	74.3
Queue Length 95th (m)	16.7	89.3	36.0	#75.7	109.1	0.0	36.3	67.7	7.4	4.1	109.7
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	252	410	457	296	486	487	589	1858	1078	436	1460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.63	0.44	0.83	0.68	0.05	0.37	0.36	0.14	0.03	0.58

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	239	184	226	303	23	201	615	140	13	728	47
Future Volume (vph)	44	239	184	226	303	23	201	615	140	13	728	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1529	1670	3457	
Flt Permitted	0.42	1.00	1.00	0.24	1.00	1.00	0.22	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	750	1712	1583	441	1759	1475	394	3471	1529	699	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	260	200	246	329	25	218	668	152	14	791	51
RTOR Reduction (vph)	0	0	112	0	0	19	0	0	56	0	3	0
Lane Group Flow (vph)	48	260	88	246	329	6	218	668	96	14	839	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	25.3	20.6	20.6	35.7	28.0	28.0	63.7	58.3	70.4	50.2	47.8	
Effective Green, g (s)	25.3	22.6	20.6	35.7	28.0	28.0	63.7	58.3	70.4	50.2	47.8	
Actuated g/C Ratio	0.23	0.20	0.18	0.32	0.25	0.25	0.57	0.52	0.63	0.45	0.43	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	210	347	292	280	442	370	378	1816	966	335	1483	
v/s Ratio Prot	0.01	0.15		c0.10	0.19		c0.07	0.19	0.01	0.00	0.24	
v/s Ratio Perm	0.04		0.06	c0.19		0.00	c0.26		0.05	0.02		
v/c Ratio	0.23	0.75	0.30	0.88	0.74	0.02	0.58	0.37	0.10	0.04	0.57	
Uniform Delay, d1	34.4	41.7	39.2	31.7	38.4	31.4	13.9	15.7	8.1	17.0	24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	8.6	0.6	25.2	6.7	0.0	2.1	0.6	0.0	0.1	1.6	
Delay (s)	34.9	50.3	39.8	56.9	45.1	31.4	16.0	16.2	8.1	17.0	25.5	
Level of Service	C	D	D	E	D	C	B	B	A	B	C	
Approach Delay (s)		44.7			49.4			15.0			25.4	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

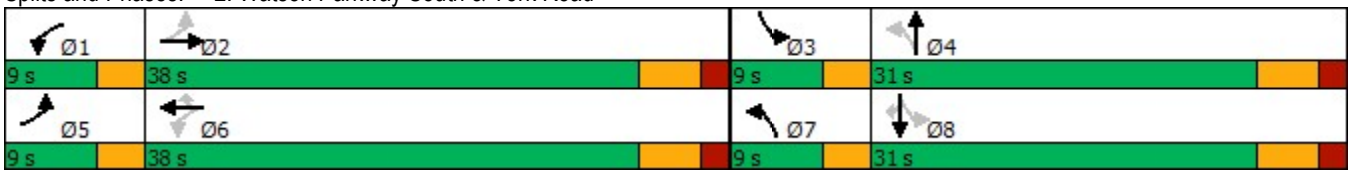
c Critical Lane Group

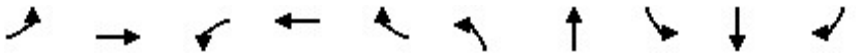
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	256	101	19	342	26	87	130	20	46	341	359
Future Volume (vph)	175	256	101	19	342	26	87	130	20	46	341	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.958				0.850		0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1634	0	1517	1759	1495	1612	1701	0	1719	1827	1568
Flt Permitted	0.409			0.506			0.277			0.657		
Satd. Flow (perm)	726	1634	0	807	1759	1495	470	1701	0	1189	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				113		9				367
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	184	269	106	20	360	27	92	137	21	48	359	378
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	375	0	20	360	27	92	158	0	48	359	378
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	9.0	38.0		9.0	38.0	38.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	10.3%	43.7%		10.3%	43.7%	43.7%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	6.0	32.0		6.0	32.0	32.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.4	38.1		41.5	32.4	32.4	28.4	22.0		27.8	20.2	20.2
Actuated g/C Ratio	0.54	0.47		0.51	0.40	0.40	0.35	0.27		0.34	0.25	0.25
v/c Ratio	0.40	0.48		0.04	0.51	0.04	0.37	0.34		0.11	0.79	0.57
Control Delay	14.3	19.2		10.8	23.2	0.1	20.0	24.8		15.8	41.4	6.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	14.3	19.2		10.8	23.2	0.1	20.0	24.8		15.8	41.4	6.9
LOS	B	B		B	C	A	C	C		B	D	A
Approach Delay		17.6			21.1			23.0			23.3	
Approach LOS		B			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 80.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

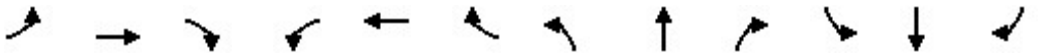
Splits and Phases: 2: Watson Parkway South & York Road





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	184	375	20	360	27	92	158	48	359	378
v/c Ratio	0.40	0.48	0.04	0.51	0.04	0.37	0.34	0.11	0.79	0.57
Control Delay	14.3	19.2	10.8	23.2	0.1	20.0	24.8	15.8	41.4	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	19.2	10.8	23.2	0.1	20.0	24.8	15.8	41.4	6.9
Queue Length 50th (m)	15.7	37.0	1.5	46.5	0.0	9.5	20.3	4.8	55.7	1.4
Queue Length 95th (m)	29.5	78.9	5.2	77.2	0.0	19.1	37.1	11.4	86.5	22.4
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	462	785	468	705	667	251	547	450	572	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.48	0.04	0.51	0.04	0.37	0.29	0.11	0.63	0.51

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	256	101	19	342	26	87	130	20	46	341	359
Future Volume (vph)	175	256	101	19	342	26	87	130	20	46	341	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1633		1516	1759	1495	1612	1701		1719	1827	1568
Flt Permitted	0.41	1.00		0.51	1.00	1.00	0.28	1.00		0.66	1.00	1.00
Satd. Flow (perm)	725	1633		807	1759	1495	469	1701		1189	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	269	106	20	360	27	92	137	21	48	359	378
RTOR Reduction (vph)	0	14	0	0	0	16	0	7	0	0	0	276
Lane Group Flow (vph)	184	361	0	20	360	11	92	151	0	48	359	102
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.3	38.1		36.4	34.2	34.2	26.6	22.0		24.2	20.8	20.8
Effective Green, g (s)	43.3	38.1		36.4	34.2	34.2	26.6	22.0		24.2	20.8	20.8
Actuated g/C Ratio	0.52	0.46		0.43	0.41	0.41	0.32	0.26		0.29	0.25	0.25
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	445	743		369	718	610	211	447		365	454	389
v/s Ratio Prot	c0.03	c0.22		0.00	0.20		c0.02	0.09		0.01	c0.20	
v/s Ratio Perm	0.18			0.02		0.01	0.11			0.03		0.07
v/c Ratio	0.41	0.49		0.05	0.50	0.02	0.44	0.34		0.13	0.79	0.26
Uniform Delay, d1	11.6	15.9		13.6	18.4	14.7	21.4	25.0		21.8	29.4	25.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	2.3		0.1	2.5	0.1	1.4	0.5		0.2	9.1	0.4
Delay (s)	12.2	18.2		13.6	20.9	14.8	22.9	25.4		21.9	38.5	25.6
Level of Service	B	B		B	C	B	C	C		C	D	C
Approach Delay (s)		16.2			20.1			24.5			31.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

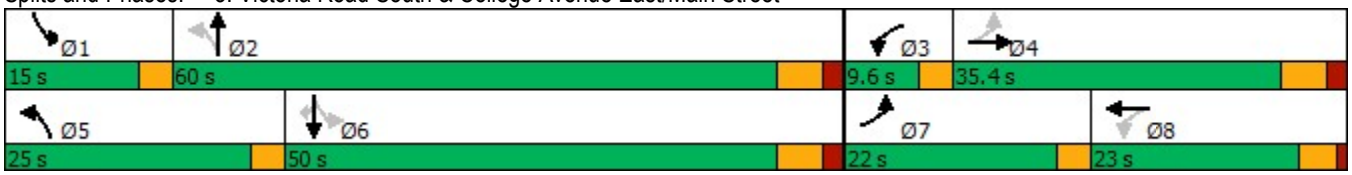
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	0	46	0	0	0	138	739	0	0	605	397
Future Volume (vph)	146	0	46	0	0	0	138	739	0	0	605	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.645						0.298					
Satd. Flow (perm)	1167	1442	0	1863	1863	0	544	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		460										391
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	164	0	52	0	0	0	155	830	0	0	680	446
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	52	0	0	0	0	155	830	0	0	680	446
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	35.4		9.6	23.0		25.0	60.0		15.0	50.0	50.0
Total Split (%)	18.3%	29.5%		8.0%	19.2%		20.8%	50.0%		12.5%	41.7%	41.7%
Maximum Green (s)	19.0	29.4		6.6	18.5		22.0	54.0		12.0	44.0	44.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	36.3	33.3					60.2	57.2			44.2	44.2
Actuated g/C Ratio	0.35	0.32					0.59	0.56			0.43	0.43
v/c Ratio	0.34	0.07					0.36	0.43			0.46	0.49
Control Delay	26.1	0.2					12.5	14.3			22.8	5.8
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	26.1	0.2					12.5	14.3			22.8	5.8
LOS	C	A					B	B			C	A
Approach Delay		19.9						14.0			16.0	
Approach LOS		B						B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.5			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 46.0%		ICU Level of Service A	
Analysis Period (min) 15			

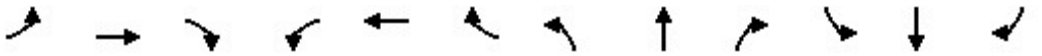
Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street





Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	164	52	155	830	680	446
v/c Ratio	0.34	0.07	0.36	0.43	0.46	0.49
Control Delay	26.1	0.2	12.5	14.3	22.8	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	0.2	12.5	14.3	22.8	5.8
Queue Length 50th (m)	24.1	0.0	13.5	49.3	51.1	6.5
Queue Length 95th (m)	42.2	0.0	26.0	71.4	77.9	30.9
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	515	778	576	1937	1481	904
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	0.32	0.07	0.27	0.43	0.46	0.49

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	0	46	0	0	0	138	739	0	0	605	397
Future Volume (vph)	146	0	46	0	0	0	138	739	0	0	605	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.65	1.00					0.30	1.00			1.00	1.00
Satd. Flow (perm)	1168	1442					544	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	164	0	52	0	0	0	155	830	0	0	680	446
RTOR Reduction (vph)	0	35	0	0	0	0	0	0	0	0	0	222
Lane Group Flow (vph)	164	17	0	0	0	0	155	830	0	0	680	224
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	33.2	33.2					57.2	57.2			44.2	44.2
Effective Green, g (s)	33.2	33.2					57.2	57.2			44.2	44.2
Actuated g/C Ratio	0.32	0.32					0.56	0.56			0.43	0.43
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	448	467					420	1938			1483	683
v/s Ratio Prot	c0.05	0.01					0.04	c0.24			c0.20	
v/s Ratio Perm	c0.07						0.17					0.14
v/c Ratio	0.37	0.04					0.37	0.43			0.46	0.33
Uniform Delay, d1	25.9	23.7					11.8	13.1			20.6	19.3
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	0.5	0.1					0.6	0.7			1.0	1.3
Delay (s)	26.4	23.8					12.3	13.8			21.6	20.5
Level of Service	C	C					B	B			C	C
Approach Delay (s)		25.8			0.0			13.6			21.2	
Approach LOS		C			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

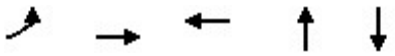
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	8	13	43	8	3	31	194	67	3	359	40
Future Volume (vph)	28	8	13	43	8	3	31	194	67	3	359	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.909			0.993			0.969			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1053	0	0	1370	0	0	1618	0	0	1745	0
Flt Permitted	0.719				0.755			0.936			0.998	
Satd. Flow (perm)	1038	1053	0	0	1075	0	0	1522	0	0	1741	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			3			32			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	30	9	14	46	9	3	33	209	72	3	386	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	23	0	0	58	0	0	314	0	0	432	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	27.0	27.0		27.0	27.0		53.0	53.0		53.0	53.0	
Total Split (%)	33.8%	33.8%		33.8%	33.8%		66.3%	66.3%		66.3%	66.3%	
Maximum Green (s)	21.0	21.0		21.0	21.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.1	9.1			9.1			55.5			55.5	
Actuated g/C Ratio	0.13	0.13			0.13			0.81			0.81	
v/c Ratio	0.22	0.15			0.40			0.25			0.31	
Control Delay	30.1	18.9			34.4			4.0			4.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.1	18.9			34.4			4.0			4.4	
LOS	C	B			C			A			A	
Approach Delay		25.2			34.4			4.0			4.4	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 68.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

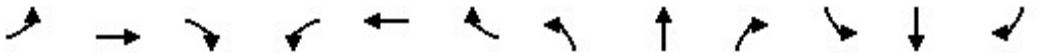
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	30	23	58	314	432
v/c Ratio	0.22	0.15	0.40	0.25	0.31
Control Delay	30.1	18.9	34.4	4.0	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	18.9	34.4	4.0	4.4
Queue Length 50th (m)	3.6	1.1	6.8	11.3	18.0
Queue Length 95th (m)	10.9	7.1	17.3	25.7	38.0
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	316	330	329	1232	1405
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.18	0.25	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	8	13	43	8	3	31	194	67	3	359	40
Future Volume (vph)	28	8	13	43	8	3	31	194	67	3	359	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			0.99			1.00	
Satd. Flow (prot)	1373	1052			1370			1618			1743	
Flt Permitted	0.72	1.00			0.75			0.94			1.00	
Satd. Flow (perm)	1039	1052			1075			1522			1741	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	30	9	14	46	9	3	33	209	72	3	386	43
RTOR Reduction (vph)	0	13	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	30	10	0	0	55	0	0	306	0	0	429	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.3	6.3			6.3			53.1			53.1	
Effective Green, g (s)	6.3	6.3			6.3			53.1			53.1	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	91	92			94			1131			1294	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.05			0.20			c0.25	
v/c Ratio	0.33	0.11			0.59			0.27			0.33	
Uniform Delay, d1	30.6	30.0			31.3			2.9			3.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.1	0.5			9.1			0.6			0.7	
Delay (s)	32.7	30.5			40.4			3.5			3.8	
Level of Service	C	C			D			A			A	
Approach Delay (s)		31.7			40.4			3.5			3.8	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

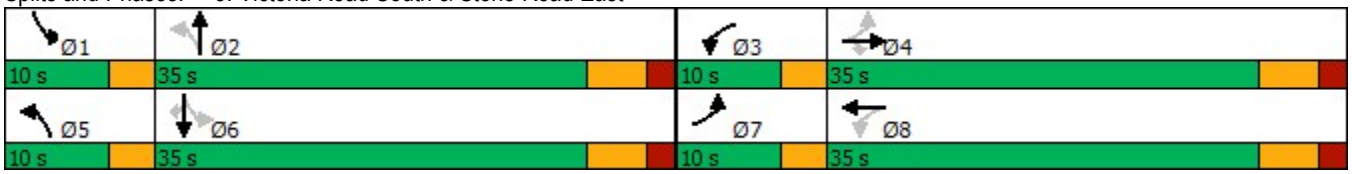
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	125	56	70	338	45	172	669	77	38	405	208
Future Volume (vph)	152	125	56	70	338	45	172	669	77	38	405	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.982			0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3395	0	1770	3336	0	1805	3438	1538
Flt Permitted	0.374			0.665			0.437			0.287		
Satd. Flow (perm)	683	3085	1392	950	3395	0	814	3336	0	545	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		17			14				229
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	167	137	62	77	371	49	189	735	85	42	445	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	137	62	77	420	0	189	820	0	42	445	229
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

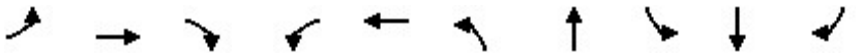
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	24.7	16.2	16.2	24.1	14.0		40.3	33.2		39.0	29.0	29.0
Actuated g/C Ratio	0.33	0.22	0.22	0.32	0.19		0.54	0.44		0.52	0.39	0.39
v/c Ratio	0.52	0.21	0.16	0.23	0.65		0.36	0.55		0.10	0.34	0.31
Control Delay	23.4	26.1	2.5	17.9	32.0		11.0	18.7		9.0	17.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	23.4	26.1	2.5	17.9	32.0		11.0	18.7		9.0	17.6	3.9
LOS	C	C	A	B	C		B	B		A	B	A
Approach Delay		20.9			29.8			17.2			12.7	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 75.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15

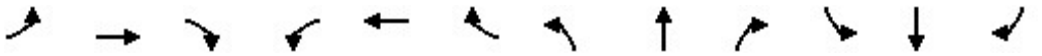
Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	167	137	62	77	420	189	820	42	445	229
v/c Ratio	0.52	0.21	0.16	0.23	0.65	0.36	0.55	0.10	0.34	0.31
Control Delay	23.4	26.1	2.5	17.9	32.0	11.0	18.7	9.0	17.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	26.1	2.5	17.9	32.0	11.0	18.7	9.0	17.6	3.9
Queue Length 50th (m)	17.3	9.2	0.0	7.6	29.4	12.8	50.0	2.6	24.0	0.0
Queue Length 95th (m)	31.0	16.7	3.1	16.6	43.7	25.9	75.3	7.6	38.4	13.8
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	322	1192	604	342	1322	525	1481	400	1328	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.11	0.10	0.23	0.32	0.36	0.55	0.10	0.34	0.31

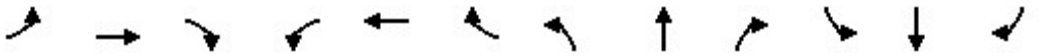
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	125	56	70	338	45	172	669	77	38	405	208
Future Volume (vph)	152	125	56	70	338	45	172	669	77	38	405	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3397		1769	3337		1805	3438	1518
Flt Permitted	0.37	1.00	1.00	0.67	1.00		0.44	1.00		0.29	1.00	1.00
Satd. Flow (perm)	684	3085	1392	950	3397		813	3337		545	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	167	137	62	77	371	49	189	735	85	42	445	229
RTOR Reduction (vph)	0	0	49	0	14	0	0	8	0	0	0	139
Lane Group Flow (vph)	167	137	13	77	406	0	189	812	0	42	445	90
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	23.2	16.2	16.2	20.2	14.7		40.2	33.2		34.4	30.3	30.3
Effective Green, g (s)	23.2	16.2	16.2	20.2	14.7		40.2	33.2		34.4	30.3	30.3
Actuated g/C Ratio	0.30	0.21	0.21	0.26	0.19		0.52	0.43		0.45	0.39	0.39
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	301	649	292	278	648		511	1438		310	1352	597
v/s Ratio Prot	c0.05	0.04		0.02	c0.12		c0.03	c0.24		0.01	0.13	
v/s Ratio Perm	0.12		0.01	0.05			0.16			0.05		0.06
v/c Ratio	0.55	0.21	0.04	0.28	0.63		0.37	0.56		0.14	0.33	0.15
Uniform Delay, d1	20.9	25.1	24.2	22.2	28.6		10.0	16.5		12.2	16.3	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2	0.1	0.5	1.9		0.5	1.6		0.2	0.7	0.5
Delay (s)	23.1	25.3	24.3	22.8	30.5		10.4	18.1		12.4	16.9	15.6
Level of Service	C	C	C	C	C		B	B		B	B	B
Approach Delay (s)		24.1			29.3			16.6			16.2	
Approach LOS		C			C			B			B	

Intersection Summary					
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.58				
Actuated Cycle Length (s)	77.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	69.6%	ICU Level of Service		C	
Analysis Period (min)	15				

c Critical Lane Group

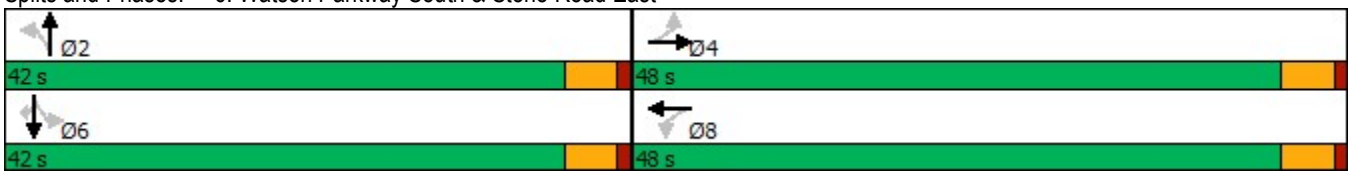


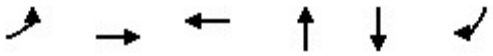
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	67	40	13	133	3	75	136	10	3	182	226
Future Volume (vph)	156	67	40	13	133	3	75	136	10	3	182	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944			0.997			0.994				0.850
Flt Protected	0.950				0.996			0.983			0.999	
Satd. Flow (prot)	1504	1688	0	0	1798	0	0	1774	0	0	1816	1404
Flt Permitted	0.642				0.972			0.855			0.997	
Satd. Flow (perm)	1017	1688	0	0	1755	0	0	1543	0	0	1813	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			2			3				238
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	164	71	42	14	140	3	79	143	11	3	192	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	113	0	0	157	0	0	233	0	0	195	238
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%		46.7%	46.7%	46.7%
Maximum Green (s)	43.5	43.5		43.5	43.5		37.5	37.5		37.5	37.5	37.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	14.7	14.7			14.7			38.8			38.8	38.8
Actuated g/C Ratio	0.24	0.24			0.24			0.62			0.62	0.62
v/c Ratio	0.69	0.26			0.38			0.24			0.17	0.25
Control Delay	36.4	13.8			21.6			7.1			6.6	1.9
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	36.4	13.8			21.6			7.1			6.6	1.9
LOS	D	B			C			A			A	A
Approach Delay		27.2			21.6			7.1			4.0	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 62.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

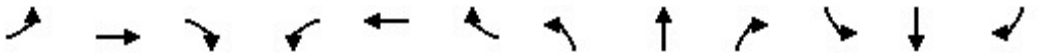
Splits and Phases: 6: Watson Parkway South & Stone Road East





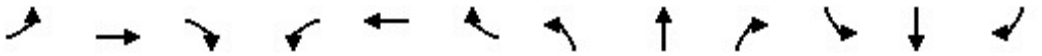
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	164	113	157	233	195	238
v/c Ratio	0.69	0.26	0.38	0.24	0.17	0.25
Control Delay	36.4	13.8	21.6	7.1	6.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	13.8	21.6	7.1	6.6	1.9
Queue Length 50th (m)	17.6	6.7	15.3	10.6	8.5	0.0
Queue Length 95th (m)	35.7	17.5	29.1	27.3	22.1	8.8
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	709	1190	1225	957	1124	961
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	0.23	0.09	0.13	0.24	0.17	0.25

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	67	40	13	133	3	75	136	10	3	182	226
Future Volume (vph)	156	67	40	13	133	3	75	136	10	3	182	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.94			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1689			1798			1774			1817	1404
Flt Permitted	0.64	1.00			0.97			0.85			1.00	1.00
Satd. Flow (perm)	1017	1689			1755			1542			1813	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	164	71	42	14	140	3	79	143	11	3	192	238
RTOR Reduction (vph)	0	32	0	0	2	0	0	1	0	0	0	90
Lane Group Flow (vph)	164	81	0	0	155	0	0	232	0	0	195	148
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	14.7	14.7			14.7			38.8			38.8	38.8
Effective Green, g (s)	14.7	14.7			14.7			38.8			38.8	38.8
Actuated g/C Ratio	0.24	0.24			0.24			0.62			0.62	0.62
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	239	397			412			957			1125	871
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.16				0.09			c0.15			0.11	0.11
v/c Ratio	0.69	0.20			0.38			0.24			0.17	0.17
Uniform Delay, d1	21.8	19.2			20.1			5.3			5.0	5.0
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	7.9	0.3			0.6			0.6			0.3	0.4
Delay (s)	29.7	19.5			20.6			5.9			5.4	5.4
Level of Service	C	B			C			A			A	A
Approach Delay (s)		25.5			20.6			5.9			5.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

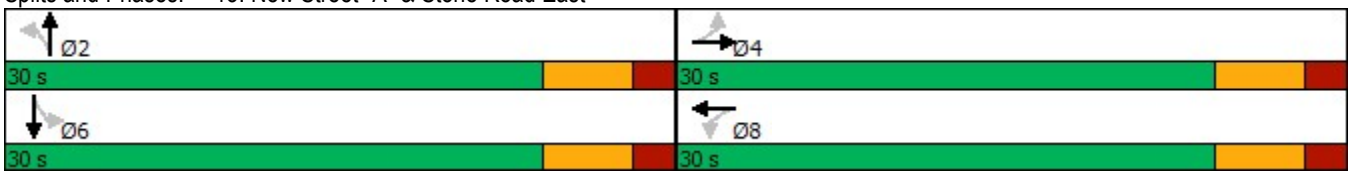


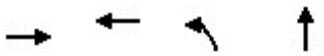
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3451	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.951		0.757					
Satd. Flow (perm)	0	3451	0	0	3366	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46						485				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	0	0	512	0	142	37	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
v/c Ratio		0.21			0.38		0.25	0.04				
Control Delay		10.4			13.8		13.6	0.1				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		10.4			13.8		13.6	0.1				
LOS		B			B		B	A				
Approach Delay		10.4			13.8			10.8				
Approach LOS		B			B			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	302	512	142	37
v/c Ratio	0.21	0.38	0.25	0.04
Control Delay	10.4	13.8	13.6	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.4	13.8	13.6	0.1
Queue Length 50th (m)	9.7	21.1	10.5	0.0
Queue Length 95th (m)	17.0	32.1	21.8	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	1408	1346	564	924
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.25	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3451			3537		1770	1583				
Flt Permitted		1.00			0.95		0.76	1.00				
Satd. Flow (perm)		3451			3365		1410	1583				
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)	0	252	50	6	506	0	142	0	37	0	0	0
RTOR Reduction (vph)	0	28	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	274	0	0	512	0	142	15	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0				
Effective Green, g (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1380			1346		564	633				
v/s Ratio Prot		0.08						0.01				
v/s Ratio Perm					c0.15		c0.10					
v/c Ratio		0.20			0.38		0.25	0.02				
Uniform Delay, d1		11.7			12.7		12.0	10.9				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.8		0.2	0.0				
Delay (s)		12.1			13.6		12.2	10.9				
Level of Service		B			B		B	B				
Approach Delay (s)		12.1			13.6			12.0			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	348	201	208	465	44	236	911	238	26	733	62
Future Volume (vph)	62	348	201	208	465	44	236	911	238	26	733	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3442	0
Flt Permitted	0.156			0.152			0.187			0.235		
Satd. Flow (perm)	280	1712	1583	275	1759	1475	338	3471	1523	413	3442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			219		8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	67	378	218	226	505	48	257	990	259	28	797	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	378	218	226	505	48	257	990	259	28	864	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	31.0	29.0	16.0	38.0	38.0	29.0	62.0	16.0	11.0	44.0	
Total Split (%)	7.5%	25.8%	24.2%	13.3%	31.7%	31.7%	24.2%	51.7%	13.3%	9.2%	36.7%	
Maximum Green (s)	6.0	25.0	26.0	13.0	32.0	32.0	26.0	56.0	13.0	8.0	38.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	34.1	27.1	48.4	45.7	35.6	33.6	66.9	58.1	75.8	53.0	45.5	
Actuated g/C Ratio	0.30	0.24	0.42	0.40	0.31	0.29	0.58	0.51	0.66	0.46	0.40	
v/c Ratio	0.42	0.94	0.30	0.77	0.92	0.09	0.63	0.56	0.24	0.11	0.63	
Control Delay	33.2	75.6	14.2	43.8	64.0	0.4	19.9	21.7	2.3	12.9	30.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.2	75.6	14.2	43.8	64.0	0.4	19.9	21.7	2.3	12.9	30.8	
LOS	C	E	B	D	E	A	B	C	A	B	C	
Approach Delay		51.1			54.2			18.0			30.2	
Approach LOS		D			D			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 114.6
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	378	218	226	505	48	257	990	259	28	864
v/c Ratio	0.42	0.94	0.30	0.77	0.92	0.09	0.63	0.56	0.24	0.11	0.63
Control Delay	33.2	75.6	14.2	43.8	64.0	0.4	19.9	21.7	2.3	12.9	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	75.6	14.2	43.8	64.0	0.4	19.9	21.7	2.3	12.9	30.8
Queue Length 50th (m)	10.6	91.9	21.5	38.4	123.3	0.0	28.3	87.9	3.2	2.8	83.2
Queue Length 95th (m)	21.2	#156.9	35.8	#75.1	#198.6	0.0	45.9	111.2	13.0	7.0	119.2
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	158	404	856	299	546	509	535	1760	1089	284	1371
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	0.42	0.94	0.25	0.76	0.92	0.09	0.48	0.56	0.24	0.10	0.63

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	348	201	208	465	44	236	911	238	26	733	62
Future Volume (vph)	62	348	201	208	465	44	236	911	238	26	733	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1529	1671	3443	
Flt Permitted	0.16	1.00	1.00	0.15	1.00	1.00	0.19	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	279	1712	1583	275	1759	1475	339	3471	1529	413	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	378	218	226	505	48	257	990	259	28	797	67
RTOR Reduction (vph)	0	0	50	0	0	34	0	0	82	0	5	0
Lane Group Flow (vph)	67	378	168	226	505	14	257	990	177	28	859	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	30.4	25.7	41.0	41.3	33.6	33.6	63.1	56.1	68.7	48.8	44.8	
Effective Green, g (s)	30.4	27.7	45.0	43.3	35.6	33.6	65.1	58.1	72.7	48.8	46.8	
Actuated g/C Ratio	0.26	0.24	0.39	0.37	0.31	0.29	0.56	0.50	0.62	0.42	0.40	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	130	407	611	283	537	425	394	1732	954	216	1384	
v/s Ratio Prot	0.02	0.22	0.04	c0.10	c0.29		c0.10	0.29	0.02	0.00	c0.25	
v/s Ratio Perm	0.11		0.07	0.20		0.01	0.27		0.09	0.05		
v/c Ratio	0.52	0.93	0.27	0.80	0.94	0.03	0.65	0.57	0.19	0.13	0.62	
Uniform Delay, d1	34.8	43.4	24.5	28.8	39.4	29.7	16.5	20.4	9.3	20.3	27.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.4	27.2	0.2	14.5	24.8	0.0	3.8	1.4	0.1	0.3	2.1	
Delay (s)	38.2	70.6	24.7	43.3	64.2	29.8	20.3	21.8	9.4	20.6	29.8	
Level of Service	D	E	C	D	E	C	C	C	A	C	C	
Approach Delay (s)		52.2			56.0			19.4			29.5	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	116.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

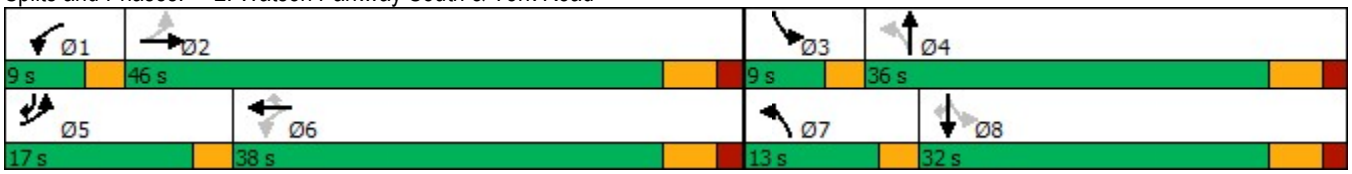
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	358	89	27	406	100	211	423	22	23	307	303
Future Volume (vph)	359	358	89	27	406	100	211	423	22	23	307	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.970				0.850		0.993				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1656	0	1517	1759	1495	1612	1718	0	1719	1827	1568
Flt Permitted	0.271			0.452			0.272			0.278		
Satd. Flow (perm)	481	1656	0	721	1759	1495	461	1718	0	503	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				164		3				199
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	378	377	94	28	427	105	222	445	23	24	323	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	471	0	28	427	105	222	468	0	24	323	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

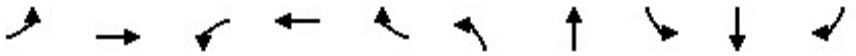
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	17.0	46.0		9.0	38.0	38.0	13.0	36.0		9.0	32.0	17.0
Total Split (%)	17.0%	46.0%		9.0%	38.0%	38.0%	13.0%	36.0%		9.0%	32.0%	17.0%
Maximum Green (s)	14.0	40.0		6.0	32.0	32.0	10.0	30.0		6.0	26.0	14.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	52.1	43.9		41.1	32.1	32.1	37.1	30.7		30.1	21.1	41.2
Actuated g/C Ratio	0.55	0.46		0.43	0.34	0.34	0.39	0.32		0.32	0.22	0.43
v/c Ratio	0.86	0.61		0.08	0.72	0.17	0.74	0.84		0.10	0.80	0.40
Control Delay	36.0	25.1		12.5	37.0	1.5	37.3	46.3		18.6	50.3	8.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.0	25.1		12.5	37.0	1.5	37.3	46.3		18.6	50.3	8.2
LOS	D	C		B	D	A	D	D		B	D	A
Approach Delay		29.9			29.1			43.4			29.0	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 95.3
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 86.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Watson Parkway South & York Road

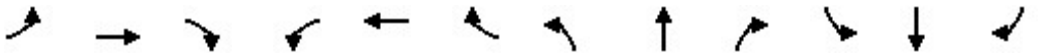




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	378	471	28	427	105	222	468	24	323	319
v/c Ratio	0.86	0.61	0.08	0.72	0.17	0.74	0.84	0.10	0.80	0.40
Control Delay	36.0	25.1	12.5	37.0	1.5	37.3	46.3	18.6	50.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	25.1	12.5	37.0	1.5	37.3	46.3	18.6	50.3	8.2
Queue Length 50th (m)	41.0	70.4	2.4	72.5	0.0	29.8	78.1	2.8	59.3	13.9
Queue Length 95th (m)	#95.1	114.9	7.1	#117.2	2.9	#54.2	#152.0	7.8	90.3	33.2
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	440	771	361	591	612	300	567	236	499	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.61	0.08	0.72	0.17	0.74	0.83	0.10	0.65	0.40

Intersection Summary

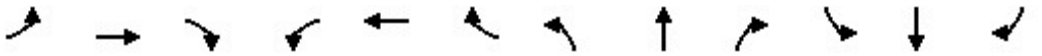
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	358	89	27	406	100	211	423	22	23	307	303
Future Volume (vph)	359	358	89	27	406	100	211	423	22	23	307	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1656		1516	1759	1495	1612	1718		1719	1827	1568
Flt Permitted	0.27	1.00		0.45	1.00	1.00	0.27	1.00		0.28	1.00	1.00
Satd. Flow (perm)	481	1656		721	1759	1495	461	1718		502	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	378	377	94	28	427	105	222	445	23	24	323	319
RTOR Reduction (vph)	0	8	0	0	0	69	0	2	0	0	0	124
Lane Group Flow (vph)	378	463	0	28	427	36	222	466	0	24	323	195
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	50.4	43.9		36.9	33.4	33.4	36.0	30.7		25.3	23.0	37.0
Effective Green, g (s)	50.4	43.9		36.9	33.4	33.4	36.0	30.7		25.3	23.0	37.0
Actuated g/C Ratio	0.51	0.45		0.37	0.34	0.34	0.37	0.31		0.26	0.23	0.38
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	417	738		298	597	507	285	536		157	427	589
v/s Ratio Prot	c0.13	0.28		0.00	0.24		c0.08	c0.27		0.00	0.18	0.05
v/s Ratio Perm	c0.33			0.03		0.02	0.21			0.04		0.08
v/c Ratio	0.91	0.63		0.09	0.72	0.07	0.78	0.87		0.15	0.76	0.33
Uniform Delay, d1	17.7	21.0		19.6	28.4	22.0	24.1	32.0		28.1	35.1	21.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.8	4.0		0.1	7.2	0.3	12.6	14.0		0.5	7.5	0.3
Delay (s)	40.5	25.0		19.8	35.5	22.3	36.8	46.0		28.5	42.6	22.2
Level of Service	D	C		B	D	C	D	D		C	D	C
Approach Delay (s)		31.9			32.2			43.0			32.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	98.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

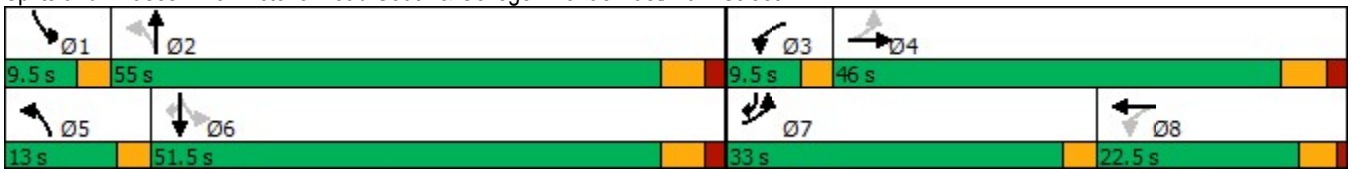


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	362	0	103	0	0	0	85	906	0	0	840	238
Future Volume (vph)	362	0	103	0	0	0	85	906	0	0	840	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.950						0.225					
Satd. Flow (perm)	1719	1442	0	1863	1863	0	411	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		284										267
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	407	0	116	0	0	0	96	1018	0	0	944	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	116	0	0	0	0	96	1018	0	0	944	267
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	33.0	46.0		9.5	22.5		13.0	55.0		9.5	51.5	33.0
Total Split (%)	27.5%	38.3%		7.9%	18.8%		10.8%	45.8%		7.9%	42.9%	27.5%
Maximum Green (s)	30.0	40.0		6.5	18.0		10.0	49.0		6.5	45.5	30.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	6.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	25.2	22.2					60.5	57.4			48.7	80.2
Actuated g/C Ratio	0.28	0.25					0.67	0.64			0.54	0.89
v/c Ratio	0.84	0.20					0.23	0.46			0.51	0.19
Control Delay	47.7	0.8					7.2	9.5			15.7	0.4
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	47.7	0.8					7.2	9.5			15.7	0.4
LOS	D	A					A	A			B	A
Approach Delay		37.3						9.3			12.3	
Approach LOS		D						A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 89.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

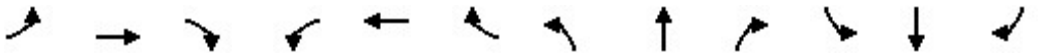




Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	407	116	96	1018	944	267
v/c Ratio	0.84	0.20	0.23	0.46	0.51	0.19
Control Delay	47.7	0.8	7.2	9.5	15.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	0.8	7.2	9.5	15.7	0.4
Queue Length 50th (m)	70.2	0.0	5.6	46.8	58.6	0.0
Queue Length 95th (m)	#115.4	0.0	11.9	65.7	84.8	2.2
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	579	804	455	2222	1866	1475
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.14	0.21	0.46	0.51	0.18

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	362	0	103	0	0	0	85	906	0	0	840	238
Future Volume (vph)	362	0	103	0	0	0	85	906	0	0	840	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0					1.0	4.0			4.0	1.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.95	1.00					0.22	1.00			1.00	1.00
Satd. Flow (perm)	1719	1442					410	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	407	0	116	0	0	0	96	1018	0	0	944	267
RTOR Reduction (vph)	0	87	0	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	407	29	0	0	0	0	96	1018	0	0	944	224
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	25.2	22.2					56.1	56.1			46.7	71.9
Effective Green, g (s)	25.2	22.2					58.1	58.1			48.7	75.9
Actuated g/C Ratio	0.28	0.25					0.64	0.64			0.54	0.84
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	3.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	479	354					387	2233			1854	1330
v/s Ratio Prot	c0.24	0.02					0.02	c0.29			c0.27	0.05
v/s Ratio Perm							0.14					0.09
v/c Ratio	0.85	0.08					0.25	0.46			0.51	0.17
Uniform Delay, d1	30.8	26.2					7.2	8.1			13.2	1.3
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	13.2	0.1					0.3	0.7			1.0	0.1
Delay (s)	44.0	26.3					7.5	8.8			14.2	1.4
Level of Service	D	C					A	A			B	A
Approach Delay (s)		40.1			0.0			8.7			11.4	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

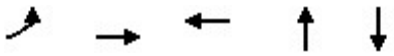
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	23	150	100	4	5	14	408	43	2	378	32
Future Volume (vph)	184	23	150	100	4	5	14	408	43	2	378	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.988			0.990	
Flt Protected	0.950				0.956			0.999				
Satd. Flow (prot)	1378	1068	0	0	1385	0	0	1690	0	0	1756	0
Flt Permitted	0.715				0.616			0.984			0.999	
Satd. Flow (perm)	1033	1068	0	0	893	0	0	1665	0	0	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		161			3			9			8	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	198	25	161	108	4	5	15	439	46	2	406	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	186	0	0	117	0	0	500	0	0	442	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	18.4	18.4			18.4			40.3			40.3	
Actuated g/C Ratio	0.26	0.26			0.26			0.57			0.57	
v/c Ratio	0.74	0.47			0.50			0.53			0.44	
Control Delay	40.5	9.2			28.8			13.2			11.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	40.5	9.2			28.8			13.2			11.8	
LOS	D	A			C			B			B	
Approach Delay		25.3			28.8			13.2			11.8	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

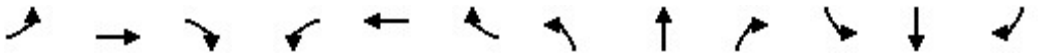
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	198	186	117	500	442
v/c Ratio	0.74	0.47	0.50	0.53	0.44
Control Delay	40.5	9.2	28.8	13.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	9.2	28.8	13.2	11.8
Queue Length 50th (m)	25.1	2.6	13.4	38.2	31.6
Queue Length 95th (m)	47.0	17.1	28.0	84.0	69.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	411	522	357	951	1002
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.36	0.33	0.53	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	23	150	100	4	5	14	408	43	2	378	32
Future Volume (vph)	184	23	150	100	4	5	14	408	43	2	378	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1386			1688			1755	
Flt Permitted	0.71	1.00			0.62			0.98			1.00	
Satd. Flow (perm)	1033	1068			892			1664			1753	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	198	25	161	108	4	5	15	439	46	2	406	34
RTOR Reduction (vph)	0	119	0	0	2	0	0	4	0	0	3	0
Lane Group Flow (vph)	198	67	0	0	115	0	0	496	0	0	439	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	18.4	18.4			18.4			40.3			40.3	
Effective Green, g (s)	18.4	18.4			18.4			40.3			40.3	
Actuated g/C Ratio	0.26	0.26			0.26			0.57			0.57	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	268	277			232			948			999	
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.19				0.13			c0.30			0.25	
v/c Ratio	0.74	0.24			0.49			0.52			0.44	
Uniform Delay, d1	23.9	20.6			22.2			9.3			8.7	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	10.2	0.5			1.7			2.1			1.4	
Delay (s)	34.1	21.1			23.9			11.4			10.1	
Level of Service	C	C			C			B			B	
Approach Delay (s)		27.8			23.9			11.4			10.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

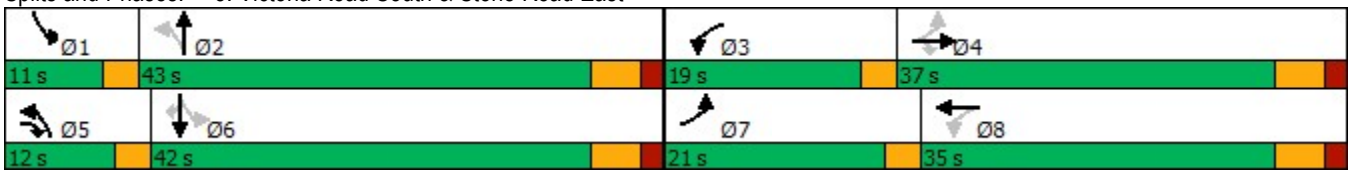
c Critical Lane Group

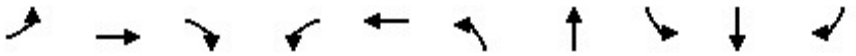
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	343	181	93	380	51	134	641	82	52	642	250
Future Volume (vph)	296	343	181	93	380	51	134	641	82	52	642	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.982			0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3395	0	1770	3325	0	1805	3438	1538
Flt Permitted	0.263			0.528			0.257			0.261		
Satd. Flow (perm)	480	3085	1392	754	3395	0	479	3325	0	496	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			199		13			14				275
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	325	377	199	102	418	56	147	704	90	57	705	275
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	377	199	102	474	0	147	794	0	57	705	275
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	21.0	37.0	12.0	19.0	35.0		12.0	43.0		11.0	42.0	42.0
Total Split (%)	19.1%	33.6%	10.9%	17.3%	31.8%		10.9%	39.1%		10.0%	38.2%	38.2%
Maximum Green (s)	18.0	31.0	9.0	16.0	29.0		9.0	37.0		8.0	36.0	36.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	41.7	27.8	42.3	31.6	18.4		49.4	39.5		46.5	36.1	36.1
Actuated g/C Ratio	0.42	0.28	0.43	0.32	0.19		0.50	0.40		0.47	0.37	0.37
v/c Ratio	0.77	0.43	0.28	0.34	0.73		0.42	0.59		0.17	0.56	0.38
Control Delay	33.4	31.9	3.9	21.2	44.0		17.5	26.5		14.7	27.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.4	31.9	3.9	21.2	44.0		17.5	26.5		14.7	27.7	4.6
LOS	C	C	A	C	D		B	C		B	C	A
Approach Delay		26.3			39.9			25.1			20.9	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 98.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 26.6		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East

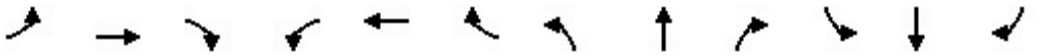




Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	325	377	199	102	474	147	794	57	705	275
v/c Ratio	0.77	0.43	0.28	0.34	0.73	0.42	0.59	0.17	0.56	0.38
Control Delay	33.4	31.9	3.9	21.2	44.0	17.5	26.5	14.7	27.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	31.9	3.9	21.2	44.0	17.5	26.5	14.7	27.7	4.6
Queue Length 50th (m)	45.3	33.7	0.0	12.5	46.8	15.2	66.4	5.6	59.8	0.0
Queue Length 95th (m)	#71.6	50.4	13.8	23.4	64.5	29.5	96.5	13.4	85.4	17.8
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	434	975	718	385	1013	359	1343	344	1262	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.39	0.28	0.26	0.47	0.41	0.59	0.17	0.56	0.38

Intersection Summary

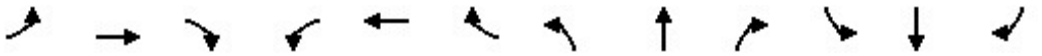
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	343	181	93	380	51	134	641	82	52	642	250
Future Volume (vph)	296	343	181	93	380	51	134	641	82	52	642	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3396		1769	3325		1805	3438	1518
Flt Permitted	0.26	1.00	1.00	0.53	1.00		0.26	1.00		0.26	1.00	1.00
Satd. Flow (perm)	480	3085	1392	754	3396		479	3325		496	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	325	377	199	102	418	56	147	704	90	57	705	275
RTOR Reduction (vph)	0	0	127	0	11	0	0	8	0	0	0	173
Lane Group Flow (vph)	325	377	72	102	463	0	147	786	0	57	705	102
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	39.3	27.7	36.2	27.6	19.0		48.0	39.5		42.6	36.8	36.8
Effective Green, g (s)	39.3	27.7	36.2	27.6	19.0		48.0	39.5		42.6	36.8	36.8
Actuated g/C Ratio	0.39	0.28	0.36	0.28	0.19		0.48	0.40		0.43	0.37	0.37
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	407	857	505	261	647		340	1318		288	1270	560
v/s Ratio Prot	c0.14	0.12	0.01	0.03	0.14		c0.04	c0.24		0.01	0.21	
v/s Ratio Perm	c0.18		0.04	0.07			0.17			0.07		0.07
v/c Ratio	0.80	0.44	0.14	0.39	0.72		0.43	0.60		0.20	0.56	0.18
Uniform Delay, d1	23.3	29.6	21.3	28.1	37.8		15.6	23.7		17.3	24.9	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.4	0.1	1.0	3.8		0.9	2.0		0.3	1.8	0.7
Delay (s)	33.7	29.9	21.4	29.1	41.6		16.5	25.7		17.7	26.7	21.9
Level of Service	C	C	C	C	D		B	C		B	C	C
Approach Delay (s)		29.4			39.4			24.3			24.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	99.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

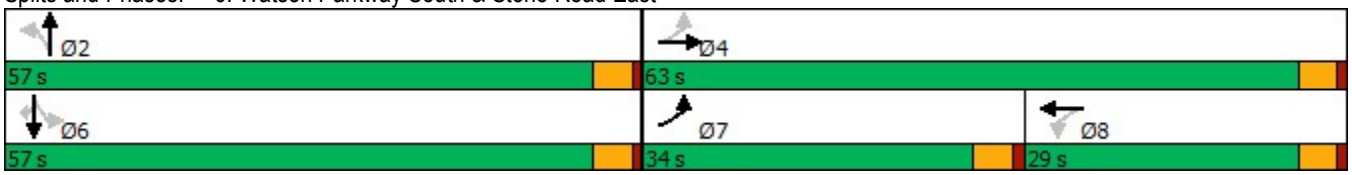


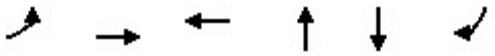
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	177	67	14	122	1	35	244	15	3	262	355
Future Volume (vph)	228	177	67	14	122	1	35	244	15	3	262	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994			0.999	
Satd. Flow (prot)	1504	1725	0	0	1805	0	0	1795	0	0	1824	1404
Flt Permitted	0.355				0.944			0.939			0.998	
Satd. Flow (perm)	562	1725	0	0	1713	0	0	1696	0	0	1823	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						3				374
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	240	186	71	15	128	1	37	257	16	3	276	374
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	257	0	0	144	0	0	310	0	0	279	374
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	34.0	63.0		29.0	29.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	28.3%	52.5%		24.2%	24.2%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	29.5	58.5		24.5	24.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	38.5	38.5			13.3			53.0			53.0	53.0
Actuated g/C Ratio	0.38	0.38			0.13			0.53			0.53	0.53
v/c Ratio	0.59	0.38			0.64			0.35			0.29	0.41
Control Delay	28.2	21.3			55.7			17.0			16.3	3.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	28.2	21.3			55.7			17.0			16.3	3.3
LOS	C	C			E			B			B	A
Approach Delay		24.7			55.7			17.0			8.9	
Approach LOS		C			E			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100.6			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			

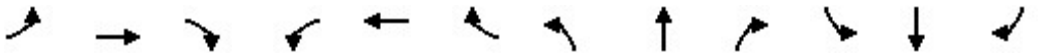
Splits and Phases: 6: Watson Parkway South & Stone Road East





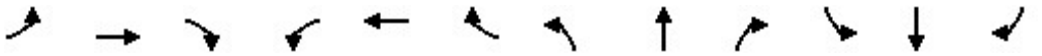
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	240	257	144	310	279	374
v/c Ratio	0.59	0.38	0.64	0.35	0.29	0.41
Control Delay	28.2	21.3	55.7	17.0	16.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	21.3	55.7	17.0	16.3	3.3
Queue Length 50th (m)	35.2	33.8	28.3	34.8	30.5	0.0
Queue Length 95th (m)	55.2	53.3	52.6	70.7	62.4	16.9
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	499	1021	420	894	960	916
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	0.48	0.25	0.34	0.35	0.29	0.41

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	177	67	14	122	1	35	244	15	3	262	355
Future Volume (vph)	228	177	67	14	122	1	35	244	15	3	262	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			1.00	1.00
Satd. Flow (prot)	1504	1724			1805			1795			1825	1404
Flt Permitted	0.35	1.00			0.94			0.94			1.00	1.00
Satd. Flow (perm)	562	1724			1713			1695			1822	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	240	186	71	15	128	1	37	257	16	3	276	374
RTOR Reduction (vph)	0	14	0	0	0	0	0	1	0	0	0	177
Lane Group Flow (vph)	240	243	0	0	144	0	0	309	0	0	279	197
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	38.6	38.6			13.4			53.0			53.0	53.0
Effective Green, g (s)	38.6	38.6			13.4			53.0			53.0	53.0
Actuated g/C Ratio	0.38	0.38			0.13			0.53			0.53	0.53
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	409	661			228			892			959	739
v/s Ratio Prot	c0.12	0.14										
v/s Ratio Perm	c0.10				0.08			c0.18			0.15	0.14
v/c Ratio	0.59	0.37			0.63			0.35			0.29	0.27
Uniform Delay, d1	23.6	22.2			41.3			13.8			13.3	13.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.2	0.3			5.6			1.1			0.8	0.9
Delay (s)	25.7	22.6			46.9			14.8			14.1	14.0
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.1			46.9			14.8			14.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

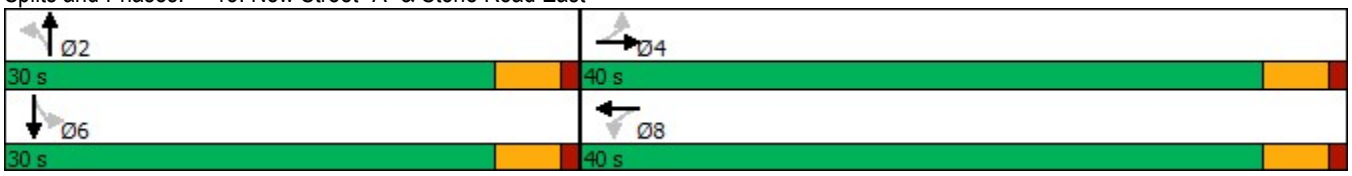


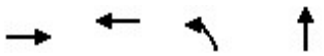
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3458	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.937		0.757					
Satd. Flow (perm)	0	3458	0	0	3316	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42						167				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	853	0	0	661	0	81	18	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	40.0	40.0		40.0	40.0		30.0	30.0		30.0	30.0	
Total Split (%)	57.1%	57.1%		57.1%	57.1%		42.9%	42.9%		42.9%	42.9%	
Maximum Green (s)	35.5	35.5		35.5	35.5		25.5	25.5		25.5	25.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		47.3			47.3		8.7	8.7				
Actuated g/C Ratio		0.81			0.81		0.15	0.15				
v/c Ratio		0.30			0.25		0.39	0.05				
Control Delay		3.3			3.2		27.5	0.2				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		3.3			3.2		27.5	0.2				
LOS		A			A		C	A				
Approach Delay		3.3			3.2			22.5				
Approach LOS		A			A			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 58.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 4.4		Intersection LOS: A	
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			

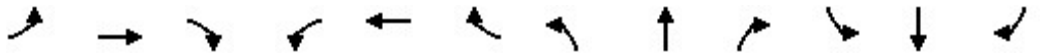
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	853	661	81	18
v/c Ratio	0.30	0.25	0.39	0.05
Control Delay	3.3	3.2	27.5	0.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.3	3.2	27.5	0.2
Queue Length 50th (m)	15.0	11.7	9.9	0.0
Queue Length 95th (m)	26.6	21.1	17.7	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	2803	2680	617	787
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.25	0.13	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3460			3535		1770	1583				
Flt Permitted		1.00			0.94		0.76	1.00				
Satd. Flow (perm)		3460			3315		1410	1583				
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)	0	725	128	14	647	0	81	0	18	0	0	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	843	0	0	661	0	81	2	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		45.4			45.4		6.0	6.0				
Effective Green, g (s)		45.4			45.4		6.0	6.0				
Actuated g/C Ratio		0.75			0.75		0.10	0.10				
Clearance Time (s)		4.5			4.5		4.5	4.5				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		2600			2491		140	157				
v/s Ratio Prot		c0.24						0.00				
v/s Ratio Perm					0.20		c0.06					
v/c Ratio		0.32			0.27		0.58	0.01				
Uniform Delay, d1		2.5			2.3		26.0	24.5				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.3		5.7	0.0				
Delay (s)		2.8			2.6		31.7	24.6				
Level of Service		A			A		C	C				
Approach Delay (s)		2.8			2.6			30.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	282	193	254	318	30	211	667	224	91	787	49
Future Volume (vph)	46	282	193	254	318	30	211	667	224	91	787	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3458	0
Flt Permitted	0.472			0.183			0.163			0.331		
Satd. Flow (perm)	845	1712	1583	331	1759	1475	295	3471	1523	581	3458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			109			243		5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	50	307	210	276	346	33	229	725	243	99	855	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	307	210	276	346	33	229	725	243	99	908	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	10.0	30.0	30.0	19.0	39.0	39.0	27.0	57.0	19.0	14.0	44.0	
Total Split (%)	8.3%	25.0%	25.0%	15.8%	32.5%	32.5%	22.5%	47.5%	15.8%	11.7%	36.7%	
Maximum Green (s)	7.0	24.0	24.0	16.0	33.0	33.0	24.0	51.0	16.0	11.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.4	24.6	22.6	44.4	33.6	33.6	65.7	51.1	69.9	56.4	44.7	
Actuated g/C Ratio	0.28	0.21	0.19	0.38	0.29	0.29	0.57	0.44	0.60	0.49	0.38	
v/c Ratio	0.18	0.85	0.50	0.88	0.68	0.07	0.65	0.48	0.24	0.27	0.68	
Control Delay	25.3	65.8	20.1	55.9	45.4	0.3	23.4	24.9	1.8	14.7	34.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.3	65.8	20.1	55.9	45.4	0.3	23.4	24.9	1.8	14.7	34.1	
LOS	C	E	C	E	D	A	C	C	A	B	C	
Approach Delay		45.3			47.6			19.9			32.2	
Approach LOS		D			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.2			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 33.0		Intersection LOS: C	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road

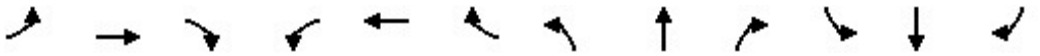




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	307	210	276	346	33	229	725	243	99	908
v/c Ratio	0.18	0.85	0.50	0.88	0.68	0.07	0.65	0.48	0.24	0.27	0.68
Control Delay	25.3	65.8	20.1	55.9	45.4	0.3	23.4	24.9	1.8	14.7	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	65.8	20.1	55.9	45.4	0.3	23.4	24.9	1.8	14.7	34.1
Queue Length 50th (m)	7.5	71.3	15.1	48.1	75.4	0.0	27.0	65.1	0.0	10.8	95.2
Queue Length 95th (m)	16.6	#120.5	40.2	#95.7	113.1	0.0	45.9	85.7	10.0	19.3	133.1
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	289	383	435	318	509	504	461	1526	1019	396	1333
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	0.17	0.80	0.48	0.87	0.68	0.07	0.50	0.48	0.24	0.25	0.68

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	282	193	254	318	30	211	667	224	91	787	49
Future Volume (vph)	46	282	193	254	318	30	211	667	224	91	787	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1670	3458	
Flt Permitted	0.47	1.00	1.00	0.18	1.00	1.00	0.16	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	846	1712	1583	331	1759	1475	294	3471	1530	582	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	307	210	276	346	33	229	725	243	99	855	53
RTOR Reduction (vph)	0	0	109	0	0	24	0	0	104	0	3	0
Lane Group Flow (vph)	50	307	101	276	346	9	229	725	139	99	905	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.6	23.2	23.2	42.0	33.6	33.6	62.8	51.1	66.9	53.5	44.8	
Effective Green, g (s)	28.6	25.2	23.2	42.0	33.6	33.6	62.8	51.1	66.9	53.5	44.8	
Actuated g/C Ratio	0.24	0.22	0.20	0.36	0.29	0.29	0.54	0.44	0.57	0.46	0.38	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	246	369	314	306	506	424	341	1518	876	347	1326	
v/s Ratio Prot	0.01	0.18		c0.12	0.20		c0.09	0.21	0.02	0.02	0.26	
v/s Ratio Perm	0.04		0.06	c0.20		0.01	c0.27		0.07	0.11		
v/c Ratio	0.20	0.83	0.32	0.90	0.68	0.02	0.67	0.48	0.16	0.29	0.68	
Uniform Delay, d1	34.4	43.8	40.1	30.4	36.9	29.8	18.2	23.4	11.7	18.4	30.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	14.7	0.6	27.9	3.8	0.0	5.1	1.1	0.1	0.5	2.9	
Delay (s)	34.8	58.5	40.7	58.3	40.7	29.8	23.3	24.4	11.8	18.8	32.9	
Level of Service	C	E	D	E	D	C	C	C	B	B	C	
Approach Delay (s)		49.8			47.5			21.7			31.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

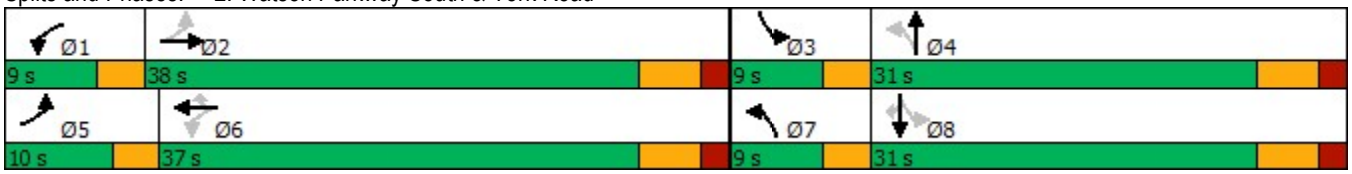
c Critical Lane Group

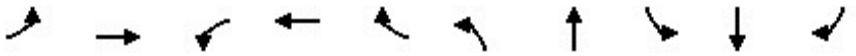
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	270	108	20	381	27	102	136	21	48	357	374
Future Volume (vph)	183	270	108	20	381	27	102	136	21	48	357	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.957				0.850		0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1632	0	1517	1759	1495	1612	1701	0	1719	1827	1568
Flt Permitted	0.357			0.492			0.257			0.653		
Satd. Flow (perm)	634	1632	0	785	1759	1495	436	1701	0	1182	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				113		9				365
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	193	284	114	21	401	28	107	143	22	51	376	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	398	0	21	401	28	107	165	0	51	376	394
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	10.0	38.0		9.0	37.0	37.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	11.5%	43.7%		10.3%	42.5%	42.5%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	7.0	32.0		6.0	31.0	31.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.7	38.1		40.4	31.3	31.3	29.0	22.6		28.4	20.7	20.7
Actuated g/C Ratio	0.54	0.47		0.50	0.39	0.39	0.36	0.28		0.35	0.25	0.25
v/c Ratio	0.45	0.51		0.05	0.59	0.04	0.44	0.34		0.11	0.81	0.59
Control Delay	15.0	20.1		11.1	26.0	0.1	22.0	24.9		15.8	42.9	7.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	15.0	20.1		11.1	26.0	0.1	22.0	24.9		15.8	42.9	7.9
LOS	B	C		B	C	A	C	C		B	D	A
Approach Delay		18.4			23.7			23.7			24.4	
Approach LOS		B			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 81.2			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	193	398	21	401	28	107	165	51	376	394
v/c Ratio	0.45	0.51	0.05	0.59	0.04	0.44	0.34	0.11	0.81	0.59
Control Delay	15.0	20.1	11.1	26.0	0.1	22.0	24.9	15.8	42.9	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	20.1	11.1	26.0	0.1	22.0	24.9	15.8	42.9	7.9
Queue Length 50th (m)	17.1	41.4	1.7	55.8	0.0	11.2	21.4	5.1	59.0	3.7
Queue Length 95th (m)	30.8	85.1	5.3	89.5	0.0	21.6	38.7	12.0	91.2	26.8
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	433	778	445	678	646	243	547	452	568	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.51	0.05	0.59	0.04	0.44	0.30	0.11	0.66	0.53

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	270	108	20	381	27	102	136	21	48	357	374
Future Volume (vph)	183	270	108	20	381	27	102	136	21	48	357	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1632		1516	1759	1495	1612	1701		1719	1827	1568
Flt Permitted	0.36	1.00		0.49	1.00	1.00	0.26	1.00		0.65	1.00	1.00
Satd. Flow (perm)	634	1632		786	1759	1495	436	1701		1181	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	193	284	114	21	401	28	107	143	22	51	376	394
RTOR Reduction (vph)	0	14	0	0	0	17	0	7	0	0	0	272
Lane Group Flow (vph)	193	384	0	21	401	11	107	158	0	51	376	122
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.3	38.1		35.4	33.2	33.2	27.2	22.6		24.8	21.4	21.4
Effective Green, g (s)	43.3	38.1		35.4	33.2	33.2	27.2	22.6		24.8	21.4	21.4
Actuated g/C Ratio	0.51	0.45		0.42	0.39	0.39	0.32	0.27		0.29	0.25	0.25
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	414	737		349	692	588	204	456		369	463	398
v/s Ratio Prot	c0.04	0.24		0.00	c0.23		c0.03	0.09		0.01	c0.21	
v/s Ratio Perm	0.20			0.02		0.01	0.14			0.04		0.08
v/c Ratio	0.47	0.52		0.06	0.58	0.02	0.52	0.35		0.14	0.81	0.31
Uniform Delay, d1	12.3	16.6		14.4	20.1	15.6	21.7	24.9		21.6	29.6	25.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	2.6		0.1	3.5	0.1	2.4	0.5		0.2	10.4	0.4
Delay (s)	13.1	19.2		14.5	23.6	15.7	24.1	25.4		21.8	40.0	25.9
Level of Service	B	B		B	C	B	C	C		C	D	C
Approach Delay (s)		17.2			22.7			24.9			32.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

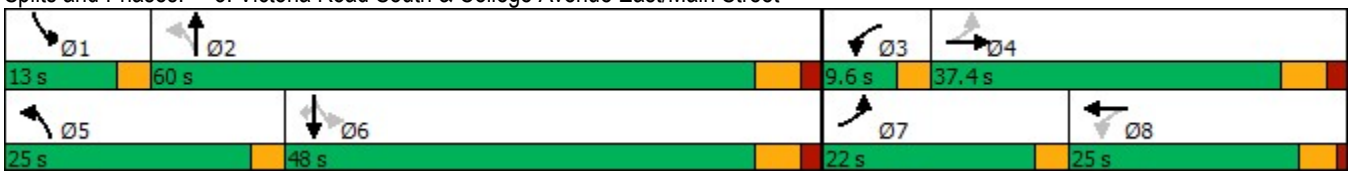
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	0	48	0	0	0	145	830	0	0	672	420
Future Volume (vph)	197	0	48	0	0	0	145	830	0	0	672	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.654						0.246					
Satd. Flow (perm)	1183	1442	0	1863	1863	0	449	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		451										364
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	221	0	54	0	0	0	163	933	0	0	755	472
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	54	0	0	0	0	163	933	0	0	755	472
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	37.4		9.6	25.0		25.0	60.0		13.0	48.0	48.0
Total Split (%)	18.3%	31.2%		8.0%	20.8%		20.8%	50.0%		10.8%	40.0%	40.0%
Maximum Green (s)	19.0	31.4		6.6	20.5		22.0	54.0		10.0	42.0	42.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	40.3	37.3					59.1	56.1			42.5	42.5
Actuated g/C Ratio	0.38	0.35					0.56	0.53			0.40	0.40
v/c Ratio	0.42	0.07					0.43	0.51			0.55	0.55
Control Delay	26.0	0.2					15.4	17.3			26.8	8.8
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	26.0	0.2					15.4	17.3			26.8	8.8
LOS	C	A					B	B			C	A
Approach Delay		20.9						17.0			19.9	
Approach LOS		C						B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.5			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

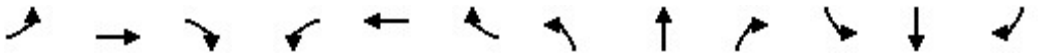
Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street





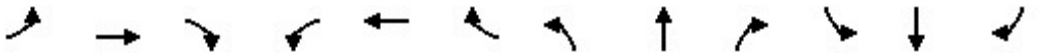
Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	221	54	163	933	755	472
v/c Ratio	0.42	0.07	0.43	0.51	0.55	0.55
Control Delay	26.0	0.2	15.4	17.3	26.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	0.2	15.4	17.3	26.8	8.8
Queue Length 50th (m)	32.9	0.0	16.3	65.4	64.6	14.8
Queue Length 95th (m)	54.9	0.0	28.7	86.5	92.2	46.9
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	549	801	520	1846	1385	855
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	0.40	0.07	0.31	0.51	0.55	0.55

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	0	48	0	0	0	145	830	0	0	672	420
Future Volume (vph)	197	0	48	0	0	0	145	830	0	0	672	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.65	1.00					0.25	1.00			1.00	1.00
Satd. Flow (perm)	1184	1442					449	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	221	0	54	0	0	0	163	933	0	0	755	472
RTOR Reduction (vph)	0	35	0	0	0	0	0	0	0	0	0	217
Lane Group Flow (vph)	221	19	0	0	0	0	163	933	0	0	755	255
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	37.4	37.4					56.1	56.1			42.5	42.5
Effective Green, g (s)	37.4	37.4					56.1	56.1			42.5	42.5
Actuated g/C Ratio	0.35	0.35					0.53	0.53			0.40	0.40
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	497	511					368	1845			1384	637
v/s Ratio Prot	c0.06	0.01					0.04	c0.27			c0.22	
v/s Ratio Perm	c0.09						0.19					0.16
v/c Ratio	0.44	0.04					0.44	0.51			0.55	0.40
Uniform Delay, d1	25.3	22.3					14.1	15.8			24.1	22.4
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	0.6	0.1					0.9	1.0			1.5	1.9
Delay (s)	25.9	22.4					15.0	16.8			25.7	24.3
Level of Service	C	C					B	B			C	C
Approach Delay (s)		25.2			0.0			16.5			25.1	
Approach LOS		C			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



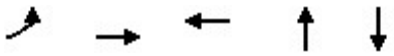
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	8	14	45	8	3	33	215	70	3	376	42
Future Volume (vph)	29	8	14	45	8	3	33	215	70	3	376	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.906			0.993			0.970			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1053	0	0	1371	0	0	1621	0	0	1745	0
Flt Permitted	0.718				0.753			0.934			0.998	
Satd. Flow (perm)	1037	1053	0	0	1073	0	0	1522	0	0	1741	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3			32			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	31	9	15	48	9	3	35	231	75	3	404	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	24	0	0	60	0	0	341	0	0	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.3	9.3			9.3			56.5			56.5	
Actuated g/C Ratio	0.13	0.13			0.13			0.81			0.81	
v/c Ratio	0.23	0.16			0.41			0.28			0.32	
Control Delay	30.6	18.9			35.2			4.1			4.5	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.6	18.9			35.2			4.1			4.5	
LOS	C	B			D			A			A	
Approach Delay		25.5			35.3			4.1			4.5	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

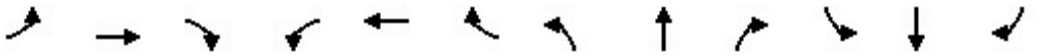
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	31	24	60	341	452
v/c Ratio	0.23	0.16	0.41	0.28	0.32
Control Delay	30.6	18.9	35.2	4.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	18.9	35.2	4.1	4.5
Queue Length 50th (m)	3.8	1.1	7.2	12.8	19.4
Queue Length 95th (m)	11.3	7.2	17.9	29.2	41.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	295	311	308	1233	1406
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.19	0.28	0.32

