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Appendix A

Transportation and Traffic Analysis Report



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Sheridan Park Drive Extension Transportation Report

City of Mississauga

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Executive Summary

The City of Mississauga (City) has undertaken a Municipal Class Environmental Assessment (EA) to investigate the proposed extension of Sheridan Park Drive between Homelands Drive and Speakman Drive in the southwestern area of Mississauga. R.J. Burnside & Associates Limited (Burnside) has facilitated the EA on behalf of the City.

As part of the EA Study, Burnside has completed a transportation analysis to identify whether the proposed Sheridan Park Drive Extension will impact transportation within the Study Area and determine if any potential mitigation measures are required. The results of this analysis is documented in the *Sheridan Park Drive Extension Transportation Report*.

Description of Study Area

The Study Area is generally bordered by a utility corridor to the north, Winston Churchill Boulevard to the west, Speakman Drive/Homelands Drive to the east and naturalized private lands to the south. The proposed extension of Sheridan Park Drive falls within the existing City of Mississauga owned right-of-way (ROW), which runs through the centre part of the Study Area.

The study area for the traffic analysis is shown in Figure A.

The Study Area includes a unique combination of uses including the Sheridan Park Corporate Centre (Sheridan Park), a utility corridor that includes a multi-use trail (MUT) and the Sheridan Homelands residential neighbourhood. The City's Official Plan (MOP) has identified the completion of Sheridan Park Drive segment as a future major collector road, which is shown on Schedule 5 in the MOP.

Sheridan Park Drive is a two-lane major collector road located in the southwest quadrant of the City. The existing Sheridan Park Drive to the east of the subject area terminates approximately 275 meters west of Sheridan Park Drive / Speakman Drive / Homelands Drive intersection. From the west of the study area, Sheridan Park Drive terminates approximately 160 meters east of Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive intersection. As a result, there is an approximate 850 meter gap between the two terminuses. The City owns the property between the existing terminuses.

R. J. Burnside & Associates Limited (Burnside) was retained by the City to undertake a study providing a comprehensive and environmentally sound planning process that incorporates the interest of the public and differing parties. This report is the existing and future transportation study and forms one of the background reports to the overall Project Report File for the study.

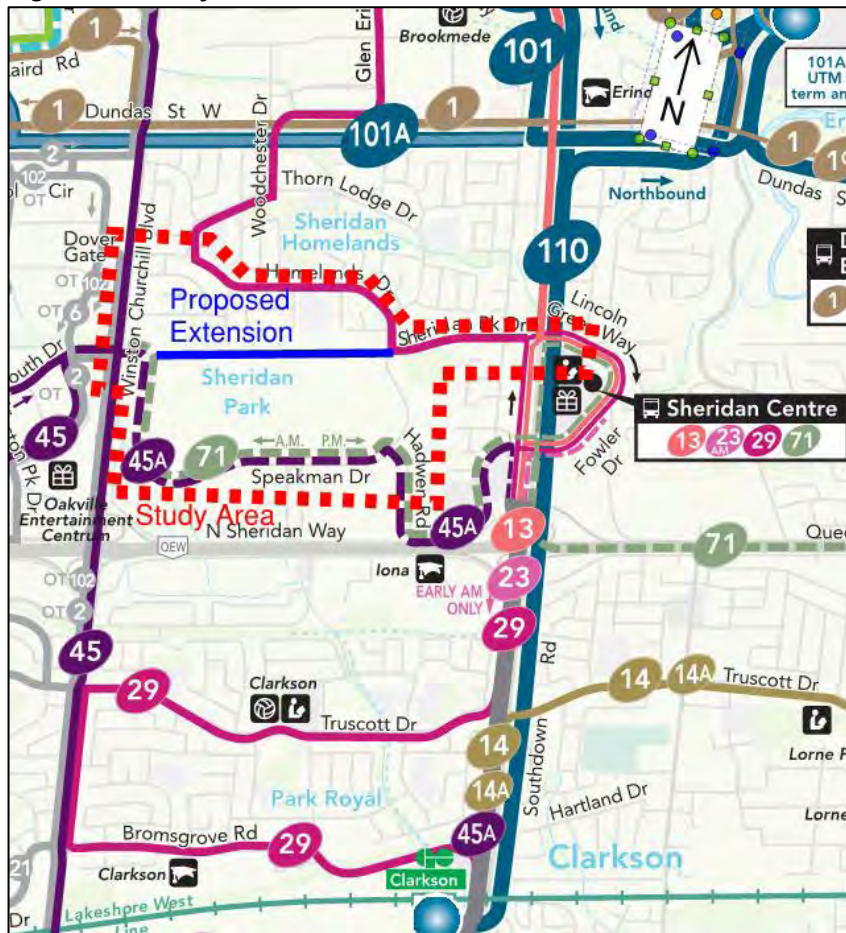
Figure A: Traffic Study Area

Existing Transportation System

As part of the transportation analysis, the existing transportation system within the transportation study area was evaluated. Sheridan Park Drive is discontinuous through the area shown for the proposed extension and this is a missing link in the roadway network to provide east-west connectivity.

Cycling and pedestrian movement is accommodated by a MUT within the utility corridor along the north side of the Sheridan Park corridor. Sheridan Park Drive east of Homelands Drive has a sidewalk on the north side and east of the west leg of Speakman Drive, the sidewalk is on the south side of the street. Residents and employees currently walk through the MUT area.

Transit service is provided in the area by MiWay with routes shown in Figure B.

Figure B: MiWay Transit Service

The Sheridan Homelands neighbourhood is serviced by transit on the arterial road network and within the neighbourhood via Route 29. Sheridan Park is serviced internally by Routes 45A and 71.