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	8	14	45	8	3	33	215	70	3	376	42
Future Volume (vph)	29	8	14	45	8	3	33	215	70	3	376	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			0.99			1.00	
Satd. Flow (prot)	1372	1053			1371			1622			1744	
Flt Permitted	0.72	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1037	1053			1073			1522			1741	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	31	9	15	48	9	3	35	231	75	3	404	45
RTOR Reduction (vph)	0	14	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	31	10	0	0	57	0	0	333	0	0	449	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.4	6.4			6.4			54.1			54.1	
Effective Green, g (s)	6.4	6.4			6.4			54.1			54.1	
Actuated g/C Ratio	0.09	0.09			0.09			0.75			0.75	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	91	92			94			1135			1299	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.05			0.22			c0.26	
v/c Ratio	0.34	0.11			0.61			0.29			0.35	
Uniform Delay, d1	31.1	30.4			31.8			3.0			3.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.2	0.5			10.7			0.7			0.7	
Delay (s)	33.3	31.0			42.5			3.6			3.9	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.3			42.5			3.6			3.9	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

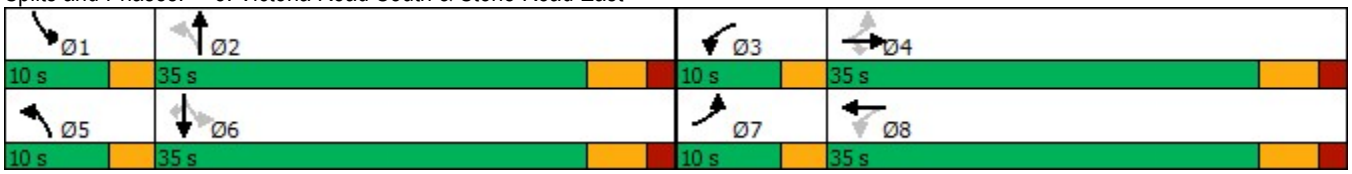
c Critical Lane Group

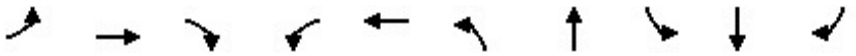
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	142	78	77	357	47	198	756	85	39	463	218
Future Volume (vph)	160	142	78	77	357	47	198	756	85	39	463	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.982			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3395	0	1770	3341	0	1805	3438	1538
Flt Permitted	0.354			0.653			0.392			0.232		
Satd. Flow (perm)	647	3085	1392	933	3395	0	730	3341	0	441	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		17			14				240
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	176	156	86	85	392	52	218	831	93	43	509	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	156	86	85	444	0	218	924	0	43	509	240
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	25.3	16.8	16.8	24.7	14.7		40.3	33.2		39.1	29.1	29.1
Actuated g/C Ratio	0.33	0.22	0.22	0.33	0.19		0.53	0.44		0.52	0.38	0.38
v/c Ratio	0.56	0.23	0.22	0.25	0.66		0.45	0.63		0.12	0.39	0.33
Control Delay	24.5	26.0	5.1	18.1	32.2		12.7	20.3		9.4	18.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	24.5	26.0	5.1	18.1	32.2		12.7	20.3		9.4	18.5	4.0
LOS	C	C	A	B	C		B	C		A	B	A
Approach Delay		21.1			29.9			18.9			13.6	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 19.8		Intersection LOS: B	
Intersection Capacity Utilization 72.0%		ICU Level of Service C	
Analysis Period (min) 15			

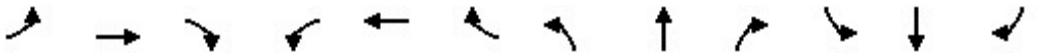
Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	176	156	86	85	444	218	924	43	509	240
v/c Ratio	0.56	0.23	0.22	0.25	0.66	0.45	0.63	0.12	0.39	0.33
Control Delay	24.5	26.0	5.1	18.1	32.2	12.7	20.3	9.4	18.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	26.0	5.1	18.1	32.2	12.7	20.3	9.4	18.5	4.0
Queue Length 50th (m)	18.3	10.5	0.0	8.5	31.4	15.3	59.5	2.7	28.3	0.0
Queue Length 95th (m)	32.5	18.6	7.7	17.9	46.2	30.4	89.2	7.9	44.8	14.3
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	317	1182	600	343	1311	484	1472	353	1317	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.13	0.14	0.25	0.34	0.45	0.63	0.12	0.39	0.33

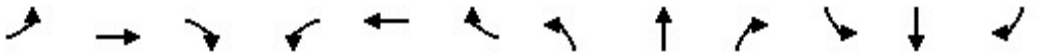
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	142	78	77	357	47	198	756	85	39	463	218
Future Volume (vph)	160	142	78	77	357	47	198	756	85	39	463	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3397		1769	3341		1805	3438	1518
Flt Permitted	0.35	1.00	1.00	0.65	1.00		0.39	1.00		0.23	1.00	1.00
Satd. Flow (perm)	646	3085	1392	933	3397		730	3341		441	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	156	86	85	392	52	218	831	93	43	509	240
RTOR Reduction (vph)	0	0	67	0	14	0	0	8	0	0	0	146
Lane Group Flow (vph)	176	156	19	85	430	0	218	916	0	43	509	94
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	23.8	16.8	16.8	20.8	15.3		40.2	33.2		34.4	30.3	30.3
Effective Green, g (s)	23.8	16.8	16.8	20.8	15.3		40.2	33.2		34.4	30.3	30.3
Actuated g/C Ratio	0.31	0.22	0.22	0.27	0.20		0.52	0.43		0.44	0.39	0.39
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	296	667	301	280	669		471	1429		267	1342	592
v/s Ratio Prot	c0.05	0.05		0.02	0.13		c0.04	c0.27		0.01	0.15	
v/s Ratio Perm	c0.13		0.01	0.06			0.20			0.06		0.06
v/c Ratio	0.59	0.23	0.06	0.30	0.64		0.46	0.64		0.16	0.38	0.16
Uniform Delay, d1	20.9	25.1	24.1	22.2	28.6		10.5	17.5		12.7	16.9	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.2	0.2	0.1	0.6	2.1		0.7	2.2		0.3	0.8	0.6
Delay (s)	24.1	25.3	24.2	22.8	30.8		11.2	19.7		13.0	17.7	15.9
Level of Service	C	C	C	C	C		B	B		B	B	B
Approach Delay (s)		24.6			29.5			18.1			16.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

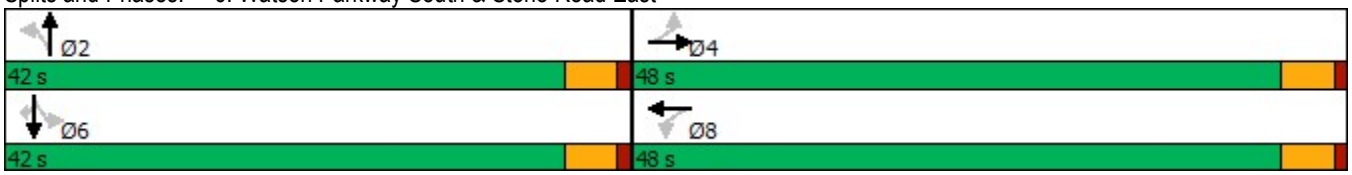


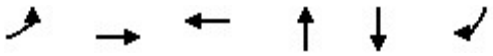
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	74	42	14	144	3	78	143	11	3	190	239
Future Volume (vph)	175	74	42	14	144	3	78	143	11	3	190	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.993				0.850
Flt Protected	0.950				0.996			0.984			0.999	
Satd. Flow (prot)	1504	1693	0	0	1801	0	0	1774	0	0	1818	1404
Flt Permitted	0.624				0.972			0.851			0.997	
Satd. Flow (perm)	988	1693	0	0	1758	0	0	1534	0	0	1814	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			1			4				252
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	184	78	44	15	152	3	82	151	12	3	200	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	122	0	0	170	0	0	245	0	0	203	252
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%		46.7%	46.7%	46.7%
Maximum Green (s)	43.5	43.5		43.5	43.5		37.5	37.5		37.5	37.5	37.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	16.3	16.3			16.3			38.3			38.3	38.3
Actuated g/C Ratio	0.26	0.26			0.26			0.60			0.60	0.60
v/c Ratio	0.73	0.26			0.38			0.27			0.19	0.27
Control Delay	38.3	13.4			21.1			8.1			7.5	2.1
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	38.3	13.4			21.1			8.1			7.5	2.1
LOS	D	B			C			A			A	A
Approach Delay		28.4			21.1			8.1			4.5	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 63.6			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 55.9%		ICU Level of Service B	
Analysis Period (min) 15			

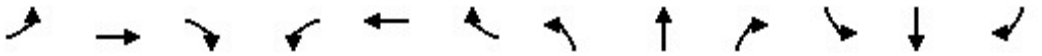
Splits and Phases: 6: Watson Parkway South & Stone Road East





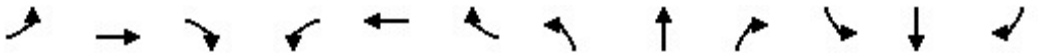
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	184	122	170	245	203	252
v/c Ratio	0.73	0.26	0.38	0.27	0.19	0.27
Control Delay	38.3	13.4	21.1	8.1	7.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	13.4	21.1	8.1	7.5	2.1
Queue Length 50th (m)	20.3	7.4	16.8	12.1	9.7	0.0
Queue Length 95th (m)	40.3	18.4	31.1	31.5	25.2	9.7
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	679	1177	1208	924	1091	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.10	0.14	0.27	0.19	0.27

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	74	42	14	144	3	78	143	11	3	190	239
Future Volume (vph)	175	74	42	14	144	3	78	143	11	3	190	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1693			1800			1773			1818	1404
Flt Permitted	0.62	1.00			0.97			0.85			1.00	1.00
Satd. Flow (perm)	988	1693			1757			1535			1814	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	78	44	15	152	3	82	151	12	3	200	252
RTOR Reduction (vph)	0	33	0	0	1	0	0	2	0	0	0	100
Lane Group Flow (vph)	184	89	0	0	169	0	0	243	0	0	203	152
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	16.3	16.3			16.3			38.3			38.3	38.3
Effective Green, g (s)	16.3	16.3			16.3			38.3			38.3	38.3
Actuated g/C Ratio	0.26	0.26			0.26			0.60			0.60	0.60
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	253	433			450			924			1092	845
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.19				0.10			c0.16			0.11	0.11
v/c Ratio	0.73	0.21			0.38			0.26			0.19	0.18
Uniform Delay, d1	21.6	18.6			19.5			6.0			5.7	5.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	10.0	0.2			0.5			0.7			0.4	0.5
Delay (s)	31.6	18.8			20.0			6.7			6.0	6.1
Level of Service	C	B			B			A			A	A
Approach Delay (s)		26.5			20.0			6.7			6.1	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

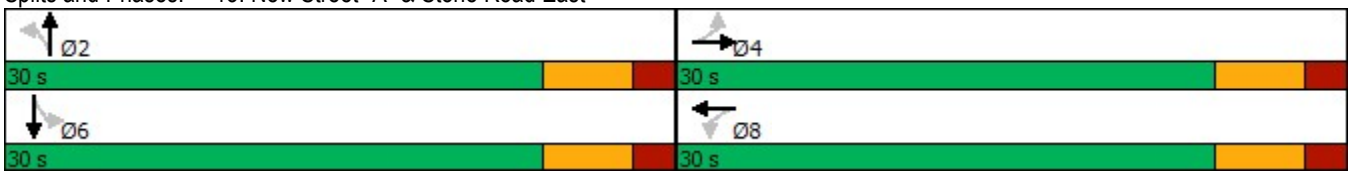


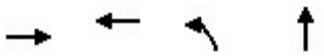
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3451	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.951		0.757					
Satd. Flow (perm)	0	3451	0	0	3366	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46						485				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	0	0	512	0	142	37	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
v/c Ratio		0.21			0.38		0.25	0.04				
Control Delay		10.4			13.8		13.6	0.1				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		10.4			13.8		13.6	0.1				
LOS		B			B		B	A				
Approach Delay		10.4			13.8			10.8				
Approach LOS		B			B			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	302	512	142	37
v/c Ratio	0.21	0.38	0.25	0.04
Control Delay	10.4	13.8	13.6	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.4	13.8	13.6	0.1
Queue Length 50th (m)	9.7	21.1	10.5	0.0
Queue Length 95th (m)	17.0	32.1	21.8	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	1408	1346	564	924
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.25	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3451			3537		1770	1583				
Flt Permitted		1.00			0.95		0.76	1.00				
Satd. Flow (perm)		3451			3365		1410	1583				
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)	0	252	50	6	506	0	142	0	37	0	0	0
RTOR Reduction (vph)	0	28	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	274	0	0	512	0	142	15	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0				
Effective Green, g (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1380			1346		564	633				
v/s Ratio Prot		0.08						0.01				
v/s Ratio Perm					c0.15		c0.10					
v/c Ratio		0.20			0.38		0.25	0.02				
Uniform Delay, d1		11.7			12.7		12.0	10.9				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.8		0.2	0.0				
Delay (s)		12.1			13.6		12.2	10.9				
Level of Service		B			B		B	B				
Approach Delay (s)		12.1			13.6			12.0			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	367	211	331	503	84	248	976	263	41	791	65
Future Volume (vph)	65	367	211	331	503	84	248	976	263	41	791	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3446	0
Flt Permitted	0.162			0.144			0.126			0.186		
Satd. Flow (perm)	290	1712	1583	261	1759	1475	228	3471	1523	327	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			225		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	71	399	229	360	547	91	270	1061	286	45	860	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	399	229	360	547	91	270	1061	286	45	931	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	20.0	41.0	41.0	30.0	58.0	20.0	12.0	40.0	
Total Split (%)	7.5%	25.0%	25.0%	16.7%	34.2%	34.2%	25.0%	48.3%	16.7%	10.0%	33.3%	
Maximum Green (s)	6.0	24.0	27.0	17.0	35.0	35.0	27.0	52.0	17.0	9.0	34.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	33.1	26.0	49.9	49.1	39.0	37.0	65.2	54.1	76.1	49.4	41.3	
Actuated g/C Ratio	0.28	0.22	0.43	0.42	0.34	0.32	0.56	0.47	0.65	0.42	0.36	
v/c Ratio	0.46	1.04	0.32	1.03	0.93	0.17	0.71	0.66	0.27	0.20	0.76	
Control Delay	33.4	102.0	14.3	89.4	62.4	4.7	30.6	26.9	2.7	16.1	38.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.4	102.0	14.3	89.4	62.4	4.7	30.6	26.9	2.7	16.1	38.5	
LOS	C	F	B	F	E	A	C	C	A	B	D	
Approach Delay		66.3			66.9			23.2			37.5	
Approach LOS		E			E			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 116.3
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 43.6 Intersection LOS: D
Intersection Capacity Utilization 88.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road



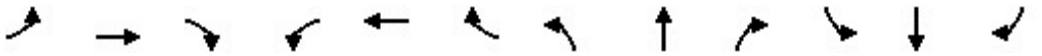


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	71	399	229	360	547	91	270	1061	286	45	931
v/c Ratio	0.46	1.04	0.32	1.03	0.93	0.17	0.71	0.66	0.27	0.20	0.76
Control Delay	33.4	102.0	14.3	89.4	62.4	4.7	30.6	26.9	2.7	16.1	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	102.0	14.3	89.4	62.4	4.7	30.6	26.9	2.7	16.1	38.5
Queue Length 50th (m)	10.7	~106.5	22.5	~78.1	132.2	0.0	37.3	103.5	4.9	4.8	101.5
Queue Length 95th (m)	21.2	#171.9	36.7	#142.3	#210.4	9.0	64.9	130.9	15.5	10.5	#151.8
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	155	383	844	348	589	543	500	1614	1079	248	1229
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	0.46	1.04	0.27	1.03	0.93	0.17	0.54	0.66	0.27	0.18	0.76

Intersection Summary

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

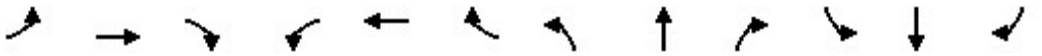
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	367	211	331	503	84	248	976	263	41	791	65
Future Volume (vph)	65	367	211	331	503	84	248	976	263	41	791	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1531	1671	3444	
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.13	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	290	1712	1583	261	1759	1475	229	3471	1531	327	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	399	229	360	547	91	270	1061	286	45	860	71
RTOR Reduction (vph)	0	0	50	0	0	62	0	0	85	0	5	0
Lane Group Flow (vph)	71	399	179	360	547	29	270	1061	201	45	927	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	29.4	24.7	42.6	44.7	37.0	37.0	60.9	52.1	69.1	45.8	40.0	
Effective Green, g (s)	29.4	26.7	46.6	46.7	39.0	37.0	62.9	54.1	73.1	45.8	42.0	
Actuated g/C Ratio	0.25	0.23	0.40	0.40	0.33	0.31	0.53	0.46	0.62	0.39	0.36	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	128	388	627	339	583	464	374	1596	951	193	1230	
v/s Ratio Prot	0.02	c0.23	0.05	c0.17	0.31		c0.12	0.31	0.03	0.01	c0.27	
v/s Ratio Perm	0.12		0.06	0.25		0.02	0.26		0.10	0.08		
v/c Ratio	0.55	1.03	0.29	1.06	0.94	0.06	0.72	0.66	0.21	0.23	0.75	
Uniform Delay, d1	36.0	45.4	24.2	34.3	38.1	28.2	23.9	24.7	9.7	23.3	33.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.1	53.1	0.3	66.2	22.9	0.1	6.7	2.2	0.1	0.6	4.3	
Delay (s)	41.1	98.6	24.4	100.5	61.0	28.2	30.6	26.9	9.8	23.9	37.5	
Level of Service	D	F	C	F	E	C	C	C	A	C	D	
Approach Delay (s)		68.5			72.2			24.5			36.9	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



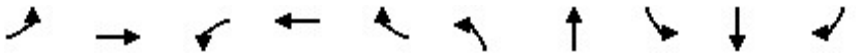
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	386	103	28	430	104	224	442	23	24	321	314
Future Volume (vph)	373	386	103	28	430	104	224	442	23	24	321	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.968				0.850		0.993				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1652	0	1517	1759	1495	1612	1718	0	1719	1827	1568
Flt Permitted	0.245			0.398			0.251			0.241		
Satd. Flow (perm)	435	1652	0	635	1759	1495	426	1718	0	436	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				164		3				183
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	393	406	108	29	453	109	236	465	24	25	338	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	393	514	0	29	453	109	236	489	0	25	338	331
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	17.0	47.0		9.0	39.0	39.0	13.0	35.0		9.0	31.0	17.0
Total Split (%)	17.0%	47.0%		9.0%	39.0%	39.0%	13.0%	35.0%		9.0%	31.0%	17.0%
Maximum Green (s)	14.0	41.0		6.0	33.0	33.0	10.0	29.0		6.0	25.0	14.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	53.0	44.8		42.0	33.0	33.0	37.7	31.3		30.7	21.7	41.7
Actuated g/C Ratio	0.55	0.46		0.43	0.34	0.34	0.39	0.32		0.32	0.22	0.43
v/c Ratio	0.94	0.67		0.09	0.76	0.18	0.82	0.88		0.11	0.82	0.42
Control Delay	48.7	26.7		12.4	38.5	1.7	45.9	50.8		19.3	53.2	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.7	26.7		12.4	38.5	1.7	45.9	50.8		19.3	53.2	9.7
LOS	D	C		B	D	A	D	D		B	D	A
Approach Delay		36.2			30.5			49.2			31.3	
Approach LOS		D			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 96.8			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 37.1		Intersection LOS: D	
Intersection Capacity Utilization 89.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road

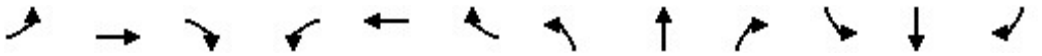




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	393	514	29	453	109	236	489	25	338	331
v/c Ratio	0.94	0.67	0.09	0.76	0.18	0.82	0.88	0.11	0.82	0.42
Control Delay	48.7	26.7	12.4	38.5	1.7	45.9	50.8	19.3	53.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	26.7	12.4	38.5	1.7	45.9	50.8	19.3	53.2	9.7
Queue Length 50th (m)	44.9	82.3	2.6	80.6	0.0	32.6	84.5	3.0	63.7	17.8
Queue Length 95th (m)	#103.0	127.2	7.1	#131.0	3.7	#66.7	#165.4	8.2	#101.9	39.3
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	419	772	330	600	618	288	556	218	472	780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.67	0.09	0.76	0.18	0.82	0.88	0.11	0.72	0.42

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	386	103	28	430	104	224	442	23	24	321	314
Future Volume (vph)	373	386	103	28	430	104	224	442	23	24	321	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1653		1516	1759	1495	1612	1718		1719	1827	1568
Flt Permitted	0.25	1.00		0.40	1.00	1.00	0.25	1.00		0.24	1.00	1.00
Satd. Flow (perm)	435	1653		635	1759	1495	425	1718		436	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	393	406	108	29	453	109	236	465	24	25	338	331
RTOR Reduction (vph)	0	9	0	0	0	72	0	2	0	0	0	114
Lane Group Flow (vph)	393	505	0	29	453	37	236	487	0	25	338	217
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	51.3	44.8		37.8	34.3	34.3	36.6	31.3		25.9	23.6	37.6
Effective Green, g (s)	51.3	44.8		37.8	34.3	34.3	36.6	31.3		25.9	23.6	37.6
Actuated g/C Ratio	0.51	0.45		0.38	0.34	0.34	0.37	0.31		0.26	0.24	0.38
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	398	741		271	603	513	274	538		142	431	590
v/s Ratio Prot	c0.14	0.31		0.00	0.26		c0.09	c0.28		0.00	0.19	0.05
v/s Ratio Perm	c0.37			0.04		0.03	0.23			0.04		0.09
v/c Ratio	0.99	0.68		0.11	0.75	0.07	0.86	0.91		0.18	0.78	0.37
Uniform Delay, d1	19.5	21.9		19.8	29.0	22.1	25.9	32.9		28.5	35.8	22.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	41.4	5.0		0.2	8.4	0.3	23.1	18.7		0.6	9.1	0.4
Delay (s)	60.9	26.9		20.0	37.4	22.4	49.0	51.5		29.1	44.8	22.9
Level of Service	E	C		C	D	C	D	D		C	D	C
Approach Delay (s)		41.6			33.8			50.7			33.8	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	388	0	108	0	0	0	89	976	0	0	997	269
Future Volume (vph)	388	0	108	0	0	0	89	976	0	0	997	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.950						0.180					
Satd. Flow (perm)	1719	1442	0	1863	1863	0	329	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		249										302
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	436	0	121	0	0	0	100	1097	0	0	1120	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	436	121	0	0	0	0	100	1097	0	0	1120	302
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	25.0	40.5		9.5	25.0		11.4	60.4		9.6	58.6	25.0
Total Split (%)	20.8%	33.8%		7.9%	20.8%		9.5%	50.3%		8.0%	48.8%	20.8%
Maximum Green (s)	22.0	34.5		6.5	20.5		8.4	54.4		6.6	52.6	22.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	23.7	20.7					68.2	65.2			54.6	82.2
Actuated g/C Ratio	0.25	0.22					0.73	0.69			0.58	0.88
v/c Ratio	1.01	0.24					0.26	0.45			0.56	0.21
Control Delay	82.0	1.1					5.5	7.2			13.7	0.5
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	82.0	1.1					5.5	7.2			13.7	0.5
LOS	F	A					A	A			B	A
Approach Delay		64.5						7.0			10.9	
Approach LOS		E						A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 93.9			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

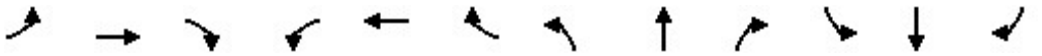




Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	436	121	100	1097	1120	302
v/c Ratio	1.01	0.24	0.26	0.45	0.56	0.21
Control Delay	82.0	1.1	5.5	7.2	13.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	1.1	5.5	7.2	13.7	0.5
Queue Length 50th (m)	83.4	0.0	4.7	43.3	65.3	0.0
Queue Length 95th (m)	#145.2	0.0	8.9	54.1	84.1	1.9
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	439	712	394	2411	1998	1428
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	0.99	0.17	0.25	0.45	0.56	0.21

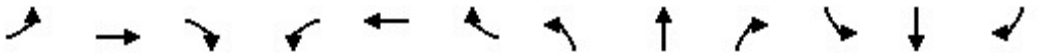
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	388	0	108	0	0	0	89	976	0	0	997	269
Future Volume (vph)	388	0	108	0	0	0	89	976	0	0	997	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.0					1.0	4.0			4.0	1.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.95	1.00					0.18	1.00			1.00	1.00
Satd. Flow (perm)	1719	1442					329	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	436	0	121	0	0	0	100	1097	0	0	1120	302
RTOR Reduction (vph)	0	94	0	0	0	0	0	0	0	0	0	50
Lane Group Flow (vph)	436	27	0	0	0	0	100	1097	0	0	1120	252
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	21.7	18.7					63.3	63.3			52.6	74.3
Effective Green, g (s)	23.7	20.7					65.3	65.3			54.6	78.3
Actuated g/C Ratio	0.25	0.22					0.69	0.69			0.58	0.83
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	3.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	433	317					373	2411			1996	1318
v/s Ratio Prot	c0.25	0.02					0.03	c0.32			c0.33	0.05
v/s Ratio Perm							0.16					0.11
v/c Ratio	1.01	0.08					0.27	0.45			0.56	0.19
Uniform Delay, d1	35.1	29.1					6.4	6.4			12.2	1.6
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	45.0	0.1					0.4	0.6			1.1	0.1
Delay (s)	80.1	29.2					6.8	7.0			13.4	1.6
Level of Service	F	C					A	A			B	A
Approach Delay (s)		69.1			0.0			7.0			10.9	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



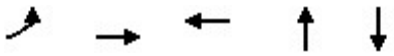
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	24	158	105	4	5	15	429	45	2	405	34
Future Volume (vph)	193	24	158	105	4	5	15	429	45	2	405	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.988			0.989	
Flt Protected	0.950				0.956			0.998				
Satd. Flow (prot)	1378	1068	0	0	1386	0	0	1688	0	0	1754	0
Flt Permitted	0.710				0.597			0.982			0.999	
Satd. Flow (perm)	1026	1068	0	0	866	0	0	1661	0	0	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		170			3			9			8	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	208	26	170	113	4	5	16	461	48	2	435	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	196	0	0	122	0	0	525	0	0	474	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	19.1	19.1			19.1			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
v/c Ratio	0.76	0.48			0.52			0.56			0.48	
Control Delay	41.8	9.1			29.6			14.2			12.6	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	41.8	9.1			29.6			14.2			12.6	
LOS	D	A			C			B			B	
Approach Delay		26.0			29.6			14.2			12.6	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 71.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

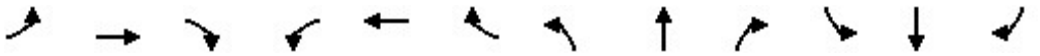
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	208	196	122	525	474
v/c Ratio	0.76	0.48	0.52	0.56	0.48
Control Delay	41.8	9.1	29.6	14.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	9.1	29.6	14.2	12.6
Queue Length 50th (m)	26.7	2.7	14.1	42.8	36.3
Queue Length 95th (m)	49.8	17.8	29.7	90.1	75.7
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	404	524	343	939	990
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.37	0.36	0.56	0.48

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	24	158	105	4	5	15	429	45	2	405	34
Future Volume (vph)	193	24	158	105	4	5	15	429	45	2	405	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1387			1688			1755	
Flt Permitted	0.71	1.00			0.60			0.98			1.00	
Satd. Flow (perm)	1026	1068			867			1661			1752	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	208	26	170	113	4	5	16	461	48	2	435	37
RTOR Reduction (vph)	0	125	0	0	2	0	0	4	0	0	3	0
Lane Group Flow (vph)	208	71	0	0	120	0	0	521	0	0	471	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	19.1	19.1			19.1			40.3			40.3	
Effective Green, g (s)	19.1	19.1			19.1			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	274	285			231			937			988	
v/s Ratio Prot		0.07										
v/s Ratio Perm	c0.20				0.14			c0.31			0.27	
v/c Ratio	0.76	0.25			0.52			0.56			0.48	
Uniform Delay, d1	24.0	20.5			22.2			9.9			9.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	11.4	0.5			2.0			2.4			1.6	
Delay (s)	35.5	21.0			24.2			12.3			10.9	
Level of Service	D	C			C			B			B	
Approach Delay (s)		28.4			24.2			12.3			10.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

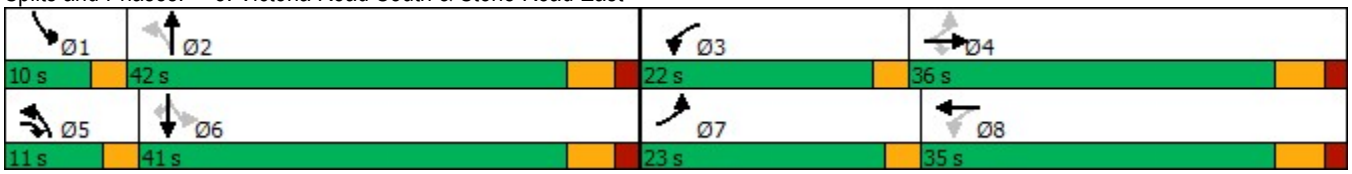
c Critical Lane Group

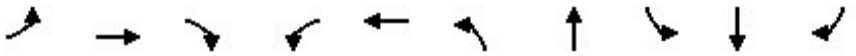
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	363	208	101	409	53	157	698	89	54	789	263
Future Volume (vph)	311	363	208	101	409	53	157	698	89	54	789	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.983			0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3398	0	1770	3325	0	1805	3438	1538
Flt Permitted	0.237			0.517			0.172			0.216		
Satd. Flow (perm)	433	3085	1392	739	3398	0	320	3325	0	410	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			229		12			13				259
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	342	399	229	111	449	58	173	767	98	59	867	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	399	229	111	507	0	173	865	0	59	867	289
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	23.0	36.0	11.0	22.0	35.0		11.0	42.0		10.0	41.0	41.0
Total Split (%)	20.9%	32.7%	10.0%	20.0%	31.8%		10.0%	38.2%		9.1%	37.3%	37.3%
Maximum Green (s)	20.0	30.0	8.0	19.0	29.0		8.0	36.0		7.0	35.0	35.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	43.9	27.5	41.6	32.8	19.4		47.6	38.4		45.2	35.1	35.1
Actuated g/C Ratio	0.44	0.28	0.42	0.33	0.20		0.48	0.39		0.46	0.35	0.35
v/c Ratio	0.79	0.47	0.32	0.36	0.75		0.64	0.67		0.21	0.71	0.41
Control Delay	33.5	31.8	3.9	20.4	44.2		28.1	29.7		16.7	32.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	33.5	31.8	3.9	20.4	44.2		28.1	29.7		16.7	32.5	6.6
LOS	C	C	A	C	D		C	C		B	C	A
Approach Delay		25.8			40.0			29.4			25.6	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 99.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 29.0		Intersection LOS: C	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East

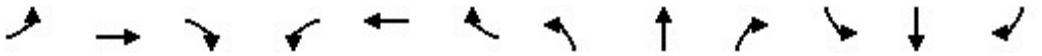




Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	342	399	229	111	507	173	865	59	867	289
v/c Ratio	0.79	0.47	0.32	0.36	0.75	0.64	0.67	0.21	0.71	0.41
Control Delay	33.5	31.8	3.9	20.4	44.2	28.1	29.7	16.7	32.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	31.8	3.9	20.4	44.2	28.1	29.7	16.7	32.5	6.6
Queue Length 50th (m)	46.4	35.0	0.0	13.2	50.9	19.4	78.7	6.2	80.8	4.1
Queue Length 95th (m)	#79.2	52.0	14.4	24.2	69.1	#38.2	111.4	14.6	113.3	24.6
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	455	946	716	425	1007	271	1295	285	1219	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.42	0.32	0.26	0.50	0.64	0.67	0.21	0.71	0.41

Intersection Summary

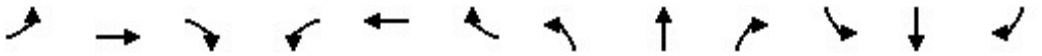
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	363	208	101	409	53	157	698	89	54	789	263
Future Volume (vph)	311	363	208	101	409	53	157	698	89	54	789	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3398		1770	3325		1805	3438	1518
Flt Permitted	0.24	1.00	1.00	0.52	1.00		0.17	1.00		0.22	1.00	1.00
Satd. Flow (perm)	434	3085	1392	738	3398		321	3325		410	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	342	399	229	111	449	58	173	767	98	59	867	289
RTOR Reduction (vph)	0	0	147	0	10	0	0	8	0	0	0	166
Lane Group Flow (vph)	342	399	82	111	497	0	173	857	0	59	867	123
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	40.8	27.5	35.5	29.7	19.4		46.4	38.4		41.4	35.9	35.9
Effective Green, g (s)	40.8	27.5	35.5	29.7	19.4		46.4	38.4		41.4	35.9	35.9
Actuated g/C Ratio	0.41	0.28	0.36	0.30	0.19		0.47	0.39		0.42	0.36	0.36
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	417	850	495	283	661		265	1280		247	1237	546
v/s Ratio Prot	c0.15	0.13	0.01	0.04	0.15		c0.05	c0.26		0.01	0.25	
v/s Ratio Perm	c0.18		0.05	0.08			0.25			0.09		0.08
v/c Ratio	0.82	0.47	0.16	0.39	0.75		0.65	0.67		0.24	0.70	0.23
Uniform Delay, d1	22.7	30.0	22.0	26.8	37.9		18.1	25.4		18.5	27.3	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.2	0.4	0.2	0.9	4.8		5.7	2.8		0.5	3.3	1.0
Delay (s)	34.9	30.4	22.1	27.7	42.7		23.8	28.2		19.0	30.6	23.2
Level of Service	C	C	C	C	D		C	C		B	C	C
Approach Delay (s)		30.0			40.0			27.5			28.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

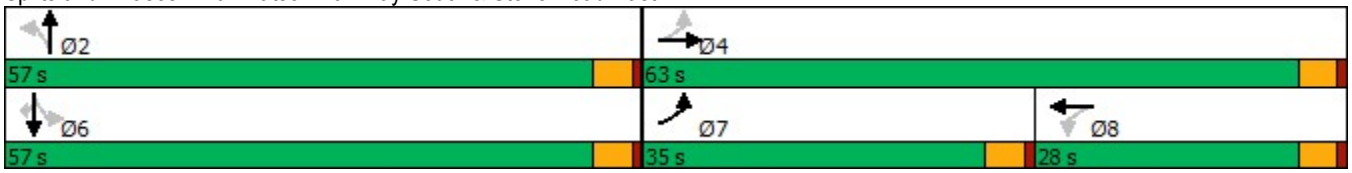


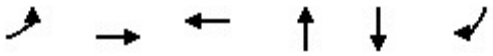
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	189	70	15	132	1	37	255	16	3	274	382
Future Volume (vph)	241	189	70	15	132	1	37	255	16	3	274	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994			0.999	
Satd. Flow (prot)	1504	1725	0	0	1806	0	0	1795	0	0	1825	1404
Flt Permitted	0.335				0.943			0.935			0.998	
Satd. Flow (perm)	530	1725	0	0	1711	0	0	1688	0	0	1823	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						3				402
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	254	199	74	16	139	1	39	268	17	3	288	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	254	273	0	0	156	0	0	324	0	0	291	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	63.0		28.0	28.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	29.2%	52.5%		23.3%	23.3%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	30.5	58.5		23.5	23.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	40.6	40.6			14.1			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.52			0.52	0.52
v/c Ratio	0.61	0.39			0.66			0.37			0.31	0.44
Control Delay	28.5	21.3			57.1			18.4			17.5	3.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	28.5	21.3			57.1			18.4			17.5	3.5
LOS	C	C			E			B			B	A
Approach Delay		24.8			57.1			18.4			9.4	
Approach LOS		C			E			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.7			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

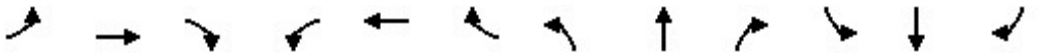
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	254	273	156	324	291	402
v/c Ratio	0.61	0.39	0.66	0.37	0.31	0.44
Control Delay	28.5	21.3	57.1	18.4	17.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	21.3	57.1	18.4	17.5	3.5
Queue Length 50th (m)	37.7	36.5	31.4	38.7	33.7	0.0
Queue Length 95th (m)	58.1	56.6	57.0	77.1	67.3	18.0
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	506	1001	395	873	941	919
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	0.50	0.27	0.39	0.37	0.31	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	189	70	15	132	1	37	255	16	3	274	382
Future Volume (vph)	241	189	70	15	132	1	37	255	16	3	274	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			1.00	1.00
Satd. Flow (prot)	1504	1726			1806			1795			1826	1404
Flt Permitted	0.33	1.00			0.94			0.94			1.00	1.00
Satd. Flow (perm)	530	1726			1711			1689			1823	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	254	199	74	16	139	1	39	268	17	3	288	402
RTOR Reduction (vph)	0	13	0	0	0	0	0	1	0	0	0	194
Lane Group Flow (vph)	254	260	0	0	156	0	0	323	0	0	291	208
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	40.5	40.5			14.1			53.0			53.0	53.0
Effective Green, g (s)	40.5	40.5			14.1			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.52			0.52	0.52
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	417	681			235			873			942	725
v/s Ratio Prot	c0.13	0.15										
v/s Ratio Perm	c0.11				0.09			c0.19			0.16	0.15
v/c Ratio	0.61	0.38			0.66			0.37			0.31	0.29
Uniform Delay, d1	23.5	22.1			42.0			14.8			14.2	14.0
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.5	0.4			6.9			1.2			0.9	1.0
Delay (s)	26.1	22.4			48.8			16.0			15.1	15.0
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.2			48.8			16.0			15.0	
Approach LOS		C			D			B			B	

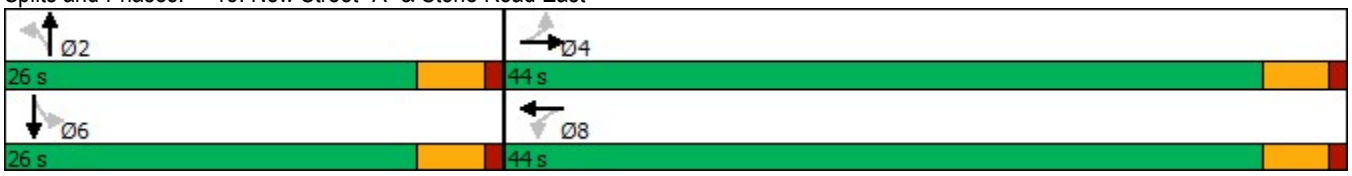
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	102.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

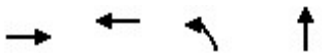
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3458	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.936		0.757					
Satd. Flow (perm)	0	3458	0	0	3313	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47						203				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	853	0	0	661	0	81	18	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		37.1%	37.1%		37.1%	37.1%	
Maximum Green (s)	39.5	39.5		39.5	39.5		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		50.2			50.2		9.0	9.0				
Actuated g/C Ratio		0.77			0.77		0.14	0.14				
v/c Ratio		0.32			0.26		0.42	0.05				
Control Delay		3.5			3.5		31.2	0.2				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		3.5			3.5		31.2	0.2				
LOS		A			A		C	A				
Approach Delay		3.5			3.5			25.5				
Approach LOS		A			A			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.1			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 4.9		Intersection LOS: A	
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			

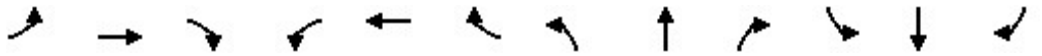
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	853	661	81	18
v/c Ratio	0.32	0.26	0.42	0.05
Control Delay	3.5	3.5	31.2	0.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	3.5	31.2	0.2
Queue Length 50th (m)	15.2	11.9	10.7	0.0
Queue Length 95th (m)	27.0	21.5	19.0	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	2678	2556	468	661
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.26	0.17	0.03

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3460			3535		1770	1583				
Flt Permitted		1.00			0.94		0.76	1.00				
Satd. Flow (perm)		3460			3313		1410	1583				
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)	0	725	128	14	647	0	81	0	18	0	0	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	841	0	0	661	0	81	2	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		49.2			49.2		7.8	7.8				
Effective Green, g (s)		49.2			49.2		7.8	7.8				
Actuated g/C Ratio		0.75			0.75		0.12	0.12				
Clearance Time (s)		4.5			4.5		4.5	4.5				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		2579			2469		166	187				
v/s Ratio Prot		c0.24						0.00				
v/s Ratio Perm					0.20		c0.06					
v/c Ratio		0.33			0.27		0.49	0.01				
Uniform Delay, d1		2.8			2.7		27.2	25.7				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.3		2.3	0.0				
Delay (s)		3.2			2.9		29.5	25.7				
Level of Service		A			A		C	C				
Approach Delay (s)		3.2			2.9			28.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	282	341	322	318	30	413	886	300	91	1042	49
Future Volume (vph)	46	282	341	322	318	30	413	886	300	91	1042	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3468	0
Flt Permitted	0.463			0.220			0.098			0.261		
Satd. Flow (perm)	829	1712	1583	398	1759	1475	177	3471	1523	458	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215			109			249		4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	50	307	371	350	346	33	449	963	326	99	1133	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	307	371	350	346	33	449	963	326	99	1186	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	10.0	30.0	30.0	19.0	39.0	39.0	27.0	57.0	19.0	14.0	44.0	
Total Split (%)	8.3%	25.0%	25.0%	15.8%	32.5%	32.5%	22.5%	47.5%	15.8%	11.7%	36.7%	
Maximum Green (s)	7.0	24.0	24.0	16.0	33.0	33.0	24.0	51.0	16.0	11.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.6	24.9	22.9	46.9	34.0	34.0	70.0	53.3	72.3	49.7	40.0	
Actuated g/C Ratio	0.27	0.21	0.19	0.39	0.29	0.29	0.59	0.45	0.61	0.42	0.34	
v/c Ratio	0.18	0.86	0.78	0.98	0.69	0.07	1.02	0.62	0.32	0.35	1.01	
Control Delay	25.9	68.6	30.9	73.5	46.8	0.3	81.9	27.7	3.5	17.3	69.4	
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	25.9	68.6	30.9	73.5	46.8	0.3	81.9	27.7	3.5	17.3	69.4	
LOS	C	E	C	E	D	A	F	C	A	B	E	
Approach Delay		46.4			57.5			37.1			65.3	
Approach LOS		D			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 50.1		Intersection LOS: D	
Intersection Capacity Utilization 99.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road



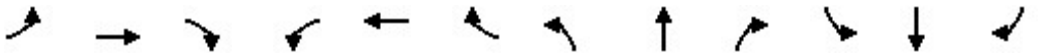


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	307	371	350	346	33	449	963	326	99	1186
v/c Ratio	0.18	0.86	0.78	0.98	0.69	0.07	1.02	0.62	0.32	0.35	1.01
Control Delay	25.9	68.6	30.9	73.5	46.8	0.3	81.9	27.7	3.5	17.3	69.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	68.6	30.9	73.5	46.8	0.3	81.9	27.7	3.5	17.3	69.4
Queue Length 50th (m)	7.8	73.2	37.0	64.5	77.6	0.0	~101.6	94.6	7.0	10.8	~164.4
Queue Length 95th (m)	16.6	#120.5	#76.8	#123.2	113.1	0.0	#168.2	121.7	19.9	19.3	#208.6
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	280	374	491	357	502	499	441	1557	1028	312	1169
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.82	0.76	0.98	0.69	0.07	1.02	0.62	0.32	0.32	1.01

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	282	341	322	318	30	413	886	300	91	1042	49
Future Volume (vph)	46	282	341	322	318	30	413	886	300	91	1042	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1671	3469	
Flt Permitted	0.46	1.00	1.00	0.22	1.00	1.00	0.10	1.00	1.00	0.26	1.00	
Satd. Flow (perm)	829	1712	1583	398	1759	1475	177	3471	1530	459	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	307	371	350	346	33	449	963	326	99	1133	53
RTOR Reduction (vph)	0	0	173	0	0	24	0	0	105	0	3	0
Lane Group Flow (vph)	50	307	198	350	346	9	449	963	221	99	1183	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	29.0	23.5	23.5	42.5	34.0	34.0	65.0	53.3	69.3	46.7	38.0	
Effective Green, g (s)	29.0	25.5	23.5	44.5	34.0	34.0	67.0	53.3	69.3	46.7	40.0	
Actuated g/C Ratio	0.24	0.21	0.20	0.37	0.28	0.28	0.56	0.45	0.58	0.39	0.33	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	241	365	311	347	500	419	434	1548	887	267	1161	
v/s Ratio Prot	0.01	c0.18		c0.15	0.20		c0.22	0.28	0.03	0.03	c0.34	
v/s Ratio Perm	0.04		0.13	0.22		0.01	0.36		0.11	0.12		
v/c Ratio	0.21	0.84	0.64	1.01	0.69	0.02	1.03	0.62	0.25	0.37	1.02	
Uniform Delay, d1	35.4	45.1	44.1	32.0	38.1	30.8	37.3	25.4	12.3	23.7	39.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	15.9	4.2	50.5	4.1	0.0	52.4	1.9	0.1	0.9	31.3	
Delay (s)	35.8	60.9	48.3	82.5	42.2	30.8	89.7	27.3	12.5	24.6	71.1	
Level of Service	D	E	D	F	D	C	F	C	B	C	E	
Approach Delay (s)		52.8			61.0			40.6			67.5	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

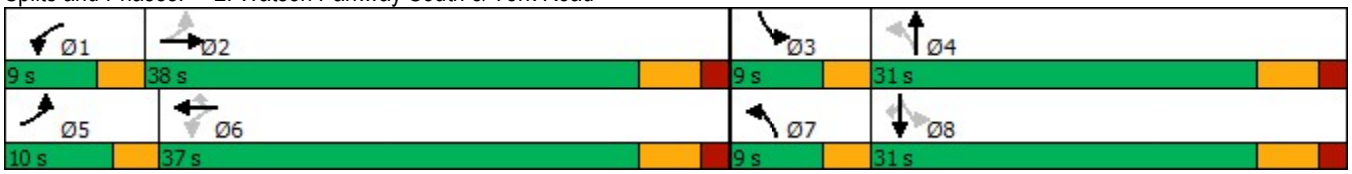
c Critical Lane Group

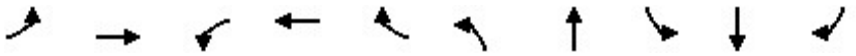
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	346	108	23	449	27	102	136	50	48	357	374
Future Volume (vph)	183	346	108	23	449	27	102	136	50	48	357	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.964				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1645	0	1517	1759	1495	1612	1673	0	1719	1827	1568
Flt Permitted	0.285			0.404			0.257			0.624		
Satd. Flow (perm)	506	1645	0	645	1759	1495	436	1673	0	1129	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				113		22				353
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	193	364	114	24	473	28	107	143	53	51	376	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	478	0	24	473	28	107	196	0	51	376	394
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	10.0	38.0		9.0	37.0	37.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	11.5%	43.7%		10.3%	42.5%	42.5%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	7.0	32.0		6.0	31.0	31.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.7	38.1		40.4	31.3	31.3	29.0	22.6		28.4	20.7	20.7
Actuated g/C Ratio	0.54	0.47		0.50	0.39	0.39	0.36	0.28		0.35	0.25	0.25
v/c Ratio	0.51	0.61		0.06	0.70	0.04	0.44	0.41		0.12	0.81	0.59
Control Delay	16.9	23.1		11.1	29.5	0.1	22.0	24.4		15.8	42.9	8.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	16.9	23.1		11.1	29.5	0.1	22.0	24.4		15.8	42.9	8.5
LOS	B	C		B	C	A	C	C		B	D	A
Approach Delay		21.3			27.1			23.6			24.7	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 81.2			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road

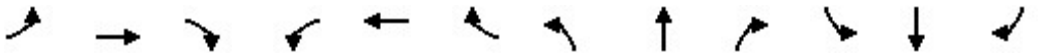




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	193	478	24	473	28	107	196	51	376	394
v/c Ratio	0.51	0.61	0.06	0.70	0.04	0.44	0.41	0.12	0.81	0.59
Control Delay	16.9	23.1	11.1	29.5	0.1	22.0	24.4	15.8	42.9	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	23.1	11.1	29.5	0.1	22.0	24.4	15.8	42.9	8.5
Queue Length 50th (m)	17.1	54.6	1.9	69.4	0.0	11.2	24.2	5.1	59.0	5.3
Queue Length 95th (m)	30.8	#119.2	5.9	#111.6	0.0	21.6	43.7	12.0	91.2	29.3
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	375	782	386	678	646	243	547	438	568	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.61	0.06	0.70	0.04	0.44	0.36	0.12	0.66	0.54

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	346	108	23	449	27	102	136	50	48	357	374
Future Volume (vph)	183	346	108	23	449	27	102	136	50	48	357	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1646		1516	1759	1495	1612	1674		1719	1827	1568
Flt Permitted	0.29	1.00		0.40	1.00	1.00	0.26	1.00		0.62	1.00	1.00
Satd. Flow (perm)	507	1646		645	1759	1495	436	1674		1130	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	193	364	114	24	473	28	107	143	53	51	376	394
RTOR Reduction (vph)	0	11	0	0	0	17	0	16	0	0	0	263
Lane Group Flow (vph)	193	467	0	24	473	11	107	180	0	51	376	131
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.3	38.1		35.4	33.2	33.2	27.2	22.6		24.8	21.4	21.4
Effective Green, g (s)	43.3	38.1		35.4	33.2	33.2	27.2	22.6		24.8	21.4	21.4
Actuated g/C Ratio	0.51	0.45		0.42	0.39	0.39	0.32	0.27		0.29	0.25	0.25
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	359	743		293	692	588	204	448		356	463	398
v/s Ratio Prot	c0.05	0.28		0.00	c0.27		c0.03	0.11		0.01	c0.21	
v/s Ratio Perm	0.23			0.03		0.01	0.14			0.04		0.08
v/c Ratio	0.54	0.63		0.08	0.68	0.02	0.52	0.40		0.14	0.81	0.33
Uniform Delay, d1	13.0	17.7		14.6	21.2	15.6	21.7	25.3		21.6	29.6	25.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	4.0		0.1	5.4	0.1	2.4	0.6		0.2	10.4	0.5
Delay (s)	14.6	21.7		14.7	26.6	15.7	24.1	25.9		21.8	40.0	26.1
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		19.6			25.5			25.3			32.2	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

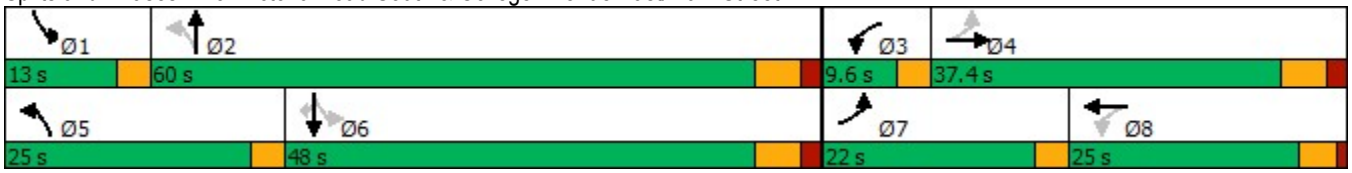
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	128	93	85	107	97	240	1068	42	127	960	424
Future Volume (vph)	198	128	93	85	107	97	240	1068	42	127	960	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.936			0.929			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1673	0	1770	1730	0	1736	3453	0	1770	3438	1583
Flt Permitted	0.327			0.608			0.102			0.111		
Satd. Flow (perm)	592	1673	0	1133	1730	0	186	3453	0	207	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			33			4				256
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	222	139	104	92	116	105	270	1200	46	138	1079	476
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	243	0	92	221	0	270	1246	0	138	1079	476
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	37.4		9.6	25.0		25.0	60.0		13.0	48.0	48.0
Total Split (%)	18.3%	31.2%		8.0%	20.8%		20.8%	50.0%		10.8%	40.0%	40.0%
Maximum Green (s)	19.0	31.4		6.6	20.5		22.0	54.0		10.0	42.0	42.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		-2.0	0.0		0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	44.0	31.4		31.7	23.6		71.1	54.0		57.8	47.7	45.7
Actuated g/C Ratio	0.37	0.26		0.27	0.20		0.60	0.45		0.49	0.40	0.38
v/c Ratio	0.60	0.53		0.27	0.60		0.74	0.79		0.63	0.78	0.62
Control Delay	34.9	37.6		29.0	45.6		36.4	32.5		31.8	37.0	17.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.9	37.6		29.0	45.6		36.4	32.5		31.8	37.0	17.8
LOS	C	D		C	D		D	C		C	D	B
Approach Delay		36.3			40.7			33.2			31.2	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.1			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 33.3		Intersection LOS: C	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

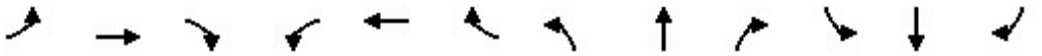
Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	222	243	92	221	270	1246	138	1079	476
v/c Ratio	0.60	0.53	0.27	0.60	0.74	0.79	0.63	0.78	0.62
Control Delay	34.9	37.6	29.0	45.6	36.4	32.5	31.8	37.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	37.6	29.0	45.6	36.4	32.5	31.8	37.0	17.8
Queue Length 50th (m)	39.5	45.1	15.0	43.0	41.2	135.5	14.6	122.2	43.0
Queue Length 95th (m)	60.5	72.3	27.4	72.6	69.5	163.2	34.5	155.6	82.8
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	398	462	337	369	423	1568	233	1376	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.53	0.27	0.60	0.64	0.79	0.59	0.78	0.62

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	128	93	85	107	97	240	1068	42	127	960	424
Future Volume (vph)	198	128	93	85	107	97	240	1068	42	127	960	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1673		1770	1730		1736	3454		1770	3438	1583
Flt Permitted	0.33	1.00		0.61	1.00		0.10	1.00		0.11	1.00	1.00
Satd. Flow (perm)	592	1673		1132	1730		187	3454		207	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	222	139	104	92	116	105	270	1200	46	138	1079	476
RTOR Reduction (vph)	0	22	0	0	26	0	0	2	0	0	0	158
Lane Group Flow (vph)	222	221	0	92	195	0	270	1244	0	138	1079	318
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	41.0	31.4		30.2	23.6		66.1	54.0		54.8	45.7	45.7
Effective Green, g (s)	41.0	31.4		30.2	23.6		68.1	54.0		54.8	47.7	45.7
Actuated g/C Ratio	0.34	0.26		0.25	0.20		0.57	0.45		0.46	0.40	0.38
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	354	441		322	342		359	1566		214	1376	607
v/s Ratio Prot	c0.08	0.13		0.02	0.11		c0.12	c0.36		0.05	0.31	
v/s Ratio Perm	c0.13			0.06			0.31			0.25		0.20
v/c Ratio	0.63	0.50		0.29	0.57		0.75	0.79		0.64	0.78	0.52
Uniform Delay, d1	30.1	37.2		35.0	43.2		28.0	27.8		22.1	31.2	28.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	4.0		0.5	6.7		8.6	4.2		6.5	4.5	3.2
Delay (s)	33.6	41.2		35.5	49.9		36.6	32.0		28.7	35.7	31.5
Level of Service	C	D		D	D		D	C		C	D	C
Approach Delay (s)		37.6			45.6			32.9			34.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

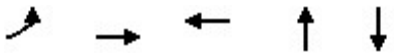
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	8	14	45	8	3	33	244	70	3	379	42
Future Volume (vph)	29	8	14	45	8	3	33	244	70	3	379	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.906			0.993			0.973			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1053	0	0	1371	0	0	1630	0	0	1745	0
Flt Permitted	0.718				0.753			0.938			0.998	
Satd. Flow (perm)	1037	1053	0	0	1073	0	0	1537	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3			28			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	31	9	15	48	9	3	35	262	75	3	408	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	24	0	0	60	0	0	372	0	0	456	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.3	9.3			9.3			56.5			56.5	
Actuated g/C Ratio	0.13	0.13			0.13			0.81			0.81	
v/c Ratio	0.23	0.16			0.41			0.30			0.32	
Control Delay	30.6	18.9			35.2			4.3			4.6	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.6	18.9			35.2			4.3			4.6	
LOS	C	B			D			A			A	
Approach Delay		25.5			35.3			4.3			4.6	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

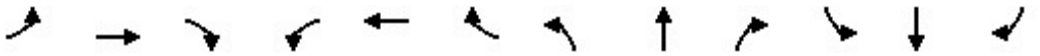
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	31	24	60	372	456
v/c Ratio	0.23	0.16	0.41	0.30	0.32
Control Delay	30.6	18.9	35.2	4.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	18.9	35.2	4.3	4.6
Queue Length 50th (m)	3.8	1.1	7.2	14.7	19.6
Queue Length 95th (m)	11.3	7.2	17.9	32.9	41.5
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	295	311	308	1245	1407
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.19	0.30	0.32

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	8	14	45	8	3	33	244	70	3	379	42
Future Volume (vph)	29	8	14	45	8	3	33	244	70	3	379	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1372	1053			1371			1630			1744	
Flt Permitted	0.72	1.00			0.75			0.94			1.00	
Satd. Flow (perm)	1037	1053			1073			1536			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	31	9	15	48	9	3	35	262	75	3	408	45
RTOR Reduction (vph)	0	14	0	0	3	0	0	7	0	0	3	0
Lane Group Flow (vph)	31	10	0	0	57	0	0	365	0	0	453	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.4	6.4			6.4			54.1			54.1	
Effective Green, g (s)	6.4	6.4			6.4			54.1			54.1	
Actuated g/C Ratio	0.09	0.09			0.09			0.75			0.75	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	91	92			94			1146			1299	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.05			0.24			c0.26	
v/c Ratio	0.34	0.11			0.61			0.32			0.35	
Uniform Delay, d1	31.1	30.4			31.8			3.1			3.2	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.2	0.5			10.7			0.7			0.7	
Delay (s)	33.3	31.0			42.5			3.8			3.9	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.3			42.5			3.8			3.9	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

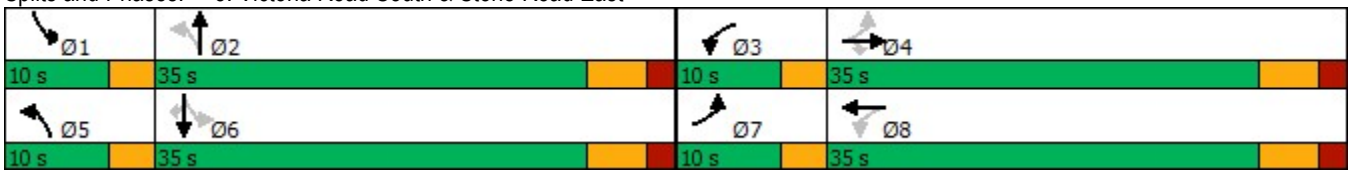
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	181	82	115	406	150	216	976	105	88	579	299
Future Volume (vph)	195	181	82	115	406	150	216	976	105	88	579	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.959			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3340	0	1770	3344	0	1805	3438	1538
Flt Permitted	0.240			0.627			0.315			0.135		
Satd. Flow (perm)	438	3085	1392	896	3340	0	587	3344	0	256	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		62			13				329
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	214	199	90	126	446	165	237	1073	115	97	636	329
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	199	90	126	611	0	237	1188	0	97	636	329
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

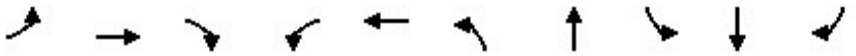
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	29.3	20.8	20.8	28.7	18.6		39.7	31.2		39.1	29.1	29.1
Actuated g/C Ratio	0.37	0.26	0.26	0.36	0.23		0.50	0.39		0.49	0.36	0.36
v/c Ratio	0.78	0.25	0.20	0.35	0.74		0.60	0.90		0.37	0.51	0.43
Control Delay	39.1	24.8	4.8	18.9	31.0		19.5	36.1		14.9	22.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	39.1	24.8	4.8	18.9	31.0		19.5	36.1		14.9	22.3	4.5
LOS	D	C	A	B	C		B	D		B	C	A
Approach Delay		27.3			28.9			33.3			16.1	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 79.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 26.7 Intersection LOS: C
Intersection Capacity Utilization 79.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East

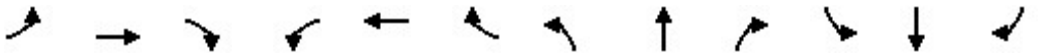




Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	214	199	90	126	611	237	1188	97	636	329
v/c Ratio	0.78	0.25	0.20	0.35	0.74	0.60	0.90	0.37	0.51	0.43
Control Delay	39.1	24.8	4.8	18.9	31.0	19.5	36.1	14.9	22.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	24.8	4.8	18.9	31.0	19.5	36.1	14.9	22.3	4.5
Queue Length 50th (m)	22.8	13.6	0.0	13.0	42.7	19.0	94.0	7.1	40.3	0.0
Queue Length 95th (m)	#48.3	22.5	8.1	24.7	60.5	38.6	#160.7	17.2	64.0	17.8
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	274	1123	576	362	1256	396	1316	261	1252	762
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.18	0.16	0.35	0.49	0.60	0.90	0.37	0.51	0.43

Intersection Summary

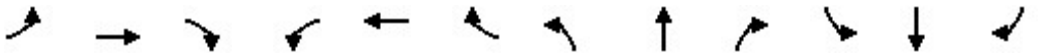
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	181	82	115	406	150	216	976	105	88	579	299
Future Volume (vph)	195	181	82	115	406	150	216	976	105	88	579	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3342		1769	3346		1805	3438	1518
Flt Permitted	0.24	1.00	1.00	0.63	1.00		0.32	1.00		0.13	1.00	1.00
Satd. Flow (perm)	439	3085	1392	895	3342		588	3346		256	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	214	199	90	126	446	165	237	1073	115	97	636	329
RTOR Reduction (vph)	0	0	67	0	47	0	0	8	0	0	0	208
Lane Group Flow (vph)	214	199	23	126	564	0	237	1180	0	97	636	121
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	27.8	20.8	20.8	24.8	19.3		38.2	31.2		35.2	29.7	29.7
Effective Green, g (s)	27.8	20.8	20.8	24.8	19.3		38.2	31.2		35.2	29.7	29.7
Actuated g/C Ratio	0.34	0.26	0.26	0.31	0.24		0.47	0.39		0.43	0.37	0.37
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	262	792	357	305	796		379	1288		216	1260	556
v/s Ratio Prot	c0.07	0.06		0.03	0.17		c0.05	c0.35		0.03	0.18	
v/s Ratio Perm	c0.21		0.02	0.10			0.24			0.16		0.08
v/c Ratio	0.82	0.25	0.06	0.41	0.71		0.63	0.92		0.45	0.50	0.22
Uniform Delay, d1	21.1	23.9	22.7	21.5	28.3		13.5	23.7		16.3	19.9	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.6	0.2	0.1	0.9	2.9		3.2	11.7		1.5	1.4	0.9
Delay (s)	38.7	24.1	22.8	22.4	31.2		16.7	35.3		17.8	21.4	18.5
Level of Service	D	C	C	C	C		B	D		B	C	B
Approach Delay (s)		30.1			29.7			32.2			20.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

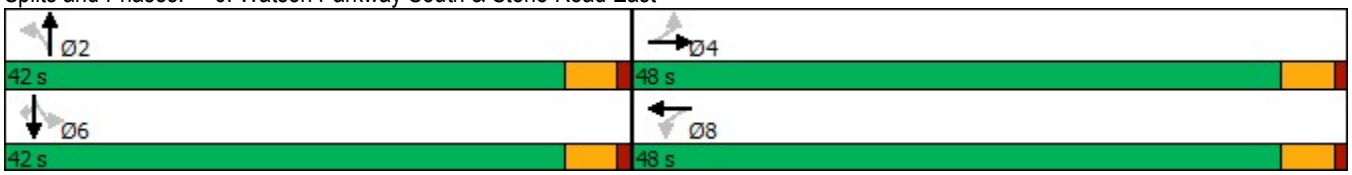


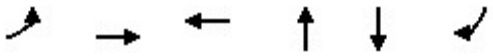
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	74	42	14	144	3	78	143	11	3	190	242
Future Volume (vph)	204	74	42	14	144	3	78	143	11	3	190	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.993				0.850
Flt Protected	0.950				0.996			0.984			0.999	
Satd. Flow (prot)	1504	1693	0	0	1801	0	0	1774	0	0	1818	1404
Flt Permitted	0.632				0.973			0.850			0.997	
Satd. Flow (perm)	1001	1693	0	0	1759	0	0	1532	0	0	1814	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			1			4				255
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	215	78	44	15	152	3	82	151	12	3	200	255
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	122	0	0	170	0	0	245	0	0	203	255
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	42.0
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%		46.7%	46.7%	46.7%
Maximum Green (s)	43.5	43.5		43.5	43.5		37.5	37.5		37.5	37.5	37.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	18.6	18.6			18.6			38.1			38.1	38.1
Actuated g/C Ratio	0.28	0.28			0.28			0.58			0.58	0.58
v/c Ratio	0.76	0.24			0.34			0.28			0.19	0.28
Control Delay	39.0	12.6			19.7			9.4			8.6	2.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	39.0	12.6			19.7			9.4			8.6	2.3
LOS	D	B			B			A			A	A
Approach Delay		29.4			19.7			9.4			5.1	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 65.7			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

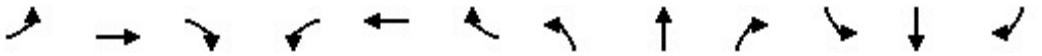
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	215	122	170	245	203	255
v/c Ratio	0.76	0.24	0.34	0.28	0.19	0.28
Control Delay	39.0	12.6	19.7	9.4	8.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	12.6	19.7	9.4	8.6	2.3
Queue Length 50th (m)	24.7	7.4	16.8	13.6	10.9	0.0
Queue Length 95th (m)	47.2	18.0	30.6	35.4	28.4	10.8
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	668	1145	1175	888	1050	920
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	0.32	0.11	0.14	0.28	0.19	0.28

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	74	42	14	144	3	78	143	11	3	190	242
Future Volume (vph)	204	74	42	14	144	3	78	143	11	3	190	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1693			1800			1773			1818	1404
Flt Permitted	0.63	1.00			0.97			0.85			1.00	1.00
Satd. Flow (perm)	1000	1693			1760			1532			1814	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	215	78	44	15	152	3	82	151	12	3	200	255
RTOR Reduction (vph)	0	32	0	0	1	0	0	2	0	0	0	107
Lane Group Flow (vph)	215	90	0	0	169	0	0	243	0	0	203	148
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	18.6	18.6			18.6			38.0			38.0	38.0
Effective Green, g (s)	18.6	18.6			18.6			38.0			38.0	38.0
Actuated g/C Ratio	0.28	0.28			0.28			0.58			0.58	0.58
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	283	480			499			887			1050	813
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.21				0.10			c0.16			0.11	0.11
v/c Ratio	0.76	0.19			0.34			0.27			0.19	0.18
Uniform Delay, d1	21.5	17.8			18.6			6.9			6.5	6.5
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.1	0.2			0.4			0.8			0.4	0.5
Delay (s)	32.6	18.0			19.0			7.7			6.9	7.0
Level of Service	C	B			B			A			A	A
Approach Delay (s)		27.3			19.0			7.7			7.0	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

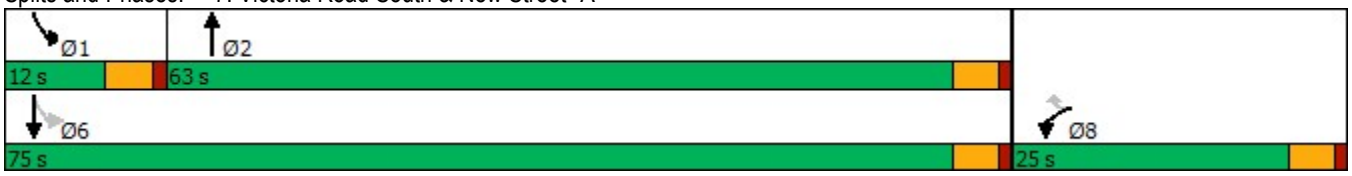


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1357	7	71	1492
Future Volume (vph)	22	167	1357	7	71	1492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.149	
Satd. Flow (perm)	1770	1583	3536	0	278	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		167	1			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1357	7	71	1492
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	167	1364	0	71	1492
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	25.0	25.0	63.0		12.0	75.0
Total Split (%)	25.0%	25.0%	63.0%		12.0%	75.0%
Maximum Green (s)	20.5	20.5	58.5		7.5	70.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.5	7.5	64.5		73.5	73.5
Actuated g/C Ratio	0.08	0.08	0.72		0.82	0.82
v/c Ratio	0.15	0.59	0.54		0.22	0.52
Control Delay	38.6	15.2	7.7		3.4	3.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.6	15.2	7.7		3.4	3.6
LOS	D	B	A		A	A
Approach Delay	17.9		7.7			3.6
Approach LOS	B		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 90			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 57.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	167	1364	71	1492
v/c Ratio	0.15	0.59	0.54	0.22	0.52
Control Delay	38.6	15.2	7.7	3.4	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	15.2	7.7	3.4	3.6
Queue Length 50th (m)	3.6	0.0	52.2	1.6	28.6
Queue Length 95th (m)	10.9	18.2	86.9	5.0	56.0
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	404	490	2535	351	2888
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.54	0.20	0.52

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1357	7	71	1492
Future Volume (vph)	22	167	1357	7	71	1492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3536		1770	3539
Flt Permitted	0.95	1.00	1.00		0.15	1.00
Satd. Flow (perm)	1770	1583	3536		277	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1357	7	71	1492
RTOR Reduction (vph)	0	153	0	0	0	0
Lane Group Flow (vph)	22	14	1364	0	71	1492
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.5	7.5	64.5		74.2	74.2
Effective Green, g (s)	7.5	7.5	64.5		74.2	74.2
Actuated g/C Ratio	0.08	0.08	0.71		0.82	0.82
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	130	2514		312	2895
v/s Ratio Prot	c0.01		c0.39		0.01	c0.42
v/s Ratio Perm		0.01			0.17	
v/c Ratio	0.15	0.11	0.54		0.23	0.52
Uniform Delay, d1	38.6	38.5	6.2		3.6	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.4	0.8		0.4	0.7
Delay (s)	39.1	38.9	7.0		4.0	3.3
Level of Service	D	D	A		A	A
Approach Delay (s)	38.9		7.0			3.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	10	48	2	30	101	1
Future Volume (vph)	10	48	2	30	101	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.999	
Flt Protected				0.997	0.953	
Satd. Flow (prot)	1654	0	0	1857	1773	0
Flt Permitted				0.997	0.953	
Satd. Flow (perm)	1654	0	0	1857	1773	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	2	30	101	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	32	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	10	48	2	30	101	1
Future Volume (Veh/h)	10	48	2	30	101	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	48	2	30	101	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			58		68	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		68	34
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1546		936	1039

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	32	102
Volume Left	0	2	101
Volume Right	48	0	1
cSH	1700	1546	937
Volume to Capacity	0.03	0.00	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.5	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	9.3
Approach LOS			A

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	57	79	29	30	61
Future Volume (vph)	27	57	79	29	30	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.910	
Flt Protected	0.950			0.965		
Satd. Flow (prot)	1770	1583	0	1798	1695	0
Flt Permitted	0.950			0.965		
Satd. Flow (perm)	1770	1583	0	1798	1695	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	57	79	29	30	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	57	0	108	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	57	79	29	30	61
Future Volume (Veh/h)	27	57	79	29	30	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	57	79	29	30	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	248	60	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	60	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	95			
cM capacity (veh/h)	702	1005	1504			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	27	57	108	91
Volume Left	27	0	79	0
Volume Right	0	57	0	61
cSH	702	1005	1504	1700
Volume to Capacity	0.04	0.06	0.05	0.05
Queue Length 95th (m)	1.0	1.4	1.3	0.0
Control Delay (s)	10.3	8.8	5.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.3		5.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1200	133	243	895
Future Volume (vph)	71	150	1200	133	243	895
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.985			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3486	0	1770	3539
Flt Permitted	0.950				0.131	
Satd. Flow (perm)	1770	1583	3486	0	244	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		150	18			
Link Speed (k/h)	50		70			70
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		22.9			21.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1200	133	243	895
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	150	1333	0	243	895
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	22.8	22.8	48.2		19.0	67.2
Total Split (%)	25.3%	25.3%	53.6%		21.1%	74.7%
Maximum Green (s)	18.3	18.3	43.7		16.0	62.7
Yellow Time (s)	3.5	3.5	3.5		3.0	3.5
All-Red Time (s)	1.0	1.0	1.0		0.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		3.0	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	8.6	8.6	48.9		64.4	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.80	0.78
v/c Ratio	0.38	0.50	0.63		0.60	0.32
Control Delay	39.1	12.2	12.7		13.1	3.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.1	12.2	12.7		13.1	3.1
LOS	D	B	B		B	A
Approach Delay	20.8		12.7			5.2
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	71	150	1333	243	895
v/c Ratio	0.38	0.50	0.63	0.60	0.32
Control Delay	39.1	12.2	12.7	13.1	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	12.2	12.7	13.1	3.1
Queue Length 50th (m)	10.8	0.0	63.6	6.4	16.2
Queue Length 95th (m)	23.2	16.3	109.4	30.9	27.5
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	402	475	2125	498	2766
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.32	0.63	0.49	0.32

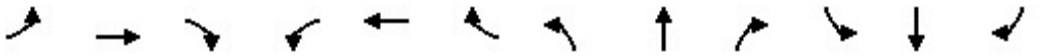
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1200	133	243	895
Future Volume (vph)	71	150	1200	133	243	895
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		3.0	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3486		1770	3539
Flt Permitted	0.95	1.00	1.00		0.13	1.00
Satd. Flow (perm)	1770	1583	3486		245	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1200	133	243	895
RTOR Reduction (vph)	0	134	7	0	0	0
Lane Group Flow (vph)	71	16	1326	0	243	895
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	8.6	8.6	48.9		62.9	62.9
Effective Green, g (s)	8.6	8.6	48.9		62.9	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.78	0.78
Clearance Time (s)	4.5	4.5	4.5		3.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	189	169	2117		399	2765
v/s Ratio Prot	c0.04		0.38		c0.08	0.25
v/s Ratio Perm		0.01			c0.39	
v/c Ratio	0.38	0.09	0.63		0.61	0.32
Uniform Delay, d1	33.5	32.4	10.0		8.2	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.2	1.4		2.6	0.3
Delay (s)	34.7	32.7	11.4		10.8	2.9
Level of Service	C	C	B		B	A
Approach Delay (s)	33.3		11.4			4.6
Approach LOS	C		B			A

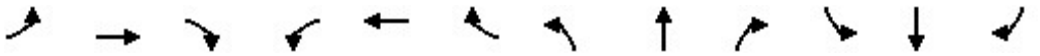
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952						0.995			0.935	
Flt Protected		0.989			0.993			0.981				
Satd. Flow (prot)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Flt Permitted		0.989			0.993			0.981				
Satd. Flow (perm)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	70	0	0	88	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (Veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	240	212	89	269	238	52	117			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	212	89	269	238	52	117			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	96	98	91	100	98			100		
cM capacity (veh/h)	651	669	969	614	647	1016	1471			1553		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	103	70	88	117
Volume Left	23	10	35	0
Volume Right	37	0	3	56
cSH	748	642	1471	1553
Volume to Capacity	0.14	0.11	0.02	0.00
Queue Length 95th (m)	3.8	2.9	0.6	0.0
Control Delay (s)	10.6	11.3	3.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	11.3	3.1	0.0
Approach LOS	B	B		

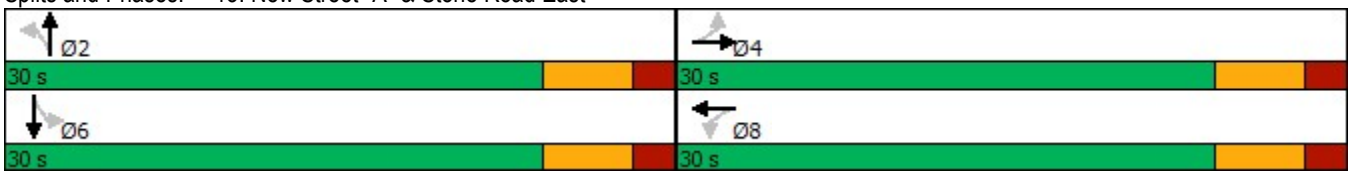
Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	266	23	2	481	1	91	0	23	6	0	99
Future Volume (vph)	85	266	23	2	481	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991						0.850			0.850	
Flt Protected		0.989					0.950			0.950		
Satd. Flow (prot)	0	3469	0	0	3539	0	1770	1583	0	1770	1583	0
Flt Permitted		0.754			0.954		0.693			0.742		
Satd. Flow (perm)	0	2645	0	0	3376	0	1291	1583	0	1382	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13						464			227	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	85	266	23	2	481	1	91	0	23	6	0	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	0	484	0	91	23	0	6	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
v/c Ratio		0.35			0.36		0.18	0.03		0.01	0.13	
Control Delay		13.3			13.6		12.8	0.0		11.0	0.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		13.3			13.6		12.8	0.0		11.0	0.3	
LOS		B			B		B	A		B	A	
Approach Delay		13.3			13.6			10.2			1.0	
Approach LOS		B			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

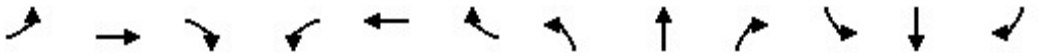
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	374	484	91	23	6	99
v/c Ratio	0.35	0.36	0.18	0.03	0.01	0.13
Control Delay	13.3	13.6	12.8	0.0	11.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	13.6	12.8	0.0	11.0	0.3
Queue Length 50th (m)	14.6	19.8	6.6	0.0	0.4	0.0
Queue Length 95th (m)	24.1	30.3	15.0	0.0	2.3	0.0
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	1065	1350	516	911	552	769
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	0.35	0.36	0.18	0.03	0.01	0.13

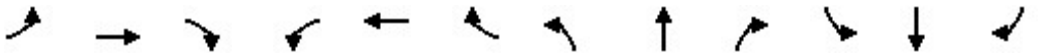
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	266	23	2	481	1	91	0	23	6	0	99
Future Volume (vph)	85	266	23	2	481	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3467			3537		1770	1583		1770	1583	
Flt Permitted		0.75			0.95		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		2645			3374		1291	1583		1383	1583	
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)	85	266	23	2	481	1	91	0	23	6	0	99
RTOR Reduction (vph)	0	8	0	0	0	0	0	14	0	0	59	0
Lane Group Flow (vph)	0	366	0	0	484	0	91	9	0	6	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Effective Green, g (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1058			1349		516	633		553	633	
v/s Ratio Prot								0.01			0.03	
v/s Ratio Perm		0.14			c0.14		c0.07			0.00		
v/c Ratio		0.35			0.36		0.18	0.01		0.01	0.06	
Uniform Delay, d1		12.5			12.6		11.6	10.9		10.8	11.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.7		0.2	0.0		0.0	0.2	
Delay (s)		13.4			13.4		11.8	10.9		10.9	11.3	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		13.4			13.4			11.6			11.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	367	405	384	503	84	442	1279	367	41	1069	65
Future Volume (vph)	65	367	405	384	503	84	442	1279	367	41	1069	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3458	0
Flt Permitted	0.163			0.145			0.106			0.116		
Satd. Flow (perm)	292	1712	1583	262	1759	1475	192	3471	1523	204	3458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			240		5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	71	399	440	417	547	91	480	1390	399	45	1162	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	399	440	417	547	91	480	1390	399	45	1233	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	20.0	41.0	41.0	30.0	58.0	20.0	12.0	40.0	
Total Split (%)	7.5%	25.0%	25.0%	16.7%	34.2%	34.2%	25.0%	48.3%	16.7%	10.0%	33.3%	
Maximum Green (s)	6.0	24.0	27.0	17.0	35.0	35.0	27.0	52.0	17.0	9.0	34.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	33.0	26.0	59.0	49.0	38.8	36.8	69.0	57.7	79.7	44.1	36.0	
Actuated g/C Ratio	0.28	0.22	0.49	0.41	0.32	0.31	0.58	0.48	0.66	0.37	0.30	
v/c Ratio	0.47	1.08	0.54	1.24	0.96	0.17	1.00	0.83	0.36	0.28	1.19	
Control Delay	35.1	114.0	19.6	160.0	70.6	4.7	76.2	33.2	4.4	19.6	131.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.1	114.0	19.6	160.0	70.6	4.7	76.2	33.2	4.4	19.6	131.0	
LOS	D	F	B	F	E	A	E	C	A	B	F	
Approach Delay		62.2			100.2			37.2			127.1	
Approach LOS		E			F			D			F	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 130
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 74.2 Intersection LOS: E
Intersection Capacity Utilization 110.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road



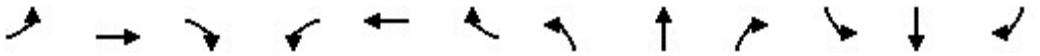


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	71	399	440	417	547	91	480	1390	399	45	1233
v/c Ratio	0.47	1.08	0.54	1.24	0.96	0.17	1.00	0.83	0.36	0.28	1.19
Control Delay	35.1	114.0	19.6	160.0	70.6	4.7	76.2	33.2	4.4	19.6	131.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	114.0	19.6	160.0	70.6	4.7	76.2	33.2	4.4	19.6	131.0
Queue Length 50th (m)	11.0	~110.2	59.1	~111.2	~137.6	0.0	~102.4	156.9	13.8	4.8	~193.8
Queue Length 95th (m)	21.3	#173.1	90.5	#176.3	#211.9	9.1	#174.6	195.7	29.5	10.5	#238.2
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	150	370	819	337	568	527	479	1670	1097	188	1040
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	0.47	1.08	0.54	1.24	0.96	0.17	1.00	0.83	0.36	0.24	1.19

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	367	405	384	503	84	442	1279	367	41	1069	65
Future Volume (vph)	65	367	405	384	503	84	442	1279	367	41	1069	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1530	1671	3459	
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.11	1.00	1.00	0.12	1.00	
Satd. Flow (perm)	291	1712	1583	262	1759	1475	193	3471	1530	203	3459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	399	440	417	547	91	480	1390	399	45	1162	71
RTOR Reduction (vph)	0	0	44	0	0	63	0	0	88	0	3	0
Lane Group Flow (vph)	71	399	396	417	547	28	480	1390	311	45	1230	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	29.4	24.6	51.6	44.6	36.8	36.8	64.6	55.7	72.7	40.5	34.6	
Effective Green, g (s)	29.4	26.6	55.6	46.6	38.8	36.8	66.6	57.7	76.7	40.5	36.6	
Actuated g/C Ratio	0.24	0.22	0.46	0.38	0.32	0.30	0.55	0.48	0.63	0.33	0.30	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	375	726	329	563	447	471	1652	968	139	1044	
v/s Ratio Prot	0.02	0.23	0.13	c0.20	c0.31		c0.24	0.40	0.05	0.02	c0.36	
v/s Ratio Perm	0.11		0.12	0.29		0.02	0.32		0.15	0.09		
v/c Ratio	0.56	1.06	0.54	1.27	0.97	0.06	1.02	0.84	0.32	0.32	1.18	
Uniform Delay, d1	38.0	47.3	23.7	35.5	40.7	29.9	37.1	27.8	10.3	29.2	42.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	64.5	0.8	142.3	30.6	0.1	46.4	5.4	0.2	1.4	90.1	
Delay (s)	43.6	111.8	24.5	177.8	71.3	30.0	83.5	33.1	10.4	30.5	132.4	
Level of Service	D	F	C	F	E	C	F	C	B	C	F	
Approach Delay (s)		64.3			109.8			39.8			128.8	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	77.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	121.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	490	103	40	483	104	224	442	32	24	321	314
Future Volume (vph)	373	490	103	40	483	104	224	442	32	24	321	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.974				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1664	0	1517	1759	1495	1612	1714	0	1719	1827	1568
Flt Permitted	0.195			0.269			0.251			0.224		
Satd. Flow (perm)	346	1664	0	429	1759	1495	426	1714	0	405	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				164		4				168
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	393	516	108	42	508	109	236	465	34	25	338	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	393	624	0	42	508	109	236	499	0	25	338	331
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

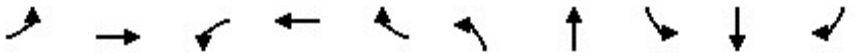
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	17.0	47.0		9.0	39.0	39.0	13.0	35.0		9.0	31.0	17.0
Total Split (%)	17.0%	47.0%		9.0%	39.0%	39.0%	13.0%	35.0%		9.0%	31.0%	17.0%
Maximum Green (s)	14.0	41.0		6.0	33.0	33.0	10.0	29.0		6.0	25.0	14.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	0.0		0.0	-2.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	1.0	6.0		3.0	4.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	55.1	44.8		42.0	35.0	33.0	37.7	31.3		30.7	21.7	41.7
Actuated g/C Ratio	0.57	0.46		0.43	0.36	0.34	0.39	0.32		0.32	0.22	0.43
v/c Ratio	0.94	0.80		0.17	0.80	0.18	0.82	0.90		0.12	0.82	0.43
Control Delay	50.5	33.7		13.4	39.6	1.7	45.9	53.3		19.4	53.2	10.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	50.5	33.7		13.4	39.6	1.7	45.9	53.3		19.4	53.2	10.7
LOS	D	C		B	D	A	D	D		B	D	B
Approach Delay		40.2			31.6			50.9			31.7	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 96.8
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 39.0 Intersection LOS: D
Intersection Capacity Utilization 91.3% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: Watson Parkway South & York Road

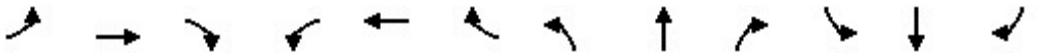




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	393	624	42	508	109	236	499	25	338	331
v/c Ratio	0.94	0.80	0.17	0.80	0.18	0.82	0.90	0.12	0.82	0.43
Control Delay	50.5	33.7	13.4	39.6	1.7	45.9	53.3	19.4	53.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	33.7	13.4	39.6	1.7	45.9	53.3	19.4	53.2	10.7
Queue Length 50th (m)	47.9	111.6	3.8	91.2	0.0	32.6	86.9	3.0	63.7	19.8
Queue Length 95th (m)	#111.0	#186.6	9.2	#149.1	3.7	#66.7	#170.2	8.2	#101.9	41.9
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	418	776	253	636	618	288	555	210	472	771
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.80	0.17	0.80	0.18	0.82	0.90	0.12	0.72	0.43

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	490	103	40	483	104	224	442	32	24	321	314
Future Volume (vph)	373	490	103	40	483	104	224	442	32	24	321	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.0		3.0	4.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1664		1517	1759	1495	1612	1714		1719	1827	1568
Flt Permitted	0.20	1.00		0.27	1.00	1.00	0.25	1.00		0.22	1.00	1.00
Satd. Flow (perm)	347	1664		430	1759	1495	425	1714		405	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	393	516	108	42	508	109	236	465	34	25	338	331
RTOR Reduction (vph)	0	7	0	0	0	72	0	3	0	0	0	105
Lane Group Flow (vph)	393	617	0	42	508	37	236	496	0	25	338	226
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	51.3	44.8		37.8	34.3	34.3	36.6	31.3		25.9	23.6	37.6
Effective Green, g (s)	53.3	44.8		37.8	36.3	34.3	36.6	31.3		25.9	23.6	37.6
Actuated g/C Ratio	0.53	0.45		0.38	0.36	0.34	0.37	0.31		0.26	0.24	0.38
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	399	746		200	639	513	274	537		135	431	590
v/s Ratio Prot	c0.16	c0.37		0.01	0.29		c0.09	c0.29		0.00	0.19	0.05
v/s Ratio Perm	0.37			0.07		0.03	0.23			0.04		0.09
v/c Ratio	0.98	0.83		0.21	0.79	0.07	0.86	0.92		0.19	0.78	0.38
Uniform Delay, d1	21.3	24.2		20.7	28.5	22.1	25.9	33.2		28.6	35.8	22.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	40.7	10.2		0.5	9.9	0.3	23.1	21.7		0.7	9.1	0.4
Delay (s)	62.0	34.3		21.2	38.3	22.4	49.0	54.9		29.3	44.8	23.1
Level of Service	E	C		C	D	C	D	D		C	D	C
Approach Delay (s)		45.0			34.6			53.0			33.9	
Approach LOS		D			C			D			C	

Intersection Summary					
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.95				
Actuated Cycle Length (s)	99.9	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	91.3%	ICU Level of Service		F	
Analysis Period (min)	15				

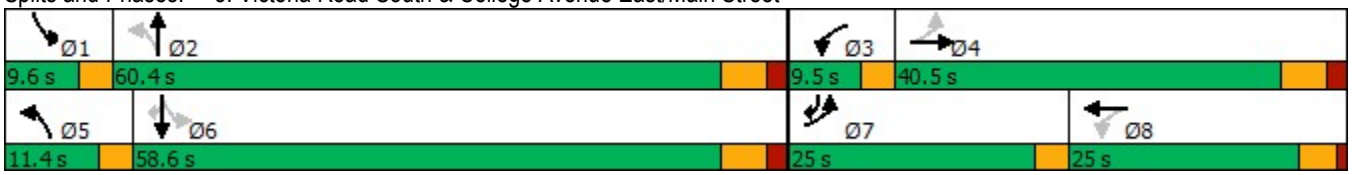
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	112	194	75	167	158	144	1309	96	105	1245	272
Future Volume (vph)	393	112	194	75	167	158	144	1309	96	105	1245	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.904			0.927			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1584	0	1770	1727	0	1736	3441	0	1770	3438	1583
Flt Permitted	0.177			0.556			0.072			0.073		
Satd. Flow (perm)	320	1584	0	1036	1727	0	132	3441	0	136	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77			35			8				265
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	442	122	218	82	182	172	162	1471	104	114	1399	306
Shared Lane Traffic (%)												
Lane Group Flow (vph)	442	340	0	82	354	0	162	1575	0	114	1399	306
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	25.0	40.5		9.5	25.0		11.4	60.4		9.6	58.6	25.0
Total Split (%)	20.8%	33.8%		7.9%	20.8%		9.5%	50.3%		8.0%	48.8%	20.8%
Maximum Green (s)	22.0	34.5		6.5	20.5		8.4	54.4		6.6	52.6	22.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	49.0	38.4		32.4	22.5		69.0	56.4		66.2	54.6	82.6
Actuated g/C Ratio	0.41	0.32		0.27	0.19		0.58	0.47		0.55	0.46	0.69
v/c Ratio	1.08	0.61		0.25	1.01		0.76	0.97		0.59	0.89	0.26
Control Delay	99.4	32.3		25.4	93.6		45.6	47.8		30.7	38.9	1.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	99.4	32.3		25.4	93.6		45.6	47.8		30.7	38.9	1.8
LOS	F	C		C	F		D	D		C	D	A
Approach Delay		70.2			80.7			47.6			32.1	
Approach LOS		E			F			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 48.4		Intersection LOS: D	
Intersection Capacity Utilization 98.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street



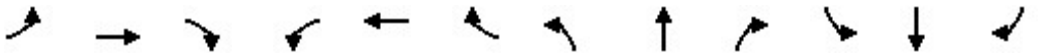


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	442	340	82	354	162	1575	114	1399	306
v/c Ratio	1.08	0.61	0.25	1.01	0.76	0.97	0.59	0.89	0.26
Control Delay	99.4	32.3	25.4	93.6	45.6	47.8	30.7	38.9	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.4	32.3	25.4	93.6	45.6	47.8	30.7	38.9	1.8
Queue Length 50th (m)	~104.6	56.4	12.4	~81.7	22.2	194.5	12.2	163.8	3.0
Queue Length 95th (m)	#167.6	89.9	23.3	#146.1	#55.1	#246.6	30.1	195.0	11.4
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	410	559	332	352	214	1621	192	1564	1172
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.61	0.25	1.01	0.76	0.97	0.59	0.89	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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	112	194	75	167	158	144	1309	96	105	1245	272
Future Volume (vph)	393	112	194	75	167	158	144	1309	96	105	1245	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1584		1770	1727		1736	3441		1770	3438	1583
Flt Permitted	0.18	1.00		0.56	1.00		0.07	1.00		0.07	1.00	1.00
Satd. Flow (perm)	320	1584		1036	1727		131	3441		136	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	442	122	218	82	182	172	162	1471	104	114	1399	306
RTOR Reduction (vph)	0	52	0	0	28	0	0	4	0	0	0	92
Lane Group Flow (vph)	442	288	0	82	326	0	162	1571	0	114	1399	214
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	44.6	36.4		26.3	21.1		62.8	54.4		59.2	52.6	74.6
Effective Green, g (s)	46.6	38.4		30.3	23.1		66.0	56.4		63.2	54.6	78.6
Actuated g/C Ratio	0.39	0.32		0.25	0.19		0.55	0.47		0.52	0.45	0.65
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	402	504		304	330		210	1609		187	1556	1031
v/s Ratio Prot	c0.22	0.18		0.02	c0.19		c0.07	c0.46		0.04	0.41	0.04
v/s Ratio Perm	0.21			0.05			0.35			0.27		0.09
v/c Ratio	1.10	0.57		0.27	0.99		0.77	0.98		0.61	0.90	0.21
Uniform Delay, d1	35.2	34.2		35.4	48.6		29.3	31.4		25.5	30.5	8.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	74.5	1.6		0.5	45.6		16.0	17.5		5.5	8.7	0.1
Delay (s)	109.7	35.8		35.9	94.2		45.3	48.9		31.0	39.1	8.6
Level of Service	F	D		D	F		D	D		C	D	A
Approach Delay (s)		77.5			83.2			48.6			33.5	
Approach LOS		E			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

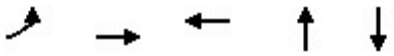
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	24	158	105	4	5	15	438	45	2	417	34
Future Volume (vph)	193	24	158	105	4	5	15	438	45	2	417	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.988			0.990	
Flt Protected	0.950				0.956			0.999				
Satd. Flow (prot)	1378	1068	0	0	1386	0	0	1690	0	0	1756	0
Flt Permitted	0.710				0.597			0.982			0.999	
Satd. Flow (perm)	1026	1068	0	0	866	0	0	1661	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		170			3			9			7	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	208	26	170	113	4	5	16	471	48	2	448	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	196	0	0	122	0	0	535	0	0	487	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	19.1	19.1			19.1			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
v/c Ratio	0.76	0.48			0.52			0.57			0.49	
Control Delay	41.8	9.1			29.6			14.4			12.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	41.8	9.1			29.6			14.4			12.8	
LOS	D	A			C			B			B	
Approach Delay		26.0			29.6			14.4			12.8	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 71.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

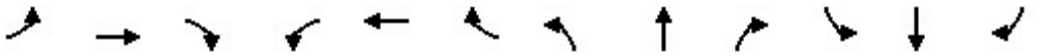
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	208	196	122	535	487
v/c Ratio	0.76	0.48	0.52	0.57	0.49
Control Delay	41.8	9.1	29.6	14.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	9.1	29.6	14.4	12.8
Queue Length 50th (m)	26.7	2.7	14.1	44.0	37.7
Queue Length 95th (m)	49.8	17.8	29.7	92.5	78.6
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	404	524	343	939	991
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.37	0.36	0.57	0.49

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	24	158	105	4	5	15	438	45	2	417	34
Future Volume (vph)	193	24	158	105	4	5	15	438	45	2	417	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1387			1689			1756	
Flt Permitted	0.71	1.00			0.60			0.98			1.00	
Satd. Flow (perm)	1026	1068			867			1661			1753	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	208	26	170	113	4	5	16	471	48	2	448	37
RTOR Reduction (vph)	0	125	0	0	2	0	0	4	0	0	3	0
Lane Group Flow (vph)	208	71	0	0	120	0	0	531	0	0	484	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	19.1	19.1			19.1			40.3			40.3	
Effective Green, g (s)	19.1	19.1			19.1			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	274	285			231			937			989	
v/s Ratio Prot		0.07										
v/s Ratio Perm	c0.20				0.14			c0.32			0.28	
v/c Ratio	0.76	0.25			0.52			0.57			0.49	
Uniform Delay, d1	24.0	20.5			22.2			10.0			9.4	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	11.4	0.5			2.0			2.5			1.7	
Delay (s)	35.5	21.0			24.2			12.4			11.1	
Level of Service	D	C			C			B			B	
Approach Delay (s)		28.4			24.2			12.4			11.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

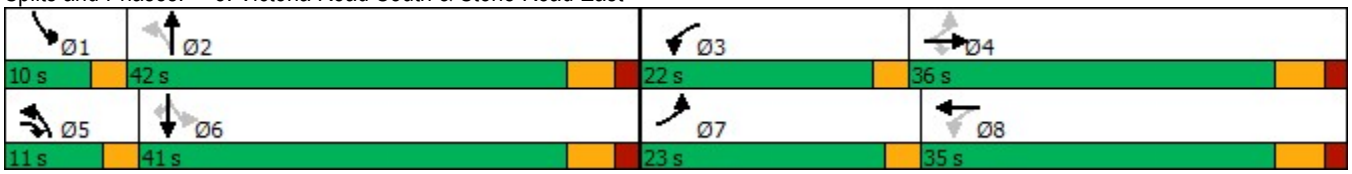
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	381	405	225	235	456	130	165	864	124	165	964	309
Future Volume (vph)	381	405	225	235	456	130	165	864	124	165	964	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.967			0.981				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3360	0	1770	3309	0	1805	3438	1538
Flt Permitted	0.200			0.442			0.111			0.108		
Satd. Flow (perm)	365	3085	1392	631	3360	0	207	3309	0	205	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137		32			16				249
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	419	445	247	258	501	143	181	949	136	181	1059	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	419	445	247	258	644	0	181	1085	0	181	1059	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

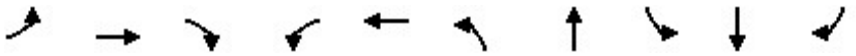
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	23.0	36.0	11.0	22.0	35.0		11.0	42.0		10.0	41.0	41.0
Total Split (%)	20.9%	32.7%	10.0%	20.0%	31.8%		10.0%	38.2%		9.1%	37.3%	37.3%
Maximum Green (s)	20.0	30.0	8.0	19.0	29.0		8.0	36.0		7.0	35.0	35.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0		0.0	-2.0		-2.0	0.0	0.0
Total Lost Time (s)	1.0	6.0	3.0	3.0	6.0		3.0	4.0		1.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	51.8	27.1	41.1	43.6	23.9		47.1	38.1		49.1	35.1	35.1
Actuated g/C Ratio	0.49	0.26	0.39	0.42	0.23		0.45	0.36		0.47	0.33	0.33
v/c Ratio	0.90	0.56	0.39	0.68	0.81		0.85	0.90		0.78	0.92	0.51
Control Delay	46.3	37.1	12.2	28.2	45.4		55.4	42.8		43.2	48.2	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	46.3	37.1	12.2	28.2	45.4		55.4	42.8		43.2	48.2	11.2
LOS	D	D	B	C	D		E	D		D	D	B
Approach Delay		35.0			40.5			44.6			39.7	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 104.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 90.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East

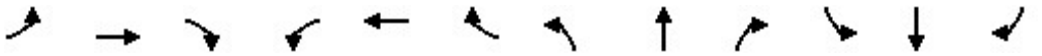




Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	419	445	247	258	644	181	1085	181	1059	340
v/c Ratio	0.90	0.56	0.39	0.68	0.81	0.85	0.90	0.78	0.92	0.51
Control Delay	46.3	37.1	12.2	28.2	45.4	55.4	42.8	43.2	48.2	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	37.1	12.2	28.2	45.4	55.4	42.8	43.2	48.2	11.2
Queue Length 50th (m)	62.5	44.6	15.8	34.7	66.1	22.6	113.8	21.6	115.1	13.9
Queue Length 95th (m)	#122.9	61.8	36.8	55.1	87.4	#65.7	#167.6	#60.5	#169.2	42.5
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	468	884	629	408	953	212	1211	233	1149	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.50	0.39	0.63	0.68	0.85	0.90	0.78	0.92	0.51

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	381	405	225	235	456	130	165	864	124	165	964	309
Future Volume (vph)	381	405	225	235	456	130	165	864	124	165	964	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.0	3.0	3.0	6.0		3.0	4.0		1.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3359		1770	3310		1805	3438	1518
Flt Permitted	0.20	1.00	1.00	0.44	1.00		0.11	1.00		0.11	1.00	1.00
Satd. Flow (perm)	365	3085	1392	632	3359		206	3310		205	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	419	445	247	258	501	143	181	949	136	181	1059	340
RTOR Reduction (vph)	0	0	91	0	25	0	0	10	0	0	0	166
Lane Group Flow (vph)	419	445	156	258	619	0	181	1075	0	181	1059	174
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	46.8	27.1	35.1	40.7	24.0		44.1	36.1		42.1	35.1	35.1
Effective Green, g (s)	48.8	27.1	35.1	40.7	24.0		44.1	38.1		46.1	35.1	35.1
Actuated g/C Ratio	0.47	0.26	0.33	0.39	0.23		0.42	0.36		0.44	0.33	0.33
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	454	796	465	360	768		205	1202		227	1150	507
v/s Ratio Prot	c0.19	0.14	0.03	0.11	c0.18		c0.07	c0.32		0.07	0.31	
v/s Ratio Perm	0.24		0.09	0.16			0.30			0.28		0.11
v/c Ratio	0.92	0.56	0.34	0.72	0.81		0.88	0.89		0.80	0.92	0.34
Uniform Delay, d1	24.3	33.7	26.2	24.3	38.3		24.0	31.5		22.7	33.6	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	24.3	0.9	0.4	6.7	6.2		32.9	10.4		17.4	13.3	1.8
Delay (s)	48.6	34.6	26.6	31.0	44.5		56.9	41.9		40.1	46.8	28.1
Level of Service	D	C	C	C	D		E	D		D	D	C
Approach Delay (s)		38.1			40.6			44.0			42.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	104.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

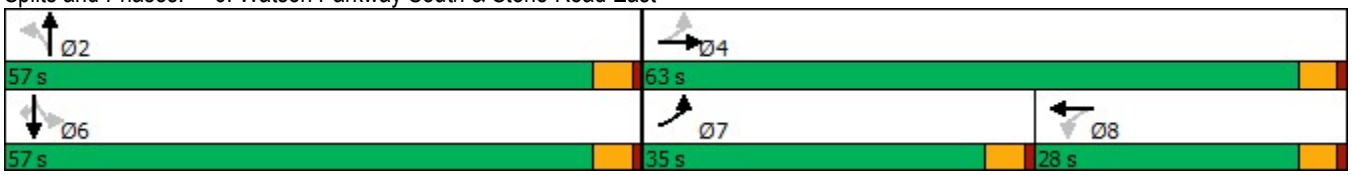
c Critical Lane Group

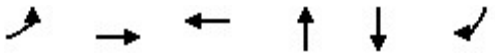
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	189	70	15	132	1	37	255	16	3	274	394
Future Volume (vph)	250	189	70	15	132	1	37	255	16	3	274	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994			0.999	
Satd. Flow (prot)	1504	1725	0	0	1806	0	0	1795	0	0	1825	1404
Flt Permitted	0.335				0.943			0.935			0.998	
Satd. Flow (perm)	530	1725	0	0	1711	0	0	1688	0	0	1823	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						3				415
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	263	199	74	16	139	1	39	268	17	3	288	415
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	273	0	0	156	0	0	324	0	0	291	415
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	63.0		28.0	28.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	29.2%	52.5%		23.3%	23.3%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	30.5	58.5		23.5	23.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	41.2	41.2			14.2			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.51			0.51	0.51
v/c Ratio	0.62	0.39			0.66			0.37			0.31	0.45
Control Delay	28.8	21.1			57.4			18.7			17.8	3.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	28.8	21.1			57.4			18.7			17.8	3.6
LOS	C	C			E			B			B	A
Approach Delay		24.9			57.4			18.7			9.4	
Approach LOS		C			E			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 103.3			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

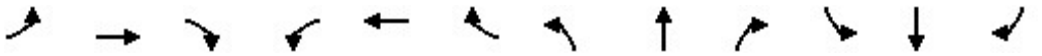
Splits and Phases: 6: Watson Parkway South & Stone Road East





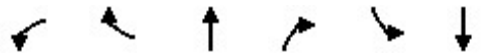
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	263	273	156	324	291	415
v/c Ratio	0.62	0.39	0.66	0.37	0.31	0.45
Control Delay	28.8	21.1	57.4	18.7	17.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	21.1	57.4	18.7	17.8	3.6
Queue Length 50th (m)	39.3	36.5	31.7	39.4	34.4	0.0
Queue Length 95th (m)	60.6	56.5	57.0	77.2	67.4	18.0
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	505	995	392	867	935	922
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.27	0.40	0.37	0.31	0.45

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	189	70	15	132	1	37	255	16	3	274	394
Future Volume (vph)	250	189	70	15	132	1	37	255	16	3	274	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			1.00	1.00
Satd. Flow (prot)	1504	1726			1806			1795			1826	1404
Flt Permitted	0.33	1.00			0.94			0.94			1.00	1.00
Satd. Flow (perm)	530	1726			1711			1689			1823	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	199	74	16	139	1	39	268	17	3	288	415
RTOR Reduction (vph)	0	13	0	0	0	0	0	1	0	0	0	202
Lane Group Flow (vph)	263	260	0	0	156	0	0	323	0	0	291	213
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	41.2	41.2			14.2			53.0			53.0	53.0
Effective Green, g (s)	41.2	41.2			14.2			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.51			0.51	0.51
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	423	689			235			867			936	721
v/s Ratio Prot	c0.14	0.15										
v/s Ratio Perm	c0.11				0.09			c0.19			0.16	0.15
v/c Ratio	0.62	0.38			0.66			0.37			0.31	0.30
Uniform Delay, d1	23.6	21.9			42.2			15.1			14.5	14.4
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.8	0.3			6.9			1.2			0.9	1.0
Delay (s)	26.4	22.3			49.1			16.3			15.4	15.4
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.3			49.1			16.3			15.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	103.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

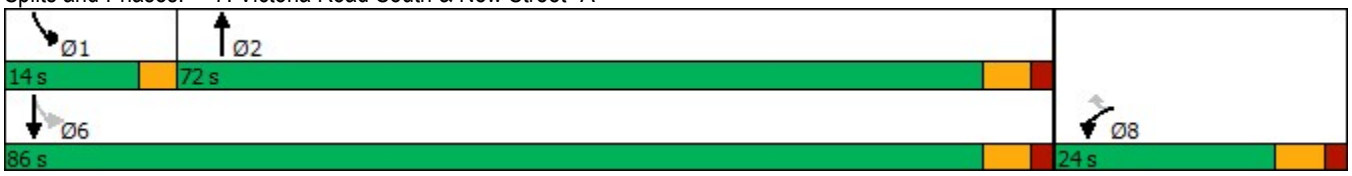


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	127	1838	23	182	1609
Future Volume (vph)	14	127	1838	23	182	1609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3532	0	1770	3539
Flt Permitted	0.950				0.061	
Satd. Flow (perm)	1770	1583	3532	0	114	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		127	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	127	1838	23	182	1609
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	127	1861	0	182	1609
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100		100	100	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		11.0	24.0
Total Split (s)	24.0	24.0	72.0		14.0	86.0
Total Split (%)	21.8%	21.8%	65.5%		12.7%	78.2%
Maximum Green (s)	18.0	18.0	66.0		11.0	80.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.2	7.2	68.3		84.0	81.0
Actuated g/C Ratio	0.07	0.07	0.68		0.84	0.81
v/c Ratio	0.11	0.55	0.77		0.71	0.56
Control Delay	44.4	17.4	14.3		34.9	4.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	44.4	17.4	14.3		34.9	4.5
LOS	D	B	B		C	A
Approach Delay	20.0		14.3			7.6
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	14	127	1861	182	1609
v/c Ratio	0.11	0.55	0.77	0.71	0.56
Control Delay	44.4	17.4	14.3	34.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	17.4	14.3	34.9	4.5
Queue Length 50th (m)	2.7	0.0	120.6	16.3	42.0
Queue Length 95th (m)	8.8	17.2	178.5	#47.1	73.7
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	317	388	2407	277	2860
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.33	0.77	0.66	0.56

Intersection Summary

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	127	1838	23	182	1609
Future Volume (vph)	14	127	1838	23	182	1609
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		3.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3533		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3533		113	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	127	1838	23	182	1609
RTOR Reduction (vph)	0	118	1	0	0	0
Lane Group Flow (vph)	14	9	1860	0	182	1609
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.2	7.2	68.3		81.0	81.0
Effective Green, g (s)	7.2	7.2	68.3		81.0	81.0
Actuated g/C Ratio	0.07	0.07	0.68		0.81	0.81
Clearance Time (s)	6.0	6.0	6.0		3.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	127	113	2408		251	2860
v/s Ratio Prot	c0.01		c0.53		c0.07	0.45
v/s Ratio Perm		0.01			0.51	
v/c Ratio	0.11	0.08	0.77		0.73	0.56
Uniform Delay, d1	43.5	43.4	10.7		25.5	3.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.3	2.5		9.9	0.8
Delay (s)	43.9	43.7	13.2		35.5	4.2
Level of Service	D	D	B		D	A
Approach Delay (s)	43.7		13.2			7.4
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	41	102	2	34	85	3
Future Volume (vph)	41	102	2	34	85	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904				0.995	
Flt Protected				0.997	0.954	
Satd. Flow (prot)	1684	0	0	1857	1768	0
Flt Permitted				0.997	0.954	
Satd. Flow (perm)	1684	0	0	1857	1768	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	102	2	34	85	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	0	36	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	41	102	2	34	85	3
Future Volume (Veh/h)	41	102	2	34	85	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	102	2	34	85	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			143		130	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			143		130	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1440		863	965

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	143	36	88
Volume Left	0	2	85
Volume Right	102	0	3
cSH	1700	1440	866
Volume to Capacity	0.08	0.00	0.10
Queue Length 95th (m)	0.0	0.0	2.7
Control Delay (s)	0.0	0.4	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.6
Approach LOS			A

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	103	67	39	37	43
Future Volume (vph)	75	103	67	39	37	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.927	
Flt Protected	0.950			0.969		
Satd. Flow (prot)	1770	1583	0	1805	1727	0
Flt Permitted	0.950			0.969		
Satd. Flow (perm)	1770	1583	0	1805	1727	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	103	67	39	37	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	103	0	106	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100	100			100
Sign Control	Stop			Free	Free	

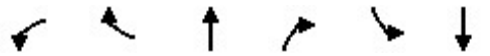
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	103	67	39	37	43
Future Volume (Veh/h)	75	103	67	39	37	43
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	75	103	67	39	37	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	232	58	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232	58	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	90	96			
cM capacity (veh/h)	723	1007	1518			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	75	103	106	80
Volume Left	75	0	67	0
Volume Right	0	103	0	43
cSH	723	1007	1518	1700
Volume to Capacity	0.10	0.10	0.04	0.05
Queue Length 95th (m)	2.8	2.7	1.1	0.0
Control Delay (s)	10.6	9.0	4.9	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.6		4.9	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	245	1301	77	122	1392
Future Volume (vph)	44	245	1301	77	122	1392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3511	0	1770	3539
Flt Permitted	0.950				0.136	
Satd. Flow (perm)	1770	1583	3511	0	253	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		207	10			
Link Speed (k/h)	50		50			50
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		32.1			29.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	245	1301	77	122	1392
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	245	1378	0	122	1392
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100		100	100	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		10.0	24.0
Total Split (s)	24.0	24.0	54.0		12.0	66.0
Total Split (%)	26.7%	26.7%	60.0%		13.3%	73.3%
Maximum Green (s)	18.0	18.0	48.0		9.0	60.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	9.1	9.1	52.8		64.0	61.0
Actuated g/C Ratio	0.11	0.11	0.64		0.78	0.74
v/c Ratio	0.23	0.68	0.61		0.37	0.53
Control Delay	34.9	18.3	11.4		6.0	5.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	34.9	18.3	11.4		6.0	5.8
LOS	C	B	B		A	A
Approach Delay	20.8		11.4			5.8
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			

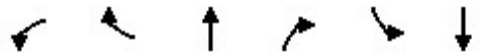
Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	44	245	1378	122	1392
v/c Ratio	0.23	0.68	0.61	0.37	0.53
Control Delay	34.9	18.3	11.4	6.0	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	18.3	11.4	6.0	5.8
Queue Length 50th (m)	6.6	5.7	61.3	3.1	36.7
Queue Length 95th (m)	16.0	27.5	113.5	10.1	74.5
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	388	509	2260	363	2630
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.48	0.61	0.34	0.53

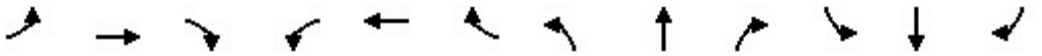
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	245	1301	77	122	1392
Future Volume (vph)	44	245	1301	77	122	1392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		3.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3510		1770	3539
Flt Permitted	0.95	1.00	1.00		0.14	1.00
Satd. Flow (perm)	1770	1583	3510		253	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	245	1301	77	122	1392
RTOR Reduction (vph)	0	184	4	0	0	0
Lane Group Flow (vph)	44	61	1374	0	122	1392
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	9.1	9.1	52.8		61.6	61.6
Effective Green, g (s)	9.1	9.1	52.8		61.6	61.6
Actuated g/C Ratio	0.11	0.11	0.64		0.74	0.74
Clearance Time (s)	6.0	6.0	6.0		3.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	194	174	2240		294	2636
v/s Ratio Prot	0.02		c0.39		0.03	c0.39
v/s Ratio Perm		c0.04			0.28	
v/c Ratio	0.23	0.35	0.61		0.41	0.53
Uniform Delay, d1	33.6	34.1	8.9		5.6	4.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.6	1.2	1.3		1.0	0.8
Delay (s)	34.2	35.3	10.2		6.5	5.2
Level of Service	C	D	B		A	A
Approach Delay (s)	35.1		10.2			5.3
Approach LOS	D		B			A

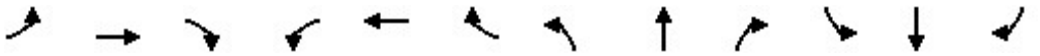
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Future Volume (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985						0.990			0.956	
Flt Protected		0.975			0.995			0.993				
Satd. Flow (prot)	0	1789	0	0	1853	0	0	1831	0	0	1781	0
Flt Permitted		0.975			0.995			0.993				
Satd. Flow (perm)	0	1789	0	0	1853	0	0	1831	0	0	1781	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	106	0	0	29	0	0	81	0	0	122	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

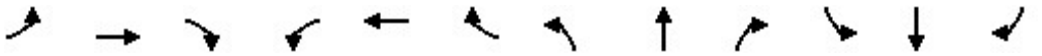
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	40	12	3	26	0	11	64	6	0	82	40
Future Volume (Veh/h)	54	40	12	3	26	0	11	64	6	0	82	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	204	194	102	223	211	67	122			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	204	194	102	223	211	67	122			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	94	99	100	96	100	99			100		
cM capacity (veh/h)	728	696	953	688	681	997	1465			1531		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	106	29	81	122
Volume Left	54	3	11	0
Volume Right	12	0	6	40
cSH	735	682	1465	1531
Volume to Capacity	0.14	0.04	0.01	0.00
Queue Length 95th (m)	4.0	1.1	0.2	0.0
Control Delay (s)	10.7	10.5	1.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.7	10.5	1.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			

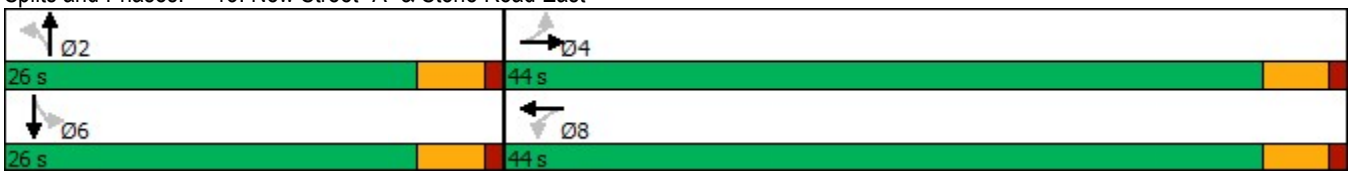


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	506	100	11	563	1	44	0	8	1	0	214
Future Volume (vph)	88	506	100	11	563	1	44	0	8	1	0	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978						0.850			0.850	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3441	0	0	3536	0	1770	1583	0	1770	1583	0
Flt Permitted		0.821			0.943		0.500			0.752		
Satd. Flow (perm)	0	2842	0	0	3337	0	931	1583	0	1401	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45						341			299	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	88	506	100	11	563	1	44	0	8	1	0	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	694	0	0	575	0	44	8	0	1	214	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		37.1%	37.1%		37.1%	37.1%	
Maximum Green (s)	39.5	39.5		39.5	39.5		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Actuated g/C Ratio		0.71			0.71		0.13	0.13		0.13	0.13	
v/c Ratio		0.34			0.24		0.35	0.02		0.01	0.45	
Control Delay		3.8			3.5		29.9	0.0		20.0	4.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		3.8			3.5		29.9	0.0		20.0	4.3	
LOS		A			A		C	A		B	A	
Approach Delay		3.8			3.5			25.3			4.4	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 59.8			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 4.5		Intersection LOS: A	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

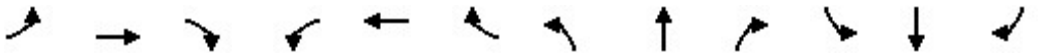
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	694	575	44	8	1	214
v/c Ratio	0.34	0.24	0.35	0.02	0.01	0.45
Control Delay	3.8	3.5	29.9	0.0	20.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	3.5	29.9	0.0	20.0	4.3
Queue Length 50th (m)	10.5	8.6	4.4	0.0	0.1	0.0
Queue Length 95th (m)	21.1	17.2	12.5	0.0	1.3	6.1
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	2042	2383	336	790	506	763
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	0.34	0.24	0.13	0.01	0.00	0.28

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	506	100	11	563	1	44	0	8	1	0	214
Future Volume (vph)	88	506	100	11	563	1	44	0	8	1	0	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3441			3535		1770	1583		1770	1583	
Flt Permitted		0.82			0.94		0.50	1.00		0.75	1.00	
Satd. Flow (perm)		2842			3337		931	1583		1402	1583	
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)	88	506	100	11	563	1	44	0	8	1	0	214
RTOR Reduction (vph)	0	13	0	0	0	0	0	7	0	0	185	0
Lane Group Flow (vph)	0	681	0	0	575	0	44	1	0	1	29	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Effective Green, g (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Actuated g/C Ratio		0.72			0.72		0.13	0.13		0.13	0.13	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2032			2386		124	212		187	212	
v/s Ratio Prot								0.00			0.02	
v/s Ratio Perm		c0.24			0.17		c0.05			0.00		
v/c Ratio		0.34			0.24		0.35	0.01		0.01	0.14	
Uniform Delay, d1		3.2			2.9		23.5	22.4		22.4	22.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.2		1.7	0.0		0.0	0.3	
Delay (s)		3.6			3.2		25.2	22.4		22.4	23.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.6			3.2			24.8			23.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	381	221	341	522	86	260	1022	275	43	827	68
Future Volume (vph)	68	381	221	341	522	86	260	1022	275	43	827	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3446	0
Flt Permitted	0.162			0.144			0.097			0.161		
Satd. Flow (perm)	290	1712	1583	261	1759	1475	176	3471	1523	283	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			225		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	74	414	240	371	567	93	283	1111	299	47	899	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	414	240	371	567	93	283	1111	299	47	973	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	10.0	30.0	29.0	21.0	41.0	41.0	29.0	57.0	21.0	12.0	40.0	
Total Split (%)	8.3%	25.0%	24.2%	17.5%	34.2%	34.2%	24.2%	47.5%	17.5%	10.0%	33.3%	
Maximum Green (s)	7.0	24.0	26.0	18.0	35.0	35.0	26.0	51.0	18.0	9.0	34.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	33.8	26.0	50.6	50.1	39.2	37.2	64.3	53.1	76.2	47.9	39.8	
Actuated g/C Ratio	0.29	0.22	0.43	0.43	0.34	0.32	0.55	0.46	0.65	0.41	0.34	
v/c Ratio	0.45	1.08	0.33	1.02	0.96	0.17	0.77	0.70	0.28	0.23	0.82	
Control Delay	18.5	53.8	20.0	53.1	29.1	0.1	23.6	16.8	1.4	32.3	35.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	53.8	20.0	53.1	29.1	0.1	23.6	16.8	1.4	32.3	35.6	
LOS	B	D	C	D	C	A	C	B	A	C	D	
Approach Delay		39.1			35.1			15.2			35.4	
Approach LOS		D			D			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.4			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 28.3		Intersection LOS: C	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road



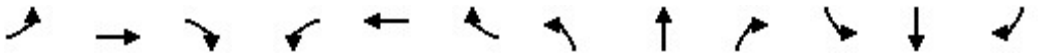


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	414	240	371	567	93	283	1111	299	47	973
v/c Ratio	0.45	1.08	0.33	1.02	0.96	0.17	0.77	0.70	0.28	0.23	0.82
Control Delay	18.5	53.8	20.0	53.1	29.1	0.1	23.6	16.8	1.4	32.3	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	53.8	20.0	53.1	29.1	0.1	23.6	16.8	1.4	32.3	35.6
Queue Length 50th (m)	11.0	~114.2	24.1	~80.1	~147.6	0.0	47.5	112.7	6.0	5.2	111.4
Queue Length 95th (m)	21.9	#181.3	39.9	#146.4	#223.3	9.7	76.8	142.0	17.2	11.1	#165.2
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	169	382	831	362	592	545	468	1584	1079	228	1182
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	1.08	0.29	1.02	0.96	0.17	0.60	0.70	0.28	0.21	0.82

Intersection Summary

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

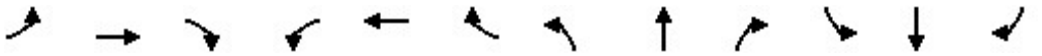
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	381	221	341	522	86	260	1022	275	43	827	68
Future Volume (vph)	68	381	221	341	522	86	260	1022	275	43	827	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1531	1671	3445	
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.10	1.00	1.00	0.16	1.00	
Satd. Flow (perm)	290	1712	1583	261	1759	1475	176	3471	1531	283	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	414	240	371	567	93	283	1111	299	47	899	74
RTOR Reduction (vph)	0	0	49	0	0	64	0	0	85	0	5	0
Lane Group Flow (vph)	74	414	191	371	567	29	283	1111	214	47	968	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	30.2	24.7	43.2	45.7	37.2	37.2	59.9	51.1	69.1	44.2	38.4	
Effective Green, g (s)	30.2	26.7	47.2	47.7	39.2	37.2	61.9	53.1	73.1	44.2	40.4	
Actuated g/C Ratio	0.26	0.23	0.40	0.41	0.33	0.32	0.53	0.45	0.62	0.38	0.34	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	140	388	635	353	586	466	361	1567	951	174	1183	
v/s Ratio Prot	0.02	c0.24	0.05	c0.18	0.32		c0.14	0.32	0.04	0.01	c0.28	
v/s Ratio Perm	0.11		0.07	0.25		0.02	0.28		0.10	0.09		
v/c Ratio	0.53	1.07	0.30	1.05	0.97	0.06	0.78	0.71	0.22	0.27	0.82	
Uniform Delay, d1	35.7	45.4	24.0	34.5	38.6	28.0	30.6	26.0	9.8	24.5	35.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.6	64.6	0.3	61.9	28.8	0.1	10.6	2.7	0.1	0.8	6.4	
Delay (s)	39.2	110.1	24.2	96.4	67.4	28.1	41.3	28.8	9.9	25.4	41.6	
Level of Service	D	F	C	F	E	C	D	C	A	C	D	
Approach Delay (s)		74.6			74.3			27.5			40.9	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

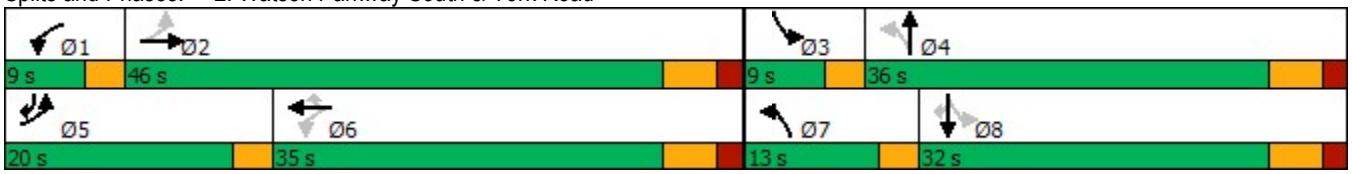


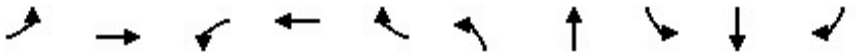
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	404	108	30	451	109	235	462	24	25	335	325
Future Volume (vph)	387	404	108	30	451	109	235	462	24	25	335	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.968				0.850		0.993				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1652	0	1517	1759	1495	1612	1718	0	1719	1827	1568
Flt Permitted	0.168			0.395			0.242			0.221		
Satd. Flow (perm)	298	1652	0	630	1759	1495	411	1718	0	400	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				164		3				137
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	407	425	114	32	475	115	247	486	25	26	353	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	407	539	0	32	475	115	247	511	0	26	353	342
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	20.0	46.0		9.0	35.0	35.0	13.0	36.0		9.0	32.0	20.0
Total Split (%)	20.0%	46.0%		9.0%	35.0%	35.0%	13.0%	36.0%		9.0%	32.0%	20.0%
Maximum Green (s)	17.0	40.0		6.0	29.0	29.0	10.0	30.0		6.0	26.0	17.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	52.0	43.8		38.0	29.0	29.0	38.6	32.2		31.6	22.6	45.7
Actuated g/C Ratio	0.54	0.45		0.39	0.30	0.30	0.40	0.33		0.33	0.23	0.47
v/c Ratio	1.01	0.71		0.11	0.90	0.20	0.86	0.89		0.12	0.83	0.42
Control Delay	7.7	16.3		7.9	25.2	0.0	10.6	8.5		32.2	48.9	10.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	7.7	16.3		7.9	25.2	0.0	10.6	8.5		32.2	48.9	10.5
LOS	A	B		A	C	A	B	A		C	D	B
Approach Delay		12.6			19.7			9.2			30.1	
Approach LOS		B			B			A			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 96.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road



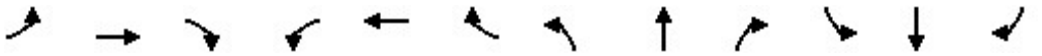


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	407	539	32	475	115	247	511	26	353	342
v/c Ratio	1.01	0.71	0.11	0.90	0.20	0.86	0.89	0.12	0.83	0.42
Control Delay	7.7	16.3	7.9	25.2	0.0	10.6	8.5	32.2	48.9	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	16.3	7.9	25.2	0.0	10.6	8.5	32.2	48.9	10.5
Queue Length 50th (m)	~61.6	89.8	2.9	91.4	0.0	33.7	88.4	3.1	66.2	23.9
Queue Length 95th (m)	#127.4	#150.0	7.8	#156.2	5.2	#71.8	#172.5	8.2	#102.1	45.6
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	404	756	302	528	563	288	573	212	491	812
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.71	0.11	0.90	0.20	0.86	0.89	0.12	0.72	0.42

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	387	404	108	30	451	109	235	462	24	25	335	325
Future Volume (vph)	387	404	108	30	451	109	235	462	24	25	335	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1653		1516	1759	1495	1612	1718		1719	1827	1568
Flt Permitted	0.17	1.00		0.40	1.00	1.00	0.24	1.00		0.22	1.00	1.00
Satd. Flow (perm)	298	1653		631	1759	1495	411	1718		400	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	407	425	114	32	475	115	247	486	25	26	353	342
RTOR Reduction (vph)	0	9	0	0	0	80	0	2	0	0	0	80
Lane Group Flow (vph)	407	530	0	32	475	35	247	509	0	26	353	262
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	50.3	43.8		33.8	30.3	30.3	37.5	32.2		26.8	24.5	41.5
Effective Green, g (s)	50.3	43.8		33.8	30.3	30.3	37.5	32.2		26.8	24.5	41.5
Actuated g/C Ratio	0.50	0.44		0.34	0.30	0.30	0.38	0.32		0.27	0.25	0.42
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	386	725		244	534	453	274	554		137	448	652
v/s Ratio Prot	c0.18	0.32		0.00	0.27		c0.09	c0.30		0.00	0.19	0.07
v/s Ratio Perm	c0.35			0.04		0.02	0.25			0.05		0.10
v/c Ratio	1.05	0.73		0.13	0.89	0.08	0.90	0.92		0.19	0.79	0.40
Uniform Delay, d1	25.0	23.1		22.4	33.2	24.8	26.1	32.5		28.0	35.2	20.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	60.8	6.4		0.2	19.5	0.3	30.1	20.2		0.7	8.9	0.4
Delay (s)	85.8	29.5		22.6	52.6	25.1	56.2	52.8		28.7	44.1	20.9
Level of Service	F	C		C	D	C	E	D		C	D	C
Approach Delay (s)		53.7			46.0			53.9			32.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

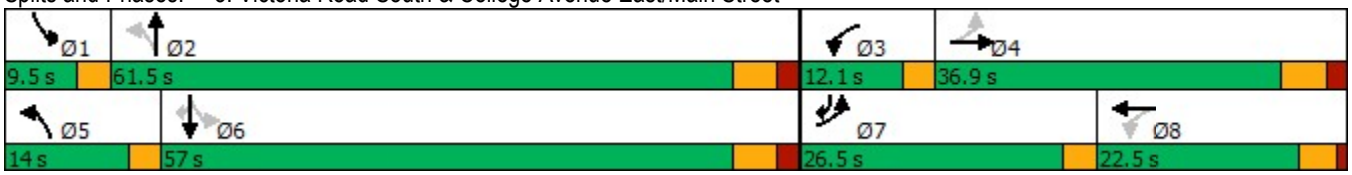
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	407	0	113	0	0	0	94	1021	0	0	1037	281
Future Volume (vph)	407	0	113	0	0	0	94	1021	0	0	1037	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.950						0.161					
Satd. Flow (perm)	1719	1442	0	1863	1863	0	294	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		297										316
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	457	0	127	0	0	0	106	1147	0	0	1165	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	457	127	0	0	0	0	106	1147	0	0	1165	316
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	26.5	36.9		12.1	22.5		14.0	61.5		9.5	57.0	26.5
Total Split (%)	22.1%	30.8%		10.1%	18.8%		11.7%	51.3%		7.9%	47.5%	22.1%
Maximum Green (s)	23.5	30.9		9.1	18.0		11.0	55.5		6.5	51.0	23.5
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	25.0	22.0					67.0	64.0			53.0	82.0
Actuated g/C Ratio	0.27	0.23					0.71	0.68			0.56	0.87
v/c Ratio	1.00	0.22					0.29	0.49			0.60	0.22
Control Delay	13.7	0.1					25.0	14.5			18.1	14.8
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	13.7	0.1					25.0	14.5			18.1	14.8
LOS	B	A					C	B			B	B
Approach Delay		10.7						15.4			17.4	
Approach LOS		B						B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 94			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

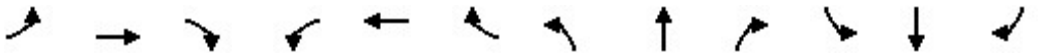




Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	457	127	106	1147	1165	316
v/c Ratio	1.00	0.22	0.29	0.49	0.60	0.22
Control Delay	13.7	0.1	25.0	14.5	18.1	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	0.1	25.0	14.5	18.1	14.8
Queue Length 50th (m)	86.8	0.0	5.4	49.1	72.6	0.0
Queue Length 95th (m)	#151.8	0.0	10.0	61.5	95.8	2.3
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	466	697	409	2362	1938	1428
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	0.18	0.26	0.49	0.60	0.22

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	407	0	113	0	0	0	94	1021	0	0	1037	281
Future Volume (vph)	407	0	113	0	0	0	94	1021	0	0	1037	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.0					1.0	4.0			4.0	1.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.95	1.00					0.16	1.00			1.00	1.00
Satd. Flow (perm)	1719	1442					295	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	457	0	127	0	0	0	106	1147	0	0	1165	316
RTOR Reduction (vph)	0	97	0	0	0	0	0	0	0	0	0	54
Lane Group Flow (vph)	457	30	0	0	0	0	106	1147	0	0	1165	262
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	23.0	20.0					62.0	62.0			51.0	74.0
Effective Green, g (s)	25.0	22.0					64.0	64.0			53.0	78.0
Actuated g/C Ratio	0.27	0.23					0.68	0.68			0.56	0.83
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	3.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	457	337					354	2363			1938	1313
v/s Ratio Prot	c0.27	0.02					0.03	c0.33			c0.34	0.05
v/s Ratio Perm							0.17					0.11
v/c Ratio	1.00	0.09					0.30	0.49			0.60	0.20
Uniform Delay, d1	34.5	28.2					7.4	7.2			13.5	1.6
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	42.1	0.1					0.5	0.7			1.4	0.1
Delay (s)	76.6	28.3					7.9	7.9			14.9	1.7
Level of Service	E	C					A	A			B	A
Approach Delay (s)		66.1			0.0			7.9			12.1	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

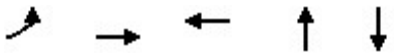
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	25	166	110	4	6	15	448	47	2	423	35
Future Volume (vph)	203	25	166	110	4	6	15	448	47	2	423	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.987			0.990	
Flt Protected	0.950				0.956			0.999				
Satd. Flow (prot)	1378	1068	0	0	1384	0	0	1689	0	0	1756	0
Flt Permitted	0.705				0.583			0.982			0.999	
Satd. Flow (perm)	1019	1068	0	0	844	0	0	1660	0	0	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		178			3			9			7	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	218	27	178	118	4	6	16	482	51	2	455	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	218	205	0	0	128	0	0	549	0	0	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	19.8	19.8			19.8			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
v/c Ratio	0.78	0.49			0.55			0.59			0.50	
Control Delay	4.7	2.3			18.0			2.8			4.6	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	4.7	2.3			18.0			2.8			4.6	
LOS	A	A			B			A			A	
Approach Delay		3.5			18.0			2.8			4.6	
Approach LOS		A			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 72.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 4.8		Intersection LOS: A	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

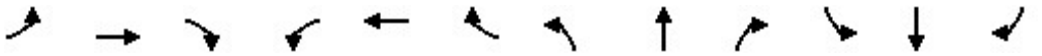
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	218	205	128	549	495
v/c Ratio	0.78	0.49	0.55	0.59	0.50
Control Delay	4.7	2.3	18.0	2.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	2.3	18.0	2.8	4.6
Queue Length 50th (m)	28.4	2.8	15.0	47.4	39.9
Queue Length 95th (m)	52.9	18.6	31.5	96.4	80.4
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	398	525	331	930	981
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.39	0.39	0.59	0.50

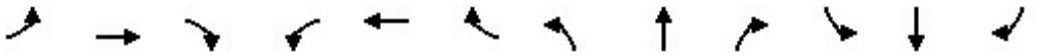
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	25	166	110	4	6	15	448	47	2	423	35
Future Volume (vph)	203	25	166	110	4	6	15	448	47	2	423	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1384			1689			1755	
Flt Permitted	0.71	1.00			0.58			0.98			1.00	
Satd. Flow (perm)	1020	1068			844			1661			1753	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	218	27	178	118	4	6	16	482	51	2	455	38
RTOR Reduction (vph)	0	129	0	0	2	0	0	4	0	0	3	0
Lane Group Flow (vph)	218	76	0	0	126	0	0	545	0	0	492	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	19.8	19.8			19.8			40.3			40.3	
Effective Green, g (s)	19.8	19.8			19.8			40.3			40.3	
Actuated g/C Ratio	0.27	0.27			0.27			0.56			0.56	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	280	293			231			928			979	
v/s Ratio Prot		0.07										
v/s Ratio Perm	c0.21				0.15			c0.33			0.28	
v/c Ratio	0.78	0.26			0.54			0.59			0.50	
Uniform Delay, d1	24.1	20.4			22.3			10.4			9.8	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	12.8	0.5			2.6			2.7			1.8	
Delay (s)	36.9	20.9			24.9			13.2			11.6	
Level of Service	D	C			C			B			B	
Approach Delay (s)		29.1			24.9			13.2			11.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

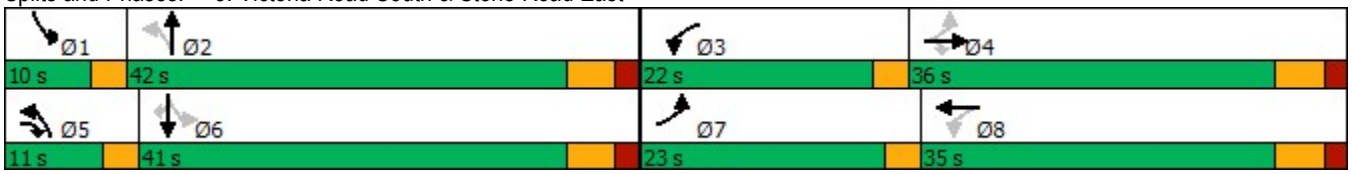


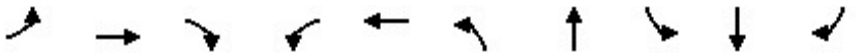
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	380	216	106	429	55	163	730	93	56	819	276
Future Volume (vph)	326	380	216	106	429	55	163	730	93	56	819	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.983			0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3398	0	1770	3326	0	1805	3438	1538
Flt Permitted	0.225			0.507			0.153			0.191		
Satd. Flow (perm)	411	3085	1392	724	3398	0	285	3326	0	363	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			237		12			13				261
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	358	418	237	116	471	60	179	802	102	62	900	303
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	418	237	116	531	0	179	904	0	62	900	303
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	23.0	36.0	11.0	22.0	35.0		11.0	42.0		10.0	41.0	41.0
Total Split (%)	20.9%	32.7%	10.0%	20.0%	31.8%		10.0%	38.2%		9.1%	37.3%	37.3%
Maximum Green (s)	20.0	30.0	8.0	19.0	29.0		8.0	36.0		7.0	35.0	35.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	45.4	28.8	42.8	34.1	20.5		47.6	38.4		45.2	35.1	35.1
Actuated g/C Ratio	0.45	0.29	0.43	0.34	0.20		0.47	0.38		0.45	0.35	0.35
v/c Ratio	0.82	0.47	0.33	0.37	0.76		0.71	0.71		0.24	0.75	0.43
Control Delay	36.9	31.8	3.8	20.4	44.4		34.0	31.6		17.8	34.6	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	36.9	31.8	3.8	20.4	44.4		34.0	31.6		17.8	34.6	7.4
LOS	D	C	A	C	D		C	C		B	C	A
Approach Delay		27.1			40.1			32.0			27.3	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East

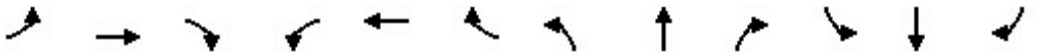




Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	358	418	237	116	531	179	904	62	900	303
v/c Ratio	0.82	0.47	0.33	0.37	0.76	0.71	0.71	0.24	0.75	0.43
Control Delay	36.9	31.8	3.8	20.4	44.4	34.0	31.6	17.8	34.6	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	31.8	3.8	20.4	44.4	34.0	31.6	17.8	34.6	7.4
Queue Length 50th (m)	49.1	37.1	0.0	13.8	53.8	20.6	85.2	6.6	86.4	5.8
Queue Length 95th (m)	#90.4	54.6	14.5	24.9	72.3	#49.0	121.4	15.8	122.3	28.5
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	449	944	728	424	991	253	1276	263	1200	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.44	0.33	0.27	0.54	0.71	0.71	0.24	0.75	0.43

Intersection Summary

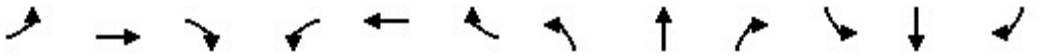
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	380	216	106	429	55	163	730	93	56	819	276
Future Volume (vph)	326	380	216	106	429	55	163	730	93	56	819	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3398		1770	3326		1805	3438	1518
Flt Permitted	0.23	1.00	1.00	0.51	1.00		0.15	1.00		0.19	1.00	1.00
Satd. Flow (perm)	412	3085	1392	725	3398		285	3326		364	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	358	418	237	116	471	60	179	802	102	62	900	303
RTOR Reduction (vph)	0	0	151	0	10	0	0	8	0	0	0	169
Lane Group Flow (vph)	358	418	86	116	521	0	179	896	0	62	900	134
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	42.4	28.8	36.8	31.1	20.5		46.4	38.4		41.4	35.9	35.9
Effective Green, g (s)	42.4	28.8	36.8	31.1	20.5		46.4	38.4		41.4	35.9	35.9
Actuated g/C Ratio	0.42	0.28	0.36	0.31	0.20		0.46	0.38		0.41	0.35	0.35
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	419	877	505	288	687		247	1260		227	1218	537
v/s Ratio Prot	c0.16	0.14	0.01	0.04	0.15		c0.06	0.27		0.01	0.26	
v/s Ratio Perm	c0.20		0.05	0.08			c0.27			0.10		0.09
v/c Ratio	0.85	0.48	0.17	0.40	0.76		0.72	0.71		0.27	0.74	0.25
Uniform Delay, d1	22.8	30.0	21.9	26.6	38.1		19.3	26.7		19.4	28.6	23.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	15.5	0.4	0.2	0.9	4.8		10.1	3.4		0.7	4.0	1.1
Delay (s)	38.3	30.4	22.1	27.5	42.9		29.4	30.2		20.1	32.6	24.3
Level of Service	D	C	C	C	D		C	C		C	C	C
Approach Delay (s)		31.2			40.1			30.0			30.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

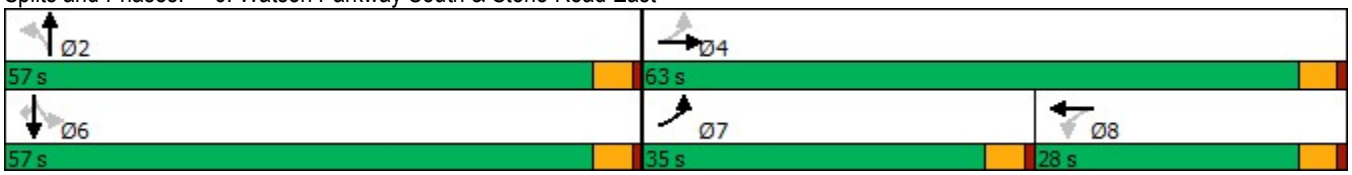


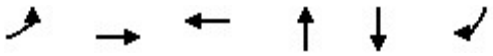
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	198	73	15	138	1	39	266	17	3	286	400
Future Volume (vph)	252	198	73	15	138	1	39	266	17	3	286	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994				
Satd. Flow (prot)	1504	1725	0	0	1806	0	0	1795	0	0	1828	1404
Flt Permitted	0.327				0.944			0.932			0.998	
Satd. Flow (perm)	518	1725	0	0	1713	0	0	1683	0	0	1824	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						3				421
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	265	208	77	16	145	1	41	280	18	3	301	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	285	0	0	162	0	0	339	0	0	304	421
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	63.0		28.0	28.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	29.2%	52.5%		23.3%	23.3%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	30.5	58.5		23.5	23.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	41.7	41.7			14.6			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.51			0.51	0.51
v/c Ratio	0.63	0.40			0.68			0.39			0.33	0.46
Control Delay	28.9	21.4			57.7			19.2			18.2	3.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	28.9	21.4			57.7			19.2			18.2	3.6
LOS	C	C			E			B			B	A
Approach Delay		25.0			57.7			19.2			9.7	
Approach LOS		C			E			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 103.8			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