Key study area intersections were assessed to evaluate operations during the weekday morning (AM) and afternoon (PM) peak hours. Signalized intersections are operating at an overall level of service C during the weekday AM and PM peak hours. Priority for green time has been given to the north-south roads of Winston Churchill Boulevard and Erin Mills Parkway. This can result in lower operations on the side streets, but the movements are operating within capacity.

During the PM period, it is common to observe queues within employment areas as employees typically exit around similar times especially if the employment use is similar within in the area (e.g. majority office). This is the case at the Winston Churchill Boulevard / Plymouth Drive / Sheridan Park Drive intersection where westbound queues from Winston Churchill Boulevard were observed for through right turn movements.

Through previous work undertaken by the Region of Peel, the need for an exclusive westbound right turn lane was identified and has been added to their Development Charges Study. This improvement would reduce queues and improve operations for vehicles exiting Sheridan Park during the weekday PM peak hour.

For the unsignalized two-way stop intersections assessed in the study area, the critical movements are operating with level of service C or better and no changes are identified for these intersections.

The unsignalized four-way stop intersection movements are operating at level of service C or better with the exceptions of eastbound movements at the Fifth Line / Sheridan Park Drive intersection. This intersection has been identified as needing traffic signals in the future.

The City is undertaking a separate study to address Sheridan Homelands neighbourhood residents' concerns with respect to operations on their streets including speeding. The effect that the Sheridan Park extension could have on the neighbourhood in the future conditions has been considered.

Based on the traffic data available, it is observed that trucks (which includes buses) are using Homelands Drive; however, there is no evidence that the trucks are using the route to access Sheridan Park Corporate Centre or the employment lands on the west side of Winston Churchill Boulevard. Included in the traffic data numbers are trucks and buses that would have a destination / purpose within the neighbourhood such as garbage pick-up and home delivery services. There is some evidence that trucks might be using Homelands Drive and Sheridan Park Drive (east of Homelands Drive) as an east-west route between Winston Churchill Boulevard and Erin Mills Parkway.

Some of the key findings are shown in Figure C.

Figure C: Key Findings



EMME Travel Demand Traffic Volume Projections

To assess effects of the various network scenarios, the City's EMME Travel Demand Model was utilized to project traffic volumes for 2021 and 2031 horizon years. In addition, the model was also utilized to assess the impact of the various network scenarios on travel along Homelands Drive/ the Sheridan residential neighbourhood. This assessment was completed for the 2021 horizon year and examined the following:

1. How much traffic utilizes Homelands Drive when comparing the following scenarios:
 - a) Do-nothing scenario – the Do-nothing scenario (assumes four (4) lanes only on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection).
 - b) Sheridan Park Drive Extension (with four (4) lanes on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection).
 - c) Speakman Drive widening to four (4) lanes (no Sheridan Park Drive extension, four (4) lanes on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection).
2. Origin and destination of trips utilizing Homelands Drive.
3. Origin and destination of trips utilizing the Sheridan Park Drive Extension.

It should be noted that the EMME model is used for macro analysis to provide analysis/ results generally at a higher level, i.e. freeways, arterials and major collectors. As such the numbers presented in this document should not be taken for exact but are intended to help in comparing how the various scenarios impact travel demand in the area.

The 2021 horizon year model runs were utilized to compare the impacts of the various road network options assumed as identified above. The key findings are as follows:

AM Peak Hour

- With the Sheridan Park Drive Extension, the model shows a decrease in traffic along Homelands Drive by approximately 2% (four (4) vehicles) in the eastbound direction and 16% (38 vehicles) in the westbound direction compared to the Do-nothing scenario.
- The widening of Speakman Drive to four (4) lanes generally results in an increase in traffic along Homelands Drive as compared to the Sheridan Park Drive Extension scenario with approximately 16% (40 vehicles) more traffic in the eastbound direction and 18% (36 vehicles) in the westbound direction.
- With the Sheridan Park Drive Extension scenario, the greatest reduction in traffic will occur on the western end of Homelands Drive (west of the Thorn Lodge Drive east intersection) with volumes decreasing by approximately 29% (average for both directions) in the AM peak hour as compared to the Do-nothing scenario.
- With the Sheridan Park Drive Extension in place, the number of through trips ('cut through' traffic) utilizing Homelands Drive is projected to decrease by approximately 17% in the AM peak hour as compared to the Do-nothing scenario. This in comparison to the Speakman Drive widening to four (4) lanes scenario, which results in a 22% increase in the number of through trips using Homelands Drive as compared to the Do-nothing scenario.
- The Sheridan Park Drive Extension will play an important role in providing additional access to and from the Sheridan Homelands Residential Community. During the AM peak hour approximately 77% of the trips that utilize the Sheridan Park Drive Extension either originate from or are destined to the residential area to the north of Sheridan Park Drive. This results in an increase in traffic on the eastern end of Homelands Drive (east of Thorn Lodge Drive east intersection) by approximately 24% (average for both directions) as the residential communities' travel patterns change and they divert to this section of Homelands Drive to access the extension. However, there is a corresponding drop in traffic on the western section of Homelands Drive.

PM Peak Hour

- During the PM peak hour, the Sheridan Park Drive Extension results in an average decrease in traffic along Homelands Drive by approximately 3% (ten (10) vehicles) in the eastbound direction and 4% (14 vehicles) in the westbound direction compared to the Do-nothing scenario.

- Comparing the Speakman Drive widening to four (4) lanes scenario against the Sheridan Park Drive Extension scenario, the widening of Speakman Drive to four (4) lanes results in an increase in traffic along Homelands Drive by approximately 3% (ten (10) vehicles) in the eastbound direction and 9% (31 vehicles) in the westbound direction.
- As a result of the Sheridan Park Drive Extension, the greatest traffic reductions will be experienced on the western end of Homelands Drive with volumes decreasing by approximately 25% (average for both directions).
- Because of the Sheridan Park Drive Extension, the number of through trips utilizing Homelands Drive is projected to decrease by approximately 13% as compared to the Do-nothing scenario. With the Speakman Drive widening to four (4) lanes scenario, the model projects an increase in the number of through trips along Homelands Drive by approximately 9% as compared to the Do-nothing scenario.
- Similar to the AM Peak Hour, the Sheridan Park Drive Extension will have an important role in serving the Sheridan Homelands Residential Community to the north with approximately 72% of the traffic using the extension having an origin or destination in the residential community. This again results in a diversion in traffic in the residential community which can be seen by the 40% increase (average for both directions) in traffic utilizing the eastern end of Homelands Drive. There is an associated drop in traffic to the west on Homelands Drive.