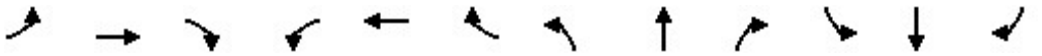
Splits and Phases: 6: Watson Parkway South & Stone Road East





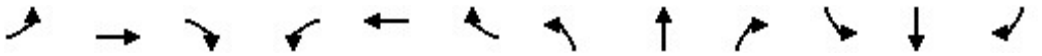
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	265	285	162	339	304	421
v/c Ratio	0.63	0.40	0.68	0.39	0.33	0.46
Control Delay	28.9	21.4	57.7	19.2	18.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	21.4	57.7	19.2	18.2	3.6
Queue Length 50th (m)	39.7	38.5	33.1	42.2	36.7	0.0
Queue Length 95th (m)	61.0	59.0	58.9	82.0	71.4	18.2
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	503	991	391	861	931	922
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	0.53	0.29	0.41	0.39	0.33	0.46

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	198	73	15	138	1	39	266	17	3	286	400
Future Volume (vph)	252	198	73	15	138	1	39	266	17	3	286	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			1.00	1.00
Satd. Flow (prot)	1504	1726			1806			1794			1827	1404
Flt Permitted	0.33	1.00			0.94			0.93			1.00	1.00
Satd. Flow (perm)	518	1726			1714			1683			1823	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	265	208	77	16	145	1	41	280	18	3	301	421
RTOR Reduction (vph)	0	13	0	0	0	0	0	1	0	0	0	206
Lane Group Flow (vph)	265	272	0	0	162	0	0	338	0	0	304	215
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	41.7	41.7			14.6			53.0			53.0	53.0
Effective Green, g (s)	41.7	41.7			14.6			53.0			53.0	53.0
Actuated g/C Ratio	0.40	0.40			0.14			0.51			0.51	0.51
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	423	694			241			860			931	717
v/s Ratio Prot	c0.14	0.16										
v/s Ratio Perm	c0.12				0.09			c0.20			0.17	0.15
v/c Ratio	0.63	0.39			0.67			0.39			0.33	0.30
Uniform Delay, d1	23.5	22.0			42.3			15.5			14.9	14.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.9	0.4			7.2			1.3			0.9	1.1
Delay (s)	26.4	22.4			49.5			16.8			15.8	15.7
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.3			49.5			16.8			15.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	103.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

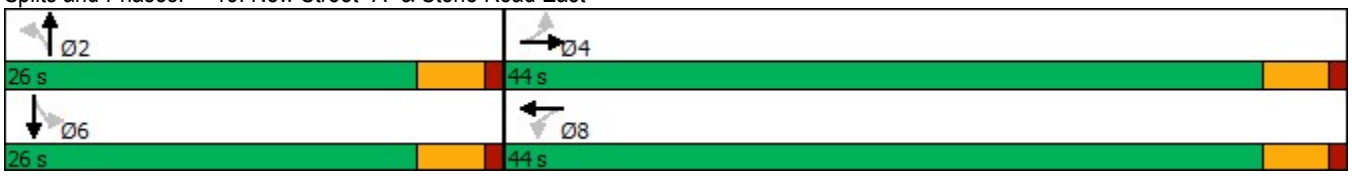


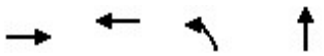
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3458	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.936		0.757					
Satd. Flow (perm)	0	3458	0	0	3313	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47						203				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	853	0	0	661	0	81	18	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		37.1%	37.1%		37.1%	37.1%	
Maximum Green (s)	39.5	39.5		39.5	39.5		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		50.2			50.2		9.0	9.0				
Actuated g/C Ratio		0.77			0.77		0.14	0.14				
v/c Ratio		0.32			0.26		0.42	0.05				
Control Delay		3.5			3.5		31.2	0.2				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		3.5			3.5		31.2	0.2				
LOS		A			A		C	A				
Approach Delay		3.5			3.5			25.5				
Approach LOS		A			A			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.1			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 4.9		Intersection LOS: A	
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			

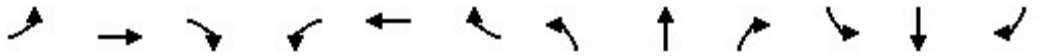
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	853	661	81	18
v/c Ratio	0.32	0.26	0.42	0.05
Control Delay	3.5	3.5	31.2	0.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	3.5	31.2	0.2
Queue Length 50th (m)	15.2	11.9	10.7	0.0
Queue Length 95th (m)	27.0	21.5	19.0	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	2678	2556	468	661
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.26	0.17	0.03

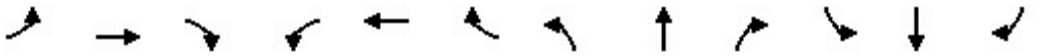
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3460			3535		1770	1583				
Flt Permitted		1.00			0.94		0.76	1.00				
Satd. Flow (perm)		3460			3313		1410	1583				
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)	0	725	128	14	647	0	81	0	18	0	0	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	841	0	0	661	0	81	2	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		49.2			49.2		7.8	7.8				
Effective Green, g (s)		49.2			49.2		7.8	7.8				
Actuated g/C Ratio		0.75			0.75		0.12	0.12				
Clearance Time (s)		4.5			4.5		4.5	4.5				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		2579			2469		166	187				
v/s Ratio Prot		c0.24						0.00				
v/s Ratio Perm					0.20		c0.06					
v/c Ratio		0.33			0.27		0.49	0.01				
Uniform Delay, d1		2.8			2.7		27.2	25.7				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.3		2.3	0.0				
Delay (s)		3.2			2.9		29.5	25.7				
Level of Service		A			A		C	C				
Approach Delay (s)		3.2			2.9			28.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3468	0
Flt Permitted	0.454			0.206			0.098			0.248		
Satd. Flow (perm)	813	1712	1583	373	1759	1475	177	3471	1523	436	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215			109			252		4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	27.0	59.0	19.0	12.0	44.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	22.5%	49.2%	15.8%	10.0%	36.7%	
Maximum Green (s)	6.0	24.0	24.0	16.0	34.0	34.0	24.0	53.0	16.0	9.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.1	25.1	23.1	47.1	35.0	35.0	70.0	53.9	72.9	49.1	40.0	
Actuated g/C Ratio	0.27	0.21	0.19	0.40	0.29	0.29	0.59	0.45	0.61	0.41	0.34	
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05	
Control Delay	45.2	148.0	9.2	88.2	106.9	14.2	24.9	32.1	2.7	8.2	33.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.2	148.0	9.2	88.2	106.9	14.2	24.9	32.1	2.7	8.2	33.7	
LOS	D	F	A	F	F	B	C	C	A	A	C	
Approach Delay		70.3			93.9			24.7			31.8	
Approach LOS		E			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.1			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 45.4		Intersection LOS: D	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road



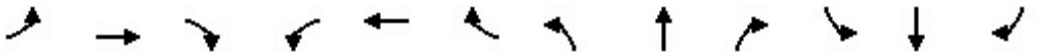


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05
Control Delay	45.2	148.0	9.2	88.2	106.9	14.2	24.9	32.1	2.7	8.2	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	148.0	9.2	88.2	106.9	14.2	24.9	32.1	2.7	8.2	33.7
Queue Length 50th (m)	8.1	76.1	40.3	~70.8	80.5	0.0	~107.4	99.3	7.5	10.8	~176.3
Queue Length 95th (m)	16.9	#125.6	#87.2	#132.8	116.7	0.0	#174.5	123.2	19.6	19.3	#221.0
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	264	373	490	351	516	510	440	1570	1033	276	1167
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	0.20	0.85	0.78	1.03	0.70	0.06	1.05	0.64	0.32	0.36	1.05

Intersection Summary

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

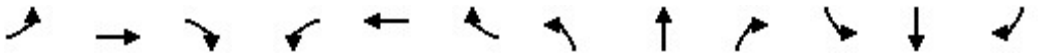
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1671	3469	
Flt Permitted	0.45	1.00	1.00	0.21	1.00	1.00	0.10	1.00	1.00	0.25	1.00	
Satd. Flow (perm)	814	1712	1583	372	1759	1475	177	3471	1530	436	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
RTOR Reduction (vph)	0	0	172	0	0	23	0	0	105	0	3	0
Lane Group Flow (vph)	52	317	210	361	360	10	460	997	229	99	1226	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.6	23.8	23.8	42.8	35.0	35.0	65.0	53.9	69.9	46.1	38.0	
Effective Green, g (s)	28.6	25.8	23.8	44.8	35.0	35.0	67.0	53.9	69.9	46.1	40.0	
Actuated g/C Ratio	0.24	0.22	0.20	0.37	0.29	0.29	0.56	0.45	0.58	0.38	0.33	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	229	368	314	341	513	430	433	1561	892	251	1158	
v/s Ratio Prot	0.01	c0.19		c0.16	0.20		c0.23	0.29	0.03	0.03	c0.35	
v/s Ratio Perm	0.04		0.13	0.24		0.01	0.36		0.12	0.12		
v/c Ratio	0.23	0.86	0.67	1.06	0.70	0.02	1.06	0.64	0.26	0.39	1.06	
Uniform Delay, d1	35.9	45.3	44.3	31.6	37.8	30.2	37.4	25.4	12.2	24.2	39.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	18.3	5.3	65.1	4.3	0.0	60.8	2.0	0.2	1.0	43.6	
Delay (s)	36.4	63.5	49.6	96.6	42.1	30.2	98.2	27.4	12.4	25.3	83.5	
Level of Service	D	E	D	F	D	C	F	C	B	C	F	
Approach Delay (s)		54.6			67.7			42.8			79.1	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

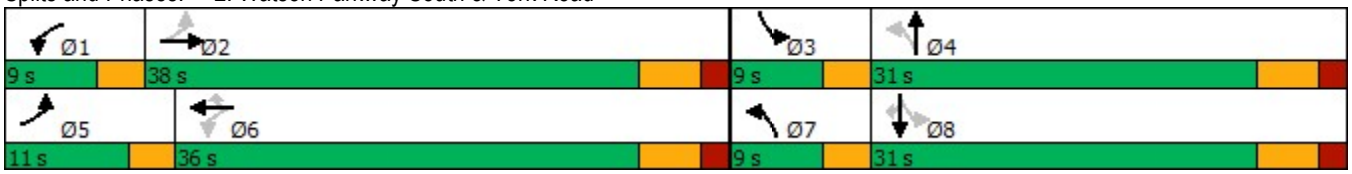


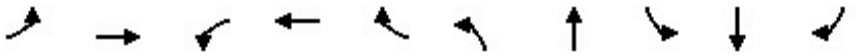
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.964				0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1645	0	1517	1759	1495	1612	1674	0	1719	1827	1568
Flt Permitted	0.254			0.387			0.239			0.609		
Satd. Flow (perm)	451	1645	0	618	1759	1495	405	1674	0	1102	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				113		21				334
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	498	0	25	492	31	113	205	0	54	393	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	11.0	38.0		9.0	36.0	36.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	12.6%	43.7%		10.3%	41.4%	41.4%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	8.0	32.0		6.0	30.0	30.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.9	37.9		39.4	30.3	30.3	29.6	23.2		29.0	21.4	21.4
Actuated g/C Ratio	0.54	0.46		0.48	0.37	0.37	0.36	0.28		0.35	0.26	0.26
v/c Ratio	0.56	0.64		0.07	0.75	0.05	0.48	0.42		0.12	0.82	0.63
Control Delay	142.4	31.7		16.8	53.6	8.7	110.8	128.0		9.2	46.8	9.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	142.4	31.7		16.8	53.6	8.7	110.8	128.0		9.2	46.8	9.3
LOS	F	C		B	D	A	F	F		A	D	A
Approach Delay		63.5			49.4			121.9			26.5	
Approach LOS		E			D			F			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 81.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 54.9		Intersection LOS: D	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road

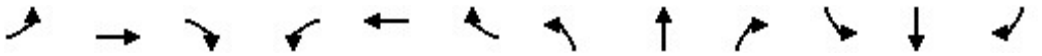




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	201	498	25	492	31	113	205	54	393	411
v/c Ratio	0.56	0.64	0.07	0.75	0.05	0.48	0.42	0.12	0.82	0.63
Control Delay	142.4	31.7	16.8	53.6	8.7	110.8	128.0	9.2	46.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.4	31.7	16.8	53.6	8.7	110.8	128.0	9.2	46.8	9.3
Queue Length 50th (m)	18.6	59.8	2.1	76.8	0.0	11.9	25.8	5.5	62.3	10.1
Queue Length 95th (m)	32.0	#127.7	6.0	#129.5	0.0	22.7	45.9	12.5	#103.5	37.6
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	365	774	365	653	626	236	548	437	565	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.64	0.07	0.75	0.05	0.48	0.37	0.12	0.70	0.57

Intersection Summary

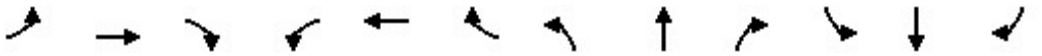
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1645		1516	1759	1495	1612	1675		1719	1827	1568
Flt Permitted	0.25	1.00		0.39	1.00	1.00	0.24	1.00		0.61	1.00	1.00
Satd. Flow (perm)	451	1645		617	1759	1495	405	1675		1102	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
RTOR Reduction (vph)	0	12	0	0	0	19	0	15	0	0	0	247
Lane Group Flow (vph)	201	486	0	25	492	12	113	190	0	54	393	164
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Effective Green, g (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Actuated g/C Ratio	0.51	0.45		0.41	0.38	0.38	0.33	0.27		0.30	0.26	0.26
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	735		276	669	569	198	458		354	473	406
v/s Ratio Prot	c0.05	0.30		0.00	c0.28		c0.03	0.11		0.01	c0.22	
v/s Ratio Perm	0.24			0.03		0.01	0.16			0.04		0.10
v/c Ratio	0.58	0.66		0.09	0.74	0.02	0.57	0.41		0.15	0.83	0.40
Uniform Delay, d1	13.7	18.4		15.4	22.6	16.4	21.7	25.2		21.5	29.6	26.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	4.6		0.1	7.1	0.1	3.9	0.6		0.2	11.8	0.7
Delay (s)	16.3	23.1		15.5	29.6	16.4	25.6	25.8		21.7	41.4	26.6
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		21.1			28.2			25.8			33.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



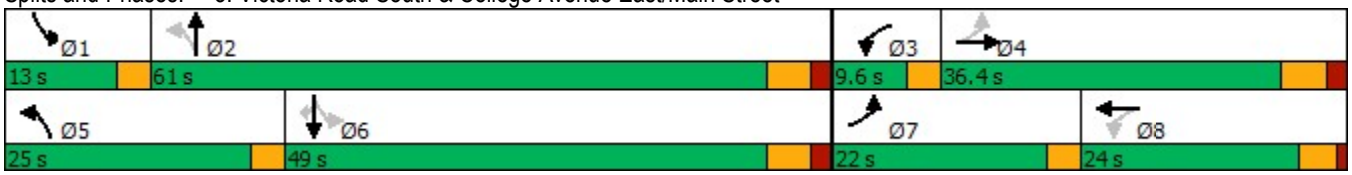
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.934			0.929			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1668	0	1770	1730	0	1736	3456	0	1770	3438	1583
Flt Permitted	0.306			0.606			0.095			0.105		
Satd. Flow (perm)	554	1668	0	1129	1730	0	174	3456	0	196	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			32			4				265
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	247	0	92	221	0	278	1286	0	138	1112	500
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	36.4		9.6	24.0		25.0	61.0		13.0	49.0	49.0
Total Split (%)	18.3%	30.3%		8.0%	20.0%		20.8%	50.8%		10.8%	40.8%	40.8%
Maximum Green (s)	19.0	30.4		6.6	19.5		22.0	55.0		10.0	43.0	43.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		-2.0	0.0		0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	43.0	30.4		30.4	22.3		72.0	55.0		58.3	48.3	46.3
Actuated g/C Ratio	0.36	0.26		0.26	0.19		0.61	0.46		0.49	0.41	0.39
v/c Ratio	0.65	0.55		0.28	0.63		0.76	0.80		0.64	0.80	0.64
Control Delay	154.7	0.5		0.0	0.0		2.4	7.2		0.0	16.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	154.7	0.5		0.0	0.0		2.4	7.2		0.0	16.1	0.3
LOS	F	A		A	A		A	A		A	B	A
Approach Delay		75.0						6.3			10.3	
Approach LOS		E						A			B	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 119
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

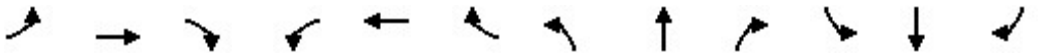




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	231	247	92	221	278	1286	138	1112	500
v/c Ratio	0.65	0.55	0.28	0.63	0.76	0.80	0.64	0.80	0.64
Control Delay	154.7	0.5	0.0	0.0	2.4	7.2	0.0	16.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.7	0.5	0.0	0.0	2.4	7.2	0.0	16.1	0.3
Queue Length 50th (m)	41.9	46.4	15.2	44.0	44.4	139.9	14.3	127.0	46.8
Queue Length 95th (m)	64.0	74.4	27.8	#78.6	73.4	168.2	35.2	160.0	87.7
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	385	449	323	349	420	1599	229	1394	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.55	0.28	0.63	0.66	0.80	0.60	0.80	0.64

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1669		1770	1730		1736	3455		1770	3438	1583
Flt Permitted	0.31	1.00		0.61	1.00		0.09	1.00		0.10	1.00	1.00
Satd. Flow (perm)	554	1669		1128	1730		173	3455		195	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
RTOR Reduction (vph)	0	23	0	0	26	0	0	2	0	0	0	162
Lane Group Flow (vph)	231	224	0	92	195	0	278	1284	0	138	1112	338
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	40.0	30.4		28.9	22.3		67.1	55.1		55.3	46.3	46.3
Effective Green, g (s)	40.0	30.4		28.9	22.3		69.1	55.1		55.3	48.3	46.3
Actuated g/C Ratio	0.34	0.26		0.24	0.19		0.58	0.46		0.46	0.41	0.39
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	426		309	323		360	1598		209	1394	615
v/s Ratio Prot	c0.09	0.13		0.02	0.11		c0.13	c0.37		0.05	0.32	
v/s Ratio Perm	c0.13			0.06			0.32			0.26		0.21
v/c Ratio	0.67	0.53		0.30	0.60		0.77	0.80		0.66	0.80	0.55
Uniform Delay, d1	31.1	38.1		36.0	44.4		30.0	27.4		22.1	31.1	28.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	4.6		0.5	8.1		9.9	4.4		7.6	4.8	3.5
Delay (s)	36.2	42.7		36.6	52.5		39.8	31.8		29.7	35.9	31.8
Level of Service	D	D		D	D		D	C		C	D	C
Approach Delay (s)		39.6			47.8			33.2			34.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

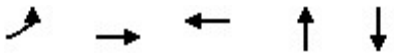
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.910			0.994			0.972			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1052	0	0	1373	0	0	1628	0	0	1745	0
Flt Permitted	0.715				0.753			0.934			0.998	
Satd. Flow (perm)	1033	1052	0	0	1075	0	0	1528	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3			29			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	25	0	0	64	0	0	389	0	0	477	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.5	9.5			9.6			56.6			56.6	
Actuated g/C Ratio	0.13	0.13			0.14			0.80			0.80	
v/c Ratio	0.24	0.16			0.43			0.32			0.34	
Control Delay	284.7	74.7			60.9			21.3			13.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	284.7	74.7			60.9			21.3			13.8	
LOS	F	E			E			C			B	
Approach Delay		194.2			60.9			21.3			13.8	
Approach LOS		F			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 30.4		Intersection LOS: C	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

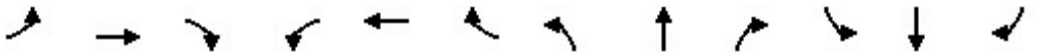
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	33	25	64	389	477
v/c Ratio	0.24	0.16	0.43	0.32	0.34
Control Delay	284.7	74.7	60.9	21.3	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	284.7	74.7	60.9	21.3	13.8
Queue Length 50th (m)	4.1	1.2	7.8	15.8	21.3
Queue Length 95th (m)	11.7	7.5	18.9	35.7	45.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	293	310	307	1234	1403
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.21	0.32	0.34

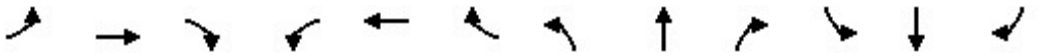
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1372	1052			1372			1629			1744	
Flt Permitted	0.72	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1033	1052			1074			1528			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
RTOR Reduction (vph)	0	14	0	0	3	0	0	7	0	0	3	0
Lane Group Flow (vph)	33	11	0	0	61	0	0	382	0	0	474	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.6	6.6			6.6			54.2			54.2	
Effective Green, g (s)	6.6	6.6			6.6			54.2			54.2	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	93	95			97			1137			1296	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.06			0.25			c0.27	
v/c Ratio	0.35	0.12			0.63			0.34			0.37	
Uniform Delay, d1	31.1	30.4			31.9			3.2			3.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	0.6			12.7			0.8			0.8	
Delay (s)	33.4	31.0			44.6			4.0			4.1	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.4			44.6			4.0			4.1	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

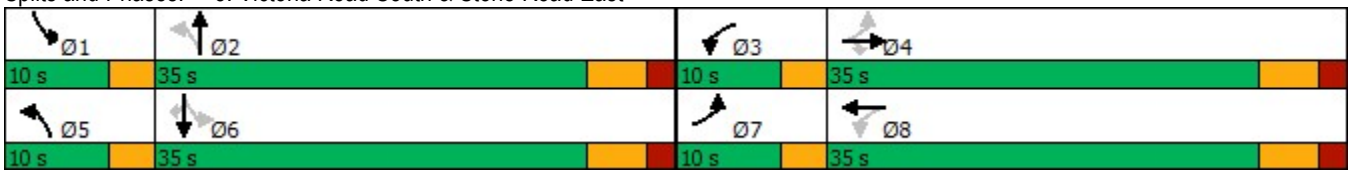


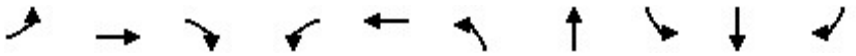
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.960			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3343	0	1770	3344	0	1805	3438	1538
Flt Permitted	0.241			0.622			0.302			0.135		
Satd. Flow (perm)	440	3085	1392	889	3343	0	562	3344	0	256	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		59			13				320
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	207	93	131	633	0	246	1228	0	99	659	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	29.4	19.3	19.3	29.4	19.3		39.8	31.2		39.1	29.1	29.1
Actuated g/C Ratio	0.37	0.24	0.24	0.37	0.24		0.49	0.39		0.49	0.36	0.36
v/c Ratio	0.82	0.28	0.22	0.36	0.75		0.64	0.94		0.38	0.53	0.45
Control Delay	59.2	64.4	9.6	18.2	37.2		24.7	23.3		11.1	47.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	59.2	64.4	9.6	18.2	37.2		24.7	23.3		11.1	47.2	6.6
LOS	E	E	A	B	D		C	C		B	D	A
Approach Delay		52.4			33.9			23.5			31.4	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 31.7		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East



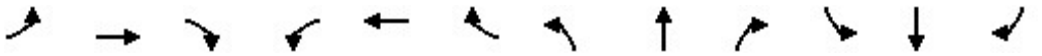


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	223	207	93	131	633	246	1228	99	659	341
v/c Ratio	0.82	0.28	0.22	0.36	0.75	0.64	0.94	0.38	0.53	0.45
Control Delay	59.2	64.4	9.6	18.2	37.2	24.7	23.3	11.1	47.2	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	64.4	9.6	18.2	37.2	24.7	23.3	11.1	47.2	6.6
Queue Length 50th (m)	23.9	14.2	0.0	13.6	45.0	20.3	~101.6	7.4	42.8	2.1
Queue Length 95th (m)	#51.8	23.2	8.6	25.5	63.1	#45.8	#171.4	17.9	67.5	21.3
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	273	1114	572	364	1245	383	1305	259	1241	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.19	0.16	0.36	0.51	0.64	0.94	0.38	0.53	0.45

Intersection Summary

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

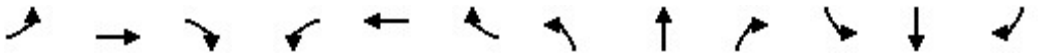
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3344		1769	3346		1805	3438	1518
Flt Permitted	0.24	1.00	1.00	0.62	1.00		0.30	1.00		0.13	1.00	1.00
Satd. Flow (perm)	440	3085	1392	889	3344		562	3346		256	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
RTOR Reduction (vph)	0	0	71	0	45	0	0	8	0	0	0	203
Lane Group Flow (vph)	223	207	22	131	588	0	246	1220	0	99	659	138
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Effective Green, g (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Actuated g/C Ratio	0.32	0.24	0.24	0.32	0.24		0.47	0.39		0.43	0.37	0.37
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	735	331	329	796		369	1288		216	1260	556
v/s Ratio Prot	c0.08	0.07		0.03	0.18		c0.06	c0.36		0.03	0.19	
v/s Ratio Perm	c0.21		0.02	0.09			0.26			0.17		0.09
v/c Ratio	0.88	0.28	0.07	0.40	0.74		0.67	0.95		0.46	0.52	0.25
Uniform Delay, d1	22.9	25.2	23.9	20.4	28.5		13.7	24.1		16.6	20.1	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	27.1	0.2	0.1	0.8	3.6		4.5	15.3		1.5	1.6	1.1
Delay (s)	49.9	25.4	24.0	21.2	32.1		18.2	39.4		18.2	21.7	18.9
Level of Service	D	C	C	C	C		B	D		B	C	B
Approach Delay (s)		35.6			30.3			35.8			20.5	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

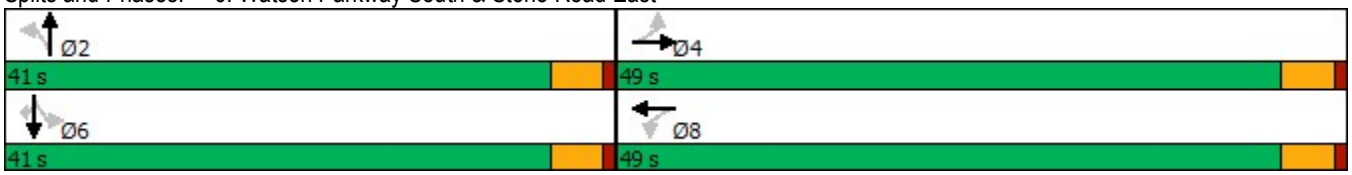


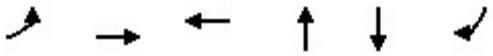
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.994				0.850
Flt Protected	0.950				0.996			0.983			0.999	
Satd. Flow (prot)	1504	1693	0	0	1802	0	0	1774	0	0	1819	1404
Flt Permitted	0.626				0.974			0.844			0.997	
Satd. Flow (perm)	991	1693	0	0	1762	0	0	1523	0	0	1815	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			1			3				266
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	127	0	0	177	0	0	256	0	0	212	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	41.0
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	45.6%
Maximum Green (s)	44.5	44.5		44.5	44.5		36.5	36.5		36.5	36.5	36.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
v/c Ratio	0.77	0.24			0.35			0.30			0.21	0.29
Control Delay	34.5	47.9			52.9			25.5			26.2	5.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	34.5	47.9			52.9			25.5			26.2	5.7
LOS	C	D			D			C			C	A
Approach Delay		39.4			52.9			25.5			14.8	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.9			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 29.1		Intersection LOS: C	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

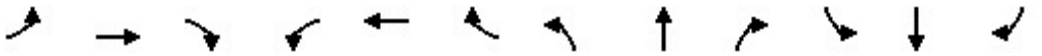
Splits and Phases: 6: Watson Parkway South & Stone Road East





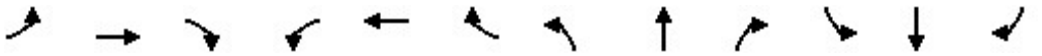
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	222	127	177	256	212	266
v/c Ratio	0.77	0.24	0.35	0.30	0.21	0.29
Control Delay	34.5	47.9	52.9	25.5	26.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.5	47.9	52.9	25.5	26.2	5.7
Queue Length 50th (m)	25.2	7.6	17.2	14.7	11.6	0.0
Queue Length 95th (m)	48.1	18.2	31.1	38.1	30.2	11.3
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	685	1186	1220	867	1032	912
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	0.32	0.11	0.15	0.30	0.21	0.29

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1692			1801			1774			1819	1404
Flt Permitted	0.63	1.00			0.97			0.84			1.00	1.00
Satd. Flow (perm)	991	1692			1762			1523			1815	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
RTOR Reduction (vph)	0	32	0	0	1	0	0	1	0	0	0	115
Lane Group Flow (vph)	222	95	0	0	176	0	0	255	0	0	212	151
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	18.9	18.9			18.9			36.9			36.9	36.9
Effective Green, g (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	289	493			513			867			1033	799
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.22				0.10			c0.17			0.12	0.11
v/c Ratio	0.77	0.19			0.34			0.29			0.21	0.19
Uniform Delay, d1	21.0	17.2			18.1			7.2			6.8	6.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.6	0.2			0.4			0.9			0.4	0.5
Delay (s)	32.5	17.4			18.5			8.1			7.3	7.3
Level of Service	C	B			B			A			A	A
Approach Delay (s)		27.0			18.5			8.1			7.3	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

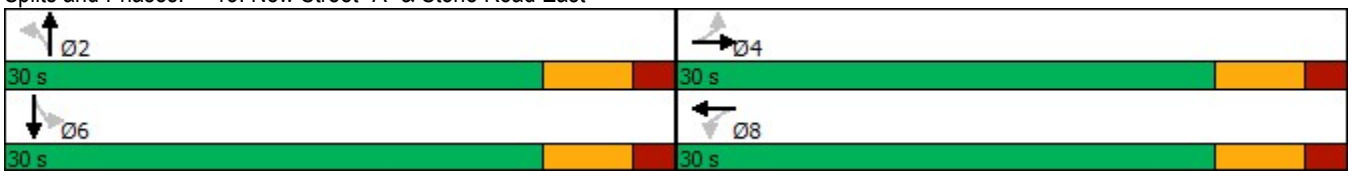


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991						0.850			0.850	
Flt Protected		0.989					0.950			0.950		
Satd. Flow (prot)	0	3469	0	0	3539	0	1770	1583	0	1770	1583	0
Flt Permitted		0.752			0.954		0.693			0.742		
Satd. Flow (perm)	0	2638	0	0	3376	0	1291	1583	0	1382	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13						446			209	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	0	0	508	0	91	23	0	6	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
v/c Ratio		0.36			0.38		0.18	0.03		0.01	0.13	
Control Delay		7.8			4.6		27.7	0.2		0.0	0.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		7.8			4.6		27.7	0.2		0.0	0.0	
LOS		A			A		C	A		A	A	
Approach Delay		7.8			4.6			22.2				
Approach LOS		A			A			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

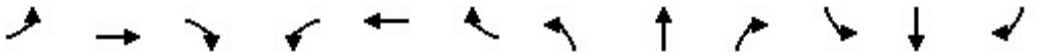
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	386	508	91	23	6	99
v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13
Control Delay	7.8	4.6	27.7	0.2	0.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	4.6	27.7	0.2	0.0	0.0
Queue Length 50th (m)	15.2	21.0	6.6	0.0	0.4	0.0
Queue Length 95th (m)	25.0	31.8	15.0	0.0	2.3	0.0
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	1063	1350	516	900	552	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3469			3537		1770	1583		1770	1583	
Flt Permitted		0.75			0.95		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		2637			3374		1291	1583		1383	1583	
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)	85	278	23	2	505	1	91	0	23	6	0	99
RTOR Reduction (vph)	0	8	0	0	0	0	0	14	0	0	59	0
Lane Group Flow (vph)	0	378	0	0	508	0	91	9	0	6	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Effective Green, g (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1054			1349		516	633		553	633	
v/s Ratio Prot								0.01			0.03	
v/s Ratio Perm		0.14			c0.15		c0.07			0.00		
v/c Ratio		0.36			0.38		0.18	0.01		0.01	0.06	
Uniform Delay, d1		12.6			12.7		11.6	10.9		10.8	11.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.8		0.2	0.0		0.0	0.2	
Delay (s)		13.6			13.5		11.8	10.9		10.9	11.3	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		13.6			13.5			11.6			11.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3468	0
Flt Permitted	0.454			0.206			0.098			0.248		
Satd. Flow (perm)	813	1712	1583	373	1759	1475	177	3471	1523	436	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215			109			252		4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	27.0	59.0	19.0	12.0	44.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	22.5%	49.2%	15.8%	10.0%	36.7%	
Maximum Green (s)	6.0	24.0	24.0	16.0	34.0	34.0	24.0	53.0	16.0	9.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.1	25.1	23.1	47.1	35.0	35.0	70.0	53.9	72.9	49.1	40.0	
Actuated g/C Ratio	0.27	0.21	0.19	0.40	0.29	0.29	0.59	0.45	0.61	0.41	0.34	
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05	
Control Delay	26.3	71.2	32.9	85.8	46.4	0.2	89.3	27.7	3.5	18.1	80.3	
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	26.3	71.2	32.9	85.8	46.4	0.2	89.3	27.7	3.5	18.1	80.3	
LOS	C	E	C	F	D	A	F	C	A	B	F	
Approach Delay		48.6			63.2			39.0			75.6	
Approach LOS		D			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.1			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 55.0		Intersection LOS: E	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05
Control Delay	26.3	71.2	32.9	85.8	46.4	0.2	89.3	27.7	3.5	18.1	80.3
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	26.3	71.2	32.9	85.8	46.4	0.2	89.3	27.7	3.5	18.1	80.3
Queue Length 50th (m)	8.1	76.1	40.3	~70.8	80.5	0.0	~107.4	99.3	7.5	10.8	~176.3
Queue Length 95th (m)	16.9	#125.6	#87.2	#132.8	116.7	0.0	#174.5	123.2	19.6	19.3	#221.0
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	264	373	490	351	516	510	440	1570	1033	276	1167
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	0.20	0.85	0.78	1.03	0.70	0.06	1.05	0.64	0.32	0.36	1.05

Intersection Summary

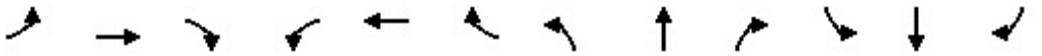
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1671	3469	
Flt Permitted	0.45	1.00	1.00	0.21	1.00	1.00	0.10	1.00	1.00	0.25	1.00	
Satd. Flow (perm)	814	1712	1583	372	1759	1475	177	3471	1530	436	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
RTOR Reduction (vph)	0	0	172	0	0	23	0	0	105	0	3	0
Lane Group Flow (vph)	52	317	210	361	360	10	460	997	229	99	1226	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.6	23.8	23.8	42.8	35.0	35.0	65.0	53.9	69.9	46.1	38.0	
Effective Green, g (s)	28.6	25.8	23.8	44.8	35.0	35.0	67.0	53.9	69.9	46.1	40.0	
Actuated g/C Ratio	0.24	0.22	0.20	0.37	0.29	0.29	0.56	0.45	0.58	0.38	0.33	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	229	368	314	341	513	430	433	1561	892	251	1158	
v/s Ratio Prot	0.01	c0.19		c0.16	0.20		c0.23	0.29	0.03	0.03	c0.35	
v/s Ratio Perm	0.04		0.13	0.24		0.01	0.36		0.12	0.12		
v/c Ratio	0.23	0.86	0.67	1.06	0.70	0.02	1.06	0.64	0.26	0.39	1.06	
Uniform Delay, d1	35.9	45.3	44.3	31.6	37.8	30.2	37.4	25.4	12.2	24.2	39.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	18.3	5.3	65.1	4.3	0.0	60.8	2.0	0.2	1.0	43.6	
Delay (s)	36.4	63.5	49.6	96.6	42.1	30.2	98.2	27.4	12.4	25.3	83.5	
Level of Service	D	E	D	F	D	C	F	C	B	C	F	
Approach Delay (s)		54.6			67.7			42.8			79.1	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

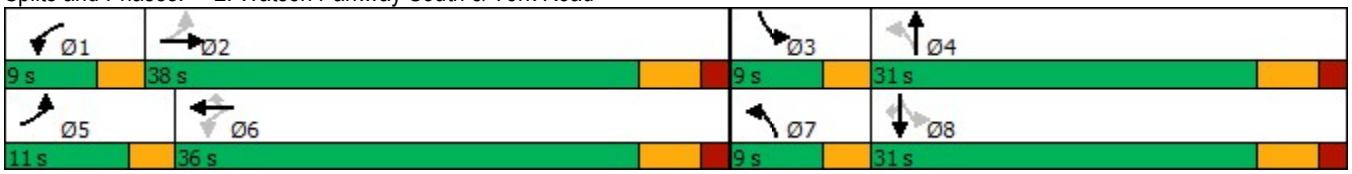


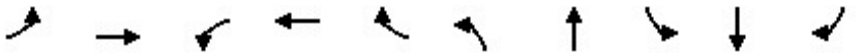
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.964				0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1645	0	1517	1759	1495	1612	1674	0	1719	1827	1568
Flt Permitted	0.254			0.387			0.239			0.609		
Satd. Flow (perm)	451	1645	0	618	1759	1495	405	1674	0	1102	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				113		21				334
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	498	0	25	492	31	113	205	0	54	393	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	11.0	38.0		9.0	36.0	36.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	12.6%	43.7%		10.3%	41.4%	41.4%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	8.0	32.0		6.0	30.0	30.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.9	37.9		39.4	30.3	30.3	29.6	23.2		29.0	21.4	21.4
Actuated g/C Ratio	0.54	0.46		0.48	0.37	0.37	0.36	0.28		0.35	0.26	0.26
v/c Ratio	0.56	0.64		0.07	0.75	0.05	0.48	0.42		0.12	0.82	0.63
Control Delay	18.0	24.4		11.4	33.3	0.1	23.2	24.7		15.8	44.0	10.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.0	24.4		11.4	33.3	0.1	23.2	24.7		15.8	44.0	10.5
LOS	B	C		B	C	A	C	C		B	D	B
Approach Delay		22.5			30.5			24.2			26.2	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 81.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road

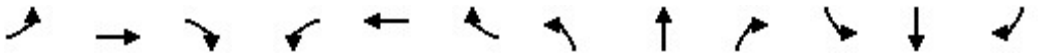




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	201	498	25	492	31	113	205	54	393	411
v/c Ratio	0.56	0.64	0.07	0.75	0.05	0.48	0.42	0.12	0.82	0.63
Control Delay	18.0	24.4	11.4	33.3	0.1	23.2	24.7	15.8	44.0	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	24.4	11.4	33.3	0.1	23.2	24.7	15.8	44.0	10.5
Queue Length 50th (m)	18.6	59.8	2.1	76.8	0.0	11.9	25.8	5.5	62.3	10.1
Queue Length 95th (m)	32.0	#127.7	6.0	#129.5	0.0	22.7	45.9	12.5	#103.5	37.6
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	365	774	365	653	626	236	548	437	565	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.64	0.07	0.75	0.05	0.48	0.37	0.12	0.70	0.57

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1645		1516	1759	1495	1612	1675		1719	1827	1568
Flt Permitted	0.25	1.00		0.39	1.00	1.00	0.24	1.00		0.61	1.00	1.00
Satd. Flow (perm)	451	1645		617	1759	1495	405	1675		1102	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
RTOR Reduction (vph)	0	12	0	0	0	19	0	15	0	0	0	247
Lane Group Flow (vph)	201	486	0	25	492	12	113	190	0	54	393	164
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Effective Green, g (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Actuated g/C Ratio	0.51	0.45		0.41	0.38	0.38	0.33	0.27		0.30	0.26	0.26
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	735		276	669	569	198	458		354	473	406
v/s Ratio Prot	c0.05	0.30		0.00	c0.28		c0.03	0.11		0.01	c0.22	
v/s Ratio Perm	0.24			0.03		0.01	0.16			0.04		0.10
v/c Ratio	0.58	0.66		0.09	0.74	0.02	0.57	0.41		0.15	0.83	0.40
Uniform Delay, d1	13.7	18.4		15.4	22.6	16.4	21.7	25.2		21.5	29.6	26.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	4.6		0.1	7.1	0.1	3.9	0.6		0.2	11.8	0.7
Delay (s)	16.3	23.1		15.5	29.6	16.4	25.6	25.8		21.7	41.4	26.6
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		21.1			28.2			25.8			33.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

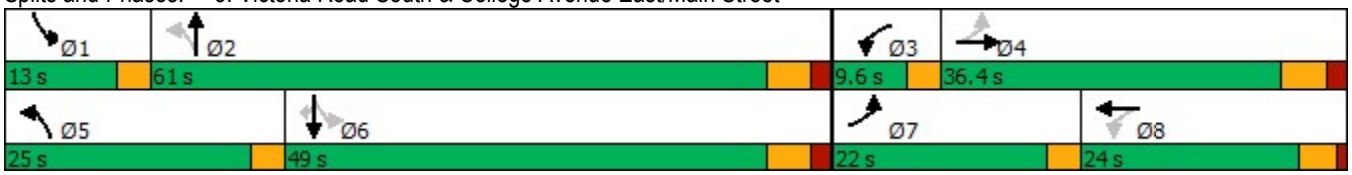
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.934			0.929			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1668	0	1770	1730	0	1736	3456	0	1770	3438	1583
Flt Permitted	0.306			0.606			0.095			0.105		
Satd. Flow (perm)	554	1668	0	1129	1730	0	174	3456	0	196	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			32			4				265
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	247	0	92	221	0	278	1286	0	138	1112	500
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	36.4		9.6	24.0		25.0	61.0		13.0	49.0	49.0
Total Split (%)	18.3%	30.3%		8.0%	20.0%		20.8%	50.8%		10.8%	40.8%	40.8%
Maximum Green (s)	19.0	30.4		6.6	19.5		22.0	55.0		10.0	43.0	43.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		-2.0	0.0		0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	43.0	30.4		30.4	22.3		72.0	55.0		58.3	48.3	46.3
Actuated g/C Ratio	0.36	0.26		0.26	0.19		0.61	0.46		0.49	0.41	0.39
v/c Ratio	0.65	0.55		0.28	0.63		0.76	0.80		0.64	0.80	0.64
Control Delay	37.4	38.9		29.9	48.2		39.1	32.3		33.4	37.2	18.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	37.4	38.9		29.9	48.2		39.1	32.3		33.4	37.2	18.3
LOS	D	D		C	D		D	C		C	D	B
Approach Delay		38.2			42.8			33.5			31.5	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 33.9		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

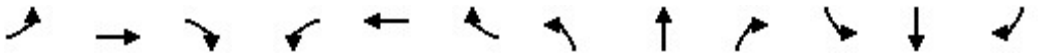




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	231	247	92	221	278	1286	138	1112	500
v/c Ratio	0.65	0.55	0.28	0.63	0.76	0.80	0.64	0.80	0.64
Control Delay	37.4	38.9	29.9	48.2	39.1	32.3	33.4	37.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	38.9	29.9	48.2	39.1	32.3	33.4	37.2	18.3
Queue Length 50th (m)	41.9	46.4	15.2	44.0	44.4	139.9	14.3	127.0	46.8
Queue Length 95th (m)	64.0	74.4	27.8	#78.6	73.4	168.2	35.2	160.0	87.7
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	385	449	323	349	420	1599	229	1394	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.55	0.28	0.63	0.66	0.80	0.60	0.80	0.64

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1669		1770	1730		1736	3455		1770	3438	1583
Flt Permitted	0.31	1.00		0.61	1.00		0.09	1.00		0.10	1.00	1.00
Satd. Flow (perm)	554	1669		1128	1730		173	3455		195	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
RTOR Reduction (vph)	0	23	0	0	26	0	0	2	0	0	0	162
Lane Group Flow (vph)	231	224	0	92	195	0	278	1284	0	138	1112	338
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	40.0	30.4		28.9	22.3		67.1	55.1		55.3	46.3	46.3
Effective Green, g (s)	40.0	30.4		28.9	22.3		69.1	55.1		55.3	48.3	46.3
Actuated g/C Ratio	0.34	0.26		0.24	0.19		0.58	0.46		0.46	0.41	0.39
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	426		309	323		360	1598		209	1394	615
v/s Ratio Prot	c0.09	0.13		0.02	0.11		c0.13	c0.37		0.05	0.32	
v/s Ratio Perm	c0.13			0.06			0.32			0.26		0.21
v/c Ratio	0.67	0.53		0.30	0.60		0.77	0.80		0.66	0.80	0.55
Uniform Delay, d1	31.1	38.1		36.0	44.4		30.0	27.4		22.1	31.1	28.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	4.6		0.5	8.1		9.9	4.4		7.6	4.8	3.5
Delay (s)	36.2	42.7		36.6	52.5		39.8	31.8		29.7	35.9	31.8
Level of Service	D	D		D	D		D	C		C	D	C
Approach Delay (s)		39.6			47.8			33.2			34.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

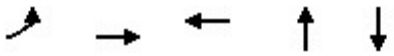
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.910			0.994			0.972			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1052	0	0	1373	0	0	1628	0	0	1745	0
Flt Permitted	0.715				0.753			0.934			0.998	
Satd. Flow (perm)	1033	1052	0	0	1075	0	0	1528	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3			29			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	25	0	0	64	0	0	389	0	0	477	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.5	9.5			9.6			56.6			56.6	
Actuated g/C Ratio	0.13	0.13			0.14			0.80			0.80	
v/c Ratio	0.24	0.16			0.43			0.32			0.34	
Control Delay	30.7	19.0			35.7			4.6			4.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	30.7	19.0			35.7			4.6			4.8	
LOS	C	B			D			A			A	
Approach Delay		25.7			35.7			4.6			4.8	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

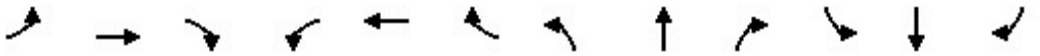
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	33	25	64	389	477
v/c Ratio	0.24	0.16	0.43	0.32	0.34
Control Delay	30.7	19.0	35.7	4.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	19.0	35.7	4.6	4.8
Queue Length 50th (m)	4.1	1.2	7.8	15.8	21.3
Queue Length 95th (m)	11.7	7.5	18.9	35.7	45.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	293	310	307	1234	1403
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.21	0.32	0.34

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1372	1052			1372			1629			1744	
Flt Permitted	0.72	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1033	1052			1074			1528			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
RTOR Reduction (vph)	0	14	0	0	3	0	0	7	0	0	3	0
Lane Group Flow (vph)	33	11	0	0	61	0	0	382	0	0	474	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.6	6.6			6.6			54.2			54.2	
Effective Green, g (s)	6.6	6.6			6.6			54.2			54.2	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	93	95			97			1137			1296	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.06			0.25			c0.27	
v/c Ratio	0.35	0.12			0.63			0.34			0.37	
Uniform Delay, d1	31.1	30.4			31.9			3.2			3.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	0.6			12.7			0.8			0.8	
Delay (s)	33.4	31.0			44.6			4.0			4.1	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.4			44.6			4.0			4.1	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

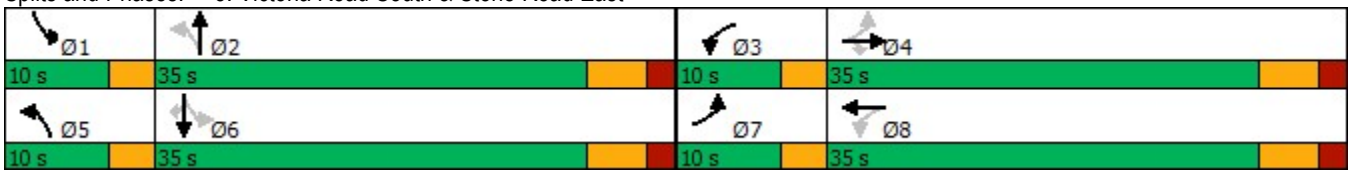
c Critical Lane Group

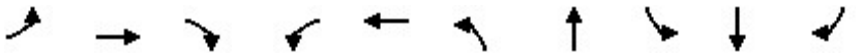
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.960			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3343	0	1770	3344	0	1805	3438	1538
Flt Permitted	0.241			0.622			0.302			0.135		
Satd. Flow (perm)	440	3085	1392	889	3343	0	562	3344	0	256	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		59			13				320
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	207	93	131	633	0	246	1228	0	99	659	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	29.4	19.3	19.3	29.4	19.3		39.8	31.2		39.1	29.1	29.1
Actuated g/C Ratio	0.37	0.24	0.24	0.37	0.24		0.49	0.39		0.49	0.36	0.36
v/c Ratio	0.82	0.28	0.22	0.36	0.75		0.64	0.94		0.38	0.53	0.45
Control Delay	43.1	25.5	5.2	18.9	31.4		22.2	41.2		15.4	23.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	43.1	25.5	5.2	18.9	31.4		22.2	41.2		15.4	23.0	5.5
LOS	D	C	A	B	C		C	D		B	C	A
Approach Delay		29.4			29.2			38.0			16.9	
Approach LOS		C			C			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 29.1		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East



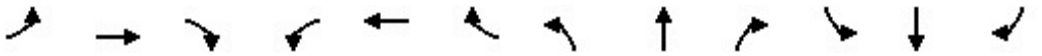


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	223	207	93	131	633	246	1228	99	659	341
v/c Ratio	0.82	0.28	0.22	0.36	0.75	0.64	0.94	0.38	0.53	0.45
Control Delay	43.1	25.5	5.2	18.9	31.4	22.2	41.2	15.4	23.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	25.5	5.2	18.9	31.4	22.2	41.2	15.4	23.0	5.5
Queue Length 50th (m)	23.9	14.2	0.0	13.6	45.0	20.3	~101.6	7.4	42.8	2.1
Queue Length 95th (m)	#51.8	23.2	8.6	25.5	63.1	#45.8	#171.4	17.9	67.5	21.3
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	273	1114	572	364	1245	383	1305	259	1241	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.19	0.16	0.36	0.51	0.64	0.94	0.38	0.53	0.45

Intersection Summary

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

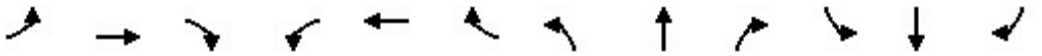
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3344		1769	3346		1805	3438	1518
Flt Permitted	0.24	1.00	1.00	0.62	1.00		0.30	1.00		0.13	1.00	1.00
Satd. Flow (perm)	440	3085	1392	889	3344		562	3346		256	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
RTOR Reduction (vph)	0	0	71	0	45	0	0	8	0	0	0	203
Lane Group Flow (vph)	223	207	22	131	588	0	246	1220	0	99	659	138
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Effective Green, g (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Actuated g/C Ratio	0.32	0.24	0.24	0.32	0.24		0.47	0.39		0.43	0.37	0.37
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	735	331	329	796		369	1288		216	1260	556
v/s Ratio Prot	c0.08	0.07		0.03	0.18		c0.06	c0.36		0.03	0.19	
v/s Ratio Perm	c0.21		0.02	0.09			0.26			0.17		0.09
v/c Ratio	0.88	0.28	0.07	0.40	0.74		0.67	0.95		0.46	0.52	0.25
Uniform Delay, d1	22.9	25.2	23.9	20.4	28.5		13.7	24.1		16.6	20.1	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	27.1	0.2	0.1	0.8	3.6		4.5	15.3		1.5	1.6	1.1
Delay (s)	49.9	25.4	24.0	21.2	32.1		18.2	39.4		18.2	21.7	18.9
Level of Service	D	C	C	C	C		B	D		B	C	B
Approach Delay (s)		35.6			30.3			35.8			20.5	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

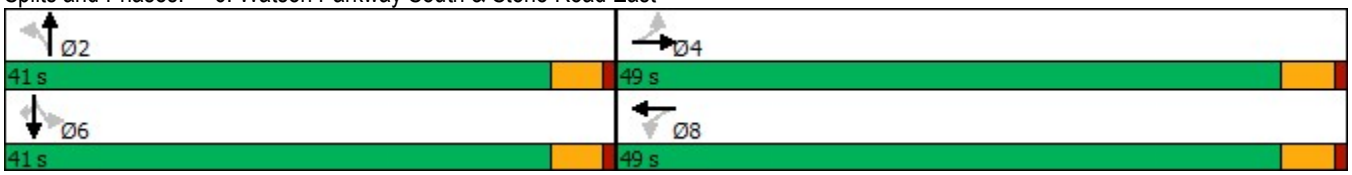


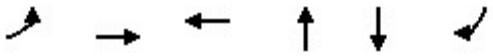
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.994				0.850
Flt Protected	0.950				0.996			0.983			0.999	
Satd. Flow (prot)	1504	1693	0	0	1802	0	0	1774	0	0	1819	1404
Flt Permitted	0.626				0.974			0.844			0.997	
Satd. Flow (perm)	991	1693	0	0	1762	0	0	1523	0	0	1815	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			1			3				266
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	127	0	0	177	0	0	256	0	0	212	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	41.0
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	45.6%
Maximum Green (s)	44.5	44.5		44.5	44.5		36.5	36.5		36.5	36.5	36.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
v/c Ratio	0.77	0.24			0.35			0.30			0.21	0.29
Control Delay	38.8	12.3			19.2			9.9			9.0	2.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	38.8	12.3			19.2			9.9			9.0	2.4
LOS	D	B			B			A			A	A
Approach Delay		29.2			19.2			9.9			5.4	
Approach LOS		C			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.9			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	222	127	177	256	212	266
v/c Ratio	0.77	0.24	0.35	0.30	0.21	0.29
Control Delay	38.8	12.3	19.2	9.9	9.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	12.3	19.2	9.9	9.0	2.4
Queue Length 50th (m)	25.2	7.6	17.2	14.7	11.6	0.0
Queue Length 95th (m)	48.1	18.2	31.1	38.1	30.2	11.3
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	685	1186	1220	867	1032	912
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	0.32	0.11	0.15	0.30	0.21	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1692			1801			1774			1819	1404
Flt Permitted	0.63	1.00			0.97			0.84			1.00	1.00
Satd. Flow (perm)	991	1692			1762			1523			1815	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
RTOR Reduction (vph)	0	32	0	0	1	0	0	1	0	0	0	115
Lane Group Flow (vph)	222	95	0	0	176	0	0	255	0	0	212	151
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	18.9	18.9			18.9			36.9			36.9	36.9
Effective Green, g (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	289	493			513			867			1033	799
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.22				0.10			c0.17			0.12	0.11
v/c Ratio	0.77	0.19			0.34			0.29			0.21	0.19
Uniform Delay, d1	21.0	17.2			18.1			7.2			6.8	6.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.6	0.2			0.4			0.9			0.4	0.5
Delay (s)	32.5	17.4			18.5			8.1			7.3	7.3
Level of Service	C	B			B			A			A	A
Approach Delay (s)		27.0			18.5			8.1			7.3	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



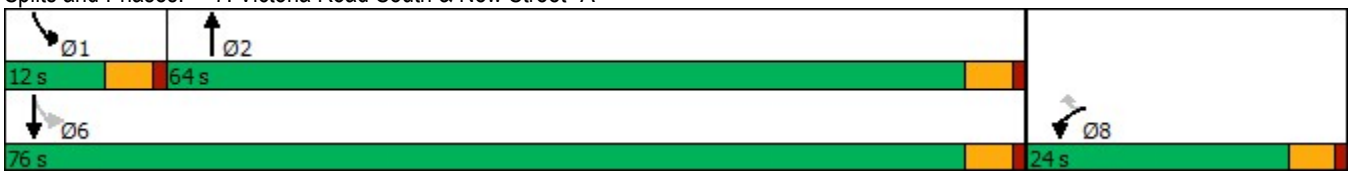
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1401	7	71	1543
Future Volume (vph)	22	167	1401	7	71	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.140	
Satd. Flow (perm)	1770	1583	3536	0	261	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		163	1			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1401	7	71	1543
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	167	1408	0	71	1543
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	24.0	24.0	64.0		12.0	76.0
Total Split (%)	24.0%	24.0%	64.0%		12.0%	76.0%
Maximum Green (s)	19.5	19.5	59.5		7.5	71.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.6	7.6	65.5		74.5	74.5
Actuated g/C Ratio	0.08	0.08	0.72		0.82	0.82
v/c Ratio	0.15	0.59	0.55		0.22	0.53
Control Delay	39.0	16.1	7.9		3.6	3.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.0	16.1	7.9		3.6	3.7
LOS	D	B	A		A	A
Approach Delay	18.7		7.9			3.7
Approach LOS	B		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 91.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	167	1408	71	1543
v/c Ratio	0.15	0.59	0.55	0.22	0.53
Control Delay	39.0	16.1	7.9	3.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	16.1	7.9	3.6	3.7
Queue Length 50th (m)	3.7	0.7	54.8	1.6	30.4
Queue Length 95th (m)	10.8	19.0	92.3	5.1	60.5
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	380	468	2542	337	2892
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.36	0.55	0.21	0.53

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1401	7	71	1543
Future Volume (vph)	22	167	1401	7	71	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3537		1770	3539
Flt Permitted	0.95	1.00	1.00		0.14	1.00
Satd. Flow (perm)	1770	1583	3537		261	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1401	7	71	1543
RTOR Reduction (vph)	0	150	0	0	0	0
Lane Group Flow (vph)	22	17	1408	0	71	1543
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.6	7.6	65.5		75.3	75.3
Effective Green, g (s)	7.6	7.6	65.5		75.3	75.3
Actuated g/C Ratio	0.08	0.08	0.71		0.82	0.82
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	130	2520		300	2899
v/s Ratio Prot	c0.01		c0.40		0.01	c0.44
v/s Ratio Perm		0.01			0.18	
v/c Ratio	0.15	0.13	0.56		0.24	0.53
Uniform Delay, d1	39.2	39.1	6.3		3.9	2.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.5	0.9		0.4	0.7
Delay (s)	39.6	39.6	7.2		4.3	3.4
Level of Service	D	D	A		A	A
Approach Delay (s)	39.6		7.2			3.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	91.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	10	48	2	30	101	1
Future Volume (vph)	10	48	2	30	101	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.999	
Flt Protected				0.997	0.953	
Satd. Flow (prot)	1654	0	0	1857	1773	0
Flt Permitted				0.997	0.953	
Satd. Flow (perm)	1654	0	0	1857	1773	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	2	30	101	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	32	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	10	48	2	30	101	1
Future Volume (Veh/h)	10	48	2	30	101	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	48	2	30	101	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			58		68	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		68	34
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1546		936	1039

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	32	102
Volume Left	0	2	101
Volume Right	48	0	1
cSH	1700	1546	937
Volume to Capacity	0.03	0.00	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.5	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	9.3
Approach LOS			A

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	57	79	29	30	61
Future Volume (vph)	27	57	79	29	30	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.910	
Flt Protected	0.950			0.965		
Satd. Flow (prot)	1770	1583	0	1798	1695	0
Flt Permitted	0.950			0.965		
Satd. Flow (perm)	1770	1583	0	1798	1695	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	57	79	29	30	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	57	0	108	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

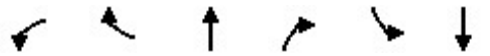
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	57	79	29	30	61
Future Volume (Veh/h)	27	57	79	29	30	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	57	79	29	30	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	248	60	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	60	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	95			
cM capacity (veh/h)	702	1005	1504			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	27	57	108	91
Volume Left	27	0	79	0
Volume Right	0	57	0	61
cSH	702	1005	1504	1700
Volume to Capacity	0.04	0.06	0.05	0.05
Queue Length 95th (m)	1.0	1.4	1.3	0.0
Control Delay (s)	10.3	8.8	5.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.3		5.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1243	133	243	928
Future Volume (vph)	71	150	1243	133	243	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.122	
Satd. Flow (perm)	1770	1583	3490	0	227	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		150	17			
Link Speed (k/h)	50		70			70
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		22.9			21.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1243	133	243	928
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	150	1376	0	243	928
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	22.8	22.8	48.2		19.0	67.2
Total Split (%)	25.3%	25.3%	53.6%		21.1%	74.7%
Maximum Green (s)	18.3	18.3	43.7		16.0	62.7
Yellow Time (s)	3.5	3.5	3.5		3.0	3.5
All-Red Time (s)	1.0	1.0	1.0		0.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		3.0	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	8.6	8.6	48.9		64.4	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.80	0.78
v/c Ratio	0.38	0.50	0.65		0.62	0.34
Control Delay	39.1	12.2	13.1		15.0	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.1	12.2	13.1		15.0	3.2
LOS	D	B	B		B	A
Approach Delay	20.8		13.1			5.6
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	71	150	1376	243	928
v/c Ratio	0.38	0.50	0.65	0.62	0.34
Control Delay	39.1	12.2	13.1	15.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	12.2	13.1	15.0	3.2
Queue Length 50th (m)	10.8	0.0	67.0	8.6	17.1
Queue Length 95th (m)	23.2	16.3	115.2	33.2	28.7
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	402	475	2127	488	2766
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.32	0.65	0.50	0.34

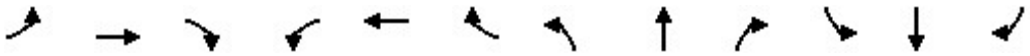
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1243	133	243	928
Future Volume (vph)	71	150	1243	133	243	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		3.0	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3488		1770	3539
Flt Permitted	0.95	1.00	1.00		0.12	1.00
Satd. Flow (perm)	1770	1583	3488		227	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1243	133	243	928
RTOR Reduction (vph)	0	134	7	0	0	0
Lane Group Flow (vph)	71	16	1369	0	243	928
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	8.6	8.6	48.9		62.9	62.9
Effective Green, g (s)	8.6	8.6	48.9		62.9	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.78	0.78
Clearance Time (s)	4.5	4.5	4.5		3.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	189	169	2118		388	2765
v/s Ratio Prot	c0.04		0.39		c0.09	0.26
v/s Ratio Perm		0.01			c0.40	
v/c Ratio	0.38	0.09	0.65		0.63	0.34
Uniform Delay, d1	33.5	32.4	10.2		10.2	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.2	1.5		3.1	0.3
Delay (s)	34.7	32.7	11.8		13.3	2.9
Level of Service	C	C	B		B	A
Approach Delay (s)	33.3		11.8			5.1
Approach LOS	C		B			A

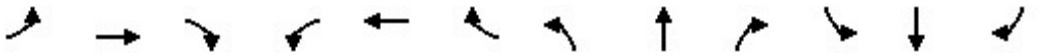
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952						0.995			0.935	
Flt Protected		0.989			0.993			0.981				
Satd. Flow (prot)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Flt Permitted		0.989			0.993			0.981				
Satd. Flow (perm)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	70	0	0	88	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

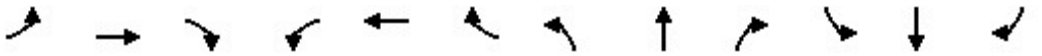
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (Veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	240	212	89	269	238	52	117			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	212	89	269	238	52	117			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	96	98	91	100	98			100		
cM capacity (veh/h)	651	669	969	614	647	1016	1471			1553		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	103	70	88	117
Volume Left	23	10	35	0
Volume Right	37	0	3	56
cSH	748	642	1471	1553
Volume to Capacity	0.14	0.11	0.02	0.00
Queue Length 95th (m)	3.8	2.9	0.6	0.0
Control Delay (s)	10.6	11.3	3.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	11.3	3.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

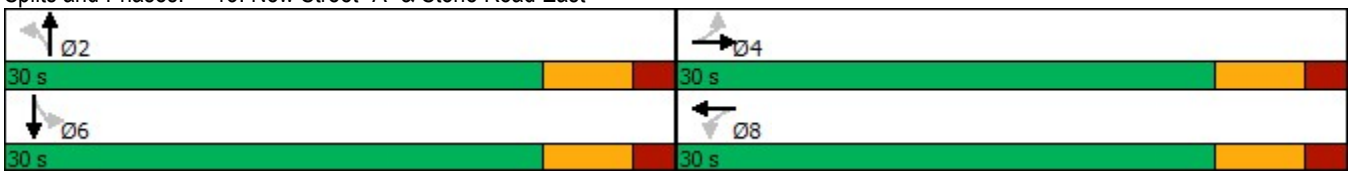


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991						0.850			0.850	
Flt Protected		0.989					0.950			0.950		
Satd. Flow (prot)	0	3469	0	0	3539	0	1770	1583	0	1770	1583	0
Flt Permitted		0.752			0.954		0.693			0.742		
Satd. Flow (perm)	0	2638	0	0	3376	0	1291	1583	0	1382	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13						446			209	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	0	0	508	0	91	23	0	6	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
v/c Ratio		0.36			0.38		0.18	0.03		0.01	0.13	
Control Delay		13.4			13.7		12.8	0.0		11.0	0.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		13.4			13.7		12.8	0.0		11.0	0.4	
LOS		B			B		B	A		B	A	
Approach Delay		13.4			13.7			10.2			1.0	
Approach LOS		B			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





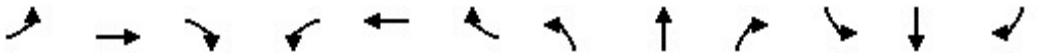
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	386	508	91	23	6	99
v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13
Control Delay	13.4	13.7	12.8	0.0	11.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	13.7	12.8	0.0	11.0	0.4
Queue Length 50th (m)	15.2	21.0	6.6	0.0	0.4	0.0
Queue Length 95th (m)	25.0	31.8	15.0	0.0	2.3	0.0
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	1063	1350	516	900	552	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3469			3537		1770	1583		1770	1583	
Flt Permitted		0.75			0.95		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		2637			3374		1291	1583		1383	1583	
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)	85	278	23	2	505	1	91	0	23	6	0	99
RTOR Reduction (vph)	0	8	0	0	0	0	0	14	0	0	59	0
Lane Group Flow (vph)	0	378	0	0	508	0	91	9	0	6	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Effective Green, g (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1054			1349		516	633		553	633	
v/s Ratio Prot								0.01			0.03	
v/s Ratio Perm		0.14			c0.15		c0.07			0.00		
v/c Ratio		0.36			0.38		0.18	0.01		0.01	0.06	
Uniform Delay, d1		12.6			12.7		11.6	10.9		10.8	11.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.8		0.2	0.0		0.0	0.2	
Delay (s)		13.6			13.5		11.8	10.9		10.9	11.3	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		13.6			13.5			11.6			11.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3468	0
Flt Permitted	0.454			0.206			0.098			0.248		
Satd. Flow (perm)	813	1712	1583	373	1759	1475	177	3471	1523	436	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			215			109			252		4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	27.0	59.0	19.0	12.0	44.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	22.5%	49.2%	15.8%	10.0%	36.7%	
Maximum Green (s)	6.0	24.0	24.0	16.0	34.0	34.0	24.0	53.0	16.0	9.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.1	25.1	23.1	47.1	35.0	35.0	70.0	53.9	72.9	49.1	40.0	
Actuated g/C Ratio	0.27	0.21	0.19	0.40	0.29	0.29	0.59	0.45	0.61	0.41	0.34	
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05	
Control Delay	47.0	164.9	24.5	179.3	122.0	14.3	99.3	53.2	5.9	9.5	152.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.0	164.9	24.5	179.3	122.0	14.3	99.3	53.2	5.9	9.5	152.6	
LOS	D	F	C	F	F	B	F	D	A	A	F	
Approach Delay		85.3			144.7			56.2			141.9	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.1			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 100.0		Intersection LOS: F	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	317	382	361	360	33	460	997	334	99	1229
v/c Ratio	0.20	0.88	0.80	1.03	0.70	0.06	1.05	0.64	0.32	0.38	1.05
Control Delay	47.0	164.9	24.5	179.3	122.0	14.3	99.3	53.2	5.9	9.5	152.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	164.9	24.5	179.3	122.0	14.3	99.3	53.2	5.9	9.5	152.6
Queue Length 50th (m)	8.1	76.1	40.3	~70.8	80.5	0.0	~107.4	99.3	7.5	10.8	~176.3
Queue Length 95th (m)	16.9	#125.6	#87.2	#132.8	116.7	0.0	#174.5	123.2	19.6	19.3	#221.0
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	264	373	490	351	516	510	440	1570	1033	276	1167
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	0.20	0.85	0.78	1.03	0.70	0.06	1.05	0.64	0.32	0.36	1.05

Intersection Summary

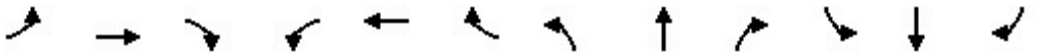
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Future Volume (vph)	48	292	351	332	331	30	423	917	307	91	1080	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1671	3469	
Flt Permitted	0.45	1.00	1.00	0.21	1.00	1.00	0.10	1.00	1.00	0.25	1.00	
Satd. Flow (perm)	814	1712	1583	372	1759	1475	177	3471	1530	436	3469	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	317	382	361	360	33	460	997	334	99	1174	55
RTOR Reduction (vph)	0	0	172	0	0	23	0	0	105	0	3	0
Lane Group Flow (vph)	52	317	210	361	360	10	460	997	229	99	1226	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.6	23.8	23.8	42.8	35.0	35.0	65.0	53.9	69.9	46.1	38.0	
Effective Green, g (s)	28.6	25.8	23.8	44.8	35.0	35.0	67.0	53.9	69.9	46.1	40.0	
Actuated g/C Ratio	0.24	0.22	0.20	0.37	0.29	0.29	0.56	0.45	0.58	0.38	0.33	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	229	368	314	341	513	430	433	1561	892	251	1158	
v/s Ratio Prot	0.01	c0.19		c0.16	0.20		c0.23	0.29	0.03	0.03	c0.35	
v/s Ratio Perm	0.04		0.13	0.24		0.01	0.36		0.12	0.12		
v/c Ratio	0.23	0.86	0.67	1.06	0.70	0.02	1.06	0.64	0.26	0.39	1.06	
Uniform Delay, d1	35.9	45.3	44.3	31.6	37.8	30.2	37.4	25.4	12.2	24.2	39.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	18.3	5.3	65.1	4.3	0.0	60.8	2.0	0.2	1.0	43.6	
Delay (s)	36.4	63.5	49.6	96.6	42.1	30.2	98.2	27.4	12.4	25.3	83.5	
Level of Service	D	E	D	F	D	C	F	C	B	C	F	
Approach Delay (s)		54.6			67.7			42.8			79.1	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

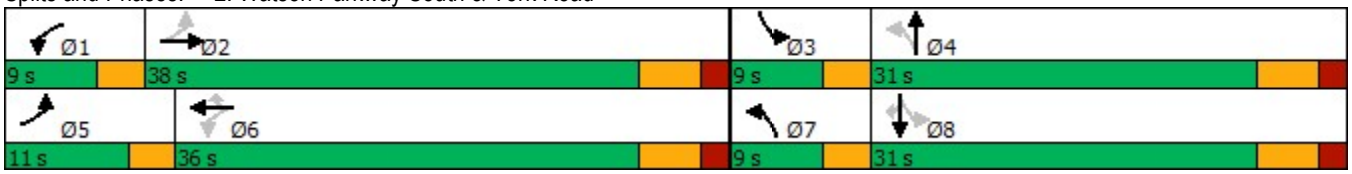


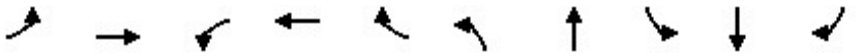
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.964				0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1645	0	1517	1759	1495	1612	1674	0	1719	1827	1568
Flt Permitted	0.254			0.387			0.239			0.609		
Satd. Flow (perm)	451	1645	0	618	1759	1495	405	1674	0	1102	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				113		21				334
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	498	0	25	492	31	113	205	0	54	393	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	11.0	38.0		9.0	36.0	36.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	12.6%	43.7%		10.3%	41.4%	41.4%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	8.0	32.0		6.0	30.0	30.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.9	37.9		39.4	30.3	30.3	29.6	23.2		29.0	21.4	21.4
Actuated g/C Ratio	0.54	0.46		0.48	0.37	0.37	0.36	0.28		0.35	0.26	0.26
v/c Ratio	0.56	0.64		0.07	0.75	0.05	0.48	0.42		0.12	0.82	0.63
Control Delay	144.4	50.0		26.0	64.6	8.7	110.8	136.9		9.3	46.8	9.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	144.4	50.0		26.0	64.6	8.7	110.8	136.9		9.3	46.8	9.8
LOS	F	D		C	E	A	F	F		A	D	A
Approach Delay		77.1			59.7			127.6			26.7	
Approach LOS		E			E			F			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 81.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 62.0		Intersection LOS: E	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	201	498	25	492	31	113	205	54	393	411
v/c Ratio	0.56	0.64	0.07	0.75	0.05	0.48	0.42	0.12	0.82	0.63
Control Delay	144.4	50.0	26.0	64.6	8.7	110.8	136.9	9.3	46.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.4	50.0	26.0	64.6	8.7	110.8	136.9	9.3	46.8	9.8
Queue Length 50th (m)	18.6	59.8	2.1	76.8	0.0	11.9	25.8	5.5	62.3	10.1
Queue Length 95th (m)	32.0	#127.7	6.0	#129.5	0.0	22.7	45.9	12.5	#103.5	37.6
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	365	774	365	653	626	236	548	437	565	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.64	0.07	0.75	0.05	0.48	0.37	0.12	0.70	0.57

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Future Volume (vph)	191	360	113	24	467	29	107	143	51	51	373	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1645		1516	1759	1495	1612	1675		1719	1827	1568
Flt Permitted	0.25	1.00		0.39	1.00	1.00	0.24	1.00		0.61	1.00	1.00
Satd. Flow (perm)	451	1645		617	1759	1495	405	1675		1102	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	201	379	119	25	492	31	113	151	54	54	393	411
RTOR Reduction (vph)	0	12	0	0	0	19	0	15	0	0	0	247
Lane Group Flow (vph)	201	486	0	25	492	12	113	190	0	54	393	164
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Effective Green, g (s)	43.2	37.9		34.6	32.3	32.3	27.8	23.2		25.4	22.0	22.0
Actuated g/C Ratio	0.51	0.45		0.41	0.38	0.38	0.33	0.27		0.30	0.26	0.26
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	735		276	669	569	198	458		354	473	406
v/s Ratio Prot	c0.05	0.30		0.00	c0.28		c0.03	0.11		0.01	c0.22	
v/s Ratio Perm	0.24			0.03		0.01	0.16			0.04		0.10
v/c Ratio	0.58	0.66		0.09	0.74	0.02	0.57	0.41		0.15	0.83	0.40
Uniform Delay, d1	13.7	18.4		15.4	22.6	16.4	21.7	25.2		21.5	29.6	26.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	4.6		0.1	7.1	0.1	3.9	0.6		0.2	11.8	0.7
Delay (s)	16.3	23.1		15.5	29.6	16.4	25.6	25.8		21.7	41.4	26.6
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		21.1			28.2			25.8			33.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

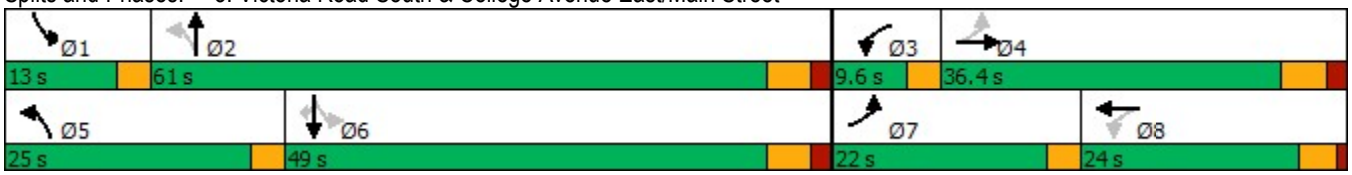
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.934			0.929			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1668	0	1770	1730	0	1736	3456	0	1770	3438	1583
Flt Permitted	0.306			0.606			0.095			0.105		
Satd. Flow (perm)	554	1668	0	1129	1730	0	174	3456	0	196	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			32			4				265
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	247	0	92	221	0	278	1286	0	138	1112	500
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	36.4		9.6	24.0		25.0	61.0		13.0	49.0	49.0
Total Split (%)	18.3%	30.3%		8.0%	20.0%		20.8%	50.8%		10.8%	40.8%	40.8%
Maximum Green (s)	19.0	30.4		6.6	19.5		22.0	55.0		10.0	43.0	43.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		-2.0	0.0		0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	43.0	30.4		30.4	22.3		72.0	55.0		58.3	48.3	46.3
Actuated g/C Ratio	0.36	0.26		0.26	0.19		0.61	0.46		0.49	0.41	0.39
v/c Ratio	0.65	0.55		0.28	0.63		0.76	0.80		0.64	0.80	0.64
Control Delay	204.3	44.1		22.1	153.8		33.0	74.6		25.3	54.3	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	204.3	44.1		22.1	153.8		33.0	74.6		25.3	54.3	1.2
LOS	F	D		C	F		C	E		C	D	A
Approach Delay		121.5			115.1			67.2			36.8	
Approach LOS		F			F			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 119
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 64.2 Intersection LOS: E
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

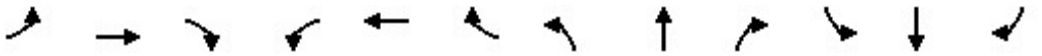




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	231	247	92	221	278	1286	138	1112	500
v/c Ratio	0.65	0.55	0.28	0.63	0.76	0.80	0.64	0.80	0.64
Control Delay	204.3	44.1	22.1	153.8	33.0	74.6	25.3	54.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	204.3	44.1	22.1	153.8	33.0	74.6	25.3	54.3	1.2
Queue Length 50th (m)	41.9	46.4	15.2	44.0	44.4	139.9	14.3	127.0	46.8
Queue Length 95th (m)	64.0	74.4	27.8	#78.6	73.4	168.2	35.2	160.0	87.7
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	385	449	323	349	420	1599	229	1394	777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.55	0.28	0.63	0.66	0.80	0.60	0.80	0.64

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Future Volume (vph)	206	128	96	85	107	97	247	1104	42	127	990	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1669		1770	1730		1736	3455		1770	3438	1583
Flt Permitted	0.31	1.00		0.61	1.00		0.09	1.00		0.10	1.00	1.00
Satd. Flow (perm)	554	1669		1128	1730		173	3455		195	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	231	139	108	92	116	105	278	1240	46	138	1112	500
RTOR Reduction (vph)	0	23	0	0	26	0	0	2	0	0	0	162
Lane Group Flow (vph)	231	224	0	92	195	0	278	1284	0	138	1112	338
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	40.0	30.4		28.9	22.3		67.1	55.1		55.3	46.3	46.3
Effective Green, g (s)	40.0	30.4		28.9	22.3		69.1	55.1		55.3	48.3	46.3
Actuated g/C Ratio	0.34	0.26		0.24	0.19		0.58	0.46		0.46	0.41	0.39
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	344	426		309	323		360	1598		209	1394	615
v/s Ratio Prot	c0.09	0.13		0.02	0.11		c0.13	c0.37		0.05	0.32	
v/s Ratio Perm	c0.13			0.06			0.32			0.26		0.21
v/c Ratio	0.67	0.53		0.30	0.60		0.77	0.80		0.66	0.80	0.55
Uniform Delay, d1	31.1	38.1		36.0	44.4		30.0	27.4		22.1	31.1	28.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	4.6		0.5	8.1		9.9	4.4		7.6	4.8	3.5
Delay (s)	36.2	42.7		36.6	52.5		39.8	31.8		29.7	35.9	31.8
Level of Service	D	D		D	D		D	C		C	D	C
Approach Delay (s)		39.6			47.8			33.2			34.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

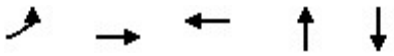
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.910			0.994			0.972			0.987	
Flt Protected	0.950				0.962			0.995				
Satd. Flow (prot)	1378	1052	0	0	1373	0	0	1628	0	0	1745	0
Flt Permitted	0.715				0.753			0.934			0.998	
Satd. Flow (perm)	1033	1052	0	0	1075	0	0	1528	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3			29			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	25	0	0	64	0	0	389	0	0	477	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.5	9.5			9.6			56.6			56.6	
Actuated g/C Ratio	0.13	0.13			0.14			0.80			0.80	
v/c Ratio	0.24	0.16			0.43			0.32			0.34	
Control Delay	284.7	74.7			60.9			21.9			14.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	284.7	74.7			60.9			21.9			14.4	
LOS	F	E			E			C			B	
Approach Delay		194.2			60.9			21.9			14.4	
Approach LOS		F			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

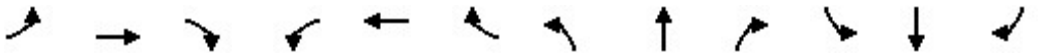
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	33	25	64	389	477
v/c Ratio	0.24	0.16	0.43	0.32	0.34
Control Delay	284.7	74.7	60.9	21.9	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	284.7	74.7	60.9	21.9	14.4
Queue Length 50th (m)	4.1	1.2	7.8	15.8	21.3
Queue Length 95th (m)	11.7	7.5	18.9	35.7	45.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	293	310	307	1234	1403
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.21	0.32	0.34

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Future Volume (vph)	31	9	14	47	9	3	34	253	74	3	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1372	1052			1372			1629			1744	
Flt Permitted	0.72	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1033	1052			1074			1528			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	33	10	15	51	10	3	37	272	80	3	427	47
RTOR Reduction (vph)	0	14	0	0	3	0	0	7	0	0	3	0
Lane Group Flow (vph)	33	11	0	0	61	0	0	382	0	0	474	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.6	6.6			6.6			54.2			54.2	
Effective Green, g (s)	6.6	6.6			6.6			54.2			54.2	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	93	95			97			1137			1296	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.06			0.25			c0.27	
v/c Ratio	0.35	0.12			0.63			0.34			0.37	
Uniform Delay, d1	31.1	30.4			31.9			3.2			3.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	0.6			12.7			0.8			0.8	
Delay (s)	33.4	31.0			44.6			4.0			4.1	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.4			44.6			4.0			4.1	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

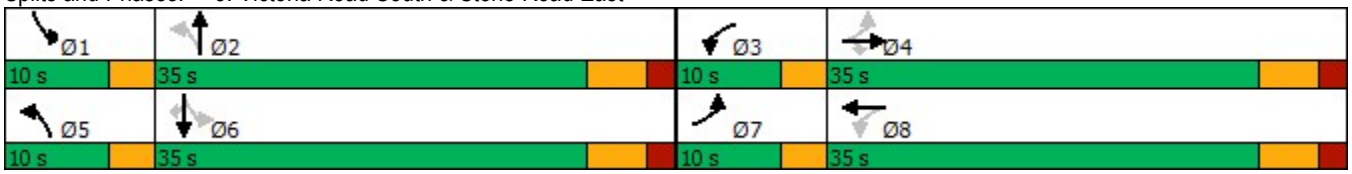
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.960			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3343	0	1770	3344	0	1805	3438	1538
Flt Permitted	0.241			0.622			0.302			0.135		
Satd. Flow (perm)	440	3085	1392	889	3343	0	562	3344	0	256	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		59			13				320
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	207	93	131	633	0	246	1228	0	99	659	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

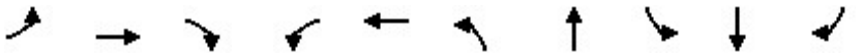
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	29.4	19.3	19.3	29.4	19.3		39.8	31.2		39.1	29.1	29.1
Actuated g/C Ratio	0.37	0.24	0.24	0.37	0.24		0.49	0.39		0.49	0.36	0.36
v/c Ratio	0.82	0.28	0.22	0.36	0.75		0.64	0.94		0.38	0.53	0.45
Control Delay	107.8	83.7	36.3	58.9	48.8		47.9	44.3		85.0	89.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	107.8	83.7	36.3	58.9	48.8		47.9	44.3		85.0	89.9	12.5
LOS	F	F	D	E	D		D	D		F	F	B
Approach Delay		85.6			50.6			44.9			65.5	
Approach LOS		F			D			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 57.4 Intersection LOS: E
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East



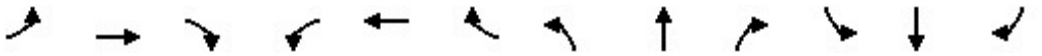


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	223	207	93	131	633	246	1228	99	659	341
v/c Ratio	0.82	0.28	0.22	0.36	0.75	0.64	0.94	0.38	0.53	0.45
Control Delay	107.8	83.7	36.3	58.9	48.8	47.9	44.3	85.0	89.9	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.8	83.7	36.3	58.9	48.8	47.9	44.3	85.0	89.9	12.5
Queue Length 50th (m)	23.9	14.2	0.0	13.6	45.0	20.3	~101.6	7.4	42.8	2.1
Queue Length 95th (m)	#51.8	23.2	8.6	25.5	63.1	#45.8	#171.4	17.9	67.5	21.3
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	273	1114	572	364	1245	383	1305	259	1241	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.19	0.16	0.36	0.51	0.64	0.94	0.38	0.53	0.45

Intersection Summary

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

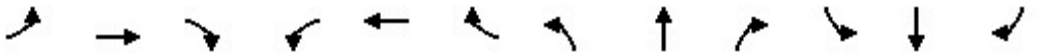
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Future Volume (vph)	203	188	85	119	424	152	224	1009	108	90	600	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3344		1769	3346		1805	3438	1518
Flt Permitted	0.24	1.00	1.00	0.62	1.00		0.30	1.00		0.13	1.00	1.00
Satd. Flow (perm)	440	3085	1392	889	3344		562	3346		256	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	223	207	93	131	466	167	246	1109	119	99	659	341
RTOR Reduction (vph)	0	0	71	0	45	0	0	8	0	0	0	203
Lane Group Flow (vph)	223	207	22	131	588	0	246	1220	0	99	659	138
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Effective Green, g (s)	26.3	19.3	19.3	26.3	19.3		38.2	31.2		35.2	29.7	29.7
Actuated g/C Ratio	0.32	0.24	0.24	0.32	0.24		0.47	0.39		0.43	0.37	0.37
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	254	735	331	329	796		369	1288		216	1260	556
v/s Ratio Prot	c0.08	0.07		0.03	0.18		c0.06	c0.36		0.03	0.19	
v/s Ratio Perm	c0.21		0.02	0.09			0.26			0.17		0.09
v/c Ratio	0.88	0.28	0.07	0.40	0.74		0.67	0.95		0.46	0.52	0.25
Uniform Delay, d1	22.9	25.2	23.9	20.4	28.5		13.7	24.1		16.6	20.1	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	27.1	0.2	0.1	0.8	3.6		4.5	15.3		1.5	1.6	1.1
Delay (s)	49.9	25.4	24.0	21.2	32.1		18.2	39.4		18.2	21.7	18.9
Level of Service	D	C	C	C	C		B	D		B	C	B
Approach Delay (s)		35.6			30.3			35.8			20.5	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

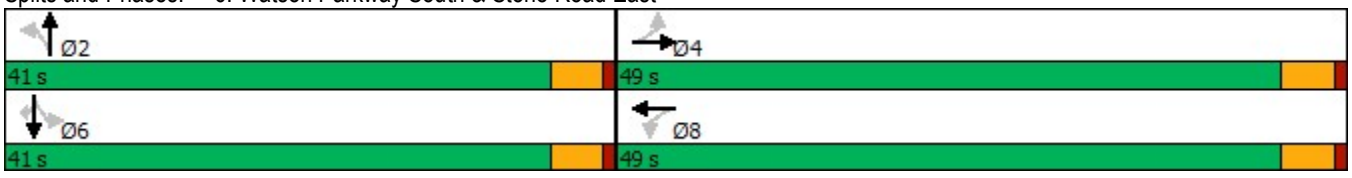


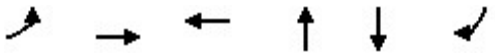
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.994				0.850
Flt Protected	0.950				0.996			0.983			0.999	
Satd. Flow (prot)	1504	1693	0	0	1802	0	0	1774	0	0	1819	1404
Flt Permitted	0.626				0.974			0.844			0.997	
Satd. Flow (perm)	991	1693	0	0	1762	0	0	1523	0	0	1815	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			1			3				266
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	127	0	0	177	0	0	256	0	0	212	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	41.0
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	45.6%
Maximum Green (s)	44.5	44.5		44.5	44.5		36.5	36.5		36.5	36.5	36.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
v/c Ratio	0.77	0.24			0.35			0.30			0.21	0.29
Control Delay	36.1	47.5			53.3			26.0			26.7	6.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	36.1	47.5			53.3			26.0			26.7	6.0
LOS	D	D			D			C			C	A
Approach Delay		40.2			53.3			26.0			15.2	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.9			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 29.7		Intersection LOS: C	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

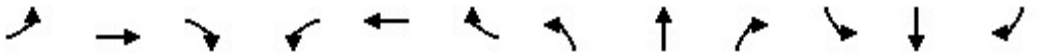
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	222	127	177	256	212	266
v/c Ratio	0.77	0.24	0.35	0.30	0.21	0.29
Control Delay	36.1	47.5	53.3	26.0	26.7	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	47.5	53.3	26.0	26.7	6.0
Queue Length 50th (m)	25.2	7.6	17.2	14.7	11.6	0.0
Queue Length 95th (m)	48.1	18.2	31.1	38.1	30.2	11.3
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	685	1186	1220	867	1032	912
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	0.32	0.11	0.15	0.30	0.21	0.29

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Future Volume (vph)	211	77	44	14	151	3	82	150	11	3	199	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1692			1801			1774			1819	1404
Flt Permitted	0.63	1.00			0.97			0.84			1.00	1.00
Satd. Flow (perm)	991	1692			1762			1523			1815	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	222	81	46	15	159	3	86	158	12	3	209	266
RTOR Reduction (vph)	0	32	0	0	1	0	0	1	0	0	0	115
Lane Group Flow (vph)	222	95	0	0	176	0	0	255	0	0	212	151
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	18.9	18.9			18.9			36.9			36.9	36.9
Effective Green, g (s)	18.9	18.9			18.9			36.9			36.9	36.9
Actuated g/C Ratio	0.29	0.29			0.29			0.57			0.57	0.57
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	289	493			513			867			1033	799
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.22				0.10			c0.17			0.12	0.11
v/c Ratio	0.77	0.19			0.34			0.29			0.21	0.19
Uniform Delay, d1	21.0	17.2			18.1			7.2			6.8	6.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.6	0.2			0.4			0.9			0.4	0.5
Delay (s)	32.5	17.4			18.5			8.1			7.3	7.3
Level of Service	C	B			B			A			A	A
Approach Delay (s)		27.0			18.5			8.1			7.3	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

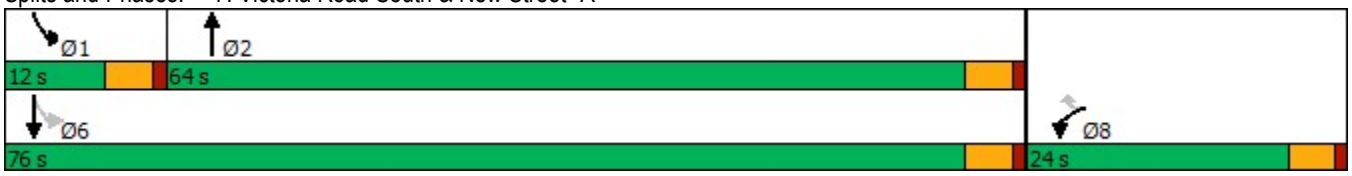


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1401	7	71	1543
Future Volume (vph)	22	167	1401	7	71	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.140	
Satd. Flow (perm)	1770	1583	3536	0	261	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		163	1			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1401	7	71	1543
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	167	1408	0	71	1543
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	24.0	24.0	64.0		12.0	76.0
Total Split (%)	24.0%	24.0%	64.0%		12.0%	76.0%
Maximum Green (s)	19.5	19.5	59.5		7.5	71.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.6	7.6	65.5		74.5	74.5
Actuated g/C Ratio	0.08	0.08	0.72		0.82	0.82
v/c Ratio	0.15	0.59	0.55		0.22	0.53
Control Delay	28.2	13.2	18.2		129.2	5.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	28.2	13.2	18.2		129.2	5.0
LOS	C	B	B		F	A
Approach Delay	15.0		18.2			10.5
Approach LOS	B		B			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 91.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	167	1408	71	1543
v/c Ratio	0.15	0.59	0.55	0.22	0.53
Control Delay	28.2	13.2	18.2	129.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	13.2	18.2	129.2	5.0
Queue Length 50th (m)	3.7	0.7	54.8	1.6	30.4
Queue Length 95th (m)	10.8	19.0	92.3	5.1	60.5
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	380	468	2542	337	2892
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.36	0.55	0.21	0.53

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1401	7	71	1543
Future Volume (vph)	22	167	1401	7	71	1543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3537		1770	3539
Flt Permitted	0.95	1.00	1.00		0.14	1.00
Satd. Flow (perm)	1770	1583	3537		261	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1401	7	71	1543
RTOR Reduction (vph)	0	150	0	0	0	0
Lane Group Flow (vph)	22	17	1408	0	71	1543
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.6	7.6	65.5		75.3	75.3
Effective Green, g (s)	7.6	7.6	65.5		75.3	75.3
Actuated g/C Ratio	0.08	0.08	0.71		0.82	0.82
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	146	130	2520		300	2899
v/s Ratio Prot	c0.01		c0.40		0.01	c0.44
v/s Ratio Perm		0.01			0.18	
v/c Ratio	0.15	0.13	0.56		0.24	0.53
Uniform Delay, d1	39.2	39.1	6.3		3.9	2.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.5	0.9		0.4	0.7
Delay (s)	39.6	39.6	7.2		4.3	3.4
Level of Service	D	D	A		A	A
Approach Delay (s)	39.6		7.2			3.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	91.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	10	48	2	30	101	1
Future Volume (vph)	10	48	2	30	101	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.999	
Flt Protected				0.997	0.953	
Satd. Flow (prot)	1654	0	0	1857	1773	0
Flt Permitted				0.997	0.953	
Satd. Flow (perm)	1654	0	0	1857	1773	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	2	30	101	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	32	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	10	48	2	30	101	1
Future Volume (Veh/h)	10	48	2	30	101	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	48	2	30	101	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			58		68	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		68	34
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1546		936	1039

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	32	102
Volume Left	0	2	101
Volume Right	48	0	1
cSH	1700	1546	937
Volume to Capacity	0.03	0.00	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.5	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	9.3
Approach LOS			A

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	57	79	29	30	61
Future Volume (vph)	27	57	79	29	30	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.910	
Flt Protected	0.950			0.965		
Satd. Flow (prot)	1770	1583	0	1798	1695	0
Flt Permitted	0.950			0.965		
Satd. Flow (perm)	1770	1583	0	1798	1695	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	57	79	29	30	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	57	0	108	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	57	79	29	30	61
Future Volume (Veh/h)	27	57	79	29	30	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	57	79	29	30	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	248	60	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	60	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	95			
cM capacity (veh/h)	702	1005	1504			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	27	57	108	91
Volume Left	27	0	79	0
Volume Right	0	57	0	61
cSH	702	1005	1504	1700
Volume to Capacity	0.04	0.06	0.05	0.05
Queue Length 95th (m)	1.0	1.4	1.3	0.0
Control Delay (s)	10.3	8.8	5.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.3		5.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1243	133	243	928
Future Volume (vph)	71	150	1243	133	243	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.122	
Satd. Flow (perm)	1770	1583	3490	0	227	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		150	17			
Link Speed (k/h)	50		70			70
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		22.9			21.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1243	133	243	928
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	150	1376	0	243	928
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	22.8	22.8	48.2		19.0	67.2
Total Split (%)	25.3%	25.3%	53.6%		21.1%	74.7%
Maximum Green (s)	18.3	18.3	43.7		16.0	62.7
Yellow Time (s)	3.5	3.5	3.5		3.0	3.5
All-Red Time (s)	1.0	1.0	1.0		0.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		3.0	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	8.6	8.6	48.9		64.4	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.80	0.78
v/c Ratio	0.38	0.50	0.65		0.62	0.34
Control Delay	21.5	31.0	12.4		3.2	9.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	21.5	31.0	12.4		3.2	9.4
LOS	C	C	B		A	A
Approach Delay	27.9		12.4			8.1
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.8		Intersection LOS: B	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	71	150	1376	243	928
v/c Ratio	0.38	0.50	0.65	0.62	0.34
Control Delay	21.5	31.0	12.4	3.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	31.0	12.4	3.2	9.4
Queue Length 50th (m)	10.8	0.0	67.0	8.6	17.1
Queue Length 95th (m)	23.2	16.3	115.2	33.2	28.7
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	402	475	2127	488	2766
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.32	0.65	0.50	0.34

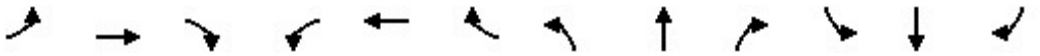
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1243	133	243	928
Future Volume (vph)	71	150	1243	133	243	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		3.0	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3488		1770	3539
Flt Permitted	0.95	1.00	1.00		0.12	1.00
Satd. Flow (perm)	1770	1583	3488		227	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1243	133	243	928
RTOR Reduction (vph)	0	134	7	0	0	0
Lane Group Flow (vph)	71	16	1369	0	243	928
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	8.6	8.6	48.9		62.9	62.9
Effective Green, g (s)	8.6	8.6	48.9		62.9	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.78	0.78
Clearance Time (s)	4.5	4.5	4.5		3.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	189	169	2118		388	2765
v/s Ratio Prot	c0.04		0.39		c0.09	0.26
v/s Ratio Perm		0.01			c0.40	
v/c Ratio	0.38	0.09	0.65		0.63	0.34
Uniform Delay, d1	33.5	32.4	10.2		10.2	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.2	1.5		3.1	0.3
Delay (s)	34.7	32.7	11.8		13.3	2.9
Level of Service	C	C	B		B	A
Approach Delay (s)	33.3		11.8			5.1
Approach LOS	C		B			A

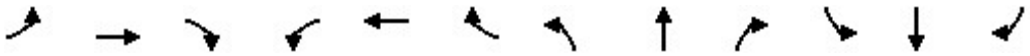
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952						0.995			0.935	
Flt Protected		0.989			0.993			0.981				
Satd. Flow (prot)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Flt Permitted		0.989			0.993			0.981				
Satd. Flow (perm)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	70	0	0	88	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

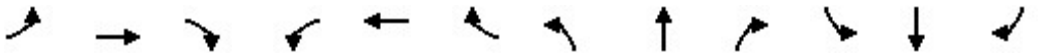
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (Veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	240	212	89	269	238	52	117			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	212	89	269	238	52	117			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	96	98	91	100	98			100		
cM capacity (veh/h)	651	669	969	614	647	1016	1471			1553		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	103	70	88	117
Volume Left	23	10	35	0
Volume Right	37	0	3	56
cSH	748	642	1471	1553
Volume to Capacity	0.14	0.11	0.02	0.00
Queue Length 95th (m)	3.8	2.9	0.6	0.0
Control Delay (s)	10.6	11.3	3.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	11.3	3.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

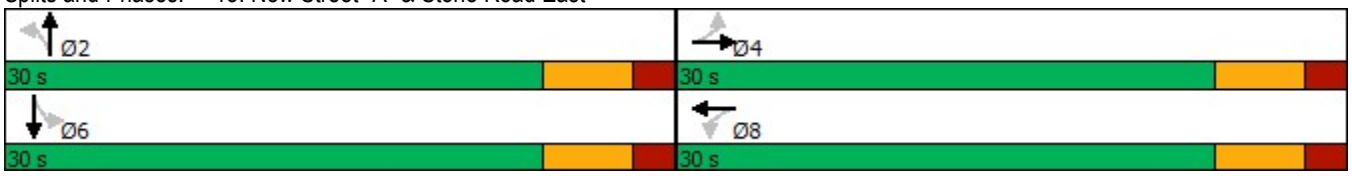


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991						0.850			0.850	
Flt Protected		0.989					0.950			0.950		
Satd. Flow (prot)	0	3469	0	0	3539	0	1770	1583	0	1770	1583	0
Flt Permitted		0.752			0.954		0.693			0.742		
Satd. Flow (perm)	0	2638	0	0	3376	0	1291	1583	0	1382	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13						446			209	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	0	0	508	0	91	23	0	6	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
v/c Ratio		0.36			0.38		0.18	0.03		0.01	0.13	
Control Delay		7.2			4.2		14.5	0.0		3.3	10.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		7.2			4.2		14.5	0.0		3.3	10.9	
LOS		A			A		B	A		A	B	
Approach Delay		7.2			4.2			11.5			10.4	
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	386	508	91	23	6	99
v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13
Control Delay	7.2	4.2	14.5	0.0	3.3	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	4.2	14.5	0.0	3.3	10.9
Queue Length 50th (m)	15.2	21.0	6.6	0.0	0.4	0.0
Queue Length 95th (m)	25.0	31.8	15.0	0.0	2.3	0.0
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	1063	1350	516	900	552	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.38	0.18	0.03	0.01	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Future Volume (vph)	85	278	23	2	505	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3469			3537		1770	1583		1770	1583	
Flt Permitted		0.75			0.95		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		2637			3374		1291	1583		1383	1583	
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)	85	278	23	2	505	1	91	0	23	6	0	99
RTOR Reduction (vph)	0	8	0	0	0	0	0	14	0	0	59	0
Lane Group Flow (vph)	0	378	0	0	508	0	91	9	0	6	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Effective Green, g (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1054			1349		516	633		553	633	
v/s Ratio Prot								0.01			0.03	
v/s Ratio Perm		0.14			c0.15		c0.07			0.00		
v/c Ratio		0.36			0.38		0.18	0.01		0.01	0.06	
Uniform Delay, d1		12.6			12.7		11.6	10.9		10.8	11.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.8		0.2	0.0		0.0	0.2	
Delay (s)		13.6			13.5		11.8	10.9		10.9	11.3	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		13.6			13.5			11.6			11.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	303	213	275	345	31	232	730	239	92	864	54
Future Volume (vph)	50	303	213	275	345	31	232	730	239	92	864	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3457	0
Flt Permitted	0.429			0.149			0.117			0.311		
Satd. Flow (perm)	768	1712	1583	270	1759	1475	212	3471	1523	546	3457	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			109			251		6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	54	329	232	299	375	34	252	793	260	100	939	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	329	232	299	375	34	252	793	260	100	998	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	27.0	59.0	19.0	12.0	44.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	22.5%	49.2%	15.8%	10.0%	36.7%	
Maximum Green (s)	6.0	24.0	24.0	16.0	34.0	34.0	24.0	53.0	16.0	9.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.3	25.3	23.3	45.3	35.2	35.2	67.2	53.0	72.0	55.4	44.2	
Actuated g/C Ratio	0.27	0.21	0.20	0.38	0.30	0.30	0.57	0.45	0.61	0.47	0.37	
v/c Ratio	0.21	0.90	0.55	1.00	0.72	0.07	0.75	0.51	0.25	0.30	0.77	
Control Delay	26.5	73.7	23.3	84.8	47.1	0.3	35.3	25.1	1.9	15.6	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.5	73.7	23.3	84.8	47.1	0.3	35.3	25.1	1.9	15.6	38.6	
LOS	C	E	C	F	D	A	D	C	A	B	D	
Approach Delay		50.5			60.8			22.5			36.5	
Approach LOS		D			E			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 38.5		Intersection LOS: D	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road

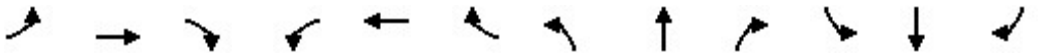


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	329	232	299	375	34	252	793	260	100	998
v/c Ratio	0.21	0.90	0.55	1.00	0.72	0.07	0.75	0.51	0.25	0.30	0.77
Control Delay	26.5	73.7	23.3	84.8	47.1	0.3	35.3	25.1	1.9	15.6	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	73.7	23.3	84.8	47.1	0.3	35.3	25.1	1.9	15.6	38.6
Queue Length 50th (m)	8.4	79.5	20.4	~57.5	84.5	0.0	35.5	73.0	0.8	10.9	112.6
Queue Length 95th (m)	17.4	#132.8	47.3	#118.0	122.1	0.0	63.7	92.2	10.7	19.5	#164.1
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	256	375	429	298	522	514	425	1552	1027	344	1293
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	0.21	0.88	0.54	1.00	0.72	0.07	0.59	0.51	0.25	0.29	0.77

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	303	213	275	345	31	232	730	239	92	864	54
Future Volume (vph)	50	303	213	275	345	31	232	730	239	92	864	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1670	3458	
Flt Permitted	0.43	1.00	1.00	0.15	1.00	1.00	0.12	1.00	1.00	0.31	1.00	
Satd. Flow (perm)	768	1712	1583	269	1759	1475	212	3471	1530	546	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	329	232	299	375	34	252	793	260	100	939	59
RTOR Reduction (vph)	0	0	109	0	0	24	0	0	106	0	4	0
Lane Group Flow (vph)	54	329	123	299	375	10	252	793	154	100	994	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.8	24.0	24.0	43.0	35.2	35.2	64.2	53.0	69.0	52.4	44.2	
Effective Green, g (s)	28.8	26.0	24.0	43.0	35.2	35.2	64.2	53.0	69.0	52.4	44.2	
Actuated g/C Ratio	0.24	0.22	0.20	0.36	0.30	0.30	0.54	0.44	0.58	0.44	0.37	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	223	373	318	291	519	435	329	1543	885	317	1282	
v/s Ratio Prot	0.01	0.19		c0.14	0.21		c0.11	0.23	0.02	0.02	0.29	
v/s Ratio Perm	0.05		0.08	c0.23		0.01	c0.30		0.08	0.12		
v/c Ratio	0.24	0.88	0.39	1.03	0.72	0.02	0.77	0.51	0.17	0.32	0.78	
Uniform Delay, d1	35.5	45.1	41.2	33.2	37.6	29.8	25.0	23.8	11.8	20.0	33.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	20.9	0.8	60.0	4.9	0.0	10.2	1.2	0.1	0.6	4.6	
Delay (s)	36.1	66.0	42.0	93.2	42.6	29.8	35.2	25.1	11.9	20.6	37.8	
Level of Service	D	E	D	F	D	C	D	C	B	C	D	
Approach Delay (s)		54.3			63.3			24.4			36.2	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	119.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

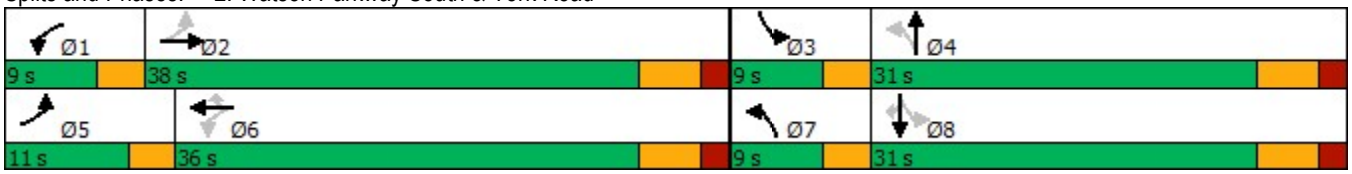
c Critical Lane Group

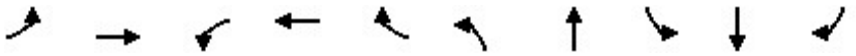
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	297	118	22	417	30	112	150	23	53	390	407
Future Volume (vph)	199	297	118	22	417	30	112	150	23	53	390	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.957				0.850		0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1632	0	1517	1759	1495	1612	1701	0	1719	1827	1568
Flt Permitted	0.304			0.451			0.221			0.643		
Satd. Flow (perm)	540	1632	0	720	1759	1495	375	1701	0	1164	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				113		9				357
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	209	313	124	23	439	32	118	158	24	56	411	428
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	437	0	23	439	32	118	182	0	56	411	428
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	11.0	38.0		9.0	36.0	36.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	12.6%	43.7%		10.3%	41.4%	41.4%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	8.0	32.0		6.0	30.0	30.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	43.9	37.8		39.4	30.3	30.3	30.4	23.9		29.8	22.1	22.1
Actuated g/C Ratio	0.53	0.46		0.48	0.37	0.37	0.37	0.29		0.36	0.27	0.27
v/c Ratio	0.53	0.57		0.06	0.68	0.05	0.52	0.36		0.12	0.84	0.63
Control Delay	17.0	21.9		11.3	30.0	0.2	24.7	25.1		15.8	45.2	9.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.0	21.9		11.3	30.0	0.2	24.7	25.1		15.8	45.2	9.9
LOS	B	C		B	C	A	C	C		B	D	A
Approach Delay		20.3			27.2			25.0			26.5	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 87			
Actuated Cycle Length: 82.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road

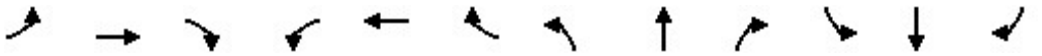




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	209	437	23	439	32	118	182	56	411	428
v/c Ratio	0.53	0.57	0.06	0.68	0.05	0.52	0.36	0.12	0.84	0.63
Control Delay	17.0	21.9	11.3	30.0	0.2	24.7	25.1	15.8	45.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	21.9	11.3	30.0	0.2	24.7	25.1	15.8	45.2	9.9
Queue Length 50th (m)	19.6	49.4	1.9	66.3	0.0	12.4	24.0	5.7	66.0	9.3
Queue Length 95th (m)	33.3	96.2	5.8	102.0	0.0	23.7	42.6	12.9	#110.9	37.0
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	400	763	402	646	620	228	552	461	560	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.57	0.06	0.68	0.05	0.52	0.33	0.12	0.73	0.59

Intersection Summary

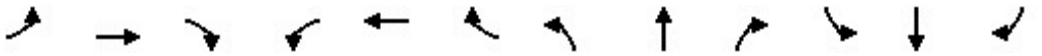
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	297	118	22	417	30	112	150	23	53	390	407
Future Volume (vph)	199	297	118	22	417	30	112	150	23	53	390	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1633		1516	1759	1495	1612	1701		1719	1827	1568
Flt Permitted	0.30	1.00		0.45	1.00	1.00	0.22	1.00		0.64	1.00	1.00
Satd. Flow (perm)	540	1633		720	1759	1495	374	1701		1163	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	209	313	124	23	439	32	118	158	24	56	411	428
RTOR Reduction (vph)	0	14	0	0	0	20	0	6	0	0	0	262
Lane Group Flow (vph)	209	423	0	23	439	12	118	176	0	56	411	166
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.2	37.9		34.6	32.3	32.3	28.5	23.9		26.1	22.7	22.7
Effective Green, g (s)	43.2	37.9		34.6	32.3	32.3	28.5	23.9		26.1	22.7	22.7
Actuated g/C Ratio	0.51	0.44		0.40	0.38	0.38	0.33	0.28		0.31	0.27	0.27
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	378	723		312	664	564	191	475		377	485	416
v/s Ratio Prot	c0.05	0.26		0.00	c0.25		c0.03	0.10		0.01	c0.22	
v/s Ratio Perm	0.23			0.03		0.01	0.17			0.04		0.11
v/c Ratio	0.55	0.58		0.07	0.66	0.02	0.62	0.37		0.15	0.85	0.40
Uniform Delay, d1	13.5	17.9		15.5	22.1	16.7	21.8	24.7		21.3	29.8	25.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	3.4		0.1	5.1	0.1	5.8	0.5		0.2	12.9	0.6
Delay (s)	15.2	21.3		15.6	27.2	16.8	27.6	25.2		21.5	42.7	26.4
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		19.3			26.0			26.2			33.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

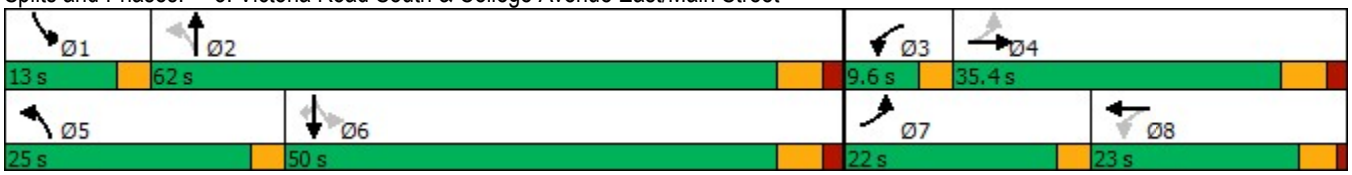


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	0	53	0	0	0	159	905	0	0	733	462
Future Volume (vph)	213	0	53	0	0	0	159	905	0	0	733	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.644						0.221					
Satd. Flow (perm)	1165	1442	0	1863	1863	0	404	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		435										375
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	239	0	60	0	0	0	179	1017	0	0	824	519
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	60	0	0	0	0	179	1017	0	0	824	519
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	35.4		9.6	23.0		25.0	62.0		13.0	50.0	50.0
Total Split (%)	18.3%	29.5%		8.0%	19.2%		20.8%	51.7%		10.8%	41.7%	41.7%
Maximum Green (s)	19.0	29.4		6.6	18.5		22.0	56.0		10.0	44.0	44.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	39.1	36.1					61.5	58.5			44.4	44.4
Actuated g/C Ratio	0.37	0.34					0.58	0.55			0.42	0.42
v/c Ratio	0.47	0.08					0.48	0.53			0.58	0.59
Control Delay	28.5	0.2					15.6	16.9			26.7	10.0
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	28.5	0.2					15.6	16.9			26.7	10.0
LOS	C	A					B	B			C	B
Approach Delay		22.9						16.7			20.3	
Approach LOS		C						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106.6			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

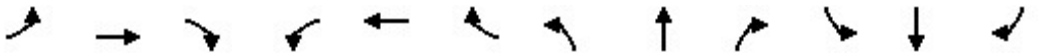
Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street





Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	239	60	179	1017	824	519
v/c Ratio	0.47	0.08	0.48	0.53	0.58	0.59
Control Delay	28.5	0.2	15.6	16.9	26.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	0.2	15.6	16.9	26.7	10.0
Queue Length 50th (m)	37.6	0.0	17.9	73.1	72.6	20.2
Queue Length 95th (m)	61.6	0.0	29.9	92.7	100.2	57.4
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	525	775	508	1904	1432	878
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	0.46	0.08	0.35	0.53	0.58	0.59

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	0	53	0	0	0	159	905	0	0	733	462
Future Volume (vph)	213	0	53	0	0	0	159	905	0	0	733	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.64	1.00					0.22	1.00			1.00	1.00
Satd. Flow (perm)	1166	1442					403	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	239	0	60	0	0	0	179	1017	0	0	824	519
RTOR Reduction (vph)	0	40	0	0	0	0	0	0	0	0	0	219
Lane Group Flow (vph)	239	20	0	0	0	0	179	1017	0	0	824	300
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	36.1	36.1					58.5	58.5			44.4	44.4
Effective Green, g (s)	36.1	36.1					58.5	58.5			44.4	44.4
Actuated g/C Ratio	0.34	0.34					0.55	0.55			0.42	0.42
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	477	488					359	1904			1431	659
v/s Ratio Prot	c0.08	0.01					0.05	c0.29			c0.24	
v/s Ratio Perm	c0.09						0.22					0.19
v/c Ratio	0.50	0.04					0.50	0.53			0.58	0.46
Uniform Delay, d1	27.1	23.6					13.9	15.4			23.9	22.4
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	0.8	0.2					1.1	1.1			1.7	2.3
Delay (s)	28.0	23.8					15.0	16.4			25.6	24.7
Level of Service	C	C					B	B			C	C
Approach Delay (s)		27.1			0.0			16.2			25.2	
Approach LOS		C			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	106.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

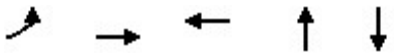
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	9	15	50	9	3	36	234	78	3	412	46
Future Volume (vph)	33	9	15	50	9	3	36	234	78	3	412	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.908			0.994			0.970			0.987	
Flt Protected	0.950				0.961			0.995				
Satd. Flow (prot)	1378	1053	0	0	1374	0	0	1621	0	0	1745	0
Flt Permitted	0.713				0.750			0.925			0.998	
Satd. Flow (perm)	1030	1053	0	0	1072	0	0	1507	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			3			32			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	35	10	16	54	10	3	39	252	84	3	443	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	26	0	0	67	0	0	375	0	0	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.7	9.7			9.8			56.6			56.6	
Actuated g/C Ratio	0.14	0.14			0.14			0.80			0.80	
v/c Ratio	0.25	0.16			0.44			0.31			0.35	
Control Delay	31.0	18.6			36.0			4.6			5.0	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	31.0	18.6			36.0			4.6			5.0	
LOS	C	B			D			A			A	
Approach Delay		25.7			36.0			4.6			5.0	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

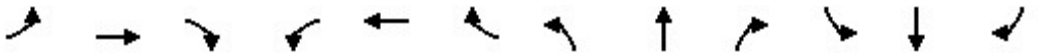
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	35	26	67	375	495
v/c Ratio	0.25	0.16	0.44	0.31	0.35
Control Delay	31.0	18.6	36.0	4.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	18.6	36.0	4.6	5.0
Queue Length 50th (m)	4.4	1.2	8.2	15.1	22.8
Queue Length 95th (m)	12.3	7.7	19.7	34.4	48.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	292	310	306	1216	1401
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.08	0.22	0.31	0.35

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	9	15	50	9	3	36	234	78	3	412	46
Future Volume (vph)	33	9	15	50	9	3	36	234	78	3	412	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			0.99			1.00	
Satd. Flow (prot)	1372	1053			1374			1620			1744	
Flt Permitted	0.71	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1031	1053			1072			1506			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	35	10	16	54	10	3	39	252	84	3	443	49
RTOR Reduction (vph)	0	15	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	35	11	0	0	64	0	0	367	0	0	492	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.8	6.8			6.8			54.2			54.2	
Effective Green, g (s)	6.8	6.8			6.8			54.2			54.2	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	96	98			99			1118			1293	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.06			0.24			c0.28	
v/c Ratio	0.36	0.12			0.65			0.33			0.38	
Uniform Delay, d1	31.1	30.3			31.9			3.2			3.4	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	0.5			13.7			0.8			0.9	
Delay (s)	33.4	30.9			45.7			4.0			4.2	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.3			45.7			4.0			4.2	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

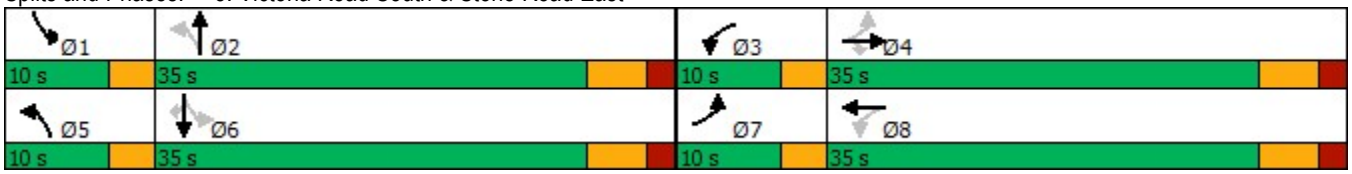
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	156	84	85	394	51	214	824	92	42	505	241
Future Volume (vph)	176	156	84	85	394	51	214	824	92	42	505	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.983			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3398	0	1770	3342	0	1805	3438	1538
Flt Permitted	0.318			0.644			0.360			0.190		
Satd. Flow (perm)	581	3085	1392	920	3398	0	670	3342	0	361	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		16			14				265
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	193	171	92	93	433	56	235	905	101	46	555	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	171	92	93	489	0	235	1006	0	46	555	265
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

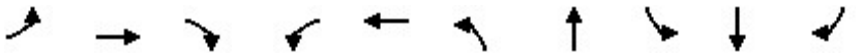
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	26.5	17.9	17.9	25.8	15.8		40.3	33.2		39.1	29.0	29.0
Actuated g/C Ratio	0.34	0.23	0.23	0.34	0.21		0.52	0.43		0.51	0.38	0.38
v/c Ratio	0.63	0.24	0.23	0.27	0.69		0.52	0.69		0.15	0.43	0.36
Control Delay	27.7	25.7	5.6	18.1	32.6		14.9	22.7		10.2	19.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	27.7	25.7	5.6	18.1	32.6		14.9	22.7		10.2	19.6	4.1
LOS	C	C	A	B	C		B	C		B	B	A
Approach Delay		22.5			30.3			21.2			14.3	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 76.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	193	171	92	93	489	235	1006	46	555	265
v/c Ratio	0.63	0.24	0.23	0.27	0.69	0.52	0.69	0.15	0.43	0.36
Control Delay	27.7	25.7	5.6	18.1	32.6	14.9	22.7	10.2	19.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	25.7	5.6	18.1	32.6	14.9	22.7	10.2	19.6	4.1
Queue Length 50th (m)	20.3	11.6	0.0	9.3	35.4	17.4	69.1	3.0	32.4	0.0
Queue Length 95th (m)	35.4	20.0	8.8	19.1	51.1	34.1	#106.3	8.6	50.6	15.2
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	305	1164	593	348	1293	451	1451	314	1298	738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.15	0.16	0.27	0.38	0.52	0.69	0.15	0.43	0.36

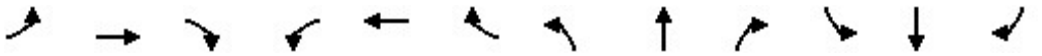
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	156	84	85	394	51	214	824	92	42	505	241
Future Volume (vph)	176	156	84	85	394	51	214	824	92	42	505	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3398		1769	3341		1805	3438	1518
Flt Permitted	0.32	1.00	1.00	0.64	1.00		0.36	1.00		0.19	1.00	1.00
Satd. Flow (perm)	580	3085	1392	920	3398		671	3341		362	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	193	171	92	93	433	56	235	905	101	46	555	265
RTOR Reduction (vph)	0	0	71	0	13	0	0	8	0	0	0	163
Lane Group Flow (vph)	193	171	21	93	476	0	235	998	0	46	555	102
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	24.9	17.9	17.9	21.9	16.4		40.2	33.2		34.4	30.3	30.3
Effective Green, g (s)	24.9	17.9	17.9	21.9	16.4		40.2	33.2		34.4	30.3	30.3
Actuated g/C Ratio	0.32	0.23	0.23	0.28	0.21		0.51	0.42		0.44	0.39	0.39
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	286	701	316	286	708		440	1409		233	1323	584
v/s Ratio Prot	c0.06	0.06		0.02	0.14		c0.05	c0.30		0.01	0.16	
v/s Ratio Perm	c0.15		0.02	0.07			0.23			0.08		0.07
v/c Ratio	0.67	0.24	0.07	0.33	0.67		0.53	0.71		0.20	0.42	0.17
Uniform Delay, d1	21.0	24.9	23.8	22.0	28.7		11.2	18.8		13.5	17.7	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.2	0.2	0.1	0.7	2.5		1.2	3.0		0.4	1.0	0.7
Delay (s)	27.1	25.0	23.9	22.7	31.2		12.5	21.8		13.9	18.7	16.6
Level of Service	C	C	C	C	C		B	C		B	B	B
Approach Delay (s)		25.7			29.8			20.0			17.8	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

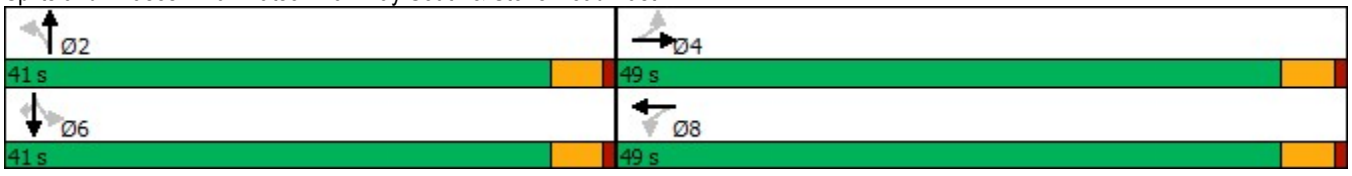


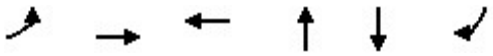
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	80	45	15	159	3	85	158	12	3	208	261
Future Volume (vph)	190	80	45	15	159	3	85	158	12	3	208	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.993				0.850
Flt Protected	0.950				0.996			0.984			0.999	
Satd. Flow (prot)	1504	1693	0	0	1802	0	0	1774	0	0	1820	1404
Flt Permitted	0.608				0.972			0.842			0.997	
Satd. Flow (perm)	963	1693	0	0	1758	0	0	1518	0	0	1816	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			1			3				275
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	200	84	47	16	167	3	89	166	13	3	219	275
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	131	0	0	186	0	0	268	0	0	222	275
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	41.0
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	45.6%
Maximum Green (s)	44.5	44.5		44.5	44.5		36.5	36.5		36.5	36.5	36.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	17.5	17.5			17.5			37.0			37.0	37.0
Actuated g/C Ratio	0.28	0.28			0.28			0.58			0.58	0.58
v/c Ratio	0.75	0.26			0.38			0.30			0.21	0.30
Control Delay	39.2	13.1			20.2			9.3			8.4	2.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	39.2	13.1			20.2			9.3			8.4	2.3
LOS	D	B			C			A			A	A
Approach Delay		28.8			20.2			9.3			5.0	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 63.5			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

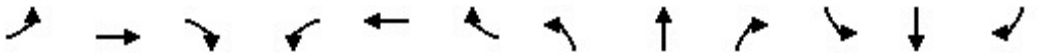
Splits and Phases: 6: Watson Parkway South & Stone Road East





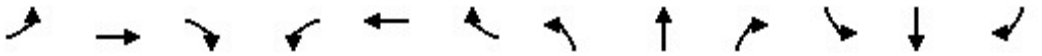
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	200	131	186	268	222	275
v/c Ratio	0.75	0.26	0.38	0.30	0.21	0.30
Control Delay	39.2	13.1	20.2	9.3	8.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	13.1	20.2	9.3	8.4	2.3
Queue Length 50th (m)	22.2	8.1	18.2	14.5	11.4	0.0
Queue Length 95th (m)	43.7	19.3	32.9	37.5	29.6	10.8
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	680	1209	1243	884	1057	931
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.11	0.15	0.30	0.21	0.30

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	80	45	15	159	3	85	158	12	3	208	261
Future Volume (vph)	190	80	45	15	159	3	85	158	12	3	208	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1694			1801			1774			1820	1404
Flt Permitted	0.61	1.00			0.97			0.84			1.00	1.00
Satd. Flow (perm)	962	1694			1759			1519			1817	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	84	47	16	167	3	89	166	13	3	219	275
RTOR Reduction (vph)	0	32	0	0	1	0	0	1	0	0	0	115
Lane Group Flow (vph)	200	99	0	0	185	0	0	267	0	0	222	160
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	17.5	17.5			17.5			36.9			36.9	36.9
Effective Green, g (s)	17.5	17.5			17.5			36.9			36.9	36.9
Actuated g/C Ratio	0.28	0.28			0.28			0.58			0.58	0.58
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	265	467			485			884			1057	817
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.21				0.11			c0.18			0.12	0.11
v/c Ratio	0.75	0.21			0.38			0.30			0.21	0.20
Uniform Delay, d1	21.0	17.6			18.6			6.7			6.3	6.3
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.5	0.2			0.5			0.9			0.5	0.5
Delay (s)	32.5	17.9			19.1			7.6			6.8	6.8
Level of Service	C	B			B			A			A	A
Approach Delay (s)		26.7			19.1			7.6			6.8	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

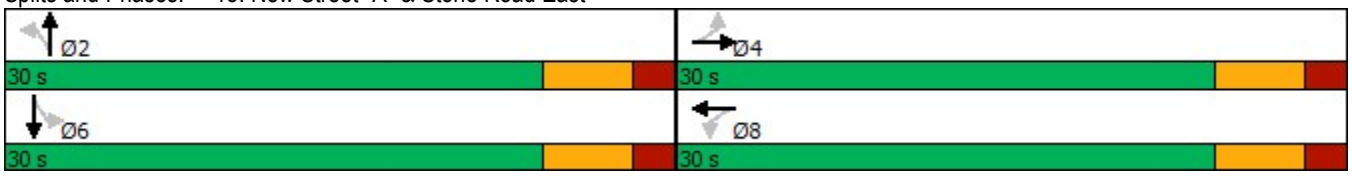


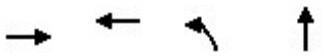
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3451	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.951		0.757					
Satd. Flow (perm)	0	3451	0	0	3366	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46						485				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	0	0	512	0	142	37	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
v/c Ratio		0.21			0.38		0.25	0.04				
Control Delay		10.4			13.8		13.6	0.1				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		10.4			13.8		13.6	0.1				
LOS		B			B		B	A				
Approach Delay		10.4			13.8			10.8				
Approach LOS		B			B			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	302	512	142	37
v/c Ratio	0.21	0.38	0.25	0.04
Control Delay	10.4	13.8	13.6	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.4	13.8	13.6	0.1
Queue Length 50th (m)	9.7	21.1	10.5	0.0
Queue Length 95th (m)	17.0	32.1	21.8	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	1408	1346	564	924
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.25	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Future Volume (vph)	0	252	50	6	506	0	142	0	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3451			3537		1770	1583				
Flt Permitted		1.00			0.95		0.76	1.00				
Satd. Flow (perm)		3451			3365		1410	1583				
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)	0	252	50	6	506	0	142	0	37	0	0	0
RTOR Reduction (vph)	0	28	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	274	0	0	512	0	142	15	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0				
Effective Green, g (s)		24.0			24.0		24.0	24.0				
Actuated g/C Ratio		0.40			0.40		0.40	0.40				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1380			1346		564	633				
v/s Ratio Prot		0.08						0.01				
v/s Ratio Perm					c0.15		c0.10					
v/c Ratio		0.20			0.38		0.25	0.02				
Uniform Delay, d1		11.7			12.7		12.0	10.9				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.8		0.2	0.0				
Delay (s)		12.1			13.6		12.2	10.9				
Level of Service		B			B		B	B				
Approach Delay (s)		12.1			13.6			12.0			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	396	232	351	543	87	273	1071	288	44	865	71
Future Volume (vph)	71	396	232	351	543	87	273	1071	288	44	865	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3446	0
Flt Permitted	0.162			0.144			0.097			0.149		
Satd. Flow (perm)	290	1712	1583	261	1759	1475	176	3471	1523	262	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			215		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	77	430	252	382	590	95	297	1164	313	48	940	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	430	252	382	590	95	297	1164	313	48	1017	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	30.0	57.0	19.0	14.0	41.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	25.0%	47.5%	15.8%	11.7%	34.2%	
Maximum Green (s)	6.0	24.0	27.0	16.0	34.0	34.0	27.0	51.0	16.0	11.0	35.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	33.1	26.0	51.3	48.1	38.0	36.0	64.7	53.5	74.6	47.6	39.5	
Actuated g/C Ratio	0.29	0.23	0.45	0.42	0.33	0.31	0.56	0.47	0.65	0.41	0.34	
v/c Ratio	0.49	1.11	0.34	1.13	1.01	0.18	0.77	0.72	0.29	0.24	0.86	
Control Delay	35.3	120.5	14.4	119.5	80.8	5.3	40.2	28.2	3.5	17.1	44.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.3	120.5	14.4	119.5	80.8	5.3	40.2	28.2	3.5	17.1	44.0	
LOS	D	F	B	F	F	A	D	C	A	B	D	
Approach Delay		76.6			87.9			25.9			42.8	
Approach LOS		E			F			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 114.8
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 52.2 Intersection LOS: D
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road



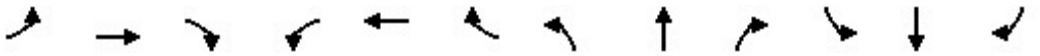


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	430	252	382	590	95	297	1164	313	48	1017
v/c Ratio	0.49	1.11	0.34	1.13	1.01	0.18	0.77	0.72	0.29	0.24	0.86
Control Delay	35.3	120.5	14.4	119.5	80.8	5.3	40.2	28.2	3.5	17.1	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	120.5	14.4	119.5	80.8	5.3	40.2	28.2	3.5	17.1	44.0
Queue Length 50th (m)	11.5	~118.6	25.0	~90.0	~157.9	0.0	49.6	116.7	8.2	5.1	116.6
Queue Length 95th (m)	23.1	#190.6	41.9	#159.8	#239.4	10.4	79.8	147.0	19.8	10.8	#173.6
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	157	388	854	338	582	537	489	1618	1069	252	1189
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	0.49	1.11	0.30	1.13	1.01	0.18	0.61	0.72	0.29	0.19	0.86

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	396	232	351	543	87	273	1071	288	44	865	71
Future Volume (vph)	71	396	232	351	543	87	273	1071	288	44	865	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1531	1671	3445	
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.10	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	290	1712	1583	261	1759	1475	176	3471	1531	261	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	430	252	382	590	95	297	1164	313	48	940	77
RTOR Reduction (vph)	0	0	48	0	0	66	0	0	82	0	5	0
Lane Group Flow (vph)	77	430	204	382	590	29	297	1164	231	48	1012	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	29.4	24.7	43.9	43.7	36.0	36.0	60.3	51.5	67.5	43.9	38.1	
Effective Green, g (s)	29.4	26.7	47.9	45.7	38.0	36.0	62.3	53.5	71.5	43.9	40.1	
Actuated g/C Ratio	0.25	0.23	0.41	0.39	0.33	0.31	0.54	0.46	0.62	0.38	0.35	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	130	394	653	329	576	457	376	1600	943	169	1190	
v/s Ratio Prot	0.02	0.25	0.06	c0.18	c0.34		c0.14	0.34	0.04	0.01	c0.29	
v/s Ratio Perm	0.13		0.07	0.28		0.02	0.28		0.11	0.09		
v/c Ratio	0.59	1.09	0.31	1.16	1.02	0.06	0.79	0.73	0.24	0.28	0.85	
Uniform Delay, d1	35.8	44.6	22.9	33.6	39.0	28.1	30.7	25.3	10.0	24.1	35.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.1	72.2	0.3	100.8	43.8	0.1	10.6	2.9	0.1	0.9	7.7	
Delay (s)	42.8	116.8	23.2	134.4	82.8	28.2	41.2	28.3	10.2	25.1	42.9	
Level of Service	D	F	C	F	F	C	D	C	B	C	D	
Approach Delay (s)		78.3			96.4			27.2			42.1	
Approach LOS		E			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

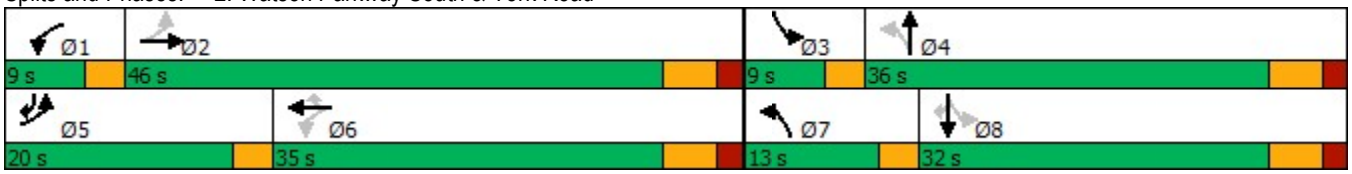
c Critical Lane Group

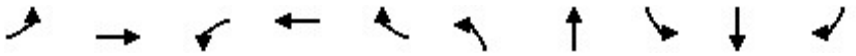
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	424	112	31	473	113	246	483	25	27	350	337
Future Volume (vph)	403	424	112	31	473	113	246	483	25	27	350	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.969				0.850		0.993				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1654	0	1517	1759	1495	1612	1718	0	1719	1827	1568
Flt Permitted	0.140			0.362			0.220			0.163		
Satd. Flow (perm)	249	1654	0	578	1759	1495	373	1718	0	295	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				164		3				120
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	424	446	118	33	498	119	259	508	26	28	368	355
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	564	0	33	498	119	259	534	0	28	368	355
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	20.0	46.0		9.0	35.0	35.0	13.0	36.0		9.0	32.0	20.0
Total Split (%)	20.0%	46.0%		9.0%	35.0%	35.0%	13.0%	36.0%		9.0%	32.0%	20.0%
Maximum Green (s)	17.0	40.0		6.0	29.0	29.0	10.0	30.0		6.0	26.0	17.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	52.1	43.8		38.0	29.0	29.0	39.2	31.0		32.2	23.2	46.2
Actuated g/C Ratio	0.54	0.45		0.39	0.30	0.30	0.40	0.32		0.33	0.24	0.47
v/c Ratio	1.10	0.75		0.12	0.95	0.21	0.94	0.97		0.15	0.84	0.44
Control Delay	102.8	31.3		13.7	64.0	2.6	64.4	67.4		19.4	53.8	12.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	102.8	31.3		13.7	64.0	2.6	64.4	67.4		19.4	53.8	12.5
LOS	F	C		B	E	A	E	E		B	D	B
Approach Delay		62.0			50.2			66.4			33.0	
Approach LOS		E			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.3			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 53.8		Intersection LOS: D	
Intersection Capacity Utilization 95.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road



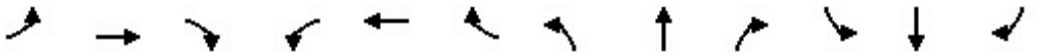


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	424	564	33	498	119	259	534	28	368	355
v/c Ratio	1.10	0.75	0.12	0.95	0.21	0.94	0.97	0.15	0.84	0.44
Control Delay	102.8	31.3	13.7	64.0	2.6	64.4	67.4	19.4	53.8	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	31.3	13.7	64.0	2.6	64.4	67.4	19.4	53.8	12.5
Queue Length 50th (m)	~82.3	99.6	3.2	100.3	0.0	35.7	~117.2	3.3	69.6	28.3
Queue Length 95th (m)	#143.3	#161.5	8.0	#166.9	6.0	#75.0	#183.4	8.7	#112.5	51.0
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	384	753	283	525	560	277	548	185	489	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.75	0.12	0.95	0.21	0.94	0.97	0.15	0.75	0.44

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	424	112	31	473	113	246	483	25	27	350	337
Future Volume (vph)	403	424	112	31	473	113	246	483	25	27	350	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1654		1516	1759	1495	1612	1718		1719	1827	1568
Flt Permitted	0.14	1.00		0.36	1.00	1.00	0.22	1.00		0.16	1.00	1.00
Satd. Flow (perm)	249	1654		578	1759	1495	373	1718		295	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	446	118	33	498	119	259	508	26	28	368	355
RTOR Reduction (vph)	0	9	0	0	0	83	0	2	0	0	0	70
Lane Group Flow (vph)	424	555	0	33	498	36	259	532	0	28	368	285
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	50.3	43.8		33.8	30.3	30.3	37.5	31.0		28.0	24.5	41.5
Effective Green, g (s)	50.3	43.8		33.8	30.3	30.3	37.5	31.0		28.0	24.5	41.5
Actuated g/C Ratio	0.50	0.44		0.34	0.30	0.30	0.38	0.31		0.28	0.25	0.42
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	370	725		228	534	453	264	533		132	448	652
v/s Ratio Prot	c0.19	0.34		0.01	0.28		c0.10	c0.31		0.01	0.20	0.07
v/s Ratio Perm	c0.38			0.04		0.02	0.27			0.05		0.11
v/c Ratio	1.15	0.77		0.14	0.93	0.08	0.98	1.00		0.21	0.82	0.44
Uniform Delay, d1	27.3	23.7		22.5	33.8	24.8	27.4	34.4		27.7	35.6	20.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	92.7	7.6		0.3	25.4	0.3	49.9	38.2		0.8	11.5	0.5
Delay (s)	120.0	31.2		22.8	59.1	25.1	77.3	72.6		28.5	47.1	21.3
Level of Service	F	C		C	E	C	E	E		C	D	C
Approach Delay (s)		69.3			51.1			74.1			34.2	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

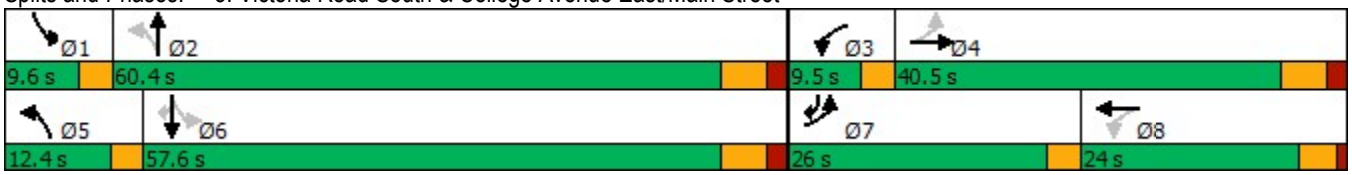
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	0	119	0	0	0	98	1069	0	0	1079	295
Future Volume (vph)	427	0	119	0	0	0	98	1069	0	0	1079	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1442	0	1863	1863	0	1736	3471	0	1863	3438	1583
Flt Permitted	0.950						0.149					
Satd. Flow (perm)	1719	1442	0	1863	1863	0	272	3471	0	1863	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		243										331
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	480	0	134	0	0	0	110	1201	0	0	1212	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	480	134	0	0	0	0	110	1201	0	0	1212	331
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	26.0	40.5		9.5	24.0		12.4	60.4		9.6	57.6	26.0
Total Split (%)	21.7%	33.8%		7.9%	20.0%		10.3%	50.3%		8.0%	48.0%	21.7%
Maximum Green (s)	23.0	34.5		6.5	19.5		9.4	54.4		6.6	51.6	23.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	25.0	22.0					67.6	64.6			53.6	82.6
Actuated g/C Ratio	0.26	0.23					0.71	0.68			0.57	0.87
v/c Ratio	1.06	0.26					0.32	0.51			0.62	0.23
Control Delay	94.3	1.2					6.5	8.2			15.6	0.5
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	94.3	1.2					6.5	8.2			15.6	0.5
LOS	F	A					A	A			B	A
Approach Delay		74.0						8.0			12.4	
Approach LOS		E						A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 94.6			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 69.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street



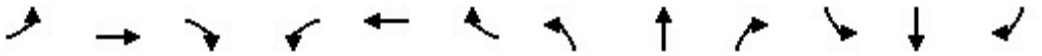


Lane Group	EBL	EBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	480	134	110	1201	1212	331
v/c Ratio	1.06	0.26	0.32	0.51	0.62	0.23
Control Delay	94.3	1.2	6.5	8.2	15.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.3	1.2	6.5	8.2	15.6	0.5
Queue Length 50th (m)	~101.7	0.0	5.5	51.6	76.3	0.0
Queue Length 95th (m)	#163.7	0.0	10.1	64.3	99.6	2.3
Internal Link Dist (m)		1114.0		391.8	328.2	
Turn Bay Length (m)	40.0		30.0			45.0
Base Capacity (vph)	454	705	370	2371	1948	1424
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	1.06	0.19	0.30	0.51	0.62	0.23