In conclusion, the results indicate that the Sheridan Park Drive Extension will play an important role in providing additional opportunities for residents living in the Sheridan Homelands neighbourhood to access their neighbourhood. The extension results in an overall reduction in traffic along sections of Homelands Drive and in addition results in a decrease in through traffic on Homelands Drive. The widening of Speakman Drive to four (4) lanes generally does not provide a benefit to the residents living in the Sheridan Homelands neighbourhood as it does not reduce the amount of traffic utilizing Homelands Drive.

2021 Road Network

As identified for existing conditions, the addition of the westbound right turn lane has been assumed as part of the road network at the Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive intersection.

A traffic operations analysis was conducted for 2021 traffic conditions for the AM and PM peak hours. To accommodate the 2021 traffic forecasts, the following improvements to the road network are recommended:

- The Sheridan Park Drive / Speakman Drive (west leg) intersection will have a volume to capacity ratio of 0.78. To improve intersection operations, a roundabout is recommended to be installed with the Sheridan Park Drive Extension.

- The Sheridan Park Drive / Speakman Drive / Homelands Drive intersection will experience delays with or without Sheridan Park Drive Extension. Eastbound and westbound left turn lanes could be installed to improve operations; however, the best improvement would be a roundabout that would result in improving the level of service to B or better for each leg. Even if the extension was not in place, a roundabout would be required by 2031.
- At the Sheridan Park Drive / Fifth Line intersection, delays will be experienced with or without the Sheridan Park Drive Extension. However, with the Sheridan Park Drive Extension a left turn in the east and westbound directions would be required plus the installation of traffic signals. Without the Extension, installation of traffic signals would be required by 2031.

At the signalized intersections of Winston Churchill Boulevard and Erin Mills Parkway, delays will be experienced for some movements and some movements will approach capacity; however, there is sufficient capacity to accommodate the demand.

2031 Road Network

A traffic operations analysis was conducted for the 2031 traffic projections. In addition to the transportation improvements identified for existing and 2021 traffic conditions, the following additional improvements are identified:

- The Sheridan Park Drive / Fifth Line intersection will require traffic signals to be installed prior to 2031 without the Sheridan Park Drive Extension. It was previously identified as needing traffic signals by 2021 with the extension.

Table of Contents

1.0	Introduction	1
1.1	Introduction	1
1.2	Description of Study Area	1
1.3	Traffic Study Area	3
1.4	Study Approach / Scope of Work	4
1.5	Intersection Analysis Methodology	4
2.0	Existing Conditions.....	6
2.1	Road Network	6
2.2	Transit Network	8
2.2.1	MiWay Transit	9
2.2.2	Oakville Transit.....	10
2.2.3	GO Transit.....	11
2.3	Active Transportation Network	11
2.3.1	Cycling Network	11
2.3.2	Pedestrian Network	12
2.4	Traffic Volumes	12
2.5	Existing Operations	13
2.6	Queueing Analysis	16
2.6.1	Winston Churchill Boulevard / Homelands Drive / Dover Gate	17
2.6.2	Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive.....	17
2.6.3	Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way	17
2.7	Truck Infiltration	18
2.8	Homelands Drive	19
3.0	Future Traffic Projections.....	20
3.1	Population and Employment Projections	21
3.2	Comparison between Traffic Counts and EMME Model	21
3.3	Traffic Patterns for Various Scenarios	22
3.3.1	Impact of Scenarios on the Amount of Vehicles Travelling along Homelands Drive	22
3.3.2	Origin and Destination of Trips Utilizing Homelands Drive.....	24
3.3.3	Origin and Destination of Trips Utilizing Sheridan Park Drive Extension	25
3.4	Traffic Growth Rate	27
3.5	Road Network Improvements for 2021 and 2031 Horizon Years.....	31
4.0	Traffic Operations	32
4.1	2021 Conditions	32
4.2	2031 Intersection Operations	37

Tables

Table 1: MiWay Transit Route Frequency	9
Table 2: Oakville Transit Route Frequency	10
Table 3: Existing Signalized Intersection Operations	14
Table 4: Existing Two-Way Stop Intersection Operations	15
Table 5: Existing All-way Stop Intersection Operations	16
Table 6: Existing 95th Percentile Queuing Summary	17
Table 7: Projected Population and Employment Within the Study Area	21
Table 8: Sheridan Park Corporate Centre Observed Counts Versus 2011 Model Estimates	21
Table 9: Volumes Along Homelands Drive Between Winston Churchill Boulevard and Sheridan Park Drive (2021 Horizon Year)	23
Table 10: Through Trips Along Homelands Drive (2021 Horizon Year)	25
Table 11: Origin and Destination of Trips Using the Sheridan Park Drive Extension (2021 Horizon Year)	26
Table 12: Roadway Annual Growth Rates	28
Table 13: 2021 AM Peak Hour Intersection Operations	33
Table 14: 2021 PM Peak Hour Intersection Operations	34
Table 15: 2021 95 th Percentile Queues	37
Table 16: 2031 AM Peak Hour Intersection Operations	38
Table 17: 2031 PM Peak Hour Intersection Operations	39
Table 18: 2031 95 th Percentile Queues	42