Intersection Summary

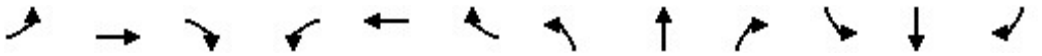
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	0	119	0	0	0	98	1069	0	0	1079	295
Future Volume (vph)	427	0	119	0	0	0	98	1069	0	0	1079	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.0					1.0	4.0			4.0	1.0
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	1.00
Frt	1.00	0.85					1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00			1.00	1.00
Satd. Flow (prot)	1719	1442					1736	3471			3438	1583
Flt Permitted	0.95	1.00					0.15	1.00			1.00	1.00
Satd. Flow (perm)	1719	1442					272	3471			3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	480	0	134	0	0	0	110	1201	0	0	1212	331
RTOR Reduction (vph)	0	103	0	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	480	31	0	0	0	0	110	1201	0	0	1212	275
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt			pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	23.0	20.0					62.6	62.6			51.6	74.6
Effective Green, g (s)	25.0	22.0					64.6	64.6			53.6	78.6
Actuated g/C Ratio	0.26	0.23					0.68	0.68			0.57	0.83
Clearance Time (s)	3.0	6.0					3.0	6.0			6.0	3.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	454	335					340	2370			1947	1315
v/s Ratio Prot	c0.28	0.02					0.03	c0.35			c0.35	0.06
v/s Ratio Perm							0.19					0.12
v/c Ratio	1.06	0.09					0.32	0.51			0.62	0.21
Uniform Delay, d1	34.8	28.5					7.8	7.3			13.7	1.6
Progression Factor	1.00	1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2	58.2	0.1					0.6	0.8			1.5	0.1
Delay (s)	93.0	28.6					8.4	8.1			15.2	1.7
Level of Service	F	C					A	A			B	A
Approach Delay (s)		78.9			0.0			8.1			12.3	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



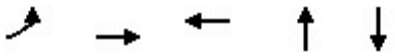
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	27	174	116	5	6	16	468	50	2	442	37
Future Volume (vph)	214	27	174	116	5	6	16	468	50	2	442	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.987			0.990	
Flt Protected	0.950				0.956			0.999				
Satd. Flow (prot)	1378	1068	0	0	1384	0	0	1688	0	0	1756	0
Flt Permitted	0.700				0.567			0.981			0.999	
Satd. Flow (perm)	1011	1068	0	0	821	0	0	1658	0	0	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		187			3			9			8	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	230	29	187	125	5	6	17	503	54	2	475	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	216	0	0	136	0	0	574	0	0	517	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.9	20.9			20.9			40.3			40.3	
Actuated g/C Ratio	0.29	0.29			0.29			0.55			0.55	
v/c Ratio	0.80	0.49			0.58			0.63			0.53	
Control Delay	44.9	8.9			31.8			16.5			14.3	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	44.9	8.9			31.8			16.5			14.3	
LOS	D	A			C			B			B	
Approach Delay		27.5			31.8			16.5			14.3	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 73.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 20.0		Intersection LOS: B	
Intersection Capacity Utilization 74.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South

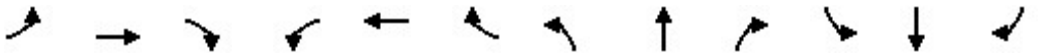




Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	230	216	136	574	517
v/c Ratio	0.80	0.49	0.58	0.63	0.53
Control Delay	44.9	8.9	31.8	16.5	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	8.9	31.8	16.5	14.3
Queue Length 50th (m)	30.5	3.1	16.2	53.7	44.7
Queue Length 95th (m)	#57.3	19.3	34.0	103.2	85.1
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	389	526	318	915	968
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.41	0.43	0.63	0.53

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	27	174	116	5	6	16	468	50	2	442	37
Future Volume (vph)	214	27	174	116	5	6	16	468	50	2	442	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1385			1688			1755	
Flt Permitted	0.70	1.00			0.57			0.98			1.00	
Satd. Flow (perm)	1011	1068			821			1658			1753	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	230	29	187	125	5	6	17	503	54	2	475	40
RTOR Reduction (vph)	0	134	0	0	2	0	0	4	0	0	4	0
Lane Group Flow (vph)	230	82	0	0	134	0	0	570	0	0	513	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	20.9	20.9			20.9			40.3			40.3	
Effective Green, g (s)	20.9	20.9			20.9			40.3			40.3	
Actuated g/C Ratio	0.29	0.29			0.29			0.55			0.55	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	288	304			234			912			965	
v/s Ratio Prot		0.08										
v/s Ratio Perm	c0.23				0.16			c0.34			0.29	
v/c Ratio	0.80	0.27			0.57			0.62			0.53	
Uniform Delay, d1	24.2	20.3			22.3			11.3			10.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	14.3	0.5			3.4			3.2			2.1	
Delay (s)	38.5	20.7			25.7			14.5			12.6	
Level of Service	D	C			C			B			B	
Approach Delay (s)		29.9			25.7			14.5			12.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

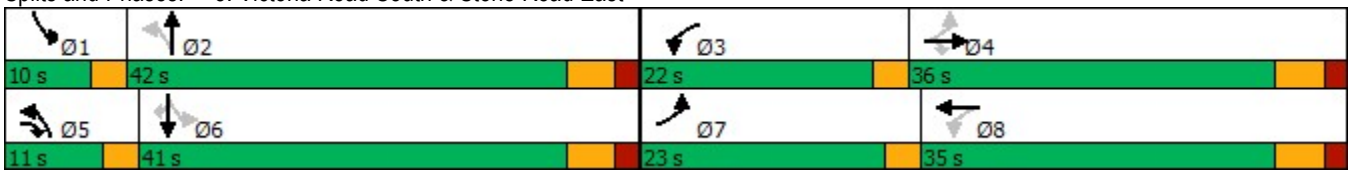
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	399	224	111	450	57	170	764	97	58	851	290
Future Volume (vph)	343	399	224	111	450	57	170	764	97	58	851	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.983			0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3398	0	1770	3325	0	1805	3438	1538
Flt Permitted	0.212			0.498			0.133			0.166		
Satd. Flow (perm)	387	3085	1392	711	3398	0	248	3325	0	315	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		12			13				265
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	377	438	246	122	495	63	187	840	107	64	935	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	377	438	246	122	558	0	187	947	0	64	935	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

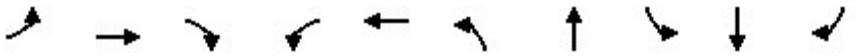
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	23.0	36.0	11.0	22.0	35.0		11.0	42.0		10.0	41.0	41.0
Total Split (%)	20.9%	32.7%	10.0%	20.0%	31.8%		10.0%	38.2%		9.1%	37.3%	37.3%
Maximum Green (s)	20.0	30.0	8.0	19.0	29.0		8.0	36.0		7.0	35.0	35.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	46.9	30.0	44.0	35.5	21.6		47.6	38.3		45.2	35.1	35.1
Actuated g/C Ratio	0.46	0.29	0.43	0.35	0.21		0.47	0.38		0.44	0.34	0.34
v/c Ratio	0.87	0.48	0.33	0.39	0.77		0.80	0.75		0.26	0.79	0.46
Control Delay	42.8	31.9	3.7	20.5	44.7		44.0	33.9		18.9	37.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	42.8	31.9	3.7	20.5	44.7		44.0	33.9		18.9	37.0	8.2
LOS	D	C	A	C	D		D	C		B	D	A
Approach Delay		29.2			40.3			35.5			29.1	
Approach LOS		C			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 102.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 32.7 Intersection LOS: C
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	377	438	246	122	558	187	947	64	935	319
v/c Ratio	0.87	0.48	0.33	0.39	0.77	0.80	0.75	0.26	0.79	0.46
Control Delay	42.8	31.9	3.7	20.5	44.7	44.0	33.9	18.9	37.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	31.9	3.7	20.5	44.7	44.0	33.9	18.9	37.0	8.2
Queue Length 50th (m)	52.5	39.3	0.0	14.6	57.2	22.1	92.3	7.0	92.4	7.7
Queue Length 95th (m)	#104.6	57.5	14.8	26.0	76.2	#61.9	#134.5	16.4	#132.0	32.4
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	443	944	740	424	977	235	1256	242	1182	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.46	0.33	0.29	0.57	0.80	0.75	0.26	0.79	0.46

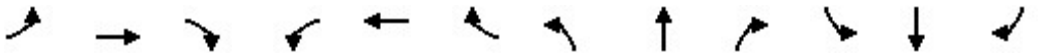
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	343	399	224	111	450	57	170	764	97	58	851	290
Future Volume (vph)	343	399	224	111	450	57	170	764	97	58	851	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3398		1770	3326		1805	3438	1518
Flt Permitted	0.21	1.00	1.00	0.50	1.00		0.13	1.00		0.17	1.00	1.00
Satd. Flow (perm)	388	3085	1392	711	3398		247	3326		315	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	377	438	246	122	495	63	187	840	107	64	935	319
RTOR Reduction (vph)	0	0	155	0	9	0	0	8	0	0	0	173
Lane Group Flow (vph)	377	438	91	122	549	0	187	939	0	64	935	146
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	43.9	30.0	38.0	32.5	21.6		46.3	38.3		41.3	35.8	35.8
Effective Green, g (s)	43.9	30.0	38.0	32.5	21.6		46.3	38.3		41.3	35.8	35.8
Actuated g/C Ratio	0.43	0.29	0.37	0.32	0.21		0.45	0.37		0.40	0.35	0.35
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	419	901	515	293	714		229	1240		206	1198	529
v/s Ratio Prot	c0.17	0.14	0.01	0.04	0.16		c0.06	0.28		0.02	0.27	
v/s Ratio Perm	c0.22		0.05	0.09			c0.30			0.11		0.10
v/c Ratio	0.90	0.49	0.18	0.42	0.77		0.82	0.76		0.31	0.78	0.28
Uniform Delay, d1	23.0	30.0	21.8	26.4	38.2		20.7	28.1		20.5	29.9	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.5	0.4	0.2	1.0	5.0		19.7	4.4		0.9	5.1	1.3
Delay (s)	44.5	30.4	22.0	27.3	43.2		40.4	32.5		21.3	35.0	25.4
Level of Service	D	C	C	C	D		D	C		C	D	C
Approach Delay (s)		33.5			40.3			33.8			32.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

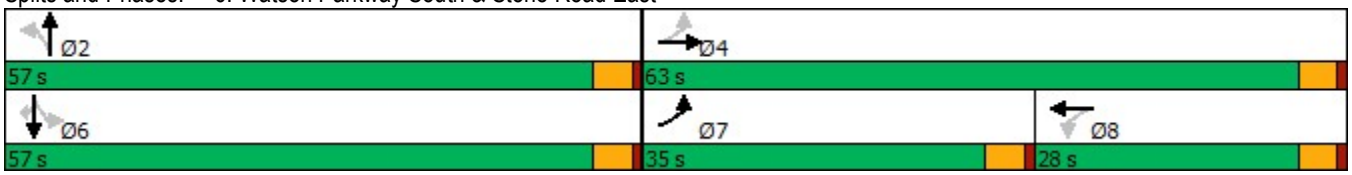


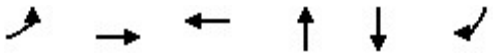
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	207	76	16	144	1	40	277	17	3	299	419
Future Volume (vph)	264	207	76	16	144	1	40	277	17	3	299	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994				
Satd. Flow (prot)	1504	1727	0	0	1806	0	0	1795	0	0	1828	1404
Flt Permitted	0.320				0.942			0.930			0.998	
Satd. Flow (perm)	507	1727	0	0	1710	0	0	1679	0	0	1825	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21						3				441
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	278	218	80	17	152	1	42	292	18	3	315	441
Shared Lane Traffic (%)												
Lane Group Flow (vph)	278	298	0	0	170	0	0	352	0	0	318	441
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	63.0		28.0	28.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	29.2%	52.5%		23.3%	23.3%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	30.5	58.5		23.5	23.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	43.3	43.3			15.2			53.0			53.0	53.0
Actuated g/C Ratio	0.41	0.41			0.14			0.50			0.50	0.50
v/c Ratio	0.65	0.41			0.69			0.42			0.35	0.48
Control Delay	29.2	21.5			58.6			20.3			19.2	3.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	29.2	21.5			58.6			20.3			19.2	3.8
LOS	C	C			E			C			B	A
Approach Delay		25.2			58.6			20.3			10.2	
Approach LOS		C			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.4			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

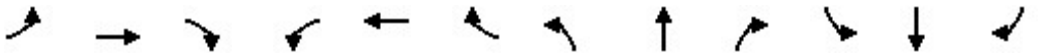
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	278	298	170	352	318	441
v/c Ratio	0.65	0.41	0.69	0.42	0.35	0.48
Control Delay	29.2	21.5	58.6	20.3	19.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	21.5	58.6	20.3	19.2	3.8
Queue Length 50th (m)	42.1	41.0	35.5	46.2	40.3	0.0
Queue Length 95th (m)	64.0	62.3	61.4	87.5	76.2	18.9
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	501	977	385	846	918	925
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	0.55	0.31	0.44	0.42	0.35	0.48

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	207	76	16	144	1	40	277	17	3	299	419
Future Volume (vph)	264	207	76	16	144	1	40	277	17	3	299	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			1.00	1.00
Satd. Flow (prot)	1504	1727			1806			1795			1828	1404
Flt Permitted	0.32	1.00			0.94			0.93			1.00	1.00
Satd. Flow (perm)	506	1727			1710			1680			1824	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	278	218	80	17	152	1	42	292	18	3	315	441
RTOR Reduction (vph)	0	12	0	0	0	0	0	1	0	0	0	219
Lane Group Flow (vph)	278	286	0	0	170	0	0	351	0	0	318	222
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	43.3	43.3			15.3			53.0			53.0	53.0
Effective Green, g (s)	43.3	43.3			15.3			53.0			53.0	53.0
Actuated g/C Ratio	0.41	0.41			0.15			0.50			0.50	0.50
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	430	710			248			845			918	706
v/s Ratio Prot	c0.14	0.17										
v/s Ratio Perm	c0.12				0.10			c0.21			0.17	0.16
v/c Ratio	0.65	0.40			0.69			0.41			0.35	0.31
Uniform Delay, d1	23.5	21.9			42.7			16.4			15.7	15.4
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	3.3	0.4			7.6			1.5			1.0	1.2
Delay (s)	26.9	22.2			50.3			17.9			16.8	16.6
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.5			50.3			17.9			16.7	
Approach LOS		C			D			B			B	

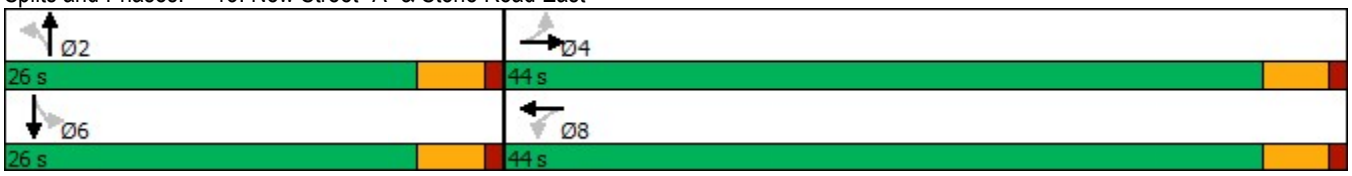
Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

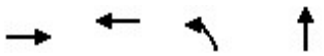
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977						0.850				
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3458	0	0	3536	0	1770	1583	0	1863	1863	0
Flt Permitted					0.936		0.757					
Satd. Flow (perm)	0	3458	0	0	3313	0	1410	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47						203				
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	853	0	0	661	0	81	18	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		37.1%	37.1%		37.1%	37.1%	
Maximum Green (s)	39.5	39.5		39.5	39.5		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		50.2			50.2		9.0	9.0				
Actuated g/C Ratio		0.77			0.77		0.14	0.14				
v/c Ratio		0.32			0.26		0.42	0.05				
Control Delay		3.5			3.5		31.2	0.2				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		3.5			3.5		31.2	0.2				
LOS		A			A		C	A				
Approach Delay		3.5			3.5			25.5				
Approach LOS		A			A			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 65.1			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 4.9		Intersection LOS: A	
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT
Lane Group Flow (vph)	853	661	81	18
v/c Ratio	0.32	0.26	0.42	0.05
Control Delay	3.5	3.5	31.2	0.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	3.5	31.2	0.2
Queue Length 50th (m)	15.2	11.9	10.7	0.0
Queue Length 95th (m)	27.0	21.5	19.0	0.0
Internal Link Dist (m)	322.9	1534.2		316.8
Turn Bay Length (m)				
Base Capacity (vph)	2678	2556	468	661
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.26	0.17	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Future Volume (vph)	0	725	128	14	647	0	81	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frt		0.98			1.00		1.00	0.85				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3460			3535		1770	1583				
Flt Permitted		1.00			0.94		0.76	1.00				
Satd. Flow (perm)		3460			3313		1410	1583				
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)	0	725	128	14	647	0	81	0	18	0	0	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	841	0	0	661	0	81	2	0	0	0	0
Turn Type		NA		Perm	NA		Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		49.2			49.2		7.8	7.8				
Effective Green, g (s)		49.2			49.2		7.8	7.8				
Actuated g/C Ratio		0.75			0.75		0.12	0.12				
Clearance Time (s)		4.5			4.5		4.5	4.5				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		2579			2469		166	187				
v/s Ratio Prot		c0.24						0.00				
v/s Ratio Perm					0.20		c0.06					
v/c Ratio		0.33			0.27		0.49	0.01				
Uniform Delay, d1		2.8			2.7		27.2	25.7				
Progression Factor		1.00			1.00		1.00	1.00				
Incremental Delay, d2		0.3			0.3		2.3	0.0				
Delay (s)		3.2			2.9		29.5	25.7				
Level of Service		A			A		C	C				
Approach Delay (s)		3.2			2.9			28.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	303	361	343	345	31	434	949	315	92	1119	54
Future Volume (vph)	50	303	361	343	345	31	434	949	315	92	1119	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98	1.00		
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3468	0
Flt Permitted	0.424			0.188			0.098			0.228		
Satd. Flow (perm)	759	1712	1583	340	1759	1475	177	3471	1523	401	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			212			109			238		4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	54	329	392	373	375	34	472	1032	342	100	1216	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	329	392	373	375	34	472	1032	342	100	1275	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	27.0	59.0	19.0	12.0	44.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	22.5%	49.2%	15.8%	10.0%	36.7%	
Maximum Green (s)	6.0	24.0	24.0	16.0	34.0	34.0	24.0	53.0	16.0	9.0	38.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	32.4	25.4	23.4	47.4	35.3	35.3	70.0	53.8	72.8	49.2	40.0	
Actuated g/C Ratio	0.27	0.21	0.20	0.40	0.30	0.30	0.59	0.45	0.61	0.41	0.34	
v/c Ratio	0.21	0.90	0.81	1.09	0.72	0.07	1.08	0.66	0.33	0.40	1.10	
Control Delay	26.6	74.7	35.4	104.4	47.6	0.3	98.3	28.4	4.0	18.8	94.4	
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	26.6	74.7	35.4	104.4	47.6	0.3	98.3	28.4	4.0	18.8	94.4	
LOS	C	E	D	F	D	A	F	C	A	B	F	
Approach Delay		51.5			72.6			41.8			88.9	
Approach LOS		D			E			D			F	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 119.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 62.0 Intersection LOS: E
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	329	392	373	375	34	472	1032	342	100	1275
v/c Ratio	0.21	0.90	0.81	1.09	0.72	0.07	1.08	0.66	0.33	0.40	1.10
Control Delay	26.6	74.7	35.4	104.4	47.6	0.3	98.3	28.4	4.0	18.8	94.4
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	26.6	74.7	35.4	104.4	47.6	0.3	98.3	28.4	4.0	18.8	94.4
Queue Length 50th (m)	8.4	79.7	44.1	~81.6	84.8	0.0	~113.7	104.4	9.6	10.9	~189.0
Queue Length 95th (m)	17.4	#132.8	#94.2	#144.0	122.1	0.0	#181.3	129.1	22.6	19.5	#233.7
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	253	372	487	342	519	512	439	1564	1025	263	1164
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	0.21	0.88	0.80	1.09	0.72	0.07	1.08	0.66	0.33	0.38	1.10

Intersection Summary

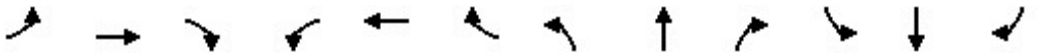
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	303	361	343	345	31	434	949	315	92	1119	54
Future Volume (vph)	50	303	361	343	345	31	434	949	315	92	1119	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	6.0	1.0	6.0	6.0	1.0	6.0	3.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1702	1712	1583	1719	1759	1475	1719	3471	1530	1671	3468	
Flt Permitted	0.42	1.00	1.00	0.19	1.00	1.00	0.10	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	760	1712	1583	341	1759	1475	177	3471	1530	400	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	329	392	373	375	34	472	1032	342	100	1216	59
RTOR Reduction (vph)	0	0	169	0	0	24	0	0	100	0	3	0
Lane Group Flow (vph)	54	329	223	373	375	10	472	1032	242	100	1272	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	28.9	24.1	24.1	43.1	35.3	35.3	65.0	53.8	69.8	46.2	38.0	
Effective Green, g (s)	28.9	26.1	24.1	45.1	35.3	35.3	67.0	53.8	69.8	46.2	40.0	
Actuated g/C Ratio	0.24	0.22	0.20	0.38	0.29	0.29	0.56	0.45	0.58	0.38	0.33	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	220	372	317	334	517	433	432	1554	889	240	1155	
v/s Ratio Prot	0.01	c0.19		c0.17	0.21		c0.24	0.30	0.04	0.03	c0.37	
v/s Ratio Perm	0.05		0.14	0.25		0.01	0.37		0.12	0.13		
v/c Ratio	0.25	0.88	0.70	1.12	0.73	0.02	1.09	0.66	0.27	0.42	1.10	
Uniform Delay, d1	35.9	45.5	44.7	31.2	38.0	30.1	37.5	26.0	12.5	24.4	40.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	21.2	6.9	84.6	5.0	0.0	70.7	2.3	0.2	1.2	58.8	
Delay (s)	36.5	66.8	51.5	115.7	43.1	30.2	108.2	28.3	12.7	25.6	98.9	
Level of Service	D	E	D	F	D	C	F	C	B	C	F	
Approach Delay (s)		57.0			77.2			45.8			93.6	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	66.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.1	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



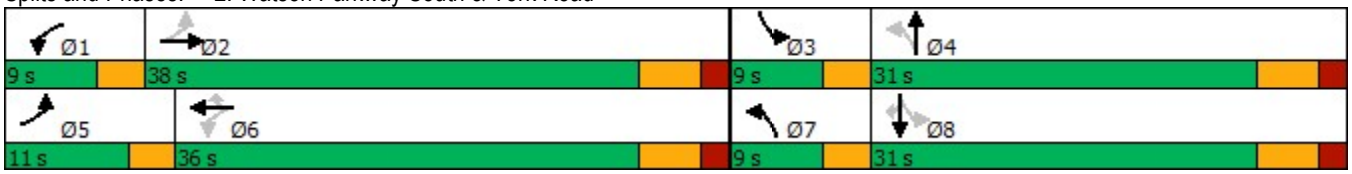
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	373	118	25	485	30	112	150	52	53	390	407
Future Volume (vph)	199	373	118	25	485	30	112	150	52	53	390	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.964				0.850		0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1645	0	1517	1759	1495	1612	1676	0	1719	1827	1568
Flt Permitted	0.231			0.363			0.221			0.595		
Satd. Flow (perm)	410	1645	0	579	1759	1495	375	1676	0	1077	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				113		20				320
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	209	393	124	26	511	32	118	158	55	56	411	428
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	517	0	26	511	32	118	213	0	56	411	428
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

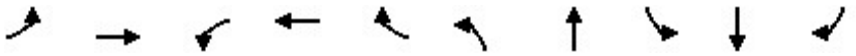
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	7.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	31.0
Total Split (s)	11.0	38.0		9.0	36.0	36.0	9.0	31.0		9.0	31.0	31.0
Total Split (%)	12.6%	43.7%		10.3%	41.4%	41.4%	10.3%	35.6%		10.3%	35.6%	35.6%
Maximum Green (s)	8.0	32.0		6.0	30.0	30.0	6.0	25.0		6.0	25.0	25.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	8.0
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	17.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	44.0	37.9		39.4	30.3	30.3	30.4	23.9		29.8	22.2	22.2
Actuated g/C Ratio	0.53	0.46		0.48	0.37	0.37	0.37	0.29		0.36	0.27	0.27
v/c Ratio	0.61	0.67		0.08	0.79	0.05	0.52	0.43		0.13	0.84	0.65
Control Delay	20.6	25.7		11.5	35.9	0.2	24.8	25.0		15.8	45.3	12.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	20.6	25.7		11.5	35.9	0.2	24.8	25.0		15.8	45.3	12.6
LOS	C	C		B	D	A	C	C		B	D	B
Approach Delay		24.2			32.8			24.9			27.8	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 82.5
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 79.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Watson Parkway South & York Road

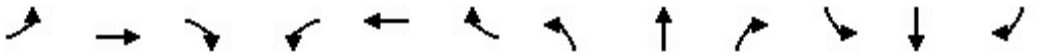




Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	209	517	26	511	32	118	213	56	411	428
v/c Ratio	0.61	0.67	0.08	0.79	0.05	0.52	0.43	0.13	0.84	0.65
Control Delay	20.6	25.7	11.5	35.9	0.2	24.8	25.0	15.8	45.3	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	25.7	11.5	35.9	0.2	24.8	25.0	15.8	45.3	12.6
Queue Length 50th (m)	19.6	64.0	2.2	81.7	0.0	12.4	27.2	5.7	66.0	14.4
Queue Length 95th (m)	#34.5	#135.6	6.2	#137.2	0.0	23.7	47.7	12.9	#110.9	45.1
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	343	767	345	645	620	228	550	436	559	701
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.67	0.08	0.79	0.05	0.52	0.39	0.13	0.74	0.61

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	373	118	25	485	30	112	150	52	53	390	407
Future Volume (vph)	199	373	118	25	485	30	112	150	52	53	390	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		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
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1645		1516	1759	1495	1612	1676		1719	1827	1568
Flt Permitted	0.23	1.00		0.36	1.00	1.00	0.22	1.00		0.60	1.00	1.00
Satd. Flow (perm)	409	1645		579	1759	1495	374	1676		1077	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	209	393	124	26	511	32	118	158	55	56	411	428
RTOR Reduction (vph)	0	12	0	0	0	20	0	14	0	0	0	235
Lane Group Flow (vph)	209	505	0	26	511	12	118	199	0	56	411	193
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	43.2	37.9		34.5	32.2	32.2	28.5	23.9		26.1	22.7	22.7
Effective Green, g (s)	43.2	37.9		34.5	32.2	32.2	28.5	23.9		26.1	22.7	22.7
Actuated g/C Ratio	0.51	0.44		0.40	0.38	0.38	0.33	0.28		0.31	0.27	0.27
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	326	729		258	662	563	191	468		354	485	416
v/s Ratio Prot	c0.06	0.31		0.00	c0.29		c0.03	0.12		0.01	c0.22	
v/s Ratio Perm	0.26			0.04		0.01	0.17			0.04		0.12
v/c Ratio	0.64	0.69		0.10	0.77	0.02	0.62	0.42		0.16	0.85	0.46
Uniform Delay, d1	14.5	19.1		15.8	23.4	16.7	21.8	25.2		21.3	29.8	26.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.3	5.4		0.2	8.5	0.1	5.8	0.6		0.2	12.9	0.8
Delay (s)	18.8	24.5		16.0	31.9	16.8	27.6	25.8		21.5	42.7	27.1
Level of Service	B	C		B	C	B	C	C		C	D	C
Approach Delay (s)		22.8			30.3			26.4			33.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

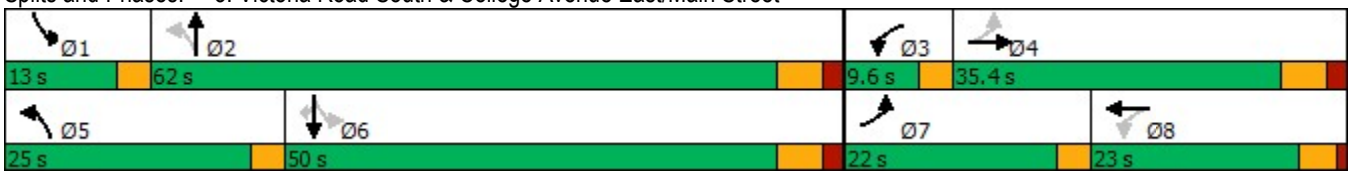
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	128	98	85	107	97	254	1143	42	127	1021	466
Future Volume (vph)	214	128	98	85	107	97	254	1143	42	127	1021	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.934			0.929			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1668	0	1770	1730	0	1736	3456	0	1770	3438	1583
Flt Permitted	0.283			0.605			0.088			0.096		
Satd. Flow (perm)	512	1668	0	1127	1730	0	161	3456	0	179	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			32			4				272
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	240	139	110	92	116	105	285	1284	46	138	1147	524
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	249	0	92	221	0	285	1330	0	138	1147	524
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	38.0
Total Split (s)	22.0	35.4		9.6	23.0		25.0	62.0		13.0	50.0	50.0
Total Split (%)	18.3%	29.5%		8.0%	19.2%		20.8%	51.7%		10.8%	41.7%	41.7%
Maximum Green (s)	19.0	29.4		6.6	18.5		22.0	56.0		10.0	44.0	44.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		-2.0	0.0		0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		None	Max		None	Max	Max
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	17.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	42.0	29.4		29.0	21.0		73.0	56.0		58.9	49.0	47.0
Actuated g/C Ratio	0.35	0.25		0.24	0.18		0.61	0.47		0.49	0.41	0.39
v/c Ratio	0.69	0.57		0.30	0.67		0.78	0.82		0.66	0.81	0.66
Control Delay	40.4	40.3		30.9	51.0		42.2	32.3		36.3	37.3	18.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	40.4	40.3		30.9	51.0		42.2	32.3		36.3	37.3	18.8
LOS	D	D		C	D		D	C		D	D	B
Approach Delay		40.4			45.1			34.0			31.9	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 34.7		Intersection LOS: C	
Intersection Capacity Utilization 79.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street

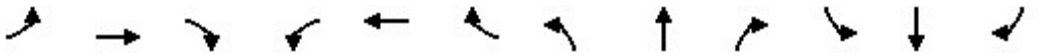




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	240	249	92	221	285	1330	138	1147	524
v/c Ratio	0.69	0.57	0.30	0.67	0.78	0.82	0.66	0.81	0.66
Control Delay	40.4	40.3	30.9	51.0	42.2	32.3	36.3	37.3	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	40.3	30.9	51.0	42.2	32.3	36.3	37.3	18.8
Queue Length 50th (m)	44.3	47.4	15.4	44.8	47.4	145.0	14.0	132.0	51.3
Queue Length 95th (m)	67.3	75.9	28.2	#82.3	77.3	174.4	#37.5	164.6	93.7
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	373	435	311	330	416	1628	223	1414	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.57	0.30	0.67	0.69	0.82	0.62	0.81	0.66

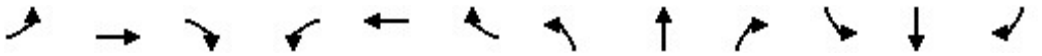
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	128	98	85	107	97	254	1143	42	127	1021	466
Future Volume (vph)	214	128	98	85	107	97	254	1143	42	127	1021	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		3.0	4.5		1.0	6.0		3.0	4.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1667		1770	1730		1736	3455		1770	3438	1583
Flt Permitted	0.28	1.00		0.60	1.00		0.09	1.00		0.10	1.00	1.00
Satd. Flow (perm)	513	1667		1126	1730		160	3455		179	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	240	139	110	92	116	105	285	1284	46	138	1147	524
RTOR Reduction (vph)	0	23	0	0	26	0	0	2	0	0	0	165
Lane Group Flow (vph)	240	226	0	92	195	0	285	1328	0	138	1147	359
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	39.0	29.4		27.6	21.0		68.0	56.0		56.0	47.0	47.0
Effective Green, g (s)	39.0	29.4		27.6	21.0		70.0	56.0		56.0	49.0	47.0
Actuated g/C Ratio	0.33	0.25		0.23	0.18		0.59	0.47		0.47	0.41	0.39
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	335	411		296	305		358	1625		204	1415	625
v/s Ratio Prot	c0.10	0.14		0.02	0.11		c0.13	c0.38		0.05	0.33	
v/s Ratio Perm	c0.14			0.05			0.33			0.27		0.23
v/c Ratio	0.72	0.55		0.31	0.64		0.80	0.82		0.68	0.81	0.58
Uniform Delay, d1	32.1	39.0		37.0	45.5		31.7	27.1		22.2	30.9	28.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	5.2		0.6	9.8		11.6	4.7		8.6	5.1	3.8
Delay (s)	39.2	44.2		37.6	55.3		43.3	31.8		30.8	36.0	32.0
Level of Service	D	D		D	E		D	C		C	D	C
Approach Delay (s)		41.7			50.1			33.8			34.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



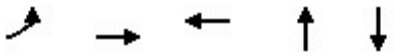
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	9	15	50	9	3	36	263	78	3	415	46
Future Volume (vph)	33	9	15	50	9	3	36	263	78	3	415	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.908			0.994			0.972			0.987	
Flt Protected	0.950				0.961			0.995				
Satd. Flow (prot)	1378	1053	0	0	1374	0	0	1627	0	0	1745	0
Flt Permitted	0.713				0.750			0.930			0.998	
Satd. Flow (perm)	1030	1053	0	0	1072	0	0	1521	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			3			29			12	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	35	10	16	54	10	3	39	283	84	3	446	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	26	0	0	67	0	0	406	0	0	498	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	26.0	26.0		26.0	26.0		54.0	54.0		54.0	54.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	20.0	20.0		20.0	20.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.7	9.7			9.8			56.6			56.6	
Actuated g/C Ratio	0.14	0.14			0.14			0.80			0.80	
v/c Ratio	0.25	0.16			0.44			0.33			0.36	
Control Delay	31.0	18.6			36.0			4.8			5.0	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	31.0	18.6			36.0			4.8			5.0	
LOS	C	B			D			A			A	
Approach Delay		25.7			36.0			4.8			5.0	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 70.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

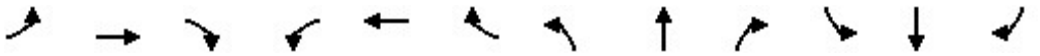
Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South





Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	35	26	67	406	498
v/c Ratio	0.25	0.16	0.44	0.33	0.36
Control Delay	31.0	18.6	36.0	4.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	18.6	36.0	4.8	5.0
Queue Length 50th (m)	4.4	1.2	8.2	17.1	23.0
Queue Length 95th (m)	12.3	7.7	19.7	38.4	48.6
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	292	310	306	1227	1401
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.08	0.22	0.33	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	9	15	50	9	3	36	263	78	3	415	46
Future Volume (vph)	33	9	15	50	9	3	36	263	78	3	415	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.91			0.99			0.97			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1372	1053			1374			1628			1744	
Flt Permitted	0.71	1.00			0.75			0.93			1.00	
Satd. Flow (perm)	1031	1053			1072			1521			1742	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	35	10	16	54	10	3	39	283	84	3	446	49
RTOR Reduction (vph)	0	15	0	0	3	0	0	7	0	0	3	0
Lane Group Flow (vph)	35	11	0	0	64	0	0	399	0	0	495	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	6.8	6.8			6.8			54.2			54.2	
Effective Green, g (s)	6.8	6.8			6.8			54.2			54.2	
Actuated g/C Ratio	0.09	0.09			0.09			0.74			0.74	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	96	98			99			1129			1293	
v/s Ratio Prot		0.01										
v/s Ratio Perm	0.03				c0.06			0.26			c0.28	
v/c Ratio	0.36	0.12			0.65			0.35			0.38	
Uniform Delay, d1	31.1	30.3			31.9			3.3			3.4	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	0.5			13.7			0.9			0.9	
Delay (s)	33.4	30.9			45.7			4.1			4.2	
Level of Service	C	C			D			A			A	
Approach Delay (s)		32.3			45.7			4.1			4.2	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

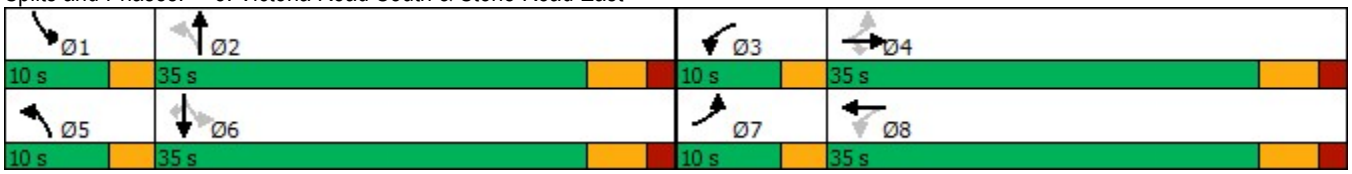
c Critical Lane Group

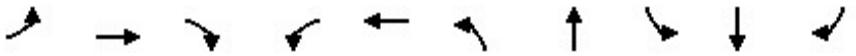
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	195	88	123	443	154	232	1044	112	91	621	322
Future Volume (vph)	211	195	88	123	443	154	232	1044	112	91	621	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850		0.961			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3345	0	1770	3344	0	1805	3438	1538
Flt Permitted	0.228			0.618			0.286			0.134		
Satd. Flow (perm)	417	3085	1392	883	3345	0	533	3344	0	255	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		57			13				307
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	232	214	97	135	487	169	255	1147	123	100	682	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	214	97	135	656	0	255	1270	0	100	682	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	10.0	35.0	35.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (%)	11.1%	38.9%	38.9%	11.1%	38.9%		11.1%	38.9%		11.1%	38.9%	38.9%
Maximum Green (s)	7.0	29.0	29.0	7.0	29.0		7.0	29.0		7.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0	10.0		10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0	19.0		19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)	30.0	20.0	20.0	30.0	20.0		39.8	31.3		39.1	29.1	29.1
Actuated g/C Ratio	0.37	0.25	0.25	0.37	0.25		0.49	0.39		0.48	0.36	0.36
v/c Ratio	0.87	0.28	0.23	0.37	0.76		0.69	0.98		0.39	0.55	0.48
Control Delay	50.1	25.3	5.5	18.9	31.7		25.6	48.9		15.9	23.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.1	25.3	5.5	18.9	31.7		25.6	48.9		15.9	23.7	6.7
LOS	D	C	A	B	C		C	D		B	C	A
Approach Delay		32.4			29.5			45.0			17.7	
Approach LOS		C			C			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 32.5		Intersection LOS: C	
Intersection Capacity Utilization 83.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	232	214	97	135	656	255	1270	100	682	354
v/c Ratio	0.87	0.28	0.23	0.37	0.76	0.69	0.98	0.39	0.55	0.48
Control Delay	50.1	25.3	5.5	18.9	31.7	25.6	48.9	15.9	23.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	25.3	5.5	18.9	31.7	25.6	48.9	15.9	23.7	6.7
Queue Length 50th (m)	25.0	14.7	0.0	14.0	47.4	21.6	~118.5	7.7	45.3	4.9
Queue Length 95th (m)	#57.0	23.8	9.3	26.0	65.9	#53.5	#183.1	18.4	71.3	27.3
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	268	1105	568	367	1235	368	1295	257	1231	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.19	0.17	0.37	0.53	0.69	0.98	0.39	0.55	0.48

Intersection Summary

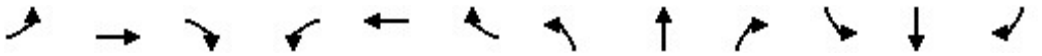
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	195	88	123	443	154	232	1044	112	91	621	322
Future Volume (vph)	211	195	88	123	443	154	232	1044	112	91	621	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3346		1769	3346		1805	3438	1518
Flt Permitted	0.23	1.00	1.00	0.62	1.00		0.29	1.00		0.13	1.00	1.00
Satd. Flow (perm)	417	3085	1392	883	3346		533	3346		255	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	232	214	97	135	487	169	255	1147	123	100	682	354
RTOR Reduction (vph)	0	0	73	0	43	0	0	8	0	0	0	195
Lane Group Flow (vph)	232	214	24	135	613	0	255	1262	0	100	682	159
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	27.0	20.0	20.0	27.0	20.0		38.3	31.3		35.3	29.8	29.8
Effective Green, g (s)	27.0	20.0	20.0	27.0	20.0		38.3	31.3		35.3	29.8	29.8
Actuated g/C Ratio	0.33	0.24	0.24	0.33	0.24		0.47	0.38		0.43	0.36	0.36
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	250	754	340	332	818		355	1280		214	1252	553
v/s Ratio Prot	c0.08	0.07		0.03	0.18		c0.06	c0.38		0.03	0.20	
v/s Ratio Perm	c0.23		0.02	0.10			0.27			0.17		0.10
v/c Ratio	0.93	0.28	0.07	0.41	0.75		0.72	0.99		0.47	0.54	0.29
Uniform Delay, d1	23.5	25.1	23.8	20.4	28.6		14.5	25.0		17.4	20.6	18.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	37.5	0.2	0.1	0.8	3.8		6.8	22.0		1.6	1.7	1.3
Delay (s)	61.0	25.3	23.8	21.2	32.4		21.3	47.0		19.0	22.3	19.8
Level of Service	E	C	C	C	C		C	D		B	C	B
Approach Delay (s)		40.3			30.5			42.7			21.2	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

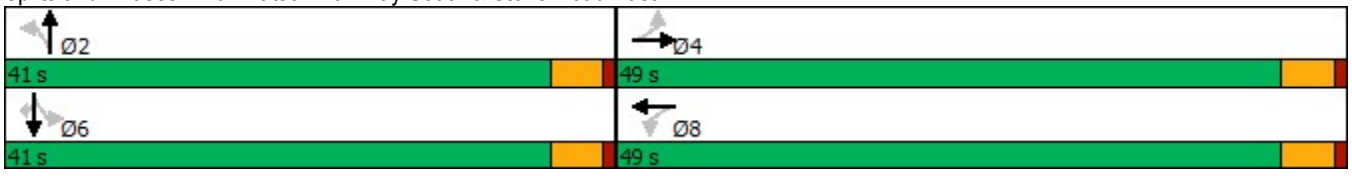


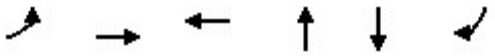
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	80	45	15	159	3	85	158	12	3	208	264
Future Volume (vph)	219	80	45	15	159	3	85	158	12	3	208	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.998			0.993				0.850
Flt Protected	0.950				0.996			0.984			0.999	
Satd. Flow (prot)	1504	1693	0	0	1802	0	0	1774	0	0	1820	1404
Flt Permitted	0.615				0.974			0.841			0.997	
Satd. Flow (perm)	974	1693	0	0	1762	0	0	1516	0	0	1816	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			1			3				278
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	231	84	47	16	167	3	89	166	13	3	219	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	131	0	0	186	0	0	268	0	0	222	278
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	41.0
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	45.6%
Maximum Green (s)	44.5	44.5		44.5	44.5		36.5	36.5		36.5	36.5	36.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	19.9	19.9			19.9			36.9			36.9	36.9
Actuated g/C Ratio	0.30	0.30			0.30			0.56			0.56	0.56
v/c Ratio	0.79	0.24			0.35			0.32			0.22	0.31
Control Delay	39.9	12.3			18.9			10.6			9.6	2.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	39.9	12.3			18.9			10.6			9.6	2.5
LOS	D	B			B			B			A	A
Approach Delay		29.9			18.9			10.6			5.7	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 65.9			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

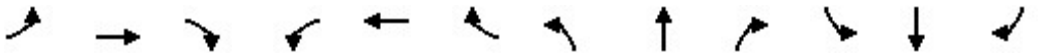
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	231	131	186	268	222	278
v/c Ratio	0.79	0.24	0.35	0.32	0.22	0.31
Control Delay	39.9	12.3	18.9	10.6	9.6	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	12.3	18.9	10.6	9.6	2.5
Queue Length 50th (m)	26.6	8.1	18.2	16.1	12.7	0.0
Queue Length 95th (m)	50.6	18.8	32.5	41.9	33.1	11.9
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	665	1170	1203	850	1017	908
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	0.35	0.11	0.15	0.32	0.22	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	80	45	15	159	3	85	158	12	3	208	264
Future Volume (vph)	219	80	45	15	159	3	85	158	12	3	208	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			1.00	1.00
Satd. Flow (prot)	1504	1694			1801			1774			1820	1404
Flt Permitted	0.61	1.00			0.97			0.84			1.00	1.00
Satd. Flow (perm)	973	1694			1761			1516			1816	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	84	47	16	167	3	89	166	13	3	219	278
RTOR Reduction (vph)	0	31	0	0	1	0	0	1	0	0	0	122
Lane Group Flow (vph)	231	100	0	0	185	0	0	267	0	0	222	156
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	19.9	19.9			19.9			36.9			36.9	36.9
Effective Green, g (s)	19.9	19.9			19.9			36.9			36.9	36.9
Actuated g/C Ratio	0.30	0.30			0.30			0.56			0.56	0.56
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	294	512			532			850			1018	787
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.24				0.11			c0.18			0.12	0.11
v/c Ratio	0.79	0.20			0.35			0.31			0.22	0.20
Uniform Delay, d1	21.0	17.0			17.9			7.7			7.2	7.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	12.9	0.2			0.4			1.0			0.5	0.6
Delay (s)	33.9	17.2			18.3			8.7			7.7	7.7
Level of Service	C	B			B			A			A	A
Approach Delay (s)		27.9			18.3			8.7			7.7	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

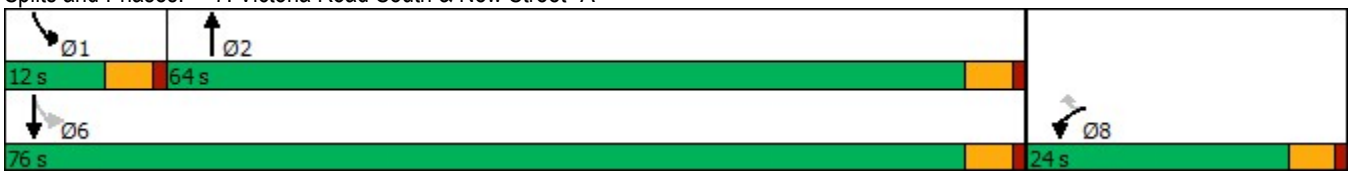


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1448	7	71	1595
Future Volume (vph)	22	167	1448	7	71	1595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.131	
Satd. Flow (perm)	1770	1583	3536	0	244	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		159	1			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1448	7	71	1595
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	167	1455	0	71	1595
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	24.0	24.0	64.0		12.0	76.0
Total Split (%)	24.0%	24.0%	64.0%		12.0%	76.0%
Maximum Green (s)	19.5	19.5	59.5		7.5	71.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.7	7.7	65.5		74.5	74.5
Actuated g/C Ratio	0.08	0.08	0.72		0.82	0.82
v/c Ratio	0.15	0.60	0.57		0.23	0.55
Control Delay	38.9	16.9	8.2		3.8	3.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.9	16.9	8.2		3.8	3.9
LOS	D	B	A		A	A
Approach Delay	19.4		8.2			3.9
Approach LOS	B		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 91.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	22	167	1455	71	1595
v/c Ratio	0.15	0.60	0.57	0.23	0.55
Control Delay	38.9	16.9	8.2	3.8	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	16.9	8.2	3.8	3.9
Queue Length 50th (m)	3.7	1.3	58.2	1.6	32.3
Queue Length 95th (m)	10.8	19.6	98.5	5.2	65.5
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	379	464	2539	325	2889
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.36	0.57	0.22	0.55

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	167	1448	7	71	1595
Future Volume (vph)	22	167	1448	7	71	1595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3537		1770	3539
Flt Permitted	0.95	1.00	1.00		0.13	1.00
Satd. Flow (perm)	1770	1583	3537		243	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	167	1448	7	71	1595
RTOR Reduction (vph)	0	146	0	0	0	0
Lane Group Flow (vph)	22	21	1455	0	71	1595
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.7	7.7	65.5		75.3	75.3
Effective Green, g (s)	7.7	7.7	65.5		75.3	75.3
Actuated g/C Ratio	0.08	0.08	0.71		0.82	0.82
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	148	132	2518		286	2896
v/s Ratio Prot	0.01		c0.41		0.01	c0.45
v/s Ratio Perm		c0.01			0.19	
v/c Ratio	0.15	0.16	0.58		0.25	0.55
Uniform Delay, d1	39.1	39.2	6.5		4.2	2.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.6	1.0		0.5	0.8
Delay (s)	39.6	39.7	7.5		4.7	3.5
Level of Service	D	D	A		A	A
Approach Delay (s)	39.7		7.5			3.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	10	48	2	30	101	1
Future Volume (vph)	10	48	2	30	101	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.999	
Flt Protected				0.997	0.953	
Satd. Flow (prot)	1654	0	0	1857	1773	0
Flt Permitted				0.997	0.953	
Satd. Flow (perm)	1654	0	0	1857	1773	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	2	30	101	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	32	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	10	48	2	30	101	1
Future Volume (Veh/h)	10	48	2	30	101	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	48	2	30	101	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			58		68	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			58		68	34
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1546		936	1039

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	58	32	102
Volume Left	0	2	101
Volume Right	48	0	1
cSH	1700	1546	937
Volume to Capacity	0.03	0.00	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.5	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	9.3
Approach LOS			A

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	57	79	29	30	61
Future Volume (vph)	27	57	79	29	30	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.910	
Flt Protected	0.950			0.965		
Satd. Flow (prot)	1770	1583	0	1798	1695	0
Flt Permitted	0.950			0.965		
Satd. Flow (perm)	1770	1583	0	1798	1695	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	57	79	29	30	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	57	0	108	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

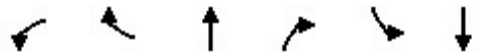
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	57	79	29	30	61
Future Volume (Veh/h)	27	57	79	29	30	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	57	79	29	30	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	248	60	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	60	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	94	95			
cM capacity (veh/h)	702	1005	1504			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	27	57	108	91
Volume Left	27	0	79	0
Volume Right	0	57	0	61
cSH	702	1005	1504	1700
Volume to Capacity	0.04	0.06	0.05	0.05
Queue Length 95th (m)	1.0	1.4	1.3	0.0
Control Delay (s)	10.3	8.8	5.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.3		5.6	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1289	133	243	961
Future Volume (vph)	71	150	1289	133	243	961
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.112	
Satd. Flow (perm)	1770	1583	3490	0	209	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		150	17			
Link Speed (k/h)	50		70			70
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		22.9			21.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1289	133	243	961
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	150	1422	0	243	961
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		9.5	22.5
Total Split (s)	22.8	22.8	49.2		18.0	67.2
Total Split (%)	25.3%	25.3%	54.7%		20.0%	74.7%
Maximum Green (s)	18.3	18.3	44.7		15.0	62.7
Yellow Time (s)	3.5	3.5	3.5		3.0	3.5
All-Red Time (s)	1.0	1.0	1.0		0.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		3.0	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	8.6	8.6	49.0		64.4	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.80	0.78
v/c Ratio	0.38	0.50	0.67		0.64	0.35
Control Delay	39.1	12.2	13.3		17.5	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.1	12.2	13.3		17.5	3.2
LOS	D	B	B		B	A
Approach Delay	20.8		13.3			6.1
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	71	150	1422	243	961
v/c Ratio	0.38	0.50	0.67	0.64	0.35
Control Delay	39.1	12.2	13.3	17.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	12.2	13.3	17.5	3.2
Queue Length 50th (m)	10.8	0.0	71.1	11.0	17.9
Queue Length 95th (m)	23.2	16.3	118.1	36.1	30.2
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	402	475	2131	458	2766
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.32	0.67	0.53	0.35

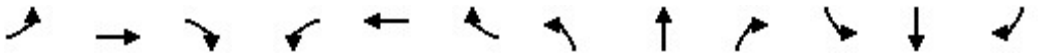
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	150	1289	133	243	961
Future Volume (vph)	71	150	1289	133	243	961
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		3.0	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3490		1770	3539
Flt Permitted	0.95	1.00	1.00		0.11	1.00
Satd. Flow (perm)	1770	1583	3490		209	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	150	1289	133	243	961
RTOR Reduction (vph)	0	134	7	0	0	0
Lane Group Flow (vph)	71	16	1415	0	243	961
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	8.6	8.6	49.0		62.9	62.9
Effective Green, g (s)	8.6	8.6	49.0		62.9	62.9
Actuated g/C Ratio	0.11	0.11	0.61		0.78	0.78
Clearance Time (s)	4.5	4.5	4.5		3.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	189	169	2124		374	2765
v/s Ratio Prot	c0.04		0.41		c0.09	0.27
v/s Ratio Perm		0.01			c0.42	
v/c Ratio	0.38	0.09	0.67		0.65	0.35
Uniform Delay, d1	33.5	32.4	10.4		12.3	2.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.2	1.7		3.9	0.3
Delay (s)	34.7	32.7	12.0		16.2	3.0
Level of Service	C	C	B		B	A
Approach Delay (s)	33.3		12.0			5.6
Approach LOS	C		B			A

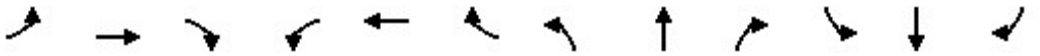
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952						0.995			0.935	
Flt Protected		0.989			0.993			0.981				
Satd. Flow (prot)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Flt Permitted		0.989			0.993			0.981				
Satd. Flow (perm)	0	1754	0	0	1850	0	0	1818	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	70	0	0	88	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Future Volume (Veh/h)	23	43	37	10	60	0	35	50	3	0	61	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	23	43	37	10	60	0	35	50	3	0	61	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	240	212	89	269	238	52	117			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	212	89	269	238	52	117			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	94	96	98	91	100	98			100		
cM capacity (veh/h)	651	669	969	614	647	1016	1471			1553		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	103	70	88	117
Volume Left	23	10	35	0
Volume Right	37	0	3	56
cSH	748	642	1471	1553
Volume to Capacity	0.14	0.11	0.02	0.00
Queue Length 95th (m)	3.8	2.9	0.6	0.0
Control Delay (s)	10.6	11.3	3.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	11.3	3.1	0.0
Approach LOS	B	B		

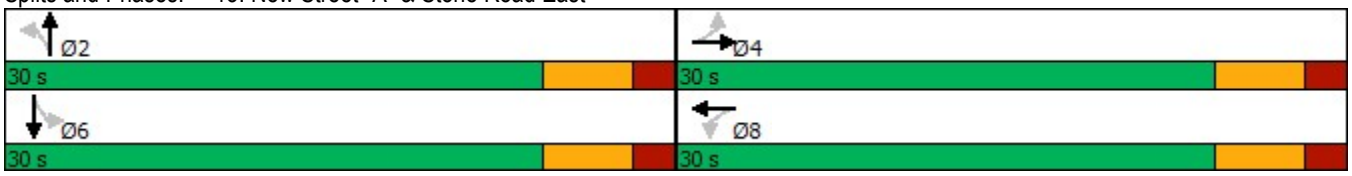
Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	27.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	290	23	2	530	1	91	0	23	6	0	99
Future Volume (vph)	85	290	23	2	530	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991						0.850			0.850	
Flt Protected		0.989					0.950			0.950		
Satd. Flow (prot)	0	3469	0	0	3539	0	1770	1583	0	1770	1583	0
Flt Permitted		0.749			0.954		0.693			0.742		
Satd. Flow (perm)	0	2627	0	0	3376	0	1291	1583	0	1382	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12						428			192	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		25.0			112.2			24.5			31.7	
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
Adj. Flow (vph)	85	290	23	2	530	1	91	0	23	6	0	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	0	0	533	0	91	23	0	6	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		100	25		15	100		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		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		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
v/c Ratio		0.38			0.39		0.18	0.03		0.01	0.13	
Control Delay		13.6			13.9		12.8	0.0		11.0	0.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		13.6			13.9		12.8	0.0		11.0	0.5	
LOS		B			B		B	A		B	A	
Approach Delay		13.6			13.9			10.2			1.1	
Approach LOS		B			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 52.7%		ICU Level of Service A	
Analysis Period (min) 15			

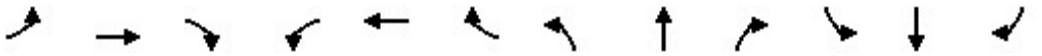
Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	398	533	91	23	6	99
v/c Ratio	0.38	0.39	0.18	0.03	0.01	0.13
Control Delay	13.6	13.9	12.8	0.0	11.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	13.9	12.8	0.0	11.0	0.5
Queue Length 50th (m)	15.9	22.2	6.6	0.0	0.4	0.0
Queue Length 95th (m)	25.8	33.4	15.0	0.0	2.3	0.7
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	1058	1350	516	890	552	748
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	0.39	0.18	0.03	0.01	0.13

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	290	23	2	530	1	91	0	23	6	0	99
Future Volume (vph)	85	290	23	2	530	1	91	0	23	6	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.99			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3471			3538		1770	1583		1770	1583	
Flt Permitted		0.75			0.95		0.69	1.00		0.74	1.00	
Satd. Flow (perm)		2629			3374		1291	1583		1383	1583	
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)	85	290	23	2	530	1	91	0	23	6	0	99
RTOR Reduction (vph)	0	7	0	0	0	0	0	14	0	0	59	0
Lane Group Flow (vph)	0	391	0	0	533	0	91	9	0	6	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Effective Green, g (s)		24.0			24.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1051			1349		516	633		553	633	
v/s Ratio Prot								0.01			0.03	
v/s Ratio Perm		0.15			c0.16		c0.07			0.00		
v/c Ratio		0.37			0.40		0.18	0.01		0.01	0.06	
Uniform Delay, d1		12.7			12.8		11.6	10.9		10.8	11.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			0.9		0.2	0.0		0.0	0.2	
Delay (s)		13.7			13.7		11.8	10.9		10.9	11.3	
Level of Service		B			B		B	B		B	B	
Approach Delay (s)		13.7			13.7			11.6			11.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	396	426	404	543	87	467	1374	392	44	1143	71
Future Volume (vph)	71	396	426	404	543	87	467	1374	392	44	1143	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0		30.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			15.0			7.5			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.98			
Frt			0.850			0.850			0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1712	1583	1719	1759	1495	1719	3471	1553	1671	3458	0
Flt Permitted	0.163			0.145			0.104			0.112		
Satd. Flow (perm)	292	1712	1583	262	1759	1475	188	3471	1523	197	3458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			109			228		5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		518.7			151.2			484.8			334.1	
Travel Time (s)		37.3			10.9			34.9			24.1	
Confl. Peds. (#/hr)	1					1			5	5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Adj. Flow (vph)	77	430	463	439	590	95	508	1493	426	48	1242	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	430	463	439	590	95	508	1493	426	48	1319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	10.0	6.0	10.0	6.0	6.0	10.0	
Minimum Split (s)	9.0	30.0	9.0	9.0	30.0	30.0	9.0	30.0	9.0	9.0	30.0	
Total Split (s)	9.0	30.0	30.0	19.0	40.0	40.0	30.0	57.0	19.0	14.0	41.0	
Total Split (%)	7.5%	25.0%	25.0%	15.8%	33.3%	33.3%	25.0%	47.5%	15.8%	11.7%	34.2%	
Maximum Green (s)	6.0	24.0	27.0	16.0	34.0	34.0	27.0	51.0	16.0	11.0	35.0	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0	0.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	0.0	-2.0	-2.0	-2.0	0.0	-2.0	
Total Lost Time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	
Walk Time (s)		8.0			8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		16.0			16.0	16.0		16.0			16.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	33.0	26.0	59.0	48.0	37.8	35.8	70.0	58.7	79.7	45.1	37.0	
Actuated g/C Ratio	0.28	0.22	0.49	0.40	0.32	0.30	0.58	0.49	0.66	0.38	0.31	
v/c Ratio	0.51	1.16	0.57	1.36	1.07	0.18	1.06	0.88	0.39	0.30	1.23	
Control Delay	37.9	140.8	20.5	209.2	97.4	5.3	91.9	35.6	5.2	19.7	149.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.9	140.8	20.5	209.2	97.4	5.3	91.9	35.6	5.2	19.7	149.8	
LOS	D	F	C	F	F	A	F	D	A	B	F	
Approach Delay		75.2			133.3			42.1			145.2	
Approach LOS		E			F			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 88.9		Intersection LOS: F	
Intersection Capacity Utilization 116.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Victoria Road South & York Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	430	463	439	590	95	508	1493	426	48	1319
v/c Ratio	0.51	1.16	0.57	1.36	1.07	0.18	1.06	0.88	0.39	0.30	1.23
Control Delay	37.9	140.8	20.5	209.2	97.4	5.3	91.9	35.6	5.2	19.7	149.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	140.8	20.5	209.2	97.4	5.3	91.9	35.6	5.2	19.7	149.8
Queue Length 50th (m)	12.2	~126.1	64.3	~126.6	~168.2	0.0	~121.5	174.6	17.7	5.1	~213.5
Queue Length 95th (m)	23.1	#190.6	97.6	#192.7	#239.4	10.4	#190.7	#232.6	36.2	10.8	#258.2
Internal Link Dist (m)		494.7			127.2			460.8			310.1
Turn Bay Length (m)	50.0		30.0	60.0		110.0	50.0		35.0	35.0	
Base Capacity (vph)	150	370	819	323	553	516	479	1696	1092	215	1069
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	1.16	0.57	1.36	1.07	0.18	1.06	0.88	0.39	0.22	1.23

Intersection Summary

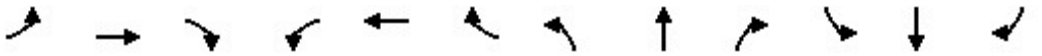
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	396	426	404	543	87	467	1374	392	44	1143	71
Future Volume (vph)	71	396	426	404	543	87	467	1374	392	44	1143	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	1.0	1.0	4.0	6.0	1.0	4.0	1.0	3.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	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	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	1712	1583	1719	1759	1475	1719	3471	1530	1671	3458	
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.10	1.00	1.00	0.11	1.00	
Satd. Flow (perm)	291	1712	1583	262	1759	1475	188	3471	1530	198	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	430	463	439	590	95	508	1493	426	48	1242	77
RTOR Reduction (vph)	0	0	44	0	0	67	0	0	84	0	3	0
Lane Group Flow (vph)	77	430	419	439	590	28	508	1493	342	48	1316	0
Confl. Peds. (#/hr)	1					1			5	5		
Heavy Vehicles (%)	6%	11%	2%	5%	8%	8%	5%	4%	4%	8%	3%	11%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	29.4	24.6	51.6	43.6	35.8	35.8	65.6	56.7	72.7	41.5	35.6	
Effective Green, g (s)	29.4	26.6	55.6	45.6	37.8	35.8	67.6	58.7	76.7	41.5	37.6	
Actuated g/C Ratio	0.24	0.22	0.46	0.38	0.31	0.30	0.56	0.48	0.63	0.34	0.31	
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.0	3.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	126	375	726	314	548	435	471	1681	968	139	1072	
v/s Ratio Prot	0.02	0.25	0.14	c0.21	c0.34		c0.26	0.43	0.05	0.02	c0.38	
v/s Ratio Perm	0.12		0.13	0.32		0.02	0.34		0.17	0.10		
v/c Ratio	0.61	1.15	0.58	1.40	1.08	0.06	1.08	0.89	0.35	0.35	1.23	
Uniform Delay, d1	38.2	47.3	24.1	35.1	41.7	30.7	37.2	28.3	10.5	29.4	41.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.5	92.7	1.1	197.4	60.7	0.1	64.2	7.4	0.2	1.5	110.6	
Delay (s)	46.7	140.0	25.3	232.5	102.4	30.7	101.4	35.7	10.7	30.9	152.4	
Level of Service	D	F	C	F	F	C	F	D	B	C	F	
Approach Delay (s)		77.8			147.2			45.1			148.2	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	93.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	121.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

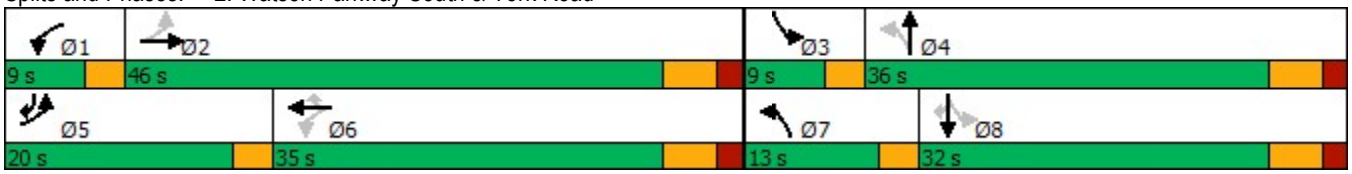


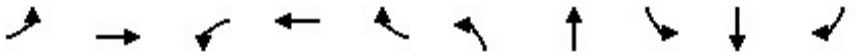
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	528	112	43	526	113	246	483	34	27	350	337
Future Volume (vph)	403	528	112	43	526	113	246	483	34	27	350	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		35.0	25.0		0.0	45.0		40.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	60.0			40.0			60.0			70.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.974				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1663	0	1517	1759	1495	1612	1714	0	1719	1827	1568
Flt Permitted	0.120			0.220			0.220			0.163		
Satd. Flow (perm)	213	1663	0	351	1759	1495	373	1714	0	295	1827	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				164		4				112
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		576.2			400.4			1064.7			502.8	
Travel Time (s)		34.6			24.0			63.9			30.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Adj. Flow (vph)	424	556	118	45	554	119	259	508	36	28	368	355
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	674	0	45	554	119	259	544	0	28	368	355
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Detector Phase	5	2		1	6	6	7	4		3	8	5
Switch Phase												
Minimum Initial (s)	6.0	10.0		6.0	10.0	10.0	6.0	7.0		6.0	7.0	6.0
Minimum Split (s)	9.0	34.0		9.0	34.0	34.0	9.0	31.0		9.0	31.0	9.0
Total Split (s)	20.0	46.0		9.0	35.0	35.0	13.0	36.0		9.0	32.0	20.0
Total Split (%)	20.0%	46.0%		9.0%	35.0%	35.0%	13.0%	36.0%		9.0%	32.0%	20.0%
Maximum Green (s)	17.0	40.0		6.0	29.0	29.0	10.0	30.0		6.0	26.0	17.0
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0	2.0	0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	0.0		0.0	-2.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	1.0	6.0		3.0	4.0	6.0	3.0	6.0		3.0	6.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	None		None	None	None
Walk Time (s)		9.0			9.0	9.0		8.0			8.0	
Flash Dont Walk (s)		19.0			19.0	19.0		17.0			17.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	54.1	43.8		38.0	31.0	29.0	39.2	31.0		32.2	23.2	46.2
Actuated g/C Ratio	0.56	0.45		0.39	0.32	0.30	0.40	0.32		0.33	0.24	0.47
v/c Ratio	1.04	0.89		0.22	0.99	0.21	0.94	0.99		0.15	0.84	0.44
Control Delay	84.3	42.6		15.5	70.2	2.6	64.4	71.9		19.4	53.8	13.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	84.3	42.6		15.5	70.2	2.6	64.4	71.9		19.4	53.8	13.0
LOS	F	D		B	E	A	E	E		B	D	B
Approach Delay		58.7			55.5			69.5			33.2	
Approach LOS		E			E			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.3			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 54.9		Intersection LOS: D	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Watson Parkway South & York Road



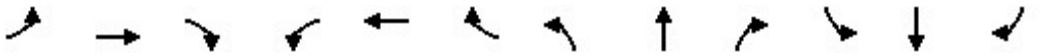


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	424	674	45	554	119	259	544	28	368	355
v/c Ratio	1.04	0.89	0.22	0.99	0.21	0.94	0.99	0.15	0.84	0.44
Control Delay	84.3	42.6	15.5	70.2	2.6	64.4	71.9	19.4	53.8	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	42.6	15.5	70.2	2.6	64.4	71.9	19.4	53.8	13.0
Queue Length 50th (m)	~80.4	~133.7	4.3	~116.0	0.0	35.7	~121.5	3.3	69.6	29.5
Queue Length 95th (m)	#141.4	#213.4	10.0	#185.4	6.0	#75.0	#188.2	8.7	#112.5	52.2
Internal Link Dist (m)		552.2		376.4			1040.7		478.8	
Turn Bay Length (m)	30.0		30.0		35.0	25.0		45.0		40.0
Base Capacity (vph)	406	756	209	561	560	277	548	185	489	804
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.89	0.22	0.99	0.21	0.94	0.99	0.15	0.75	0.44

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	403	528	112	43	526	113	246	483	34	27	350	337
Future Volume (vph)	403	528	112	43	526	113	246	483	34	27	350	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.0		3.0	4.0	6.0	3.0	6.0		3.0	6.0	3.0
Lane Util. Factor	1.00	1.00		1.00	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	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
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	1663		1517	1759	1495	1612	1714		1719	1827	1568
Flt Permitted	0.12	1.00		0.22	1.00	1.00	0.22	1.00		0.16	1.00	1.00
Satd. Flow (perm)	213	1663		351	1759	1495	373	1714		295	1827	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	556	118	45	554	119	259	508	36	28	368	355
RTOR Reduction (vph)	0	7	0	0	0	83	0	3	0	0	0	65
Lane Group Flow (vph)	424	667	0	45	554	36	259	541	0	28	368	290
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	11%	10%	19%	8%	8%	12%	10%	6%	5%	4%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	50.3	43.8		33.8	30.3	30.3	37.5	31.0		28.0	24.5	41.5
Effective Green, g (s)	52.3	43.8		33.8	32.3	30.3	37.5	31.0		28.0	24.5	41.5
Actuated g/C Ratio	0.52	0.44		0.34	0.32	0.30	0.38	0.31		0.28	0.25	0.42
Clearance Time (s)	3.0	6.0		3.0	6.0	6.0	3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	392	729		159	569	453	264	532		132	448	652
v/s Ratio Prot	c0.21	0.40		0.01	c0.31		c0.10	c0.32		0.01	0.20	0.08
v/s Ratio Perm	0.36			0.09		0.02	0.27			0.05		0.11
v/c Ratio	1.08	0.91		0.28	0.97	0.08	0.98	1.02		0.21	0.82	0.44
Uniform Delay, d1	29.5	26.2		23.5	33.3	24.8	27.4	34.4		27.8	35.6	20.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	69.1	18.0		1.0	31.8	0.3	49.9	43.5		0.8	11.5	0.5
Delay (s)	98.6	44.2		24.5	65.1	25.1	77.3	77.9		28.6	47.1	21.4
Level of Service	F	D		C	E	C	E	E		C	D	C
Approach Delay (s)		65.2			55.9			77.7			34.2	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	59.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	99.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	112	205	75	167	158	153	1402	96	105	1327	298
Future Volume (vph)	432	112	205	75	167	158	153	1402	96	105	1327	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		40.0	50.0		0.0	30.0		25.0	50.0		45.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			7.5			25.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.902			0.927			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1579	0	1770	1727	0	1736	3444	0	1770	3438	1583
Flt Permitted	0.185			0.550			0.073			0.074		
Satd. Flow (perm)	335	1579	0	1025	1727	0	133	3444	0	138	3438	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			35			8				266
Link Speed (k/h)		60			50			70			70	
Link Distance (m)		1138.0			359.4			415.8			352.2	
Travel Time (s)		68.3			25.9			21.4			18.1	
Peak Hour Factor	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Adj. Flow (vph)	485	122	230	82	182	172	172	1575	104	114	1491	335
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	352	0	82	354	0	172	1679	0	114	1491	335
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	5.0		7.0	5.0		5.0	7.0	7.0
Minimum Split (s)	22.0	22.0		9.5	22.5		10.0	38.0		9.5	38.0	22.0
Total Split (s)	26.0	40.5		9.5	24.0		12.4	60.4		9.6	57.6	26.0
Total Split (%)	21.7%	33.8%		7.9%	20.0%		10.3%	50.3%		8.0%	48.0%	21.7%
Maximum Green (s)	23.0	34.5		6.5	19.5		9.4	54.4		6.6	51.6	23.0
Yellow Time (s)	3.0	4.0		3.0	3.5		3.0	4.0		3.0	4.0	3.0
All-Red Time (s)	0.0	2.0		0.0	1.0		0.0	2.0		0.0	2.0	0.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max		None	Max	None
Walk Time (s)	7.0	7.0			7.0			17.0			17.0	7.0
Flash Dont Walk (s)	9.0	9.0			11.0			15.0			15.0	9.0
Pedestrian Calls (#/hr)	0	0			0			0			0	0
Act Effct Green (s)	49.0	38.4		31.4	21.5		69.0	56.4		65.4	53.8	82.8
Actuated g/C Ratio	0.41	0.32		0.26	0.18		0.58	0.47		0.54	0.45	0.69
v/c Ratio	1.14	0.63		0.26	1.05		0.76	1.04		0.60	0.97	0.29
Control Delay	119.8	32.9		25.7	105.0		45.8	63.6		31.1	49.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	119.8	32.9		25.7	105.0		45.8	63.6		31.1	49.3	2.2
LOS	F	C		C	F		D	E		C	D	A
Approach Delay		83.2			90.1			62.0			40.1	
Approach LOS		F			F			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 59.5		Intersection LOS: E	
Intersection Capacity Utilization 103.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Victoria Road South & College Avenue East/Main Street



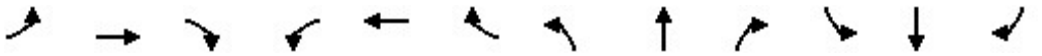


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	485	352	82	354	172	1679	114	1491	335
v/c Ratio	1.14	0.63	0.26	1.05	0.76	1.04	0.60	0.97	0.29
Control Delay	119.8	32.9	25.7	105.0	45.8	63.6	31.1	49.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.8	32.9	25.7	105.0	45.8	63.6	31.1	49.3	2.2
Queue Length 50th (m)	~123.2	58.7	12.4	~87.9	24.7	~235.1	12.2	186.1	5.0
Queue Length 95th (m)	#187.7	93.5	23.3	#149.8	#57.3	#274.9	30.1	#235.9	14.1
Internal Link Dist (m)		1114.0		335.4		391.8		328.2	
Turn Bay Length (m)	40.0		50.0		30.0		50.0		45.0
Base Capacity (vph)	425	560	321	338	228	1622	191	1540	1174
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.63	0.26	1.05	0.75	1.04	0.60	0.97	0.29

Intersection Summary

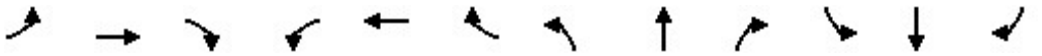
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	112	205	75	167	158	153	1402	96	105	1327	298
Future Volume (vph)	432	112	205	75	167	158	153	1402	96	105	1327	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	4.0		1.0	2.5		1.0	4.0		1.0	4.0	1.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.90		1.00	0.93		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1579		1770	1727		1736	3443		1770	3438	1583
Flt Permitted	0.19	1.00		0.55	1.00		0.07	1.00		0.07	1.00	1.00
Satd. Flow (perm)	335	1579		1025	1727		133	3443		138	3438	1583
Peak-hour factor, PHF	0.89	0.92	0.89	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.89	0.89
Adj. Flow (vph)	485	122	230	82	182	172	172	1575	104	114	1491	335
RTOR Reduction (vph)	0	55	0	0	29	0	0	4	0	0	0	92
Lane Group Flow (vph)	485	297	0	82	325	0	172	1675	0	114	1491	243
Heavy Vehicles (%)	5%	2%	12%	2%	2%	2%	4%	4%	2%	2%	5%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	44.6	36.4		25.3	20.1		63.6	54.4		58.4	51.8	74.8
Effective Green, g (s)	46.6	38.4		29.3	22.1		66.0	56.4		62.4	53.8	78.8
Actuated g/C Ratio	0.39	0.32		0.24	0.18		0.55	0.47		0.52	0.45	0.65
Clearance Time (s)	3.0	6.0		3.0	4.5		3.0	6.0		3.0	6.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	416	502		293	316		221	1610		187	1533	1034
v/s Ratio Prot	c0.24	0.19		0.02	c0.19		c0.07	c0.49		0.04	0.43	0.05
v/s Ratio Perm	0.21			0.05			0.35			0.27		0.10
v/c Ratio	1.17	0.59		0.28	1.03		0.78	1.04		0.61	0.97	0.23
Uniform Delay, d1	35.0	34.5		36.2	49.2		31.3	32.1		26.0	32.7	8.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	97.8	1.9		0.5	58.5		15.8	33.6		5.5	17.3	0.1
Delay (s)	132.9	36.4		36.8	107.8		47.1	65.7		31.5	50.0	8.7
Level of Service	F	D		D	F		D	E		C	D	A
Approach Delay (s)		92.3			94.4			64.0			41.8	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



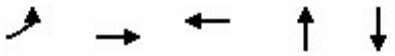
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	27	174	116	5	6	16	477	50	2	454	37
Future Volume (vph)	214	27	174	116	5	6	16	477	50	2	454	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.870			0.994			0.988			0.990	
Flt Protected	0.950				0.956			0.999				
Satd. Flow (prot)	1378	1068	0	0	1384	0	0	1690	0	0	1757	0
Flt Permitted	0.700				0.567			0.981			0.999	
Satd. Flow (perm)	1011	1068	0	0	821	0	0	1660	0	0	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		187			3			9			7	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		556.5			653.7			878.3			1064.7	
Travel Time (s)		40.1			39.2			52.7			63.9	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Adj. Flow (vph)	230	29	187	125	5	6	17	513	54	2	488	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	230	216	0	0	136	0	0	584	0	0	530	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		35.0	35.0		35.0	35.0	
Total Split (s)	34.0	34.0		34.0	34.0		46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%		57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.9	20.9			20.9			40.3			40.3	
Actuated g/C Ratio	0.29	0.29			0.29			0.55			0.55	
v/c Ratio	0.80	0.49			0.58			0.64			0.55	
Control Delay	44.9	8.9			31.8			16.7			14.5	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	44.9	8.9			31.8			16.7			14.5	
LOS	D	A			C			B			B	
Approach Delay		27.5			31.8			16.7			14.5	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 73.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 20.1		Intersection LOS: C	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Watson Parkway South & Dunlop Drive/Watson Road South

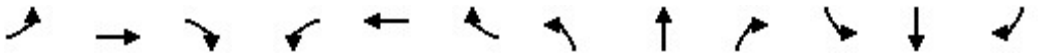




Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	230	216	136	584	530
v/c Ratio	0.80	0.49	0.58	0.64	0.55
Control Delay	44.9	8.9	31.8	16.7	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	8.9	31.8	16.7	14.5
Queue Length 50th (m)	30.5	3.1	16.2	55.1	46.5
Queue Length 95th (m)	#57.3	19.3	34.0	106.0	88.3
Internal Link Dist (m)		532.5	629.7	854.3	1040.7
Turn Bay Length (m)					
Base Capacity (vph)	389	526	318	916	968
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.41	0.43	0.64	0.55

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	27	174	116	5	6	16	477	50	2	454	37
Future Volume (vph)	214	27	174	116	5	6	16	477	50	2	454	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.87			0.99			0.99			0.99	
Flt Protected	0.95	1.00			0.96			1.00			1.00	
Satd. Flow (prot)	1373	1068			1385			1689			1756	
Flt Permitted	0.70	1.00			0.57			0.98			1.00	
Satd. Flow (perm)	1011	1068			821			1658			1754	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	230	29	187	125	5	6	17	513	54	2	488	40
RTOR Reduction (vph)	0	134	0	0	2	0	0	4	0	0	3	0
Lane Group Flow (vph)	230	82	0	0	134	0	0	580	0	0	527	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	31%	86%	50%	28%	43%	67%	36%	10%	12%	33%	6%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	20.9	20.9			20.9			40.3			40.3	
Effective Green, g (s)	20.9	20.9			20.9			40.3			40.3	
Actuated g/C Ratio	0.29	0.29			0.29			0.55			0.55	
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	288	304			234			912			965	
v/s Ratio Prot		0.08										
v/s Ratio Perm	c0.23				0.16			c0.35			0.30	
v/c Ratio	0.80	0.27			0.57			0.64			0.55	
Uniform Delay, d1	24.2	20.3			22.3			11.4			10.6	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	14.3	0.5			3.4			3.4			2.2	
Delay (s)	38.5	20.7			25.7			14.8			12.8	
Level of Service	D	C			C			B			B	
Approach Delay (s)		29.9			25.7			14.8			12.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

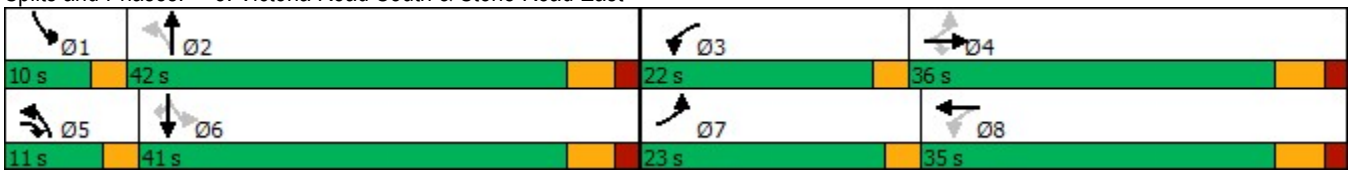
c Critical Lane Group

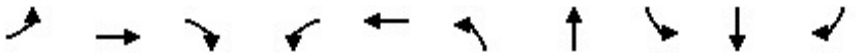
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	413	441	241	245	497	134	178	930	132	169	1026	336
Future Volume (vph)	413	441	241	245	497	134	178	930	132	169	1026	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	95.0		50.0	75.0		60.0	85.0		55.0	60.0		60.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	85.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor												0.99
Frt			0.850		0.968			0.981				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3085	1392	1357	3362	0	1770	3310	0	1805	3438	1538
Flt Permitted	0.176			0.403			0.111			0.108		
Satd. Flow (perm)	322	3085	1392	576	3362	0	207	3310	0	205	3438	1518
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			123		30			15				254
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		1217.6			346.9			353.1			446.1	
Travel Time (s)		73.1			20.8			18.2			22.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Adj. Flow (vph)	454	485	265	269	546	147	196	1022	145	186	1127	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	454	485	265	269	693	0	196	1167	0	186	1127	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	10.0	35.0	10.0	10.0	35.0		10.0	35.0		10.0	35.0	35.0
Total Split (s)	23.0	36.0	11.0	22.0	35.0		11.0	42.0		10.0	41.0	41.0
Total Split (%)	20.9%	32.7%	10.0%	20.0%	31.8%		10.0%	38.2%		9.1%	37.3%	37.3%
Maximum Green (s)	20.0	30.0	8.0	19.0	29.0		8.0	36.0		7.0	35.0	35.0
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.0	0.0	0.0	2.0		0.0	2.0		0.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0		0.0	-2.0		-2.0	0.0	0.0
Total Lost Time (s)	1.0	6.0	3.0	3.0	6.0		3.0	4.0		1.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		10.0			10.0			10.0			10.0	10.0
Flash Dont Walk (s)		19.0			19.0			19.0			19.0	19.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	53.4	28.4	42.5	45.4	25.4		47.1	38.0		49.1	35.0	35.0
Actuated g/C Ratio	0.50	0.27	0.40	0.43	0.24		0.44	0.36		0.46	0.33	0.33
v/c Ratio	1.00	0.59	0.42	0.73	0.84		0.94	0.98		0.81	1.00	0.55
Control Delay	69.7	37.6	14.5	30.6	47.0		72.4	56.1		48.0	62.8	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	69.7	37.6	14.5	30.6	47.0		72.4	56.1		48.0	62.8	12.9
LOS	E	D	B	C	D		E	E		D	E	B
Approach Delay		44.6			42.4			58.4			50.2	
Approach LOS		D			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.5			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 49.6		Intersection LOS: D	
Intersection Capacity Utilization 95.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 5: Victoria Road South & Stone Road East





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	454	485	265	269	693	196	1167	186	1127	369
v/c Ratio	1.00	0.59	0.42	0.73	0.84	0.94	0.98	0.81	1.00	0.55
Control Delay	69.7	37.6	14.5	30.6	47.0	72.4	56.1	48.0	62.8	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	37.6	14.5	30.6	47.0	72.4	56.1	48.0	62.8	12.9
Queue Length 50th (m)	~78.2	49.8	21.4	36.5	73.0	26.1	133.5	23.6	~134.4	18.6
Queue Length 95th (m)	#148.3	67.5	44.0	57.8	95.5	#74.3	#188.7	#63.3	#186.5	49.8
Internal Link Dist (m)		1193.6			322.9		329.1		422.1	
Turn Bay Length (m)	95.0		50.0	75.0		85.0		60.0		60.0
Base Capacity (vph)	453	870	628	395	938	209	1192	229	1130	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.56	0.42	0.68	0.74	0.94	0.98	0.81	1.00	0.55

Intersection Summary

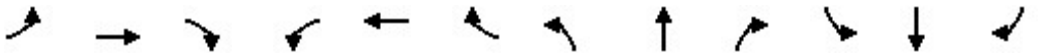
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	413	441	241	245	497	134	178	930	132	169	1026	336
Future Volume (vph)	413	441	241	245	497	134	178	930	132	169	1026	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	6.0	3.0	3.0	6.0		3.0	4.0		1.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3085	1392	1357	3363		1770	3312		1805	3438	1518
Flt Permitted	0.18	1.00	1.00	0.40	1.00		0.11	1.00		0.11	1.00	1.00
Satd. Flow (perm)	321	3085	1392	576	3363		207	3312		205	3438	1518
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	454	485	265	269	546	147	196	1022	145	186	1127	369
RTOR Reduction (vph)	0	0	81	0	23	0	0	10	0	0	0	171
Lane Group Flow (vph)	454	485	184	269	670	0	196	1157	0	186	1127	198
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	4%	17%	16%	33%	5%	0%	2%	4%	28%	0%	5%	5%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	48.5	28.5	36.5	42.5	25.5		44.0	36.0		42.0	35.0	35.0
Effective Green, g (s)	50.5	28.5	36.5	42.5	25.5		44.0	38.0		46.0	35.0	35.0
Actuated g/C Ratio	0.47	0.27	0.34	0.40	0.24		0.41	0.36		0.43	0.33	0.33
Clearance Time (s)	3.0	6.0	3.0	3.0	6.0		3.0	6.0		3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	444	825	477	354	805		202	1181		223	1129	498
v/s Ratio Prot	c0.21	0.16	0.03	0.12	c0.20		c0.07	c0.35		0.07	0.33	
v/s Ratio Perm	0.27		0.10	0.18			0.33			0.29		0.13
v/c Ratio	1.02	0.59	0.39	0.76	0.83		0.97	0.98		0.83	1.00	0.40
Uniform Delay, d1	28.0	33.9	26.5	24.1	38.5		25.7	33.9		24.3	35.7	27.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	48.6	1.1	0.5	9.1	7.4		54.5	21.8		22.7	26.4	2.4
Delay (s)	76.6	35.0	27.0	33.2	45.8		80.2	55.7		47.0	62.1	30.0
Level of Service	E	C	C	C	D		F	E		D	E	C
Approach Delay (s)		48.9			42.3			59.2			53.4	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	51.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	106.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

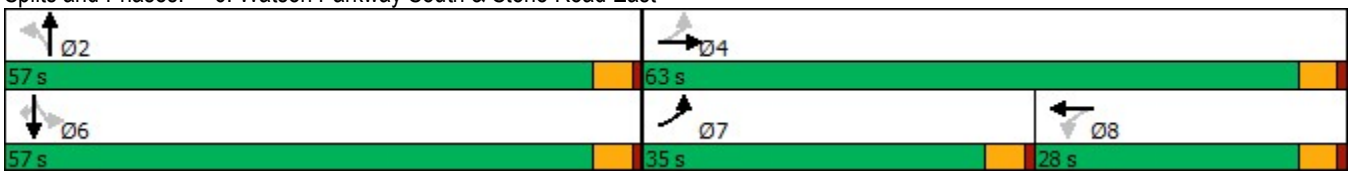


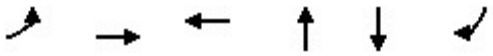
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	207	76	16	144	1	40	277	17	3	299	431
Future Volume (vph)	273	207	76	16	144	1	40	277	17	3	299	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	0.0		0.0	0.0		0.0	0.0		75.0
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (m)	100.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.999			0.993				0.850
Flt Protected	0.950				0.995			0.994				
Satd. Flow (prot)	1504	1727	0	0	1806	0	0	1795	0	0	1828	1404
Flt Permitted	0.319				0.942			0.930			0.998	
Satd. Flow (perm)	505	1727	0	0	1710	0	0	1679	0	0	1825	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21						3				454
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		143.8			1083.1			289.3			878.3	
Travel Time (s)		8.6			65.0			17.4			52.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Adj. Flow (vph)	287	218	80	17	152	1	42	292	18	3	315	454
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	298	0	0	170	0	0	352	0	0	318	454
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	63.0		28.0	28.0		57.0	57.0		57.0	57.0	57.0
Total Split (%)	29.2%	52.5%		23.3%	23.3%		47.5%	47.5%		47.5%	47.5%	47.5%
Maximum Green (s)	30.5	58.5		23.5	23.5		52.5	52.5		52.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
Walk Time (s)		7.0		7.0	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	11.0	11.0
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	0
Act Effct Green (s)	44.0	44.0			15.3			53.0			53.0	53.0
Actuated g/C Ratio	0.41	0.41			0.14			0.50			0.50	0.50
v/c Ratio	0.66	0.41			0.69			0.42			0.35	0.49
Control Delay	29.5	21.3			59.0			20.7			19.5	3.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	29.5	21.3			59.0			20.7			19.5	3.8
LOS	C	C			E			C			B	A
Approach Delay		25.3			59.0			20.7			10.3	
Approach LOS		C			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106.1			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

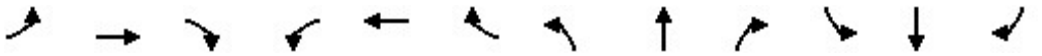
Splits and Phases: 6: Watson Parkway South & Stone Road East





Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	287	298	170	352	318	454
v/c Ratio	0.66	0.41	0.69	0.42	0.35	0.49
Control Delay	29.5	21.3	59.0	20.7	19.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	21.3	59.0	20.7	19.5	3.8
Queue Length 50th (m)	43.8	41.0	35.8	47.2	41.2	0.0
Queue Length 95th (m)	66.3	62.3	61.4	87.7	76.3	19.3
Internal Link Dist (m)		119.8	1059.1	265.3	854.3	
Turn Bay Length (m)	70.0					75.0
Base Capacity (vph)	501	971	382	840	912	928
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.31	0.45	0.42	0.35	0.49

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	207	76	16	144	1	40	277	17	3	299	431
Future Volume (vph)	273	207	76	16	144	1	40	277	17	3	299	431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			1.00	1.00
Satd. Flow (prot)	1504	1727			1806			1795			1828	1404
Flt Permitted	0.32	1.00			0.94			0.93			1.00	1.00
Satd. Flow (perm)	506	1727			1710			1680			1824	1404
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	287	218	80	17	152	1	42	292	18	3	315	454
RTOR Reduction (vph)	0	12	0	0	0	0	0	2	0	0	0	227
Lane Group Flow (vph)	287	286	0	0	170	0	0	351	0	0	318	227
Heavy Vehicles (%)	20%	4%	10%	8%	4%	33%	5%	4%	11%	100%	3%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	44.0	44.0			15.4			53.0			53.0	53.0
Effective Green, g (s)	44.0	44.0			15.4			53.0			53.0	53.0
Actuated g/C Ratio	0.42	0.42			0.15			0.50			0.50	0.50
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	436	716			248			840			912	702
v/s Ratio Prot	c0.15	0.17										
v/s Ratio Perm	c0.12				0.10			c0.21			0.17	0.16
v/c Ratio	0.66	0.40			0.69			0.42			0.35	0.32
Uniform Delay, d1	23.6	21.7			43.0			16.7			16.0	15.8
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	3.6	0.4			7.6			1.5			1.1	1.2
Delay (s)	27.1	22.1			50.6			18.3			17.1	17.0
Level of Service	C	C			D			B			B	B
Approach Delay (s)		24.6			50.6			18.3			17.1	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

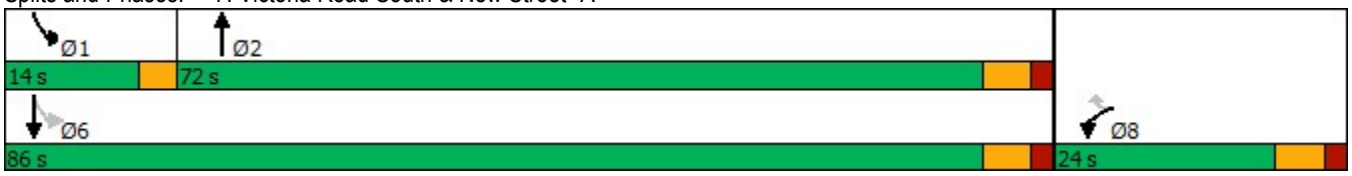


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	127	1970	23	182	1717
Future Volume (vph)	14	127	1970	23	182	1717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3532	0	1770	3539
Flt Permitted	0.950				0.056	
Satd. Flow (perm)	1770	1583	3532	0	104	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		127	2			
Link Speed (k/h)	50		50			50
Link Distance (m)	368.1		352.2			204.1
Travel Time (s)	26.5		25.4			14.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	127	1970	23	182	1717
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	127	1993	0	182	1717
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100		100	100	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		11.0	24.0
Total Split (s)	24.0	24.0	72.0		14.0	86.0
Total Split (%)	21.8%	21.8%	65.5%		12.7%	78.2%
Maximum Green (s)	18.0	18.0	66.0		11.0	80.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.2	7.2	68.3		84.0	81.0
Actuated g/C Ratio	0.07	0.07	0.68		0.84	0.81
v/c Ratio	0.11	0.55	0.83		0.73	0.60
Control Delay	44.4	17.4	16.4		38.7	4.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	44.4	17.4	16.4		38.7	4.9
LOS	D	B	B		D	A
Approach Delay	20.0		16.4			8.1
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 82.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 7: Victoria Road South & New Street "A"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	14	127	1993	182	1717
v/c Ratio	0.11	0.55	0.83	0.73	0.60
Control Delay	44.4	17.4	16.4	38.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	17.4	16.4	38.7	4.9
Queue Length 50th (m)	2.7	0.0	139.8	18.0	47.6
Queue Length 95th (m)	8.8	17.2	209.0	#50.3	83.5
Internal Link Dist (m)	344.1		328.2		180.1
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	317	388	2407	270	2860
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.33	0.83	0.67	0.60

Intersection Summary

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	127	1970	23	182	1717
Future Volume (vph)	14	127	1970	23	182	1717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		3.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3533		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3533		105	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	127	1970	23	182	1717
RTOR Reduction (vph)	0	118	1	0	0	0
Lane Group Flow (vph)	14	9	1992	0	182	1717
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	7.2	7.2	68.3		81.0	81.0
Effective Green, g (s)	7.2	7.2	68.3		81.0	81.0
Actuated g/C Ratio	0.07	0.07	0.68		0.81	0.81
Clearance Time (s)	6.0	6.0	6.0		3.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	127	113	2408		246	2860
v/s Ratio Prot	c0.01		c0.56		c0.07	0.49
v/s Ratio Perm		0.01			0.53	
v/c Ratio	0.11	0.08	0.83		0.74	0.60
Uniform Delay, d1	43.5	43.4	11.6		28.4	3.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.3	3.4		11.1	0.9
Delay (s)	43.9	43.7	15.1		39.4	4.5
Level of Service	D	D	B		D	A
Approach Delay (s)	43.7		15.1			7.9
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	41	102	2	34	85	3
Future Volume (vph)	41	102	2	34	85	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904				0.995	
Flt Protected				0.997	0.954	
Satd. Flow (prot)	1684	0	0	1857	1768	0
Flt Permitted				0.997	0.954	
Satd. Flow (perm)	1684	0	0	1857	1768	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	368.1			738.2	350.7	
Travel Time (s)	26.5			53.2	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	102	2	34	85	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	0	36	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	41	102	2	34	85	3
Future Volume (Veh/h)	41	102	2	34	85	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	102	2	34	85	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	368					
pX, platoon unblocked						
vC, conflicting volume			143		130	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			143		130	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1440		863	965

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	143	36	88
Volume Left	0	2	85
Volume Right	102	0	3
cSH	1700	1440	866
Volume to Capacity	0.08	0.00	0.10
Queue Length 95th (m)	0.0	0.0	2.7
Control Delay (s)	0.0	0.4	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.6
Approach LOS			A

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	103	67	39	37	43
Future Volume (vph)	75	103	67	39	37	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.927	
Flt Protected	0.950			0.969		
Satd. Flow (prot)	1770	1583	0	1805	1727	0
Flt Permitted	0.950			0.969		
Satd. Flow (perm)	1770	1583	0	1805	1727	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	359.4			411.3	350.7	
Travel Time (s)	25.9			29.6	25.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	103	67	39	37	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	103	0	106	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100	100			100
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	103	67	39	37	43
Future Volume (Veh/h)	75	103	67	39	37	43
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	75	103	67	39	37	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	232	58	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232	58	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	90	96			
cM capacity (veh/h)	723	1007	1518			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	75	103	106	80
Volume Left	75	0	67	0
Volume Right	0	103	0	43
cSH	723	1007	1518	1700
Volume to Capacity	0.10	0.10	0.04	0.05
Queue Length 95th (m)	2.8	2.7	1.1	0.0
Control Delay (s)	10.6	9.0	4.9	0.0
Lane LOS	B	A	A	
Approach Delay (s)	9.6		4.9	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	245	1403	77	122	1485
Future Volume (vph)	44	245	1403	77	122	1485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0	0.0		0.0	50.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3511	0	1770	3539
Flt Permitted	0.950				0.111	
Satd. Flow (perm)	1770	1583	3511	0	207	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		166	10			
Link Speed (k/h)	50		50			50
Link Distance (m)	356.4		446.1			415.8
Travel Time (s)	25.7		32.1			29.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	245	1403	77	122	1485
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	245	1480	0	122	1485
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100	100		100	100	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		10.0	24.0
Total Split (s)	25.0	25.0	55.0		10.0	65.0
Total Split (%)	27.8%	27.8%	61.1%		11.1%	72.2%
Maximum Green (s)	19.0	19.0	49.0		7.0	59.0
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	2.0	2.0	2.0		0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	10.5	10.5	52.3		63.1	60.1
Actuated g/C Ratio	0.13	0.13	0.63		0.76	0.73
v/c Ratio	0.20	0.71	0.66		0.43	0.58
Control Delay	32.9	23.8	13.0		8.3	7.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.9	23.8	13.0		8.3	7.1
LOS	C	C	B		A	A
Approach Delay	25.2		13.0			7.1
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.6			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 10: Victoria Road South & New Street "B"





Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	44	245	1480	122	1485
v/c Ratio	0.20	0.71	0.66	0.43	0.58
Control Delay	32.9	23.8	13.0	8.3	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	23.8	13.0	8.3	7.1
Queue Length 50th (m)	6.5	12.0	76.0	3.7	47.3
Queue Length 95th (m)	15.6	35.2	129.4	12.3	91.8
Internal Link Dist (m)	332.4		422.1		391.8
Turn Bay Length (m)	25.0			50.0	
Base Capacity (vph)	408	492	2226	291	2575
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.50	0.66	0.42	0.58

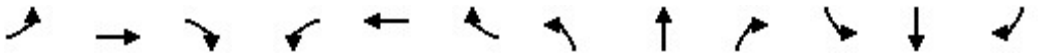
Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	245	1403	77	122	1485
Future Volume (vph)	44	245	1403	77	122	1485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		3.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3512		1770	3539
Flt Permitted	0.95	1.00	1.00		0.11	1.00
Satd. Flow (perm)	1770	1583	3512		207	3539
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	245	1403	77	122	1485
RTOR Reduction (vph)	0	145	4	0	0	0
Lane Group Flow (vph)	44	100	1476	0	122	1485
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	10.5	10.5	52.3		60.7	60.7
Effective Green, g (s)	10.5	10.5	52.3		60.7	60.7
Actuated g/C Ratio	0.13	0.13	0.63		0.73	0.73
Clearance Time (s)	6.0	6.0	6.0		3.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	223	199	2207		252	2581
v/s Ratio Prot	0.02		c0.42		0.03	c0.42
v/s Ratio Perm		c0.06			0.32	
v/c Ratio	0.20	0.50	0.67		0.48	0.58
Uniform Delay, d1	32.6	33.9	9.9		7.3	5.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	2.0	1.6		1.5	0.9
Delay (s)	33.0	35.9	11.5		8.8	6.2
Level of Service	C	D	B		A	A
Approach Delay (s)	35.5		11.5			6.4
Approach LOS	D		B			A

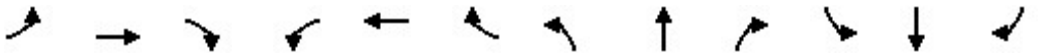
Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Future Volume (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985						0.990			0.956	
Flt Protected		0.975			0.995			0.993				
Satd. Flow (prot)	0	1789	0	0	1853	0	0	1831	0	0	1781	0
Flt Permitted		0.975			0.995			0.993				
Satd. Flow (perm)	0	1789	0	0	1853	0	0	1831	0	0	1781	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		356.4			754.3			440.2			411.3	
Travel Time (s)		25.7			54.3			31.7			29.6	
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
Adj. Flow (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	106	0	0	29	0	0	81	0	0	122	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

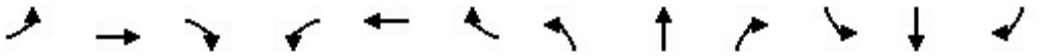
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	40	12	3	26	0	11	64	6	0	82	40
Future Volume (Veh/h)	54	40	12	3	26	0	11	64	6	0	82	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	54	40	12	3	26	0	11	64	6	0	82	40
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	204	194	102	223	211	67	122			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	204	194	102	223	211	67	122			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	94	99	100	96	100	99			100		
cM capacity (veh/h)	728	696	953	688	681	997	1465			1531		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	106	29	81	122
Volume Left	54	3	11	0
Volume Right	12	0	6	40
cSH	735	682	1465	1531
Volume to Capacity	0.14	0.04	0.01	0.00
Queue Length 95th (m)	4.0	1.1	0.2	0.0
Control Delay (s)	10.7	10.5	1.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.7	10.5	1.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			

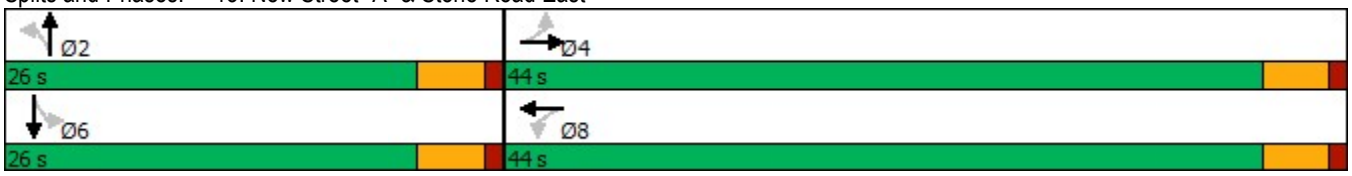


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	554	100	11	618	1	44	0	8	1	0	214
Future Volume (vph)	88	554	100	11	618	1	44	0	8	1	0	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980						0.850			0.850	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3448	0	0	3536	0	1770	1583	0	1770	1583	0
Flt Permitted		0.817			0.943		0.500			0.752		
Satd. Flow (perm)	0	2834	0	0	3337	0	931	1583	0	1401	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41						305			262	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		346.9			1558.2			340.8			440.2	
Travel Time (s)		20.8			93.5			24.5			31.7	
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
Adj. Flow (vph)	88	554	100	11	618	1	44	0	8	1	0	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	742	0	0	630	0	44	8	0	1	214	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		15	25		100	25		15	100		100
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	44.0	44.0		44.0	44.0		26.0	26.0		26.0	26.0	
Total Split (%)	62.9%	62.9%		62.9%	62.9%		37.1%	37.1%		37.1%	37.1%	
Maximum Green (s)	39.5	39.5		39.5	39.5		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		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)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Actuated g/C Ratio		0.71			0.71		0.13	0.13		0.13	0.13	
v/c Ratio		0.36			0.26		0.35	0.02		0.01	0.49	
Control Delay		4.0			3.6		29.9	0.1		20.0	6.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		4.0			3.6		29.9	0.1		20.0	6.0	
LOS		A			A		C	A		B	A	
Approach Delay		4.0			3.6			25.3			6.1	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 59.8			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 4.8		Intersection LOS: A	
Intersection Capacity Utilization 70.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 13: New Street "A" & Stone Road East





Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	742	630	44	8	1	214
v/c Ratio	0.36	0.26	0.35	0.02	0.01	0.49
Control Delay	4.0	3.6	29.9	0.1	20.0	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	3.6	29.9	0.1	20.0	6.0
Queue Length 50th (m)	11.6	9.6	4.4	0.0	0.1	0.0
Queue Length 95th (m)	23.3	19.0	12.5	0.0	1.3	10.0
Internal Link Dist (m)	322.9	1534.2		316.8		416.2
Turn Bay Length (m)					25.0	
Base Capacity (vph)	2035	2383	336	767	506	739
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.26	0.13	0.01	0.00	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	554	100	11	618	1	44	0	8	1	0	214
Future Volume (vph)	88	554	100	11	618	1	44	0	8	1	0	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.98			1.00		1.00	0.85		1.00	0.85	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3447			3535		1770	1583		1770	1583	
Flt Permitted		0.82			0.94		0.50	1.00		0.75	1.00	
Satd. Flow (perm)		2833			3337		931	1583		1402	1583	
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)	88	554	100	11	618	1	44	0	8	1	0	214
RTOR Reduction (vph)	0	12	0	0	0	0	0	7	0	0	185	0
Lane Group Flow (vph)	0	730	0	0	630	0	44	1	0	1	29	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Effective Green, g (s)		42.7			42.7		8.0	8.0		8.0	8.0	
Actuated g/C Ratio		0.72			0.72		0.13	0.13		0.13	0.13	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2026			2386		124	212		187	212	
v/s Ratio Prot								0.00			0.02	
v/s Ratio Perm		c0.26			0.19		c0.05			0.00		
v/c Ratio		0.36			0.26		0.35	0.01		0.01	0.14	
Uniform Delay, d1		3.3			3.0		23.5	22.4		22.4	22.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.3		1.7	0.0		0.0	0.3	
Delay (s)		3.8			3.3		25.2	22.4		22.4	23.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.8			3.3			24.8			23.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Appendix F

Transportation Tomorrow Survey 2016

FROM 2016 TTS

		Residential		Employment		Retail	
		In	Out	In	Out	In	Out
York	East	5%	10%	10%	10%	5%	5%
York	West	20%	20%	15%	15%	10%	10%
College	West	20%	20%	20%	20%	10%	10%
Stone	East	0%	0%	0%	0%	0%	0%
Stone	West	15%	15%	5%	5%	5%	5%
Victoria	North	30%	25%	35%	35%	20%	20%
Victoria	South	10%	10%	15%	15%	50%	50%
		100%	100%	100%	100%	100%	100%

	Residential		Employment		Retail	
	In	Out	In	Out	In	Out
East	5%	10%	10%	10%	5%	5%
West	55%	55%	40%	40%	25%	25%
North	30%	25%	35%	35%	20%	20%
South	10%	10%	15%	15%	50%	50%
	100%	100%	100%	100%	100%	100%

ADJUSTED BY THE CITY

		Residential		Employment		Retail	
		In	Out	In	Out	In	Out
York	East	5%	10%	10%	10%	5%	5%
York	West	20%	20%	15%	15%	10%	10%
College	West	20%	20%	20%	20%	10%	10%
Stone	East	0%	0%	0%	0%	0%	0%
Stone	West	15%	15%	5%	5%	5%	5%
Victoria	North	25%	20%	30%	30%	20%	20%
Victoria	South	15%	15%	20%	20%	50%	50%
Total		100%	100%	100%	100%	100%	100%

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: Planning district of household - pd_hhld

RowG:
ColG:(70)
TblG:

Filters:
No Filters

Trip 2016
Table:

,1

Transit excluding GO rail	15813
Cycle	6598
Auto driver	199920
GO rail only	470
Joint GO rail and local transit	138
Motorcycle	240
Other	275
Auto passenger	38796
School bus	6540
Taxi passenger	1267
Paid rideshare	82
Walk	19401

	2016 TTS		Future
Walk	19401	8%	10%
Bike	6598	3%	7%
Transit	15951	7%	13%
Auto	200160	83%	70%
	242110	100%	100%

Single value for future modal split - just use all of Guelph one modal split (2016)

Residential PM INBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College		Stone Road		Victoria Road			York Road		College	Stone Road		Victoria Road		
,1		East	West	East	West	East	West	North	South	SUM	East	West	West	East	West	North	South	
PD 1 of Toronto	62								1	1.0	0	0	0	0	0	0	62	62
PD 3 of Toronto	46								1	1.0	0	0	0	0	0	0	46	46
PD 5 of Toronto	78								1	1.0	0	0	0	0	0	0	78	78
PD 7 of Toronto	29								1	1.0	0	0	0	0	0	0	29	29
PD 8 of Toronto	40								1	1.0	0	0	0	0	0	0	40	40
PD 9 of Toronto	132								1	1.0	0	0	0	0	0	0	132	132
PD 10 of Toronto	96								1	1.0	0	0	0	0	0	0	96	96
PD 11 of Toronto	9								1	1.0	0	0	0	0	0	0	9	9
PD 13 of Toronto	51								1	1.0	0	0	0	0	0	0	51	51
PD 16 of Toronto	4								1	1.0	0	0	0	0	0	0	4	4
Pickering	28	0.5							0.5	1.0	14	0	0	0	0	0	14	28
Whitby	39	0.5							0.5	1.0	20	0	0	0	0	0	19	39
Oshawa	23	0.5							0.5	1.0	12	0	0	0	0	0	11	23
Richmond Hill	14	0.5							0.5	1.0	7	0	0	0	0	0	7	14
Whitchurch-Stouffville	32	0.5							0.5	1.0	16	0	0	0	0	0	16	32
Markham	45	0.5							0.5	1.0	23	0	0	0	0	0	22	45
Vaughan	56	0.5							0.5	1.0	28	0	0	0	0	0	28	56
Caledon	124	0.5							0.5	1.0	62	0	0	0	0	0	62	124
Brampton	512	0.5							0.5	1.0	256	0	0	0	0	0	256	512
Mississauga	1252	0.5							0.5	1.0	626	0	0	0	0	0	626	1252
Halton Hills	296	1								1.0	296	0	0	0	0	0	0	296
Milton	471	0.5							0.5	1.0	236	0	0	0	0	0	235	471
Oakville	203	0.5							0.5	1.0	102	0	0	0	0	0	101	203
Burlington	285								1	1.0	0	0	0	0	0	0	285	285
Flamborough	162				0.5				0.5	1.0	0	0	81	0	0	0	81	162
Ancaster	25								1	1.0	0	0	0	0	0	0	25	25
Stoney Creek	123								1	1.0	0	0	0	0	0	0	123	123
Hamilton	250								1	1.0	0	0	0	0	0	0	250	250
Lincoln	23								1	1.0	0	0	0	0	0	0	23	23
Waterloo	1103				0.5			0.5		1.0	0	0	552	0	0	551	0	1103
Kitchener	2057		0.25		0.25			0.5		1.0	0	514	514	0	0	1029	0	2057
Cambridge	2101		0.5		0.5					1.0	0	1051	1050	0	0	0	0	2101
North Dumfries	116				0.5			0.5		1.0	0	0	58	0	0	58	0	116
Wilmot	12				1					1.0	0	0	12	0	0	0	0	12
Wellesley	17				1					1.0	0	0	17	0	0	0	0	17
Woolwich	566				0.5			0.5		1.0	0	0	283	0	0	283		566
City of Guelph	28986									0.0								
Puslinch	709				0.5				0.5	1.0	0	0	355	0	0	0	354	709
Guelph/Eramosa	753	0.5						0.5		1.0	377	0	0	0	0	376	0	753
Centre Wellington	357	0.5						0.5		1.0	179	0	0	0	0	178	0	357
Erin	201							1		1.0	0	0	0	0	0	201	0	201
Orangeville	73							1		1.0	0	0	0	0	0	73	0	73
Peterborough	9								1	1.0	0	0	0	0	0	0	9	9
Rest of Wellington	128							1		1.0	0	0	0	0	0	128	0	128
Oxford	147		0.5		0.5					1.0	0	74	73	0	0	0	0	147
Brant	18				0.5				0.5	1.0	0	0	9	0	0	0	9	18
Haldimand-Norfolk	34								1	1.0	0	0	0	0	0	0	34	34
Collingwood	69	0.5						0.5		1.0	34	0	0	0	0	35	0	69
Shelburne	37							1		1.0	0	0	0	0	0	37	0	37
Mono	11	0.5						0.5		1.0	5	0	0	0	0	6	0	11
Brantford	128		0.5		0.5					1.0	0	64	64	0	0	0	0	128
External	33									0.0	0	0	0	0	0	0	33	33
										0.0	0	0	0	0	0	0	0	0
	42142										2293	1703	3068	0	0	2955	3170	13189

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College		Stone Road		Victoria Road			York Road		College	Stone Road		Victoria Road		
	1%	East	West	East	West	East	West	North	South	SUM	East	West	West	East	West	North	South	
8001-8009	602	0.5						0.5		1.0	301	0	0	0	0	301	0	
8010-8021	1170	0.5						0.5		1.0	585	0	0	0	0	585	0	
8022-8035	1901							1		1.0	0	0	0	0	0	1901	0	
8036-8052	1556		0.5					0.5		1.0	0	778	0	0	0	778	0	
8053-8060	3279				0.5		0.5			1.0	0	0	1640	0	1639	0	0	
8061-8169	554						0.5		0.5	1.0	0	0	0	0	277	0	277	
8070-8076	685								1	1.0	0	0	0	0	0	0	685	
8077-8097	3733				0.5		0.5			1.0	0	0	1867	0	1866	0	0	
8098-8102	333				0.5		0.5			1.0	0	0	167	0	166	0	0	
8103-8111	1493		0.34		0.33		0.33			1.0	0	508	493	0	492	0	0	
8112-8120	1755		0.5					0.5		1.0	0	878	0	0	0	877	0	
8121-8126	1646		0.5				0.5			1.0	0	823	0	0	823	0	0	
8127-8134	1134		0.5					0.5		1.0	0	567	0	0	0	567	0	
8135-8141	1462							1		1.0	0	0	0	0	0	1462	0	
8142-8163	2820		0.34		0.33			0.33		1.0	0	959	931	0	0	930	0	
8164-8172	4153		0.4		0.2			0.4		1.0	0	1661	831	0	0	1661	0	
8193-8194	233				0.4		0.4		0.2	1.0	0	0	93	0	93	0	47	
8195-8207	443								1	1.0	0	0	0	0	0	0	443	
	28952										886	6174	6022	0	5356	9062	1452	
											3179	7877	9090	0	5356	12017	4622	42141
											7.5%	18.7%	21.6%	0%	12.7%	28.5%	11.0%	100%
											5%	20%	20%		15%	30%	10%	100%

8002
8206

Residential PM OUTBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

8001	83	602
8002	84	
8004	107	
8005	73	
8007, 39		
8008	196	
8009	59	
8010	75	1170
8011	54	
8012	71	
8013	191	
8014	187	
8015	456	
8018	37	
8021	99	
8022	146	1901
8023	32	
8024	162	
8025	19	
8026	129	
8027	35	
8028	324	
8029	131	
8030	87	
8031	124	
8032	240	
8033	51	
8034	93	
8035	328	
8036	18	1556
8038	68	
8039	387	

8041	410	
8042	78	
8043	64	
8044	225	
8045	89	
8047	60	
8048	51	
8051	33	
8052	73	
8053	55	3279
8055	58	
8056	519	
8057	2002	
8058	32	
8059	613	
8061	28	554
8062	128	
8063	12	
8064	11	
8065	61	
8066	147	
8067	14	
8069	153	
8070	186	685
8071	42	
8072	226	
8073	45	
8075	172	
8076	14	
8077	144	3733
8078	57	
8079	125	
8080	104	
8081	14	
8082	189	
8083	214	
8084	387	
8085	89	
8086	510	
8087	259	
8088	62	
8089	19	
8090	111	
8091	63	
8092	52	
8093	39	
8094	418	
8095	826	
8096	31	
8097	20	
8098	7	333
8099	168	
8101	134	
8102	24	
8103	38	1493

8105	245	
8106	35	
8107	703	
8108	15	
8109	166	
8110	87	
8111	204	
8112	50	1755
8113	396	
8114	171	
8115	143	
8116	162	
8117	352	
8118	343	
8119	57	
8120	81	
8121	883	1646
8122	17	
8123	266	
8124	85	
8125	343	
8126	52	
8127	100	1134
8128	122	
8129	302	
8130	157	
8131	123	
8132	138	
8133	192	
8135	832	1462
8136	183	
8137	203	
8138	15	
8140	193	
8141	36	
8142	280	2820
8143	119	
8144	187	
8145	205	
8146	148	
8147	137	
8148	13	
8149	440	
8150	464	
8151	284	
8153	63	
8154	26	
8155	18	
8156	68	
8157	47	
8158	20	
8159	102	
8161	146	
8162	53	
8164	16	4153

8165	52	
8166	10	
8167	57	
8168	43	
8169	583	
8171	167	
8172	594	
8173	28	
8174	169	
8175	61	
8176	98	
8177	15	
8178	48	
8179	37	
8181	35	
8182	70	
8183	129	
8184	16	
8185	14	
8186	254	
8187	32	
8188	647	
8189	336	
8190	215	
8191	355	
8192	72	
8193	119	233
8194	114	
8196	62	443
8199	189	
8202	10	
8204	16	
8205	166	
	28952	28952

Residential AM OUTBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College		Stone Road		Victoria Road										
,1		East	West	East	West	East	West	North	South	SUM	East	West		West	East	West	North	South	
PD 1 of Toronto	63								1	1.0	0	0		0	0	0	0	63	63
PD 2 of Toronto	24								1	1.0	0	0		0	0	0	0	24	24
PD 4 of Toronto	43								1	1.0	0	0		0	0	0	0	43	43
PD 5 of Toronto	78								1	1.0	0	0		0	0	0	0	78	78
PD 7 of Toronto	58								1	1.0	0	0		0	0	0	0	58	58
PD 8 of Toronto	50								1	1.0	0	0		0	0	0	0	50	50
PD 9 of Toronto	158								1	1.0	0	0		0	0	0	0	158	158
PD 10 of Toronto	115								1	1.0	0	0		0	0	0	0	115	115
PD 13 of Toronto	18								1	1.0	0	0		0	0	0	0	18	18
Pickering	28	0.5							0.5	1.0	14	0		0	0	0	0	14	28
Clarington	69								1	1.0	0	0		0	0	0	0	69	69
Newmarket	19							0.5	0.5	1.0	0	0		0	0	0	10	9	19
Richmond Hill	14	0.5							0.5	1.0	7	0		0	0	0	0	7	14
Markham	38	0.5							0.5	1.0	19	0		0	0	0	0	19	38
Vaughan	39	0.5							0.5	1.0	20	0		0	0	0	0	19	39
Caledon	98	0.5						0.5		1.0	49	0		0	0	0	49	0	98
Brampton	645	0.5							0.5	1.0	323	0		0	0	0	0	322	645
Mississauga	1131	0.5							0.5	1.0	566	0		0	0	0	0	565	1131
Halton Hills	381	1								1.0	381	0		0	0	0	0	0	381
Milton	531	0.5							0.5	1.0	266	0		0	0	0	0	265	531
Oakville	255	0.5							0.5	1.0	128	0		0	0	0	0	127	255
Burlington	331								1	1.0	0	0		0	0	0	0	331	331
Flamborough	151			0.5					0.5	1.0	0	0		76	0	0	0	75	151
Dundas	10			0.5					0.5	1.0	0	0		5	0	0	0	5	10
Ancaster	25								1	1.0	0	0		0	0	0	0	25	25
Stoney Creek	143								1	1.0	0	0		0	0	0	0	143	143
Hamilton	302								1	1.0	0	0		0	0	0	0	302	302
Grimsby	15								1	1.0	0	0		0	0	0	0	15	15
Waterloo	1602			0.5				0.5		1.0	0	0		801	0	0	801	0	1602
Kitchener	2257		0.25		0.25			0.5		1.0	0	564		564	0	0	1128	1	2257
Cambridge	2492		0.5		0.5					1.0	0	1246		1246	0	0	0	0	2492
North Dumfries	159				0.5			0.5		1.0	0	0		80	0	0	79	0	159
Wilmot	22				1					1.0	0	0		22	0	0	0	0	22
Wellesley	39				1					1.0	0	0		39	0	0	0	0	39
Woolwich	394				0.5			0.5		1.0	0	0		197	0	0	197	0	394
City of Guelph	32067									0.0	0	0		0	0	0	0		0
Puslinch	768				0.5				0.5	1.0	0	0		384	0	0	0	384	768
Guelph/Eramosa	983	0.5						0.5		1.0	492	0		0	0	0	491	0	983
Centre Wellington	446	0.5						0.5		1.0	223	0		0	0	0	223	0	446
Erin	176							1		1.0	0	0		0	0	0	176	0	176
Orangeville	134							1		1.0	0	0		0	0	0	134	0	134
Barrie	37							0.5	0.5	1.0	0	0		0	0	0	19	18	37
Kawartha Lakes	26							0.5	0.5	1.0	0	0		0	0	0	13	13	26
Hastings	16							0.5	0.5	1.0	0	0		0	0	0	8	8	16
Grey	7								1	1.0	0	0		0	0	0	0	7	7
Rest of Wellington	233							1		1.0	0	0		0	0	0	233	0	233
Perth	14								1	1.0	0	0		0	0	0	0	14	14
Oxford	170		0.5		0.5					1.0	0	85		85	0	0	0	0	170
Haldimand-Norfolk	45								1	1.0	0	0		0	0	0	0	45	45
Wasaga Beach	23							1		1.0	0	0		0	0	0	23	0	23
Midland	84							0.5	0.5	1.0	0	0		0	0	0	42	42	84
Shelburne	37							1		1.0	0	0		0	0	0	37	0	37
Brantford	137		0.5		0.5					1.0	0	69		68	0	0	0	0	137
External	156									0.0									
	47200										2488	1964		3567	0	0	3663	3451	15133

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College		Stone Road		Victoria Road										
		East	West	East	West	East	West	North	South	SUM	East	West		West	East	West	North	South	
8001-8009	532	0.5						0.5		1.0	266	0		0	0	0	266	0	
8010-8021	2338	0.5						0.5		1.0	1169	0		0	0	0	1169	0	
8022-8035	2043							1		1.0	0	0		0	0	0	2043	0	
8036-8052	2391		0.5					0.5		1.0	0	1196		0	0	0	1195	0	
8053-8060	3631				0.5		0.5			1.0	0	0		1816	0	1815	0	0	
8061-8169	341						0.5		0.5	1.0	0	0		0	0	171	0	170	
8070-8076	644								1	1.0	0	0		0	0	0	0	644	
8077-8097	2859				0.5		0.5			1.0	0	0		1430	0	1429	0	0	
8098-8102	402				0.5		0.5			1.0	0	0		201	0	201	0	0	
8103-8111	2333		0.34		0.33		0.33			1.0	0	793		770	0	770	0	0	
8112-8120	1118		0.5					0.5		1.0	0	559		0	0	0	559	0	
8121-8126	2933		0.5				0.5			1.0	0	1467		0	0	1466	0	0	
8127-8134	1132		0.5					0.5		1.0	0	566		0	0	0	566	0	
8135-8141	717							1		1.0	0	0		0	0	0	717	0	
8142-8163	2607		0.34		0.33			0.33		1.0	0	886		860	0	0	861	0	
8164-8172	4602		0.4		0.2			0.4		1.0	0	1841		920	0	0	1841	0	
8193-8194	246				0.4		0.4		0.2	1.0	0	0		98	0	98	0	50	
8195-8207	1160								1	1.0	0	0		0	0	0	0	1160	
	32029										1435	7308		6095	0	5950	9217	2024	
											3923	9272		9662	0	5950	12880	5475	47162
											8%	20%		20%	0%	13%	27%	12%	
											10%	20%		20%		15%	25%	10%	100%

68%

8002
8206

Residential AM OUTBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

	York Road		College		Stone Road		Victoria Road			York Road		College		Stone Road		Victoria Road	
,1	East	West	East	West	East	West	North	South	SUM	East	West	East	West	East	West	North	South
PD 1 of Toronto	63	63					1		1.0	0	0	0	0	0	0	63	63
PD 2 of Toronto	24	24					1		1.0	0	0	0	0	0	0	24	24
PD 4 of Toronto	43	43					1		1.0	0	0	0	0	0	0	43	43
PD 5 of Toronto	78	78					1		1.0	0	0	0	0	0	0	78	78
PD 7 of Toronto	58	58					1		1.0	0	0	0	0	0	0	58	58
PD 8 of Toronto	50	50					1		1.0	0	0	0	0	0	0	50	50
PD 9 of Toronto	158	158					1		1.0	0	0	0	0	0	0	158	158
PD 10 of Toronto	115	115					1		1.0	0	0	0	0	0	0	115	115
PD 13 of Toronto	18	18					1		1.0	0	0	0	0	0	0	18	18
Pickering	28	28	0.5				0.5		1.0	14	0	0	0	0	0	14	28
Clarington	69	69					1		1.0	0	0	0	0	0	0	69	69
Newmarket	19	19					0.5	0.5	1.0	0	0	0	0	0	0	10	9	19
Richmond Hill	14	14	0.5					0.5	1.0	7	0	0	0	0	0	0	7	14
Markham	38	38	0.5					0.5	1.0	19	0	0	0	0	0	0	19	38
Vaughan	39	39	0.5					0.5	1.0	20	0	0	0	0	0	0	19	39
Caledon	98	98	0.5				0.5		1.0	49	0	0	0	0	0	49	0	98
Brampton	645	645	0.5					0.5	1.0	323	0	0	0	0	0	0	322	645
Mississauga	1131	1131	0.5					0.5	1.0	566	0	0	0	0	0	0	565	1131
Halton Hills	381	381	1						1.0	381	0	0	0	0	0	0	0	381
Milton	531	531	0.5					0.5	1.0	266	0	0	0	0	0	0	265	531
Oakville	255	255	0.5					0.5	1.0	128	0	0	0	0	0	0	127	255
Burlington	331	331						1	1.0	0	0	0	0	0	0	0	331	331
Flamborough	151	151			0.5			0.5	1.0	0	0	0	0	76	0	0	0	75	151
Dundas	10	10			0.5			0.5	1.0	0	0	0	0	5	0	0	0	5	10
Ancaster	25	25						1	1.0	0	0	0	0	0	0	0	0	25	25
Stoney Creek	143	143						1	1.0	0	0	0	0	0	0	0	0	143	143
Hamilton	302	302						1	1.0	0	0	0	0	0	0	0	0	302	302
Grimsby	15	15						1	1.0	0	0	0	0	0	0	0	0	15	15
Waterloo	1602	1602			0.5		0.5		1.0	0	0	0	0	801	0	0	801	0	1602
Kitchener	2257	2257		0.25		0.25	0.5		1.0	0	564	0	564	0	0	0	1128	1	2257
Cambridge	2492	2492		0.5		0.5			1.0	0	1246	0	1246	0	0	0	0	0	2492
North Dumfries	159	159				0.5	0.5		1.0	0	0	0	80	0	0	0	79	0	159
Wilmot	22	22				1			1.0	0	0	0	22	0	0	0	0	0	22
Wellesley	39	39				1			1.0	0	0	0	39	0	0	0	0	0	39
Woolwich	394	394				0.5	0.5		1.0	0	0	0	197	0	0	197	0	0	394
City of Guelph	32067	32067							0.0	0	0	0	0	0	0	0			0
Puslinch	768	768				0.5		0.5	1.0	0	0	0	384	0	0	0	384	768
Guelph/Eramosa	983	983	0.5				0.5		1.0	492	0	0	0	0	0	491	0	983
Centre Wellington	446	446	0.5				0.5		1.0	223	0	0	0	0	0	223	0	446
Erin	176	176					1		1.0	0	0	0	0	0	0	176	0	176
Orangeville	134	134					1		1.0	0	0	0	0	0	0	134	0	134
Barrie	37	37					0.5	0.5	1.0	0	0	0	0	0	0	19	18	37
Kawartha Lakes	26	26					0.5	0.5	1.0	0	0	0	0	0	0	13	13	26
Hastings	16	16					0.5	0.5	1.0	0	0	0	0	0	0	8	8	16
Grey	7	7						1	1.0	0	0	0	0	0	0	0	7	7
Rest of Wellington	233	233					1		1.0	0	0	0	0	0	0	233	0	233
Perth	14	14						1	1.0	0	0	0	0	0	0	0	14	14
Oxford	170	170		0.5		0.5			1.0	0	85	0	0	0	0	0	0	170
Haldimand-Norfolk	45	45						1	1.0	0	0	0	0	0	0	0	45	45
Wasaga Beach	23	23					1		1.0	0	0	0	0	0	0	23	0	23
Midland	84	84					0.5	0.5	1.0	0	0	0	0	0	0	42	42	84
Shelburne	37	37					1		1.0	0	0	0	0	0	0	37	0	37
Brantford	137	137		0.5		0.5			1.0	0	69	0	68	0	0	0	0	137
External	156	156							0.0									
	47200	47200								2488	1964	0	3567	0	0	3663	3451	15133
										16%	13%	0%	24%	0%	0%	24%	23%	
										15%	15%		25%			25%	25%	105%
	68%				8002													
					8206													

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Planning district of origin - pd_orig

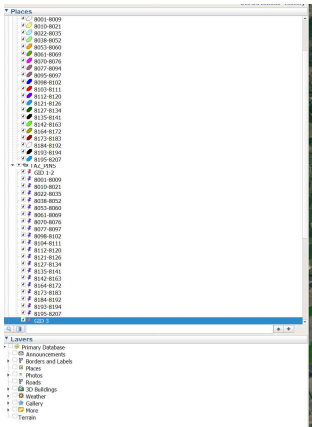
RowG:
ColG:(70)
TblG:

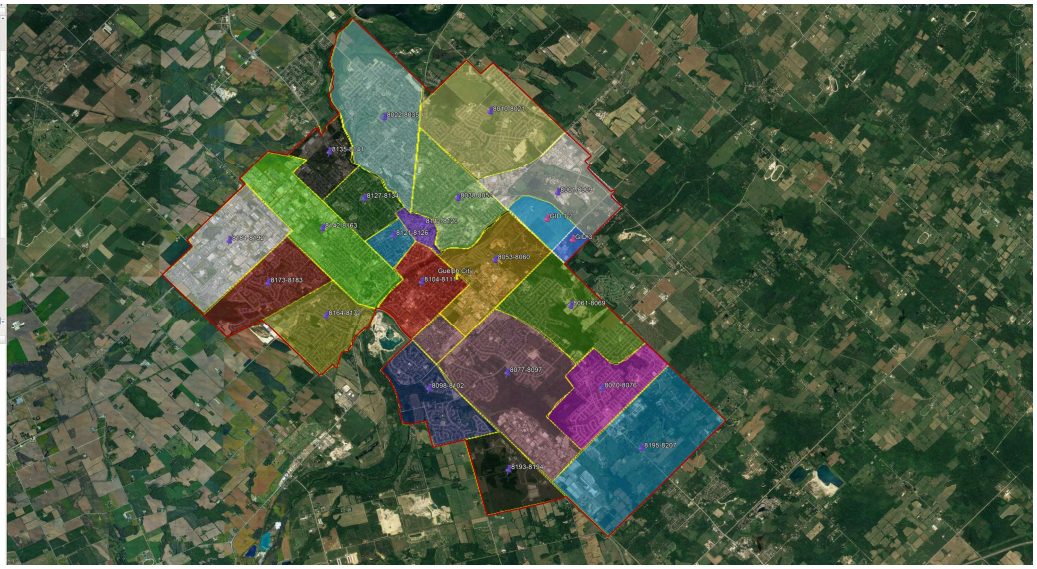
Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In h
and
Type of dwelling unit - dwell_type In 1, 2, 3,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

	York Road		College		Stone Road		Victoria Road			York Road		College		Stone Road		Victoria Road	
	East	West	East	West	East	West	North	South	SUM	East	West	East	West	East	West	North	South
8001	50	532															
8002	46																
8004	38																
8005	34																
8007, 39																	
8008	305																
8009	59																
8010	71	2338															
8011	40																
8012	504																
8013	494																
8014	824																
8015	310																
8021	95																
8022	214	2043															
8023	32																
8024	193																
8025	45																
8026	322																
8028	70																
8029	173																
8030	7																
8031	211																
8032	294																
8033	21																
8034	35																
8035	426																
8036	43	2391															
8038	24																
8039	1081																
8041	209																
8042	122																
8043	146																
8044	260																
8045	103																
8047	24																
8048	72																
8049	180																
8051	33																
8052	94																
8055	18	3631															
8056	632																
8057	2682																
8058	65																
8059	234																
8061	14	341															
8062	42																
8065	28																
8066	87																
8067	14																
8069	156																
8070	61	644															
8071	82																
8072	165																
8073	240																
8074	34																
8075	62																
8077	19	2859															
8078	14																
8079	174																
8080	129																
8082	69																
8083	202																
8084	384																
8085	175																
8086	462																
8087	365																
8088	23																
8089	5																
8090	47																
8091	77																
8092	40																
8093	78																
8094	198																
8095	170																
8096	181																
8097	47																
8098	7	402															
8099	206																
8101	167																
8102	22																
8105	380	2333															
8107	1455																
8108	49																
8109	272																
8111	177																
8112	19	1118															

8113	224	
8114	118	
8115	105	
8116	78	
8117	204	
8118	277	
8119	39	
8120	54	
8121	980	2933
8122	13	
8123	1651	
8124	53	
8125	219	
8126	17	
8127	61	1132
8128	161	
8129	135	
8130	119	
8131	123	
8132	217	
8133	316	
8135	141	717
8136	159	
8137	44	
8138	39	
8139	121	
8140	180	
8141	33	
8142	217	2607
8143	215	
8144	428	
8145	231	
8146	75	
8147	180	
8148	17	
8149	368	
8150	129	
8151	225	
8152	11	
8153	4	
8154	184	
8155	63	
8157	144	
8158	20	
8159	48	
8161	30	
8162	18	
8165	33	4602
8168	72	
8169	89	
8171	358	
8172	172	
8174	193	
8175	254	
8176	84	
8177	92	
8178	98	
8179	37	
8181	300	
8182	74	
8183	129	
8184	84	
8185	36	
8186	349	
8187	33	
8188	542	
8189	294	
8190	494	
8191	679	
8192	106	
8193	103	246
8194	143	
8196	338	1160
8197	62	
8198	16	
8199	673	
8204	15	
8205	56	
	32029	





Employement AM Inbound

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of destination - purp_dest In W,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

,1		York Road		College		Stone Road		Victoria Road		SUM	York Road		College	Stone Road		Victoria Road		
		East	West	East	West	East	West	North	South		East	West	West	East	West	North	South	
PD 1 of Toronto	54								1	1.0	0	0	0	0	0	0	54	54
PD 2 of Toronto	13								1	1.0	0	0	0	0	0	0	13	13
PD 3 of Toronto	61								1	1.0	0	0	0	0	0	0	61	61
PD 4 of Toronto									1	1.0	0	0	0	0	0	0	0	0
PD 5 of Toronto									1	1.0	0	0	0	0	0	0	0	0
PD 6 of Toronto	11								1	1.0	0	0	0	0	0	0	11	11
PD 7 of Toronto	60								1	1.0	0	0	0	0	0	0	60	60
PD 8 of Toronto	76								1	1.0	0	0	0	0	0	0	76	76
PD 9 of Toronto	24								1	1.0	0	0	0	0	0	0	24	24
PD 10 of Toronto	36								1	1.0	0	0	0	0	0	0	36	36
PD 13 of Toronto									1	1.0	0	0	0	0	0	0	0	0
Aurora	27							0.5	0.5	1.0	0	0	0	0	0	14	13	27
Pickering		0.5							0.5	1.0	0	0	0	0	0	0	0	0
Clarington									1	1.0	0	0	0	0	0	0	0	0
Newmarket								0.5	0.5	1.0	0	0	0	0	0	0	0	0
Richmond Hill	10	0.5							0.5	1.0	5	0	0	0	0	0	5	10
Markham		0.5							0.5	1.0	0	0	0	0	0	0	0	0
Vaughan	10	0.5							0.5	1.0	5	0	0	0	0	0	5	10
Caledon	96	0.5						0.5		1.0	48	0	0	0	0	48	0	96
Brampton	242	0.5							0.5	1.0	121	0	0	0	0	0	121	242
Mississauga	591	0.5							0.5	1.0	296	0	0	0	0	0	295	591
Halton Hills	326	1								1.0	326	0	0	0	0	0	0	326
Milton	608	0.5							0.5	1.0	304	0	0	0	0	0	304	608
Oakville	225	0.5							0.5	1.0	113	0	0	0	0	0	112	225
Burlington	215								1	1.0	0	0	0	0	0	0	215	215
Flamborough	236				0.5				0.5	1.0	0	0	118	0	0	0	118	236
Dundas	22				0.5				0.5	1.0	0	0	11	0	0	0	11	22
Ancaster	46								1	1.0	0	0	0	0	0	0	46	46
Stoney Creek	14								1	1.0	0	0	0	0	0	0	14	14
Hamilton	335								1	1.0	0	0	0	0	0	0	335	335
Grimsby	38								1	1.0	0	0	0	0	0	0	38	38
St Catharines	10								1	1.0	0	0	0	0	0	0	10	10
Thorold	57								1	1.0	0	0	0	0	0	0	57	57
Waterloo	1246				0.5			0.5		1.0	0	0	623	0	0	623	0	1246
Kitchener	3747		0.25		0.25			0.5		1.0	0	937	937	0	0	1873	0	3747
Cambridge	3232		0.5		0.5					1.0	0	1616	1616	0	0	0	0	3232
North Dumfries	152				0.5			0.5		1.0	0	0	76	0	0	76	0	152
Wilmot	207				1					1.0	0	0	207	0	0	0	0	207
Wellesley	45				1					1.0	0	0	45	0	0	0	0	45
Woolwich	655				0.5			0.5		1.0	0	0	328	0	0	327	0	655
City of Guelph										0.0	0	0	0	0	0	0	0	0
Puslinch	515				0.5				0.5	1.0	0	0	258	0	0	0	257	515
Guelph/Eramosa	752	0.5						0.5		1.0	376	0	0	0	0	376	0	752
Centre Wellington	2212	0.5						0.5		1.0	1106	0	0	0	0	1106	0	2212
Erin	90							1		1.0	0	0	0	0	0	90	0	90
Orangeville	44							1		1.0	0	0	0	0	0	44	0	44
Innisfil	23							1		1.0	0	0	0	0	0	23	0	23
Bradford-West Gwillimbury	11							1		1.0	0	0	0	0	0	11	0	11
Adjala-Tosorontio	97							1		1.0	0	0	0	0	0	97	0	97
Brant	37						0.5		0.5	1.0	0	0	0	0	19	0	18	37
Mulmur	6							1		1.0	0	0	0	0	0	6	0	6
Amaranth	24	0.5						0.5		1.0	12	0	0	0	0	12	0	24
Melancthon	22	0.5						0.5		1.0	11	0	0	0	0	11	0	22
East Garafraxa	23	0.5						0.5		1.0	12	0	0	0	0	12	-1	23
Barrie								0.5	0.5	1.0	0	0	0	0	0	0	0	0
Kawartha Lakes								0.5	0.5	1.0	0	0	0	0	0	0	0	0
Hastings								0.5	0.5	1.0	0	0	0	0	0	0	0	0
Grey									1	1.0	0	0	0	0	0	0	0	0
Rest of Wellington								1		1.0	0	0	0	0	0	0	0	0
Perth									1	1.0	0	0	0	0	0	0	0	0
Oxford			0.5		0.5					1.0	0	0	0	0	0	0	0	0
Haldimand-Norfolk									1	1.0	0	0	0	0	0	0	0	0
Wasaga Beach								1		1.0	0	0	0	0	0	0	0	0
Midland								0.5	0.5	1.0	0	0	0	0	0	0	0	0
Shelburne								1		1.0	0	0	0	0	0	0	0	0
Brantford	152		0.5		0.5					1.0	0	76	75	0	0	0	1	152
External	29									0.0								
	16735										2735	2629	4294	0	19	4749	2309	16735

18962

0%

8002
8206

		York Road		College		Stone Road		Victoria Road		SUM	York Road		College	Stone Road		Victoria Road		
		East	West	East	West	East	West	North	South		East	West	West	East	West	North	South	
8001-8009		0.5						0.5		1.0	0	0	0	0	0	0	0	
8010-8021	2974	0.5						0.5		1.0	1487	0	0	0	0	1487	0	
8022-8035	2305							1		1.0	0	0	0	0	0	2305	0	
8036-8052	1453		0.5					0.5		1.0	0	727	0	0	0	726	0	
8053-8060	251				0.5		0.5			1.0	0	0	126	0	125	0	0	
8061-8069	1100						0.5		0.5	1.0	0	0	0	0	550	0	550	
8070-8076	1527								1	1.0	0	0	0	0	0	0	1527	
8077-8097	1281				0.5		0.5			1.0	0	0	641	0	640	0	0	
8098-8102	1272				0.5		0.5			1.0	0	0	636	0	636	0	0	
8103-8111	784		0.34		0.33		0.33			1.0	0	267	259	0	258	0	0	
8112-8120	214		0.5					0.5		1.0	0	107	0	0	0	107	0	
8121-8126	476		0.5				0.5			1.0	0	238	0	0	238	0	0	
8127-8134	925		0.5					0.5		1.0	0	463	0	0	0	462	0	
8135-8141	210							1		1.0	0	0	0	0	0	210	0	
8142-8163	866		0.34		0.33			0.33		1.0	0	294	286	0	0	286	0	
8164-8172	1739		0.4		0.2			0.4		1.0	0	696	347	0	0	696	0	
8173-8183	1384		0.5					0.5		1.0	0	692	0	0	0	692	0	
8184-8192	301		0.5					0.5		1.0	0	150	0	0	0	151	0	
8193-8194					0.4		0.4		0.2	1.0	0	0	0	0	0	0	0	
8195-8207	163								1	1.0	0	0	0	0	0	0	163	
	19225										1487	3634	2295	0	2447	7122	2240	

	4222	6263	6589	0	2466	11871	4549	35960
	12%	17%	18%	0%	7%	33%	13%	
	10%	15%	20%		5%	35%	15%	100%

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 600-900
and
Trip purpose of destination - purp_dest In W,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College	Stone Road		Victoria Road		
		East	West	West	East	West	North	South	
8010	116								
8011	586								