Figures

Figure 1: Study Area	2
Figure 2: Existing Road Network	7
Figure 3: MiWay Transit Network	9
Figure 4: Existing Oakville Transit Network	10
Figure 5: Existing Cycling Network	11
Figure 6: Existing Pedestrian Network	12
Figure 7: Existing Traffic Volumes	13
Figure 8: Existing Truck Percentages	18
Figure 9: Screenline Locations	27
Figure 10: 2021 Traffic Volumes Without the Extension	29
Figure 11: 2021 Traffic Volumes With Sheridan Park Drive Extension	29
Figure 12: 2031 Traffic Volumes Without the Extension	30
Figure 13: 2031 Traffic Volumes With Sheridan Park Drive Extension	30

Appendices

Appendix A Existing Traffic Counts and Signal Timing Plans

Appendix B Existing Traffic Operations

Appendix C Existing 95th Percentile Queues

Appendix D EMME Model Output

Appendix E 2021 Traffic Operations Without Sheridan Park Drive Extension

Appendix F 2021 Traffic Operations with Sheridan Park Drive Extension

Appendix G 2021 95th Percentile Queues

Appendix H 2031 Traffic Operations Without Sheridan Park Drive Extension

Appendix I 2031 Intersection Operations With Sheridan Park Drive Extension

Appendix J 2031 95th Percentile Queues

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1.0 Introduction

1.1 Introduction

The City of Mississauga (City) has undertaken a Municipal Class Environmental Assessment (EA) to investigate the proposed extension of Sheridan Park Drive between Homelands Drive and Speakman Drive in the southwestern area of Mississauga. R.J. Burnside & Associates Limited (Burnside) has facilitated the EA on behalf of the City.

The EA Study has followed a comprehensive planning and design process in order to explore the opportunity to connect the east and west sections of Sheridan Park Drive, improve the road network connectivity in the residential neighbourhood and business area, create options for alternative routes and improve multi-modal network connectivity. The EA Study has been completed in accordance with the requirements of a Schedule B Undertaking as outlined in the Municipal Engineers Association Municipal Class Environmental Assessment Document (October 2000, as amended 2007, 2011 & 2015), which is an approved process under the *Ontario Environmental Assessment Act*.

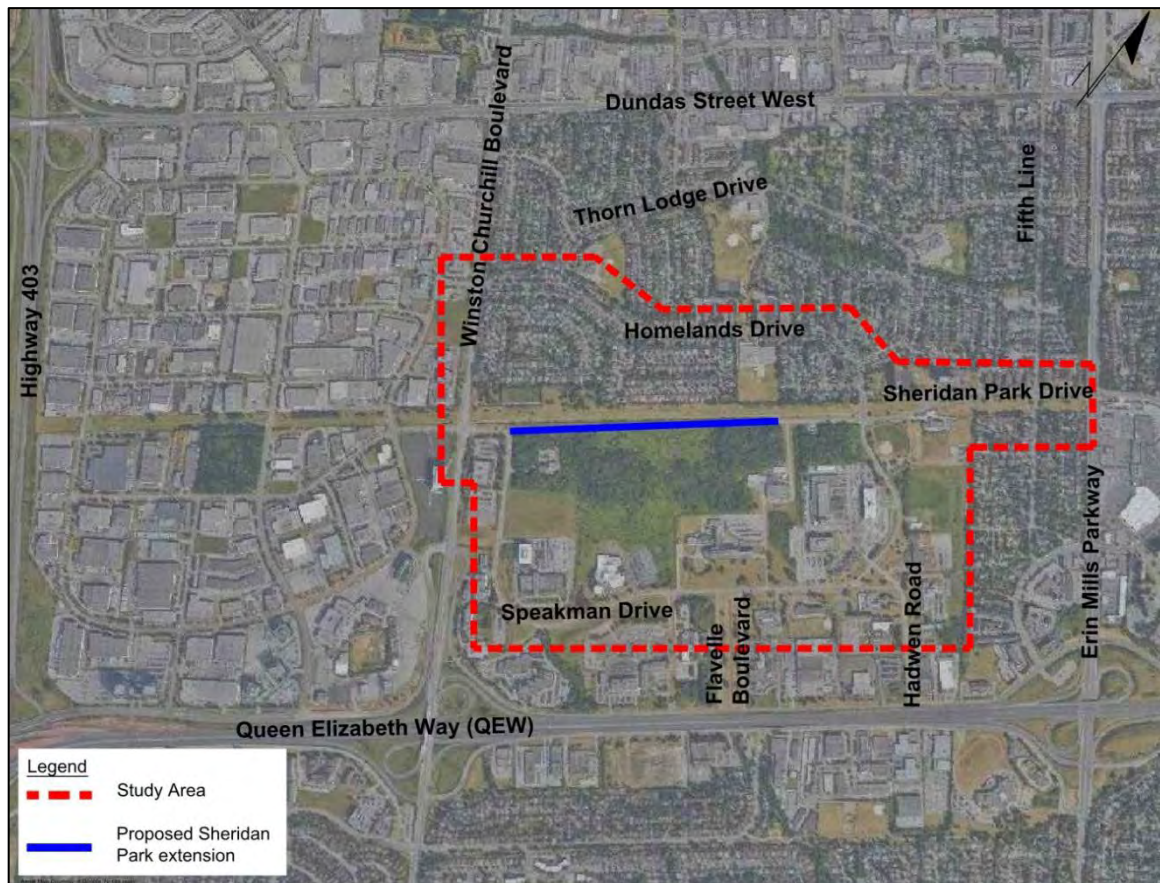
As part of the EA Study, Burnside has completed a transportation analysis to identify whether the proposed Sheridan Park Drive extension will impact transportation within the Study Area and determine if any potential mitigation measures are required. This report provides a summary of existing and future transportation conditions and forms one of the background reports required for the Project Report File for the study. The focus of this report is to examine the existing transportation system, existing traffic operations within the subject area, identify preliminary concerns to establish the Problem / Opportunity Statement, assess future transportation operations, and identify the preferred transportation network.