8012	524
8013	243
8014	134
8015	900
8018	217
8019	159
8021	95
8022	343
8023	420
8024	508
8025	116
8026	387
8027	16
8028	22
8029	92
8032	80
8033	199
8034	19
8035	103
8036	52
8037	31
8038	132
8039	193
8040	43
8041	38
8042	245
8043	316
8044	82
8045	67
8046	14
8048	14
8049	97
8050	71
8051	58
8053	13
8056	33
8057	205
8061	130
8062	135
8063	181
8064	14
8065	46
8066	31
8067	78
8068	19
8069	466
8071	52
8072	353
8073	691
8074	61
8075	137
8076	233
8078	37
8079	43
8080	223
8081	23
8082	181
8084	58
8085	242
8088	51
8089	57
8091	50
8092	112
8096	41
8097	163
8098	185
8099	276
8100	324
8101	8
8102	479
8103	155
8105	93
8106	19
8107	206
8108	20
8109	137
8111	154
8112	49
8114	20
8116	5
8117	53
8118	26
8120	61
8121	25
8122	76
8123	171
8124	56
8125	64
8126	84
8127	306
8128	216
8129	116
8130	264
8132	10
8134	13
8136	38
8139	146
8141	26
8143	38
8144	29
8147	50
8148	107
8149	133
8150	23
8152	173
8154	90
8155	27
8157	25
8159	8
8160	12
8161	58
8162	93
8164	474
8166	201
8167	57
8168	395
8170	195
8171	417
8173	314
8174	158
8177	126
8178	262
8180	250
8181	17
8182	257
8189	14
8190	30
8199	42
8203	17

8204	63
8205	12
8207	29
	18968

Employement PM OUT

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of origin - purp_orig In W,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

,1		York Road East	York Road West	College East	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	SUM
PD 1 of Toronto	18								1	1.0
PD 2 of Toronto	29								1	1.0
PD 3 of Toronto	112								1	1.0
PD 4 of Toronto	13								1	1.0
PD 5 of Toronto									1	1.0
PD 6 of Toronto									1	1.0
PD 7 of Toronto	37								1	1.0
PD 8 of Toronto	71								1	1.0
PD 9 of Toronto	24								1	1.0
PD 10 of Toronto	36								1	1.0
PD 13 of Toronto									1	1.0
PD 16 of Toronto	12								1	1.0
Ajax	18								1	1.0
Aurora	27							0.5	0.5	1.0
Pickering		0.5							0.5	1.0
Clarington									1	1.0
Newmarket								0.5	0.5	1.0
Richmond Hill	9	0.5							0.5	1.0
Markham		0.5							0.5	1.0
Vaughan	40	0.5							0.5	1.0
Caledon	37	0.5						0.5		1.0
Brampton	114	0.5							0.5	1.0
Mississauga	624	0.5							0.5	1.0
Halton Hills	288	1								1.0
Milton	336	0.5							0.5	1.0
Oakville	161	0.5							0.5	1.0
Burlington	286								1	1.0
Flamborough	121				0.5				0.5	1.0
Dundas	22				0.5				0.5	1.0
Ancaster	46								1	1.0
Stoney Creek	58								1	1.0
Hamilton	283								1	1.0
Lincoln	26								1	1.0
Grimsby									1	1.0
St Catharines									1	1.0
Thorold	30								1	1.0
Fort Erie	17								1	1.0
Waterloo	870				0.5			0.5		1.0
Kitchener	3868		0.25		0.25			0.5		1.0
Cambridge	2249		0.5		0.5					1.0
North Dumfries	141				0.5			0.5		1.0
Wilmot	256				1					1.0
Wellesley	34				1					1.0
Woolwich	559				0.5			0.5		1.0
City of Guelph										0.0
Puslinch	429				0.5				0.5	1.0
Guelph/Eramosa	860	0.5						0.5		1.0
Centre Wellington	1955	0.5						0.5		1.0
Erin	53							1		1.0
Orangeville	44							1		1.0
Innisfil								1		1.0
Bradford-West Gwillimbury								1		1.0
Adjala-Tosorontio	97							1		1.0
Brant	59						0.5		0.5	1.0
Collingwood	12							1		1.0
Mulmur								1		1.0
Amaranth	24	0.5						0.5		1.0
Melancthon	22	0.5						0.5		1.0
East Garafraxa	12	0.5						0.5		1.0
Barrie								0.5	0.5	1.0
Kawartha Lakes								0.5	0.5	1.0
Hastings								0.5	0.5	1.0
Grey									1	1.0
Rest of Wellington								1		1.0
Perth									1	1.0
Oxford			0.5		0.5					1.0
Haldimand-Norfolk									1	1.0
Wasaga Beach								1		1.0
Midland								0.5	0.5	1.0
Shelburne								1		1.0
Brantford	98		0.5		0.5					1.0
External	29									0.0
	14537									

	York Road East	York Road West	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	SUM
	2386	2141	3502	0	30	4394	2084	14537

	0%			8002					
				8206					
		York Road East	York Road West	College East	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South
8001-8009	48	0.5						0.5	
8010-8021	1971	0.5						0.5	
8022-8035	2080							1	
8036-8052	1208		0.5					0.5	
8053-8060	439				0.5		0.5		
8061-8069	976						0.5		0.5
8070-8076	1279								1
8077-8097	1624				0.5		0.5		
8098-8102	1035				0.5		0.5		
8103-8111	637		0.34		0.33		0.33		
8112-8120	208		0.5					0.5	
8121-8126	479		0.5				0.5		
8127-8134	837		0.5					0.5	
8135-8141	478							1	
8142-8163	664		0.34		0.33			0.33	
8164-8172	1559		0.4		0.2			0.4	
8173-8183	1093		0.5					0.5	
8184-8192	111		0.5					0.5	
8193-8194	14				0.4		0.4		0.2
8195-8207	129								1
	16869								

	SUM
	1.0
	1.0
	1.0

8006	48
8010	88
8011	423
8012	250
8013	169
8014	111
8015	619
8017	43
8018	174
8019	94
8022	328
8023	366
8024	571
8025	133
8026	207
8028	21
8029	65
8031	28
8032	90
8033	192
8034	19
8035	60
8036	52
8037	31
8038	199
8039	29
8040	13
8041	121
8042	203
8043	206
8044	55
8045	66
8046	14
8047	24
8048	27
8049	87
8050	23
8051	58
8053	16
8056	54
8057	234
8059	135
8061	137
8062	121
8063	124
8065	67
8066	28
8067	63
8068	19
8069	417
8070	30
8071	35
8072	330
8073	458
8074	51
8075	147
8076	228
8077	21
8078	43
8079	85
8080	216
8081	23
8082	210
8084	78
8085	267
8086	74
8087	10
8088	33
8089	37
8090	37
8091	32
8092	83
8094	77
8095	127
8097	171
8098	133
8099	161
8100	255
8101	49
8102	437
8103	93
8104	23
8105	46
8106	56
8107	94
8108	12
8109	119
8110	47
8111	147
8112	24
8113	31
8114	20
8117	86
8118	12
8119	11
8120	24
8121	34
8122	64
8123	119
8124	44
8125	65
8126	153
8127	272
8128	196
8129	105
8130	188
8131	42
8132	21
8134	13
8135	288
8136	47
8138	57
8139	60
8141	26
8143	24
8145	20
8148	53
8149	99
8150	62
8151	46
8153	96
8154	35
8155	27
8157	56
8159	8
8160	12
8161	50
8162	76
8164	236
8166	199
8167	92
8168	363

8169	119
8170	205
8171	284
8172	61
8173	219
8174	205
8176	10
8177	50
8178	148
8180	187
8181	17
8182	257
8187	18
8188	35
8191	8
8192	50
8194	14
8197	30
8203	17
8204	41
8205	12
8207	29
	16869

Retail PM INBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In M,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

		York Road		College		Stone Road		Victoria Road				York Road		College	Stone Road		Victoria Road		
.1		East	West	East	West	East	West	North	South	SUM		East	West	West	East	West	North	South	
PD 1 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 2 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 3 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 4 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 5 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 6 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 7 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 8 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 9 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 10 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 13 of Toronto									1	1.0		0	0	0	0	0	0	0	0
PD 16 of Toronto									1	1.0		0	0	0	0	0	0	0	0
Ajax									1	1.0		0	0	0	0	0	0	0	0
Aurora								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Pickering		0.5							0.5	1.0		0	0	0	0	0	0	0	0
Clarington									1	1.0		0	0	0	0	0	0	0	0
Newmarket								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Richmond Hill	24	0.5							0.5	1.0		12	0	0	0	0	0	12	24
Markham		0.5							0.5	1.0		0	0	0	0	0	0	0	0
Vaughan		0.5							0.5	1.0		0	0	0	0	0	0	0	0
Caledon		0.5						0.5		1.0		-1	0	0	0	0	0	1	0
Brampton		0.5							0.5	1.0		0	0	0	0	0	0	0	0
Mississauga	10	0.5							0.5	1.0		5	0	0	0	0	0	5	10
Halton Hills		1								1.0		0	0	0	0	0	0	0	0
Milton	86	0.5							0.5	1.0		43	0	0	0	0	0	43	86
Oakville		0.5							0.5	1.0		0	0	0	0	0	0	0	0
Burlington	8								1	1.0		0	0	0	0	0	0	8	8
Flamborough	58				0.5				0.5	1.0		0	0	29	0	0	0	29	58
Glabrook	31								1	1.0		0	0		0	0	0		
Dundas					0.5				0.5	1.0		0	0	0	0	0	0	0	0
Ancaster									1	1.0		0	0	0	0	0	0	0	0
Stoney Creek									1	1.0		0	0	0	0	0	0	0	0
Hamilton									1	1.0		0	0	0	0	0	0	0	0
Lincoln									1	1.0		0	0	0	0	0	0	0	0
Grimsby									1	1.0		0	0	0	0	0	0	0	0
St Catharines									1	1.0		0	0	0	0	0	0	0	0
Thorold									1	1.0		0	0	0	0	0	0	0	0
Fort Erie									1	1.0		0	0	0	0	0	0	0	0
Waterloo	86				0.5			0.5		1.0		0	0	43	0	0	43	0	86
Kitchener	147		0.25		0.25			0.5		1.0		0	37	37	0	0	73	0	147
Cambridge	146		0.5		0.5					1.0		0	73	73	0	0	0	0	146
North Dumfries	45				0.5			0.5		1.0		0	0	22	0	0	23	0	45
Wilmot					1					1.0		0	0	0	0	0	0	0	0
Wellesley					1					1.0		0	0	0	0	0	0	0	0
Woolwich	105				0.5			0.5		1.0		0	0	53	0	0	52	0	105
City of Guelph	7234									0.0		0	0	0	0	0	0	7234	7234
Puslinch	66				0.5				0.5	1.0		0	0	33	0	0	0	33	66
Guelph/Eramosa	283	0.5						0.5		1.0		142	0	0	0	0	141	0	283
Centre Wellington	126	0.5						0.5		1.0		63	0	0	0	0	63	0	126
Erin								1		1.0		0	0	0	0	0	0	0	0
Orangeville								1		1.0		0	0	0	0	0	0	0	0
Innisfil								1		1.0		0	0	0	0	0	0	0	0
Bradford-West Gwillimbury								1		1.0		0	0	0	0	0	0	0	0
Adjala-Tosorontio								1		1.0		0	0	0	0	0	0	0	0
Brant	43						0.5		0.5	1.0		0	0	0	0	22	0	21	43
Collingwood								1		1.0		0	0	0	0	0	0	0	0
Mulmur								1		1.0		0	0	0	0	0	0	0	0
Amaranth		0.5						0.5		1.0		0	0	0	0	0	0	0	0
Melancthon		0.5						0.5		1.0		0	0	0	0	0	0	0	0
East Garafraxa		0.5						0.5		1.0		0	0	0	0	0	0	0	0
Barrie								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Kawartha Lakes								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Hastings								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Grey									1	1.0		0	0	0	0	0	0	0	0
Rest of Wellington								1		1.0		0	0	0	0	0	0	0	0
Perth									1	1.0		0	0	0	0	0	0	0	0
Oxford			0.5		0.5					1.0		0	0	0	0	0	0	0	0
Haldimand-Norfolk									1	1.0		0	0	0	0	0	0	0	0
Wasaga Beach								1		1.0		0	0	0	0	0	0	0	0
Midland								0.5	0.5	1.0		0	0	0	0	0	0	0	0
Shelburne								1		1.0		0	0	0	0	0	0	0	0
Brantford	23		0.5		0.5					1.0		0	12	11	0	0	0	0	23
External										0.0									
	8521											264	122	301	0	22	395	7386	8490

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In M,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016

Table:

		York Road		College		Stone Road		Victoria Road				York Road		College	Stone Road		Victoria Road		
		East	West	East	West	East	West	North	South	SUM		East	West	West	East	West	North	South	
8001-8009	75	0.5						0.5		1.0		38	0	0	0	0	38	-1	
8010-8021	581	0.5						0.5		1.0		291	0	0	0	0	291	-1	
8022-8035	500							1		1.0		0	0	0	0	0	500	0	
8036-8052	333		0.5					0.5		1.0		0	167	0	0	0	167	-1	
8053-8060	479				0.5		0.5			1.0		0	0	240	0	240	0	-1	
8061-8069	374						0.5		0.5	1.0		0	0	0	0	187	0	187	
8070-8076	523								1	1.0		0	0	0	0	0	0	523	
8077-8097	613				0.5		0.5			1.0		0	0	307	0	307	0	-1	
8098-8102	262				0.5		0.5			1.0		0	0	131	0	131	0	0	
8103-8111	278		0.34		0.33		0.33			1.0		0	95	92	0	92	0	-1	
8112-8120	173		0.5					0.5		1.0		0	87	0	0	0	87	-1	
8121-8126	350		0.5				0.5			1.0		0	175	0	0	175	0	0	
8127-8134	195		0.5					0.5		1.0		0	98	0	0	0	98	-1	
8135-8141	549							1		1.0		0	0	0	0	0	549	0	

0.848961

8002
8206

8142-8163	765	0.34	0.33		0.33		1.0	0	260		252	0	0	252	1		
8164-8172	413	0.4	0.2		0.4		1.0	0	165		83	0	0	165	0		
8173-8183	497	0.5			0.5		1.0	0	249		0	0	0	249	-1		
8184-8192	275	0.5			0.5		1.0	0	138		0	0	0	138	-1		
8193-8194			0.4	0.4		0.2	1.0	0	0		0	0	0	0	0		
8195-8207						1	1.0	0	0		0	0	0	0	0		
	7235							329	1434		1105	0	1132	2534	701		
								593	1556		1406	0	1154	2929	8087	15725	
								3.77%	9.90%		8.94%	0.00%	7.34%	18.63%	51.43%		
								5%	10%		10%		5%	20%	50%	100%	

8001	29
8004	18
8008	28
8010	154
8011	50
8012	121
8013	19
8014	47
8015	87
8021	103
8022	70
8023	16
8024	80
8025	15
8026	85
8029	14
8031	111
8033	74
8034	28
8035	7
8038	59
8039	21
8042	57
8043	50
8045	23
8049	70
8051	53
8056	57
8057	346
8059	76
8061	39
8062	10
8066	64
8068	134
8069	127
8071	65
8072	36
8073	281
8074	26
8075	86
8076	29
8077	27
8080	39
8081	36
8082	126
8083	44
8085	11
8086	26
8088	49
8089	104
8090	47
8092	52
8096	37
8097	15
8098	32
8100	41
8101	22
8102	167
8103	69
8105	68
8106	8
8107	63
8109	32
8110	31
8111	7
8113	30
8117	31
8118	101
8119	11
8121	101
8122	5
8123	53
8125	54
8126	137
8127	23
8128	67
8129	57
8130	27
8132	21
8135	160
8136	151
8137	23
8138	57
8139	120
8141	38
8142	45
8143	75
8146	51
8149	103
8150	12
8151	14
8152	231
8153	58
8154	24
8157	92
8161	17
8162	43
8164	18
8166	26
8168	32
8169	129
8170	99
8171	39
8172	70
8173	126
8174	22
8175	19

Richmond H	24
Mississaug	10
Milton	86
Burlington	8
Flamboroug	58
Glanbrook	31
Waterloo	86
Kitchener	147
Cambridge	146
North Dumf	45
Woolwich	105
City of Guel	7234
Puslinch	66
Guelph/Era	283
Centre Well	126
Brant	43
Brantford	23

8176	10
8177	10
8178	64
8180	91
8182	155
8186	5
8188	60
8189	35
8190	24
8191	64
8192	87
	7235

Retail PM OUTBOUND

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of origin - purp_orig In M,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

,1		York Road East	York Road West	College East	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	SUM
PD 1 of Toronto									1	1.0
PD 2 of Toronto									1	1.0
PD 3 of Toronto									1	1.0
PD 4 of Toronto									1	1.0
PD 5 of Toronto									1	1.0
PD 6 of Toronto									1	1.0
PD 7 of Toronto									1	1.0
PD 8 of Toronto									1	1.0
PD 9 of Toronto									1	1.0
PD 10 of Toronto									1	1.0
PD 13 of Toronto									1	1.0
PD 16 of Toronto									1	1.0
Ajax									1	1.0
Aurora								0.5	0.5	1.0
Pickering		0.5							0.5	1.0
Clarington									1	1.0
Newmarket								0.5	0.5	1.0
Richmond Hill		0.5							0.5	1.0
Markham		0.5							0.5	1.0
Vaughan		0.5							0.5	1.0
Whitby	22	0.5							0.5	1.0
Caledon	79	0.5						0.5		1.0
Brampton		0.5							0.5	1.0
Mississauga	33	0.5							0.5	1.0
Halton Hills	114	1								1.0
Milton	96	0.5							0.5	1.0
Oakville		0.5							0.5	1.0
Burlington	15								1	1.0
Flamborough	36				0.5				0.5	1.0
Glabrook									1	1.0
Dundas					0.5				0.5	1.0
Ancaster									1	1.0
Stoney Creek	49								1	1.0
Hamilton									1	1.0
Lincoln									1	1.0
Grimsby									1	1.0
St Catharines									1	1.0
Thorold									1	1.0
Fort Erie									1	1.0
Waterloo	34				0.5			0.5		1.0
Kitchener	98		0.25		0.25			0.5		1.0
Cambridge	61		0.5		0.5					1.0
North Dumfries					0.5			0.5		1.0
Wilmot					1					1.0
Wellesley					1					1.0
Woolwich	72				0.5			0.5		1.0
City of Guelph	6926									0.0
Puslinch	187				0.5				0.5	1.0
Guelph/Eramosa	287	0.5						0.5		1.0
Centre Wellington	418	0.5						0.5		1.0
Erin								1		1.0
Orangeville								1		1.0
Innisfil								1		1.0
Bradford-West Gwillimbury								1		1.0
Adjala-Tosorontio								1		1.0
Brant	20						0.5		0.5	1.0
Collingwood								1		1.0
Mulmur								1		1.0
Amaranth		0.5						0.5		1.0
Melancthon		0.5						0.5		1.0
East Garafraxa		0.5						0.5		1.0
Barrie								0.5	0.5	1.0
Kawartha Lakes								0.5	0.5	1.0
Hastings								0.5	0.5	1.0
Grey									1	1.0
Rest of Wellington								1		1.0
Perth									1	1.0
Oxford			0.5		0.5					1.0
Haldimand-Norfolk									1	1.0
Wasaga Beach								1		1.0
Midland								0.5	0.5	1.0
Shelburne								1		1.0
Brantford	5		0.5		0.5					1.0
External										0.0
	8552									

		York Road East	York Road West	College East	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	SUM
	0.809869				8002 8206					
8001-8009	16	0.5						0.5		1.0
8010-8021	632	0.5						0.5		1.0
8022-8035	572							1		1.0
8036-8052	436		0.5					0.5		1.0
8053-8060	185				0.5		0.5			1.0
8061-8069	278						0.5		0.5	1.0
8070-8076	567								1	1.0
8077-8097	747				0.5		0.5			1.0
8098-8102	399				0.5		0.5			1.0
8103-8111	244		0.34		0.33		0.33			1.0
8112-8120	119		0.5					0.5		1.0
8121-8126	169		0.5				0.5			1.0
8127-8134	223		0.5					0.5		1.0
8135-8141	446							1		1.0
8142-8163	818		0.34		0.33			0.33		1.0
8164-8172	527		0.4		0.2			0.4		1.0
8173-8183	529		0.5					0.5		1.0
8184-8192	18		0.5					0.5		1.0
8193-8194					0.4		0.4		0.2	1.0
8195-8207									1	1.0
	6925									

	York Road East	York Road West	College	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	
	8	0		0	0	0	8	0	
	316	0		0	0	0	316	0	
	0	0		0	0	0	572	0	
	0	218		0	0	0	218	0	
	0	0		93	0	92	0	0	
	0	0		0	0	139	0	139	
	0	0		0	0	0	0	567	
	0	0		373	0	374	0	0	
	0	0		199	0	200	0	0	
	0	83		80	0	81	0	0	
	0	60		0	0	0	59	0	
	0	85		0	0	84	0	0	
	0	112		0	0	0	111	0	
	0	0		0	0	0	446	0	
	0	278		270	0	0	270	0	
	0	211		105	0	0	211	0	
	0	265		0	0	0	264	0	
	0	9		0	0	0	9	0	
	0	0		0	0	0	0	0	
	0	0		0	0	0	0	0	
	324	1321		1120	0	970	2484	706	
	906	1380		1341	0	980	2978	7892	15477
	5.85%	8.92%		8.66%	0.00%	6.33%	19.24%	50.99%	
	5%	10%		10%		5%	20%	50%	100%

8009	16
8010	192

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: Planning district of origin - pd_orig

RowG:
ColG:(70)
TblG:

Filters:
(Start time of trip - start_time In 1600-1900
and
Trip purpose of origin - purp_orig In M,
and
Primary travel mode of trip - mode_prime In d,p,t,s)

Trip 2016
Table:

Table:

	York Road East	York Road West	College West	Stone Road East	Stone Road West	Victoria Road North	Victoria Road South	SUM
1			0	0	0	0	0	0
2			0	0	0	0	0	0
3			0	0	0	0	0	0
4			0	0	0	0	0	0
5			0	0	0	0	0	0
6			0	0	0	0	0	0
7			0	0	0	0	0	0
8			0	0	0	0	0	0
9			0	0	0	0	0	0
10			0	0	0	0	0	0
13			0	0	0	0	0	0
16			0	0	0	0	0	0
17			0	0	0	0	0	0
18			0	0	0	0	0	0

8011	46
8012	90
8013	72
8014	26
8015	146
8017	22
8018	38
8022	33
8023	28
8024	101
8025	38
8026	45
8027	16
8028	129
8033	70
8034	28
8035	84
8038	47
8039	21
8040	41
8042	36
8043	60
8049	91
8050	78
8051	62
8057	47
8059	138
8061	51
8062	24
8066	81
8069	122
8071	116
8072	45
8073	223
8074	47
8075	56
8076	80
8077	76
8079	58
8081	36
8082	205
8085	16
8089	104
8091	38
8092	76
8094	25
8095	63
8096	35
8097	15
8099	45
8100	83
8101	26
8102	245
8103	94
8105	35
8106	8
8107	27
8109	32
8110	15
8111	33
8114	10
8116	27
8117	25
8119	57
8121	39
8122	10
8125	9
8126	111
8127	68
8128	27
8129	57
8130	47
8133	24
8135	150
8136	77
8137	28
8139	151
8140	40
8148	63
8149	103
8150	58
8151	52
8152	133
8154	24
8157	69
8160	148
8161	102
8162	55
8163	11
8166	26
8167	77
8168	69
8169	29
8170	149
8171	112
8172	65
8173	222
8174	47
8176	10
8177	30
8178	35
8180	77
8182	108
8205	18
	6925

Whitby	22
Caledon	79
Mississauga	33
Halton Hills	114
Milton	96
Burlington	15
Flamborough	36
Stoney Creek	49
Waterloo	34
Kitchener	98
Cambridge	61
Woolwich	72
City of Guelph	6926
Puslinch	187
Guelph/Eramosa	287
Centre Wellington	418
Brant	20
Brantford	5
	8552

Appendix G

Signal Warrants

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Victoria and Street A - 2036

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street A - 2036 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,357	7	0	0	0	71	1,492	0	22	0	167	
PM Peak Hour	0	1,838	23	0	0	0	182	1,609	0	14	0	127	
AHV	0	799	8	0	0	0	63	775	0	9	0	74	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,645			**83**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1727	191.9	**Case 2 - Might be Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	83	32.4	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1645	182.8	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	9	12.0	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Victoria and Street A - 2041

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street A - 2041 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,401	7	0	0	0	71	1,543	0	22	0	167	
PM Peak Hour	0	1,902	23	0	0	0	182	1,661	0	14	0	127	
AHV	0	826	8	0	0	0	63	801	0	9	0	74	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,698			**83**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1780	197.8	**Case 2 - Might be Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	83	32.4	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1698	188.6	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	9	12.0	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Victoria and Street A - 2046

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street A - 2046 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,448	7	0	0	0	71	1,595	0	22	0	167	
PM Peak Hour	0	1,970	23	0	0	0	182	1,717	0	14	0	127	
AHV	0	855	8	0	0	0	63	828	0	9	0	74	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,753			**83**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1836	204.0	**Case 1 - Undoubtedly Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	83	32.4	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1753	194.8	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	9	12.0	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Victoria and Street B - 2036

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street B - 2036 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,200	134	0	0	0	243	896	0	71	0	150	
PM Peak Hour	0	1,301	77	0	0	0	122	1,393	0	45	0	246	
AHV	0	625	53	0	0	0	91	572	0	29	0	99	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,341			**128**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1469	163.2	**Case 2 - Might be Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	128	50.2	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1341	149.0	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	29	38.5	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | D Justification:

What are the intersecting roadways? Victoria and Street B - 2041

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street B - 2041 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,243	134	0	0	0	243	929	0	71	0	150	
PM Peak Hour	0	1,351	77	0	0	0	122	1,438	0	45	0	246	
AHV	0	649	53	0	0	0	91	592	0	29	0	99	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,384			**128**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1512	168.0	**Case 2 - Might be Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	128	50.2	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1384	153.8	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	29	38.5	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | D Justification:

What are the intersecting roadways? Victoria and Street B - 2046

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 3

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Victoria and Street B - 2046 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	0	1,289	134	0	0	0	243	962	0	71	0	150	
PM Peak Hour	0	1,403	77	0	0	0	122	1,486	0	45	0	246	
AHV	0	673	53	0	0	0	91	612	0	29	0	99	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	1,429			**128**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	1557	173.0	**Case 2 - Might be Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	255	128	50.2	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	1429	158.7	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	29	38.5	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Stone and Street B - 2036

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 4

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Stone and Street B - 2036 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	91	0	23	86	266	23	6	0	100	2	481	1	
PM Peak Hour	44	0	8	88	506	100	1	0	214	11	563	1	
AHV	34	0	8	43	193	31	2	0	78	3	261	1	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	122			**532**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	654	72.6	**Case 1 - Undoubtedly Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	170	532	312.9	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	122	13.5	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	308	410.2	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | D Justification:

What are the intersecting roadways? Stone and Street B - 2041

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 4

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Stone and Street B - 2041 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	91	0	23	86	278	23	6	0	100	2	505	1	
PM Peak Hour	44	0	8	88	529	100	1	0	214	11	590	1	
AHV	34	0	8	43	202	31	2	0	78	3	274	1	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	122			**553**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	675	75.0	**Case 1 - Undoubtedly Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	170	553	325.5	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	122	13.5	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	320	427.2	

Input Data Sheet

Analysis Sheet | Results Sheet | Justification 5A | Justification 7 | Justification:

What are the intersecting roadways? Stone and Street B - 2046

What is the direction of the Main Road street? North-South

When was the data collected? 2025

Justification 1 - 4: Volume Warrants

a.- Number of approach lanes on the Main Road? 2 or more

b.- Number of approach lanes on the Minor Road? 2 or more

c.- How many approaches? 4

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00													
8:00													
9:00													
10:00													
15:00													
16:00													
17:00													
18:00													
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	4
13-24	3
25-36	4

Note: If desired, Justification 5A can be calculated instead to determine expected safety improvement following signalization

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Factored 8 hour pedestrian volume	120		15		7		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									128
Net 8 Hour Vehicular Volume on Street Being Crossed									6,411

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection (Zone 1) or in proximity to the intersection (Zones 2-4). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2 (if needed)		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	20	80	0	15	1	5	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	120		15		7		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									128
Net 8 Hour Volume of Delayed Pedestrians									34

Justification 7 - Projected Volumes

Intersection: Stone and Street B - 2046 Count Date: 2025

Return to Justifications 1 - 6

INPUT

PRIOR TO START - FILL OUT GEOMETRY INPUTS IN THE INPUT DATA SPREADSHEET - STEPS A to D

a.- Both Intersection Roads Exist? No

b.- What kind of count estimate available? AM PM Peak Hour **Proceed to c2**

c1.- 8-Hour Count Estimate

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18:00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

c2.- Peak Hour Estimate

Peak Hour	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM Peak Hour	91	0	23	86	290	23	6	0	100	2	530	1	
PM Peak Hour	44	0	8	88	554	100	1	0	214	11	618	1	
AHV	34	0	8	43	211	31	2	0	78	3	287	1	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	122			**576**									

c3.- AADT Estimate - can leave movements without data blank. If midblock reading, can assign demand to through movement.

AADT	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AHV	0	0	0	0	0	0	0	0	0	0	0	0	0
	Main Street AHV Sum			**Minor Street AHV Sum**									
	0			**0**									

d. Justification 7 Result

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		Case?
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	-	-	-	900	698	77.5	**Case 1 - Undoubtedly Warranted**
	B. Vehicle volume, along minor streets (average hour)	-	-	-	170	576	338.8	
2. Delay to cross Traffic	A. Vehicle volume, major street (average hour)	-	-	-	900	122	13.5	
	B. Combined vehicle and pedestrian volume crossing	-	-	-	75	334	444.8	

Appendix H

Left-Turn Lane Warrants

LEFT TURN LANE WARRANTS

GENERAL INFORMATION

Project Title	GID Transportation Study
Project #	12599122
Analysis Period	Future Total 2036
Intersection	Stone and Street A
LT Movement Approach	West

AM PEAK HOUR		**PM PEAK HOUR**		**SATURDAY PEAK**	
V_L =	86	V_L =	88	V_L =	
V_O =	484	V_O =	575	V_O =	

AM PEAK HOUR		PM PEAK HOUR		SATURDAY PEAK HOUR	
V_L =	86	V_L =	88	V_L =	0
V_O =	484	V_O =	575	V_O =	0
Left Lane Required?	Yes	Left Lane Required?	Yes	Left Lane Required?	
Storage Length	15	Storage Length	15	Storage Length	

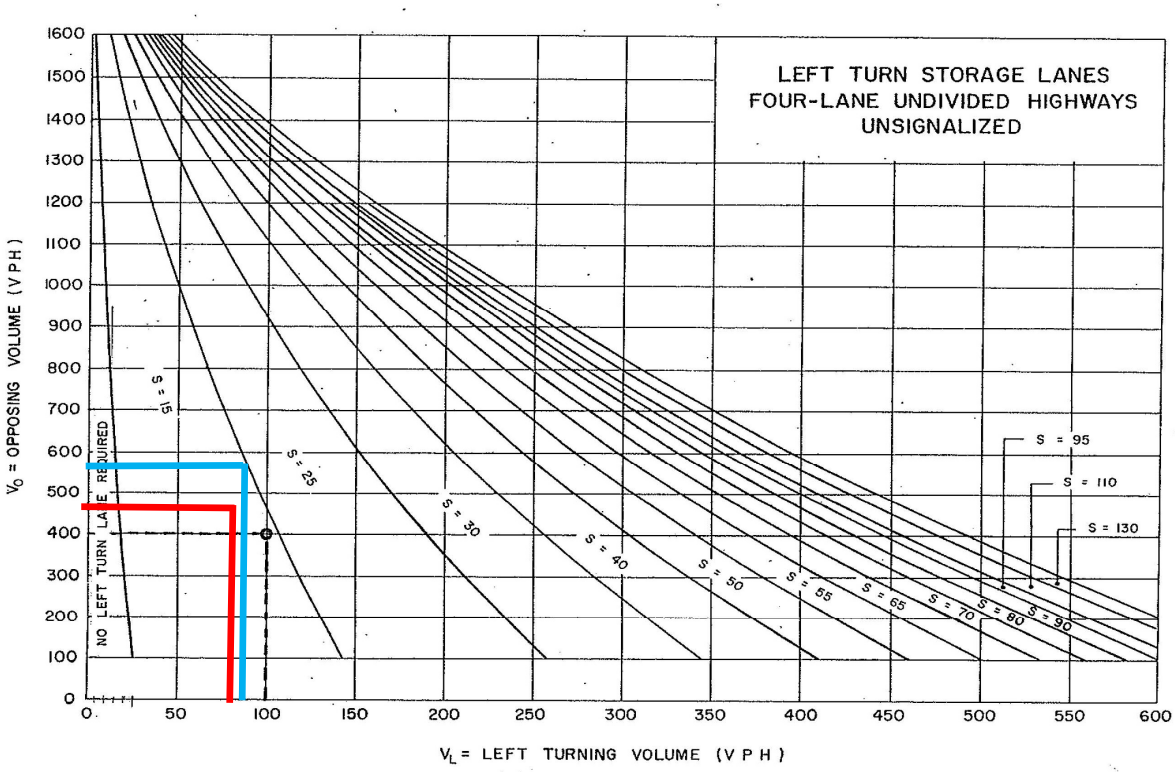


Figure EB-1

LEFT TURN LANE WARRANTS

GENERAL INFORMATION

Project Title	GID Transportation Study
Project #	12599122
Analysis Period	Future Total 2036
Intersection	Victoria Road and Street A
LT Movement Approach	North

AM PEAK HOUR		**PM PEAK HOUR**		**SATURDAY PEAK**	
V_L =	71	V_L =	182	V_L =	
V_O =	1364	V_O =	1861	V_O =	

AM PEAK HOUR		PM PEAK HOUR		SATURDAY PEAK HOUR	
V_L =	71	V_L =	182	V_L =	0
V_O =	1364	V_O =	1861	V_O =	0
Left Lane Required?	Yes	Left Lane Required?	Yes	Left Lane Required?	
Storage Length	30	Storage Length		Storage Length	

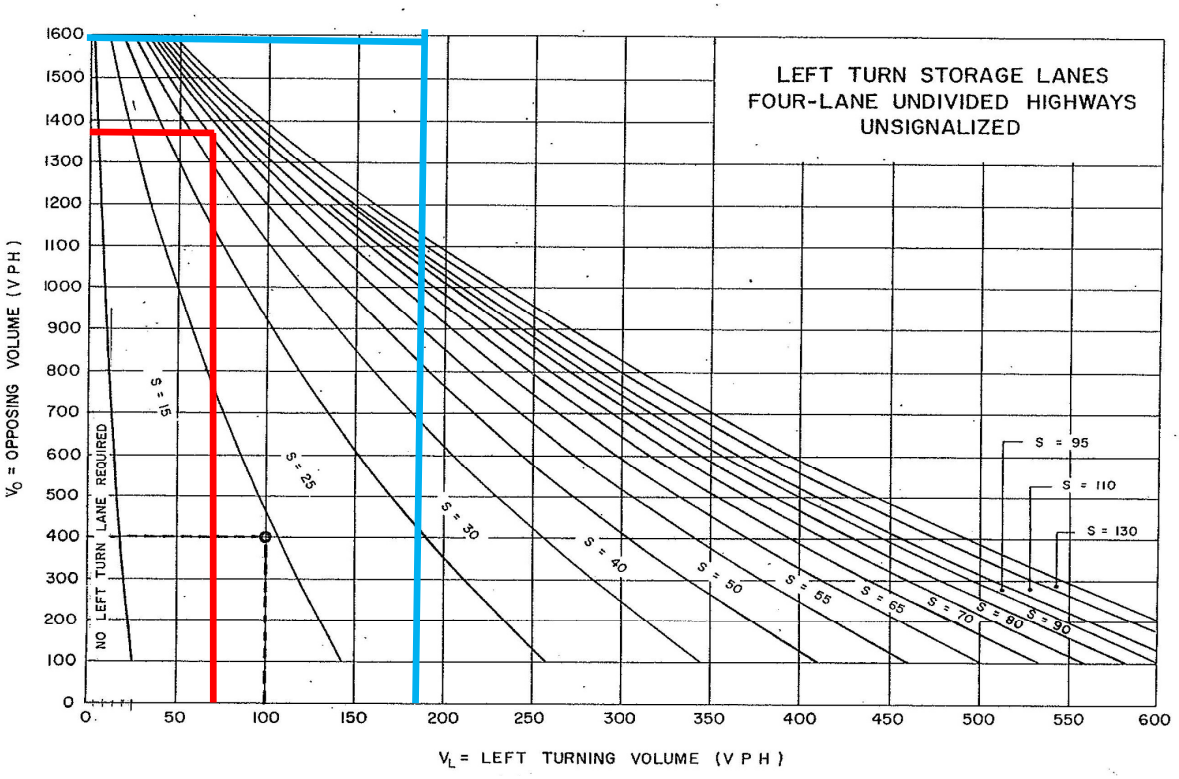


Figure EB-1

LEFT TURN LANE WARRANTS

GENERAL INFORMATION

Project Title	GID Transportation Study
Project #	12599122
Analysis Period	Future Total 2036
Intersection	Victoria Road and Street B
LT Movement Approach	North

AM PEAK HOUR		**PM PEAK HOUR**		**SATURDAY PEAK**	
V_L =	243	V_L =	122	V_L =	
V_O =	1334	V_O =	1378	V_O =	

AM PEAK HOUR		PM PEAK HOUR		SATURDAY PEAK HOUR	
V_L =	243	V_L =	122	V_L =	0
V_O =	1334	V_O =	1378	V_O =	0
Left Lane Required?	Yes	Left Lane Required?	Yes	Left Lane Required?	
Storage Length		Storage Length		Storage Length	

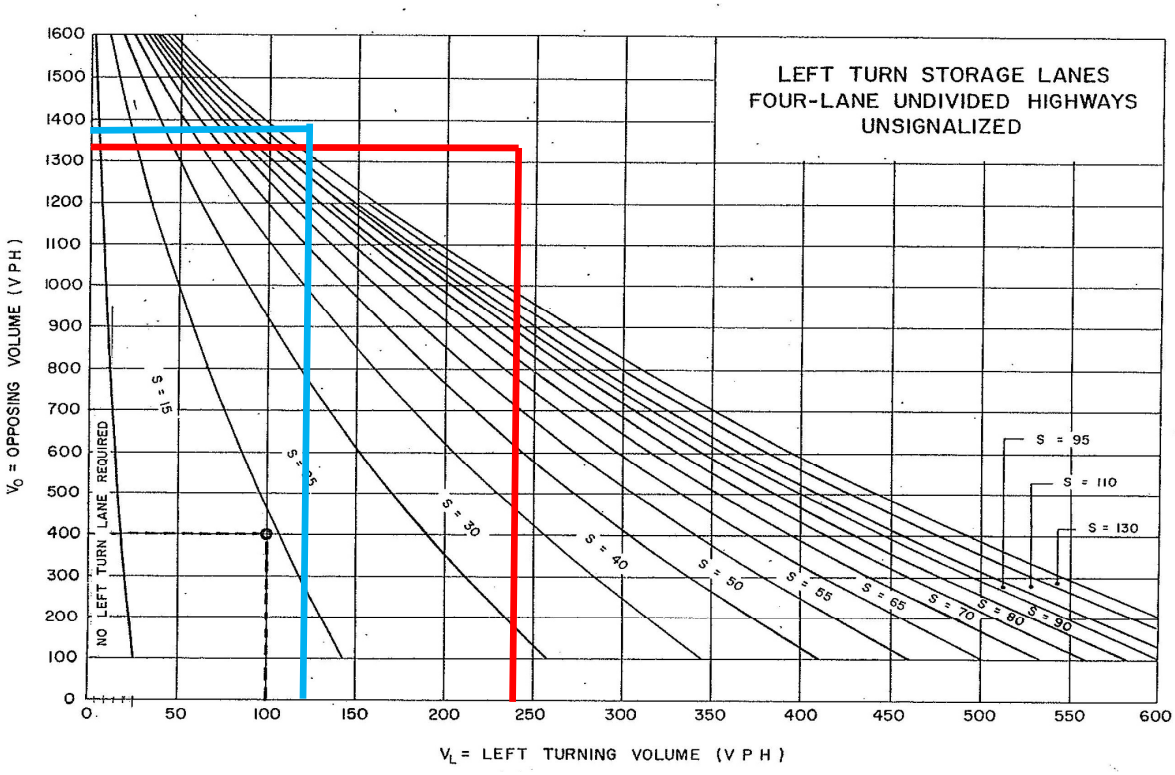
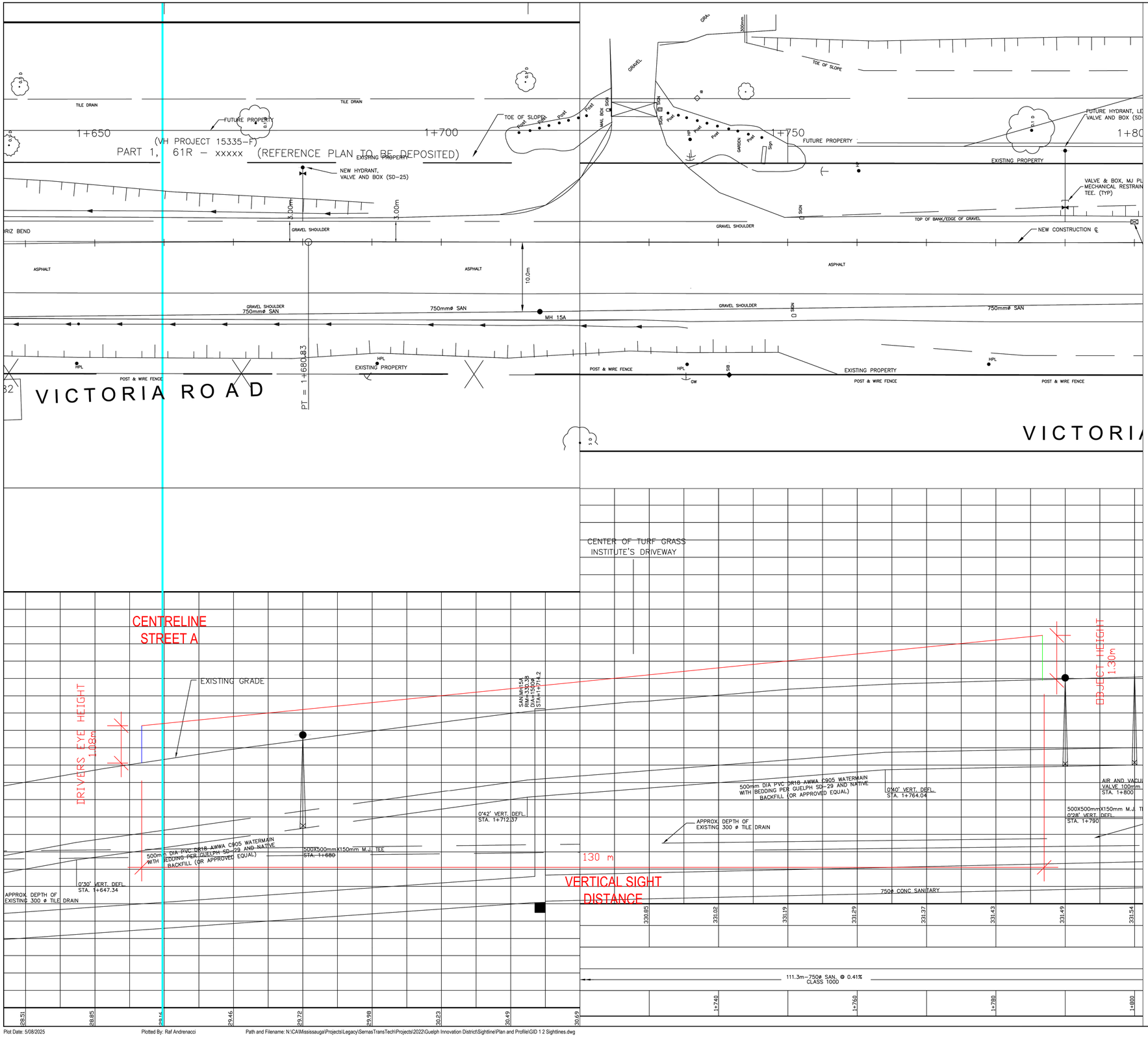


Figure EB-1

Appendix I

Sightline Assessment – Plan and Profile Drawings



Proposed Street A and Victoria Road Intersection - Intersection Sight Distance (ISD) Case B2 Analysis

Passenger Vehicle turning right from Stop onto Victoria Road

- Posted Speed: 50 km/hr
- Design Speed: 70 km/hr
- Required ISD onto Victoria Road South is 130 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 F 1 905 712 0515
www.ghd.com

Conditions of Use
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
FUSION HOMES

Project
GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

Date	Scale
December 9, 2025	NTS

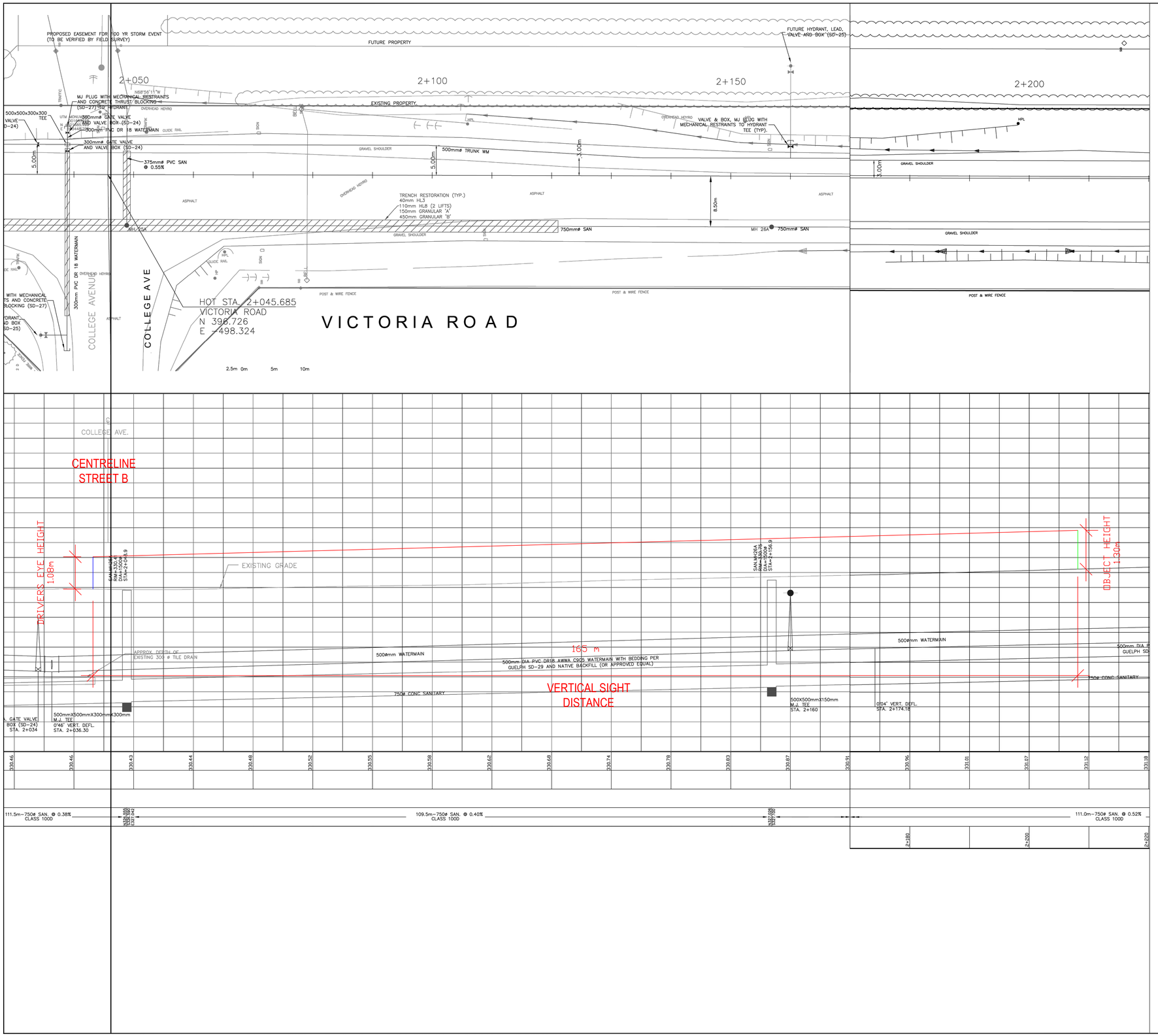
Project No.
12675638

Title
SIGHT DISTANCE DIAGRAM - VICTORIA ROAD SOUTH AND STREET A (CASE B2)

Size
ANSI D

Sheet No.
SD-101

Plot Date: 5/08/2025 Plotted By: Raf Andrenacci Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2022\Guelph Innovation District\Sightline\Plan and Profile\GID 1 2 Sightlines.dwg



Proposed Main Street and Victoria Road Intersection - Intersection Sight Distance (ISD) Case B2 Analysis

Passenger Vehicle turning right from Stop onto Victoria Road

- Posted Speed: 70 km/hr
- Design Speed: 90 km/hr
- Required ISD onto Victoria Road South is 165 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 F 1 905 712 0515
www.ghd.com

Conditions of Use
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

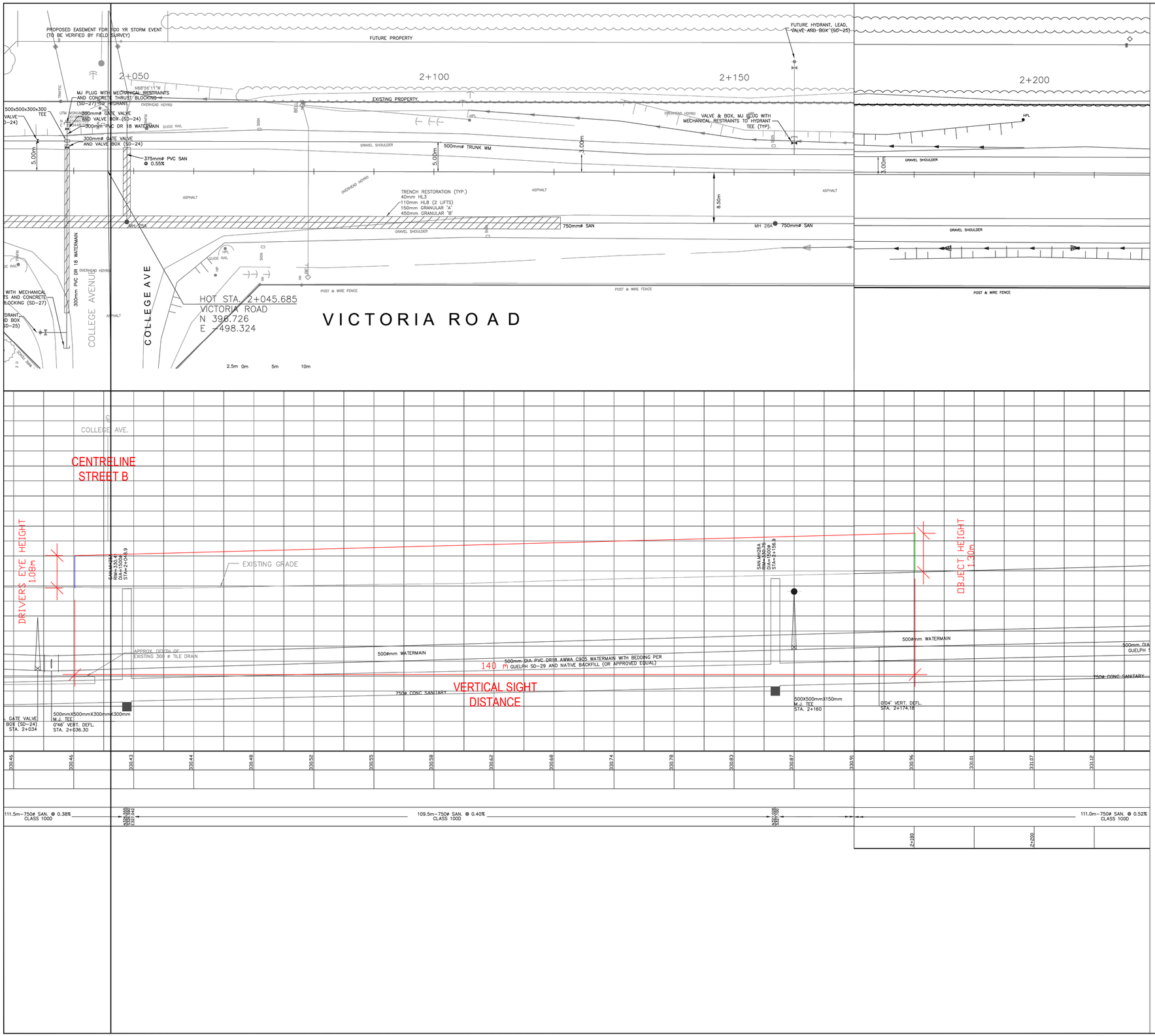
Client
FUSION HOMES

Project
GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

Date: December 9, 2025
Scale: NTS
Project No.: 12675638
Size: ANSI D

Title
SIGHT DISTANCE DIAGRAM - VICTORIA ROAD SOUTH AND MAIN STREET (CASE B2)

Sheet No.
SD-103



Proposed Main Street and Victoria Road Intersection - Intersection Sight Distance (ISD) Case F Analysis

Passenger Vehicle turning left from Victoria Road onto Main Street

- Posted Speed: 70 km/hr
- Design Speed: 90 km/hr
- Required ISD from Victoria Road South is 140 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 F 1 905 712 0515
www.ghd.com

Conditions of Use
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
FUSION HOMES

Project
GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

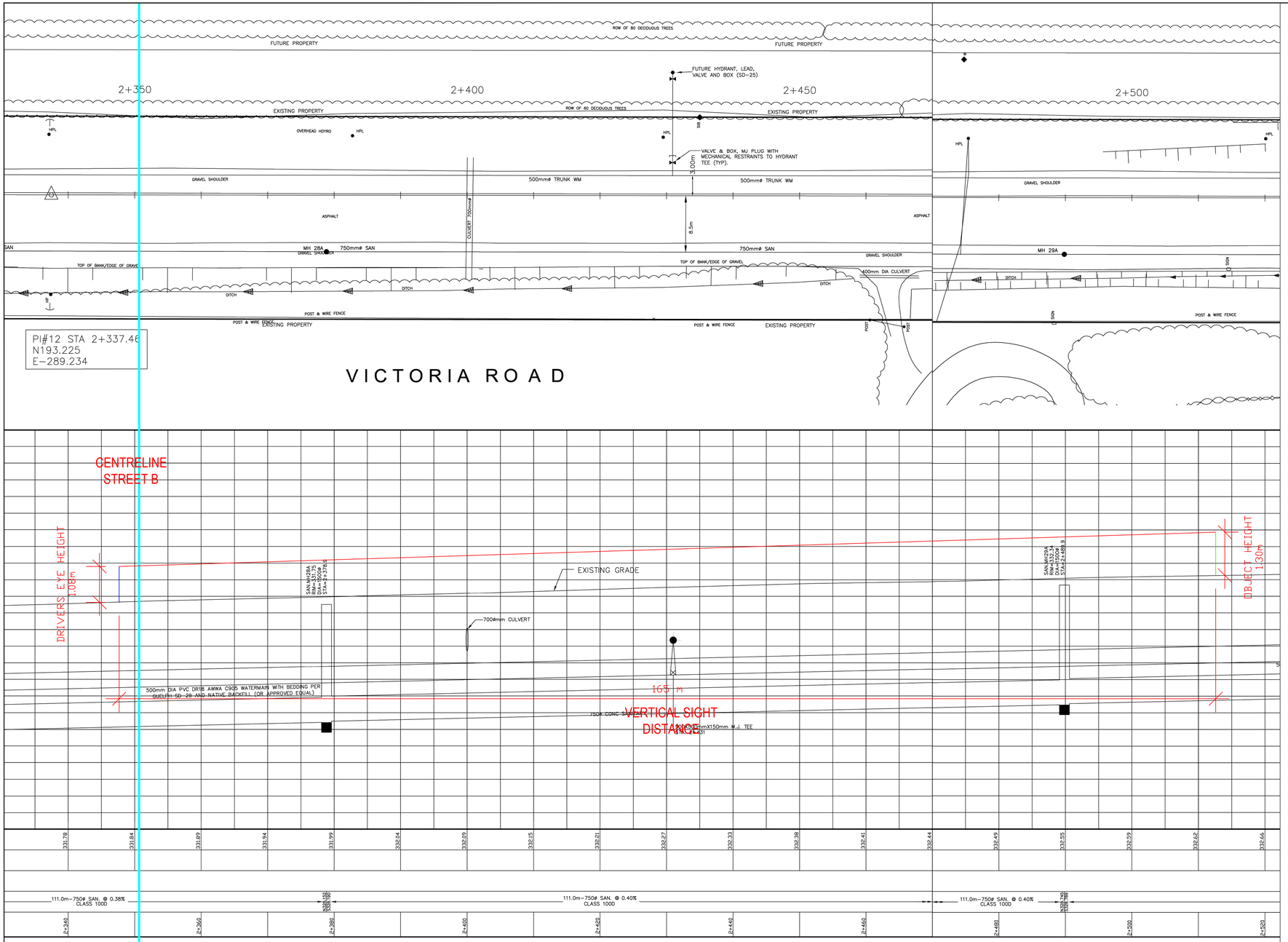
Date	Scale
December 9, 2025	NTS

Project No.
12675638

Title
SIGHT DISTANCE DIAGRAM - VICTORIA ROAD SOUTH AND MAIN STREET (CASE F)

Size
ANSI D

Sheet No.
SD-104



Proposed Street B and Victoria Road Intersection - Intersection Sight Distance (ISD) Case B2 Analysis

Passenger Vehicle turning right from Stop onto Victoria Road

- Posted Speed: 70 km/hr
- Design Speed: 90 km/hr
- Required ISD onto Victoria Road South is 165 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD

www.ghd.com

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 **F** 1 905 712 0515

Conditions of Use

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client

FUSION HOMES

Project

GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

Date	Scale
December 9, 2025	NTS

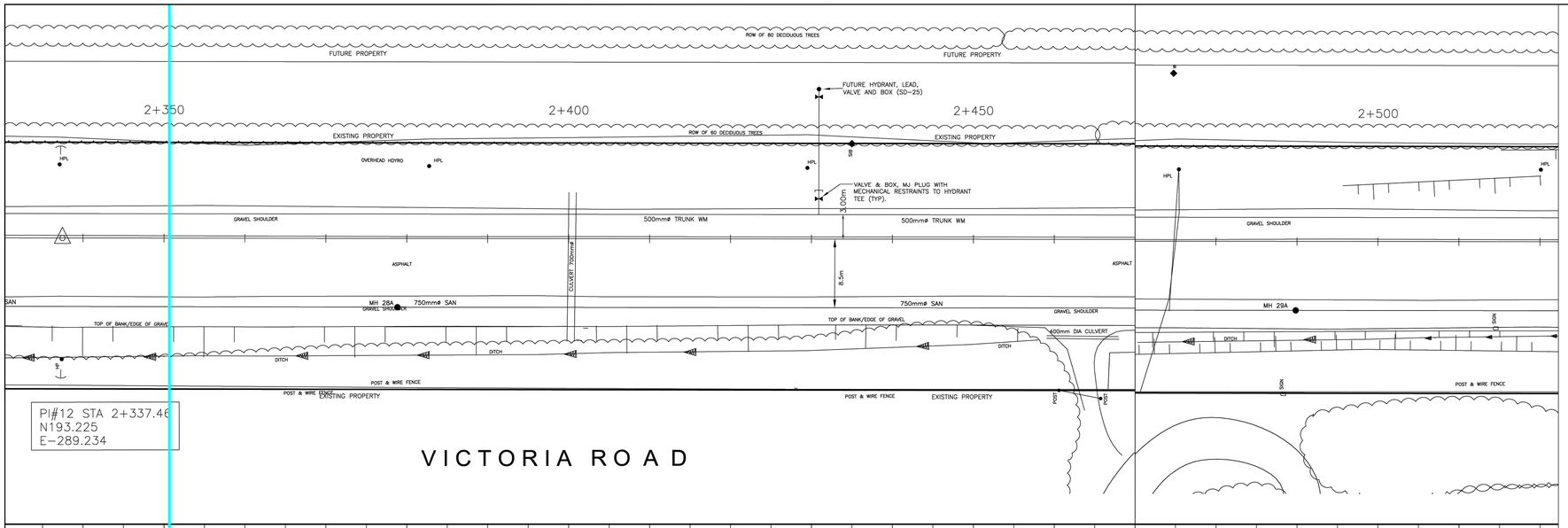
Project No.
12675638

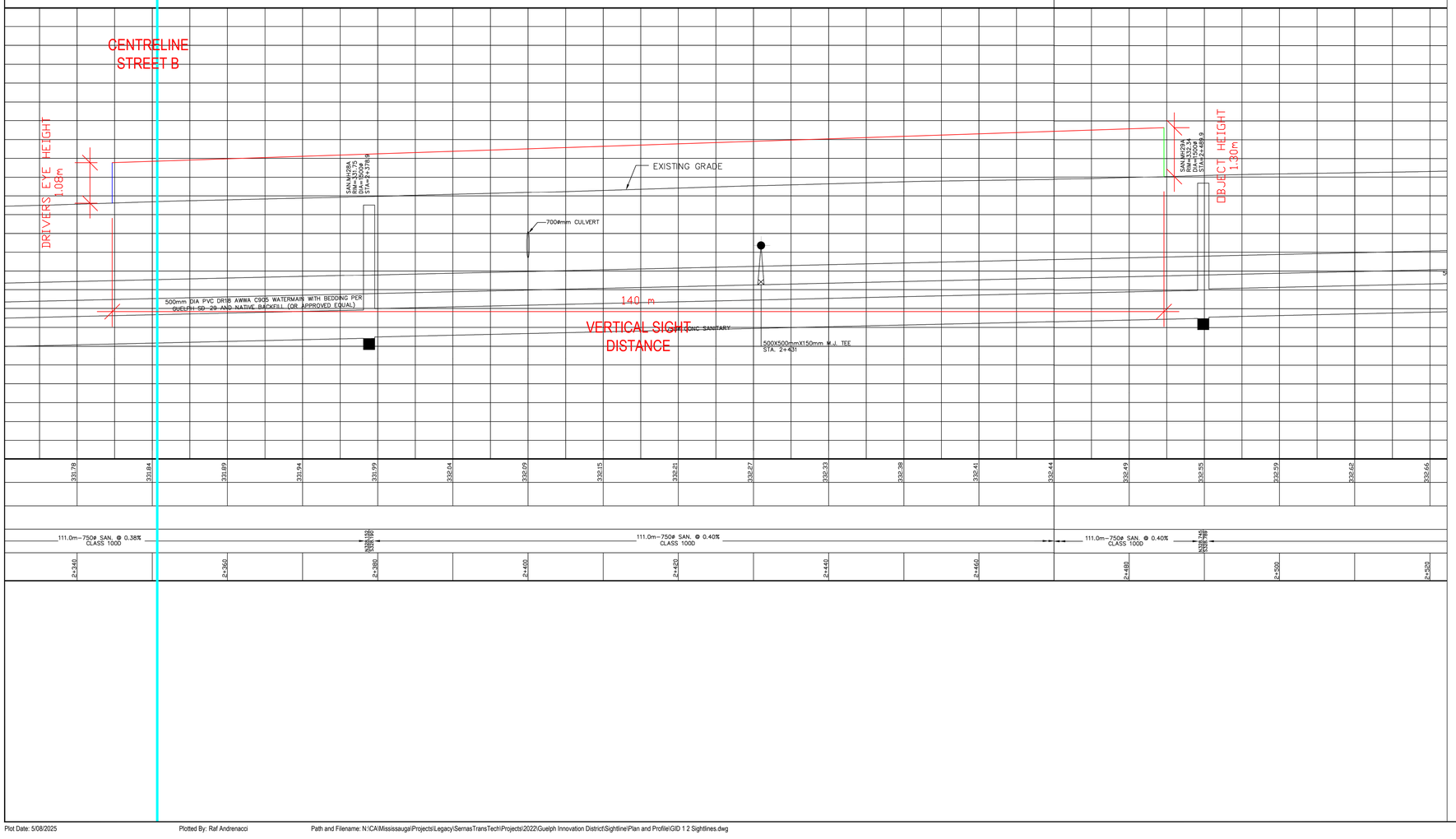
Title

SIGHT DISTANCE DIAGRAM - VICTORIA ROAD SOUTH AND STREET B (CASE B2)

Size
ANSI D

Sheet No.
SD-105





Proposed Street B and Victoria Road Intersection - Intersection Sight Distance (ISD) Case F Analysis

Passenger Vehicle turning left from Victoria Road onto Street B

- Posted Speed: 70 km/hr
- Design Speed: 90 km/hr
- Required ISD onto Victoria Road South is 140 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 **F** 1 905 712 0515
www.ghd.com

Conditions of Use
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
FUSION HOMES

Project
GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

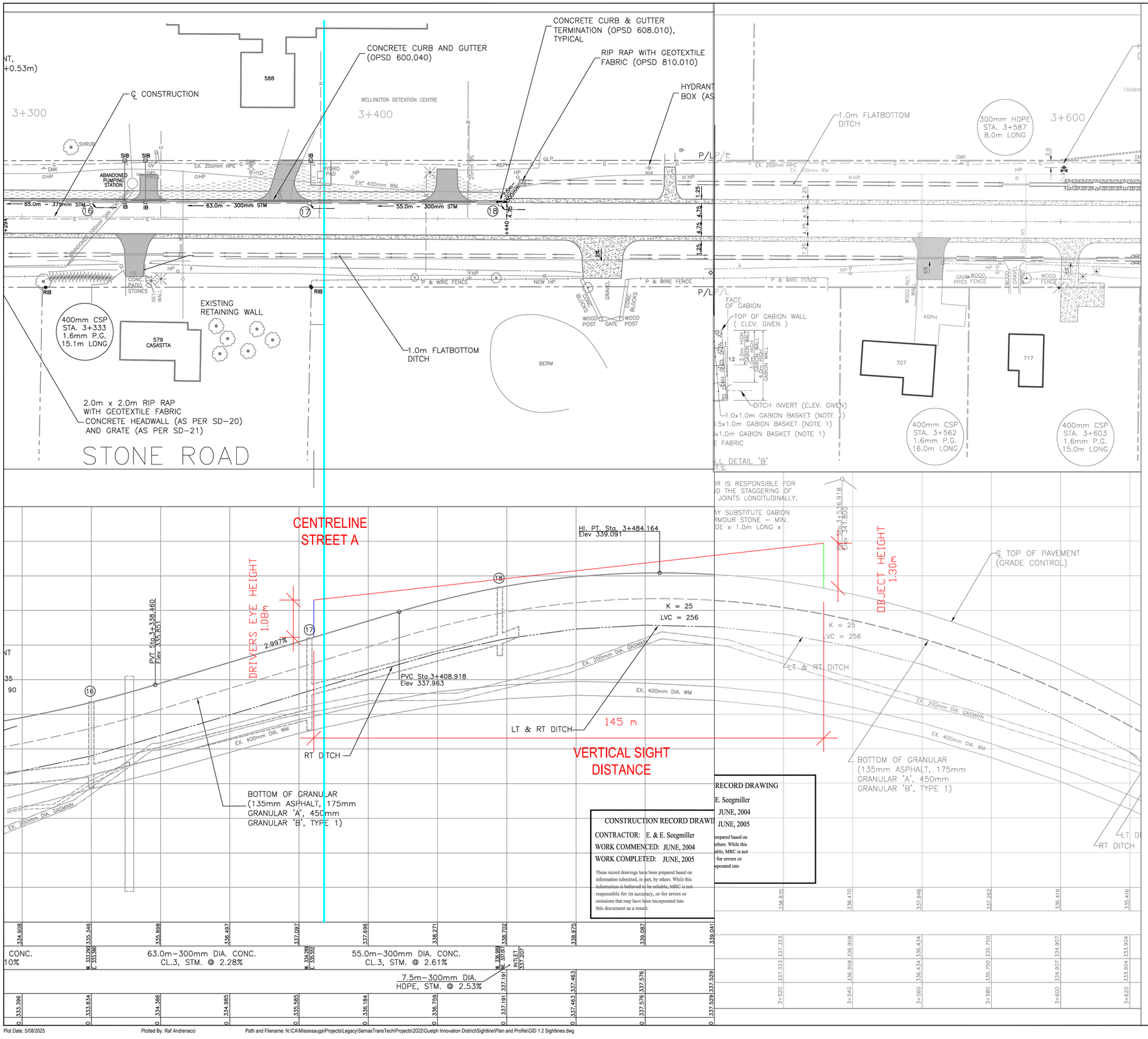
Date	Scale
December 9, 2025	NTS

Project No.
12675638

Title
SIGHT DISTANCE DIAGRAM - VICTORIA ROAD SOUTH AND STREET B (CASE F)

Size
ANSI D

Sheet No.
SD-106



Proposed Street A and Stone Road Intersection - Intersection Sight Distance (ISD) Case B2 Analysis

Passenger Vehicle turning right from Stop onto Stone Road

- Posted Speed: 60 km/hr
- Design Speed: 80 km/hr
- Required ISD onto Victoria Road South is 145 m (TAC Table 9.9.6)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 F 1 905 712 0515
www.ghd.com

Conditions of Use
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client
FUSION HOMES

Project
GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

Date: December 9, 2025
Scale: NTS

Project No.: 12675638

Title
SIGHT DISTANCE DIAGRAM - STONE ROAD AND STREET A (CASE B2)

Size: ANSI D

Sheet No.: SD-107

Plot Date: 5/08/2025
Plotted By: Raf Andrenacci
Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2022\Guelph Innovation District\Sightline\Plan and Profile\GID 1 2 Sightlines.dwg

Proposed Street A and Stone Road Intersection - Intersection Sight Distance (ISD) Case F Analysis

Passenger Vehicle turning left from Stone Road onto Street A

- Posted Speed: 60 km/hr
- Design Speed: 80 km/hr
- Required ISD onto Street A is 125 m (TAC Table 9.9.12)

The ASD meets and exceeds required ISD

GHD Ltd.
100 Milverton Drive, Suite 404
Mississauga, Ontario L5R 4H1 Canada
T 1 905 712 0510 F 1 905 712 0515
www.ghd.com

Conditions of Use

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

LICENSED PROFESSIONAL ENGINEER
9 December 2025
W.C. MARIA
PROVINCE OF ONTARIO

No.	Issue	Checked	Approved	Date
1	First Submission	W.M	W.M	12/9/25

Author	R.A	Designer	R.A
Drafting Check	W.M	Design Check	W.M
Project Manager	W.M	Project Director	W.M

Client

FUSION HOMES

Project

GUELPH INNOVATION DISTRICT - BLOCKS 1 & 2

Date	Scale
December 9, 2025	NTS

Project No.
12675638

Title

SIGHT DISTANCE DIAGRAM - STONE ROAD AND STREET A (CASE F)

Size
ANSI D

Sheet No.
SD-108

Plot Date: 5/08/2025 Plotted By: Raf Andrenacci Path and Filename: N:\CA\Mississauga\Projects\Legacy\SernasTransTech\Projects\2022\Guelph Innovation District\Sightline\Plan and Profile\GID 1 2 Sightlines.dwg



ghd.com

The Power of Commitment