1.2 Description of Study Area

The Study Area is generally bordered by a utility corridor to the north, Winston Churchill Boulevard to the west, Speakman Drive/Homelands Drive to the east and naturalized private lands to the south. The proposed extension of Sheridan Park Drive falls within the existing City of Mississauga owned right-of-way (ROW), which runs through the centre part of the Study Area.

The study area for the traffic analysis is shown in Figure 1.

The Study Area includes a unique combination of uses including the Sheridan Park Corporate Centre (Sheridan Park), a utility corridor that includes a multi-use trail (MUT) and the Sheridan Homelands residential neighbourhood.

Figure 1: Study Area

Sheridan Park is a 340-acre corporate centre, which is primarily designated Business Employment in the City of Mississauga's Official Plan (MOP). The majority of Sheridan Park is occupied by private industries and businesses, which include in their landholdings significant natural areas particularly on the north side of corporate centre, within the Study Area. These naturalized areas include two wooded areas that are identified as Significant Natural Areas in the City's Natural Areas Survey (2016 Update). Sheridan Park is also identified as one of the City's cultural landscape due to its scenic and distinct visual qualities.

The City maintains a paved MUT through the utility corridor from Winston Churchill Boulevard to Homelands Drive/Speakman Drive. The trail then continues east along the south side of Sheridan Park Drive to Erin Mills Parkway. To the west of Winston Churchill Boulevard, the trail continues through the hydro corridor in Oakville. The trail provides recreational opportunities to the local residents and commuter cyclists.

Sheridan Park Drive is a two-lane major collector road located in the southwest quadrant of Mississauga. It extends between Winston Churchill Boulevard and Erin Mills Parkway with a missing connection between approximately 275 meters west of the Speakman

Drive / Homelands Drive intersection and the west leg of Speakman Drive. The missing link is identified as a future major collector in the MOP as illustrated on Schedule 5 Long Term Road Network from the MOP.

According to the "*Sheridan Park Corporate Centre Draft Land Use Master Plan*" (the Park's Master Plan) completed by Urban Strategies Inc. dated December 2014, the Sheridan Park area is proposed to intensify and diversify the existing dominant land uses of science and technology facilities and office uses. The renewed focus of Sheridan Park is on pilot plants, innovation and science and technology; however, future land uses also include offices, daycare, utility and open spaces with schools permitted on a site specific basis. In order to accommodate the future development of the park, the Park's Master Plan has identified the need for the missing Sheridan Park Drive segment. This segment is also recommended by the MOP as an important link in the road network to serve a significantly larger area. A connection between the west and east sections of Sheridan Park Drive would improve access for the Corporate Centre and the Sheridan Homelands residential neighbourhood to the north.

1.3 Traffic Study Area

The overall study area is generally bound by Homelands Drive to the north, the Speakman Drive to the south, Erin Mills Parkway to the east and Winston Churchill Boulevard to the west. This study focuses on the following key roadways:

- Sheridan Park Drive
- Erin Mills Parkway
- Winston Churchill Boulevard
- Homelands Drive
- Speakman Drive

The study includes the following intersections:

- Winston Churchill Boulevard / Homelands Drive / Dover Gate
- Homelands Drive / Thorn Lodge Drive
- Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive
- Sheridan Park Drive / Homelands Drive / Speakman Drive
- Sheridan Park Drive / Fifth Line
- Erin Mills Parkway / Sheridan Park Drive
- Speakman Drive / Hadwen Road
- Speakman Drive / Flavelle Boulevard
- Proposed Sheridan Park Extension

1.4 Study Approach / Scope of Work

This existing conditions study provides a preliminary assessment of the key transportation related issues, including a review of all relevant background reports / studies and existing traffic data.

This study also includes an evaluation of the existing traffic operations in the study area and based on that identifies opportunities to improve traffic operations. This provides the City an opportunity to:

- Review road and access options for potential development in the Sheridan Park area.
- Facilitate an improved active transportation network for pedestrians and cyclists by connecting the residential area in the north to the business corporate area in the south.
- Provide a multi-modal facility that is safe and efficient and can be shared by all modes of travel.

Future horizon year operations were assessed for 2021 and 2031 traffic conditions with the recommended lane needs identified.

1.5 Intersection Analysis Methodology

Intersection operations were assessed for the intersections in the study area using the software program Synchro 9, which employs methodology from the *Highway Capacity Manual (HCM2000 and HCM 2010)*, published by the Transportation Research Board National Research Council. Synchro 9 can analyze both signalized and unsignalized intersections in a road corridor or network taking into account the spacing, interaction, queues and operations between intersections. The analysis has utilized the HCM2000 methodology.

The signalized intersection analysis considers two separate measures of performance:

- The capacity of all intersection movements, which is based on a volume to capacity ratio that measures the degree of capacity utilized.
- The level of service for all intersection movements, which is based on the average control delay per vehicle for the various movements through the intersection and the overall intersection delay. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between A and F, with F being the longest delay. The link between LOS and delay (in seconds) for signalized intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	≤10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

The two-way stop and all-way stop unsignalized intersection analysis considers two separate measures of performance:

- The capacity of the intersection's critical movements, which is based on a volume to capacity ratio.
- The level of service for the critical movements within the intersection, which is based on the average control delay per vehicle for the various critical movements. The link between LOS and delay (in seconds) for unsignalized intersections is summarized below.

-

Level of Service	Control Delay per Vehicle(s)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

Intersections operations for roundabouts were assessed using Arcady. The operational analysis takes into account geometries such as entry width, approach width, flare length, conflict angle, inscribed circle diameter and entry radius, which is linked to driver behavior. The output results in predicted capacities, queues, delays and level of service.

The level of service ranges for a roundabout are as follows:

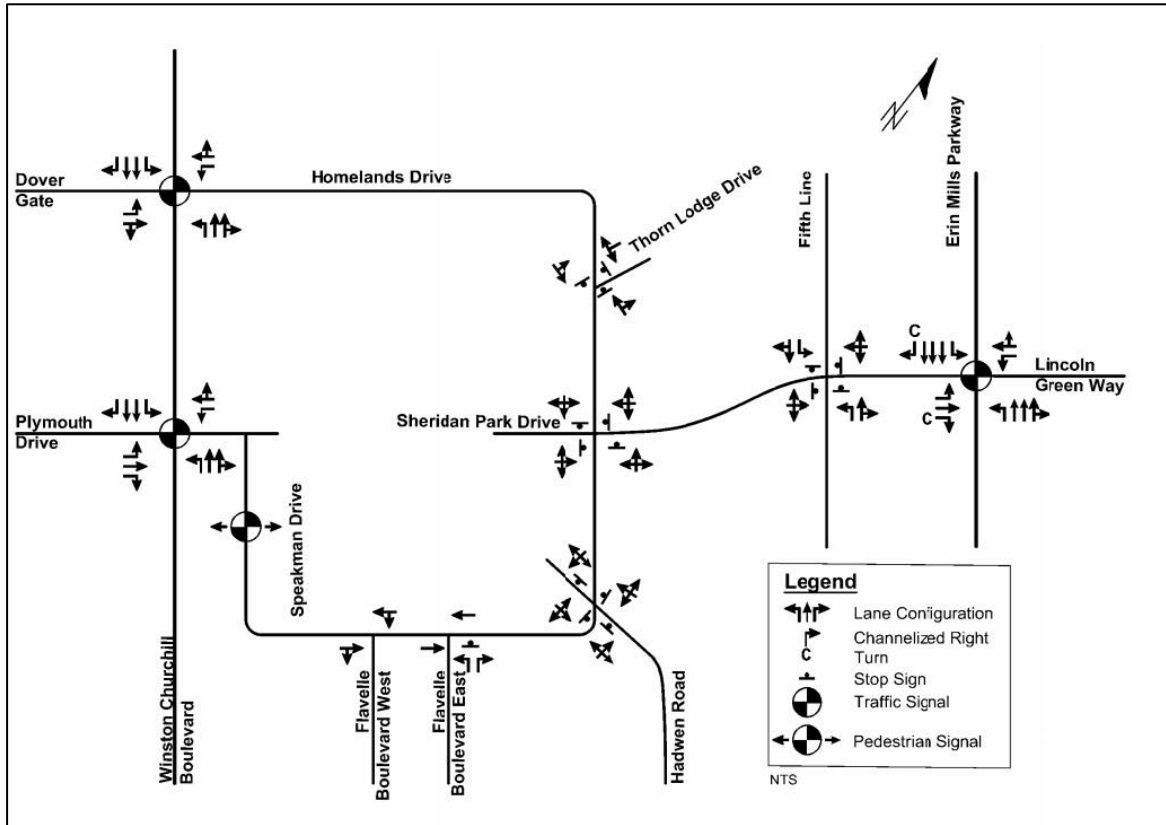
Level of Service	Control Delay per Vehicle(s)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

2.0 Existing Conditions

2.1 Road Network

The existing road network is described below and is illustrated in Figure 2, including existing traffic control. All roadways are under the jurisdiction of the City with the exception of Winston Churchill Boulevard and Erin Mills Parkway, which are under the jurisdiction of the Region of Peel.

Sheridan Park Drive	Sheridan Park Drive is a two-lane east-west major collector road. The road extends west from Erin Mills Parkway and terminates at approximately 275 m west of Speakman Drive (east leg) / Homelands Drive. The road is discontinuous west of that point, but then continues approximately 150 m east of Winston Churchill Boulevard at Speakman Drive (west leg). The posted speed limit is 50 km/h and parking is prohibited on both sides of the road. A MUT is provided on the south side of the road between Erin Mills Parkway and Homelands Drive / Speakman Drive (east leg). The MUT then runs on the north side of the road between Homelands Drive / Speakman Drive (east leg) and Winston Churchill Boulevard within the utility corridor. A sidewalk is provided on the north side of the road between Erin Mills Parkway and Speakman Drive (east leg) / Homelands Drive and continues on the south side, between Winston Churchill Boulevard and Speakman Drive (west leg).
Winston Churchill Boulevard	Winston Churchill Boulevard is a north-south arterial road consisting of a 4-lane urban cross section with 2 lanes per direction. It has a posted speed limit of 60 km/h and sidewalks are provided on both sides of the road. Turn lanes are provided at intersections.
Erin Mills Parkway	Erin Mills Parkway is a north-south arterial road consisting of a 6-lane urban cross section with 3 lanes per direction. It has a posted speed limit of 70 km/h. A sidewalk is provided on both sides of the road and stopping is prohibited on both sides of the road. Turn lanes are provided at intersections.

Figure 2: Existing Road Network

Homelands Drive Homelands Drive is an east-west minor collector road that transitions into a north-south road, north of Sheridan Park Drive. It consists of a 2 lane urban cross section. The roadway commences at Winston Churchill Boulevard, opposite Dover Gate and transitions to Speakman Drive, south of Sheridan Park Drive. Homelands Drive has a posted speed limit of 50 km/h, except within the Homelands Senior School zone, where the posted speed limit is 40 km/h. A sidewalk is provided on both sides of the road. Stopping and U-turns are prohibited within the vicinity of the school zone. Homelands Drive serves the Sheridan Homelands residential neighborhood.

Speakman Drive Speakman Drive is a north-south and east-west minor collector road that forms a crescent connecting to Sheridan Park Drive. It consists of a 2-lane urban cross section and is the southerly continuation of Homelands Drive at its east leg. The roadway then terminates at the west segment of Sheridan Park Drive just east of Winston Churchill Boulevard. The road has a posted speed limit of 50 km/h, except within the Olive Grove School zone, where the posted speed limit is reduced to 40 km/h. A

sidewalk is provided on the south side, east side on the east leg and west side on the west leg of the road.

As well, a pedestrian signal is located approximately 265 meters south of Sheridan Park Drive on the west leg of Speakman Drive. Parking and stopping are prohibited on both sides of the road. Speakman Drive serves Sheridan Park.

Fifth Line	Fifth Line is a north-south road consisting of a 2-lane urban cross section. North of Sheridan Park Drive, it is a minor collector road. South of Sheridan Park Drive, it is a local road. It has a posted speed limit of 50 km/h. There are designated bicycle lanes provided on both sides of the road. Sidewalks are provided on both sides of the road north of Sheridan Park Drive and on the west side of the road south of Sheridan Park Drive. Parking is prohibited on both sides of the road.
Thorn Lodge Drive	Thorn Lodge Drive is an east-west minor collector road consisting of a 2-lane urban cross section. It has a posted speed limit of 40 km/h. A sidewalk is provided on both sides of the road. Thorn Lodge Drive serves the residential Sheridan Homelands neighbourhood.
Hadwen Road	Hadwen Road is a north-south minor collector road consisting of a 2-lane urban cross section. Hadwen Road has an assumed speed limit of 50 km/h. A sidewalk is provided on the west side of the road and parking is prohibited on the west side.
Flavelle Boulevard	Flavelle Boulevard is a north-south minor collector road that is separated into two one-way roads that are approximately 75 m apart. The west road is for southbound traffic only and the east road is for northbound traffic only. Both have assumed speed limits of 50 km/h. No pedestrian facilities are provided along the road.

2.2 Transit Network

The study area is currently well served by three main transit agencies. MiWay provides local bus service within Mississauga. Oakville Transit provides local bus service within Oakville along Winston Churchill Boulevard. GO Transit provides inter-regional connections.

2.2.1 MiWay Transit

MiWay is operated by the City of Mississauga. There are several routes that run near or through the study area. Table 1 summarizes local MiWay routes within the vicinity of the study area and their service frequency. A route map is illustrated in Figure 3.

Table 1: MiWay Transit Route Frequency

Transit Route	Weekday (mins)		Weekend (mins)
	AM Peak Period	PM Peak Period	Midday Period
#13 Glen Erin	16-23	10-23	33
#23 Lakeshore ¹	8	NA	NA
#29 Royal Park Homelands	23-30	23-30	33
#45 Winston Churchill	26-36	31-34	45
#45A Winston Churchill-Speakman	28-40	15-30	NA
#71 Sheridan-Subway East ²	NA	37	NA
#71 Sheridan-Subway West	50	NA	NA

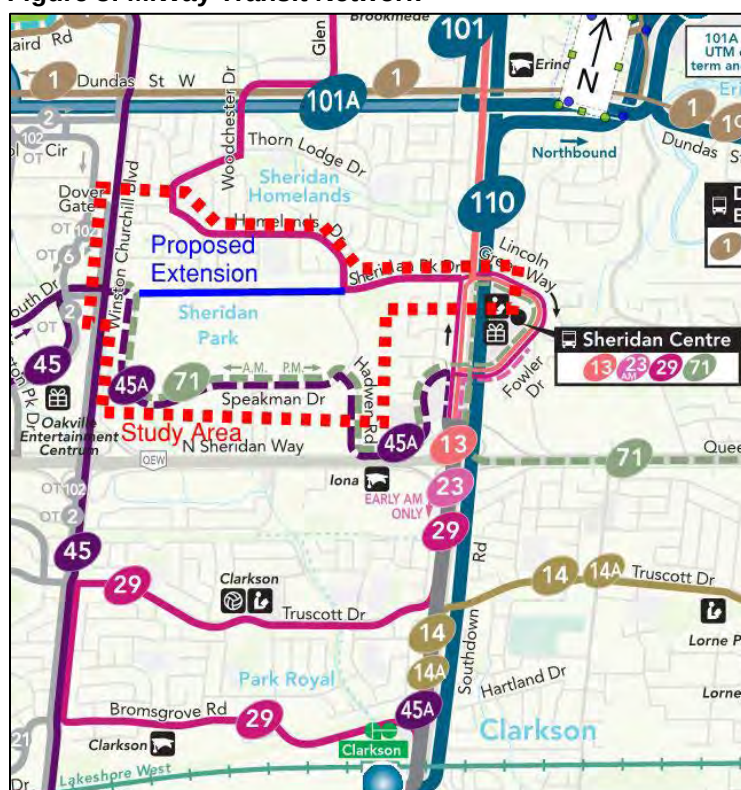
Notes: NA = Service not available

1. Route #23 Lakeshore only operates during the Weekday AM Peak Period and the service does not fall within the adjacent street peak hour of 7:00 AM to 9:00 AM. The frequency indicated in the table is the most frequent service for the duration of 4:00 AM to 5:15 AM

2. Route #71 Sheridan Subway East only operates during the Weekday PM Peak Period from 4:30PM to 5:30AM

3. Route #71 Sheridan Subway West only operates during the Weekday AM Peak hour from 8:00AM to 9:00AM

Figure 3: MiWay Transit Network



Reference: Miway Weekday System Map, January 2017

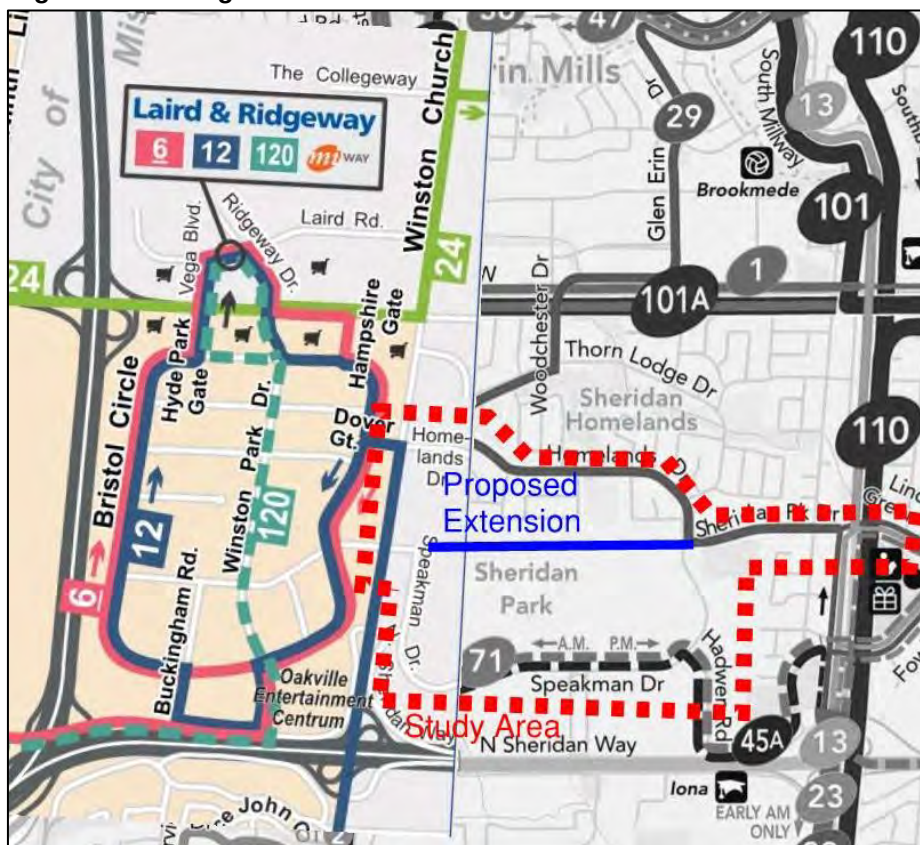
2.2.2 Oakville Transit

Oakville Transit is operated by the City of Oakville with transit routes #6 Upper Middle, #12 Winston Park and #120 Industrial Park that operate west of the study area. These routes are within 500 meters walking distance from the study area. Route #6 and Route #12 have a transit stop located approximately 220 meters from the study area. Route #120 has a transit stop located approximately 500 meters from the study area. Table 2 summarizes the routes within the vicinity of the study area and their service frequency. The route map is illustrated in Figure 4.

Table 2: Oakville Transit Route Frequency

Transit Route	Weekday AM and PM Peak hour (mins)	Weekend Frequency (mins) Midday Period
#6 Upper Middle	60	60
#12 Winston Park	30	-
#120 East Industrial	30	-

Figure 4: Existing Oakville Transit Network



Reference: Oakville Transit System Map, January 2017

2.2.3 GO Transit

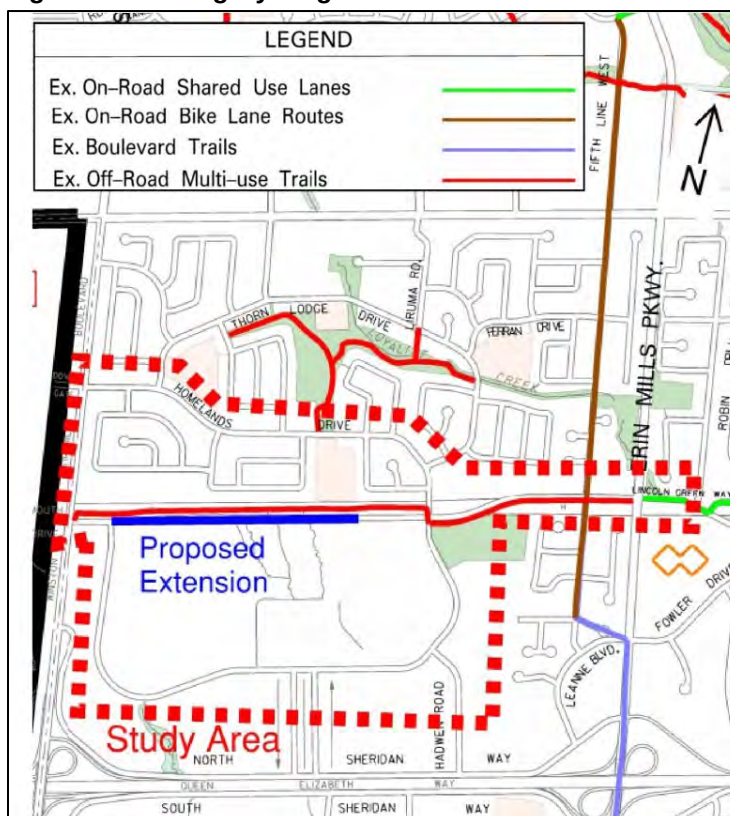
GO Transit, a division of Metrolinx, provides inter-regional commuter-based transit service for the Greater Toronto and Hamilton Area (GTHA) and has routes that extend to the communities across the Greater Golden Horseshoe. The closest GO Transit station is Clarkson GO station, which is located approximately 2.3 kilometers away from the study area. The station is a transit hub for the GO Rail Lakeshore West Line and a local bus terminal for both MiWay and Oakville Transit buses. MiWay routes provide connections between the bus terminal and the study area. During the AM peak period, train frequency is every 5 to 15 minutes towards Union Station and every 25 minutes towards Hamilton. During the PM peak period, train frequency is every 15 to 30 minutes towards Union Station and every 10 to 20 minutes towards Hamilton.

2.3 Active Transportation Network

2.3.1 Cycling Network

Existing cycling facilities are shown in Figure 5, which is an excerpt from the City's Cycling Master Plan.

Figure 5: Existing Cycling Network

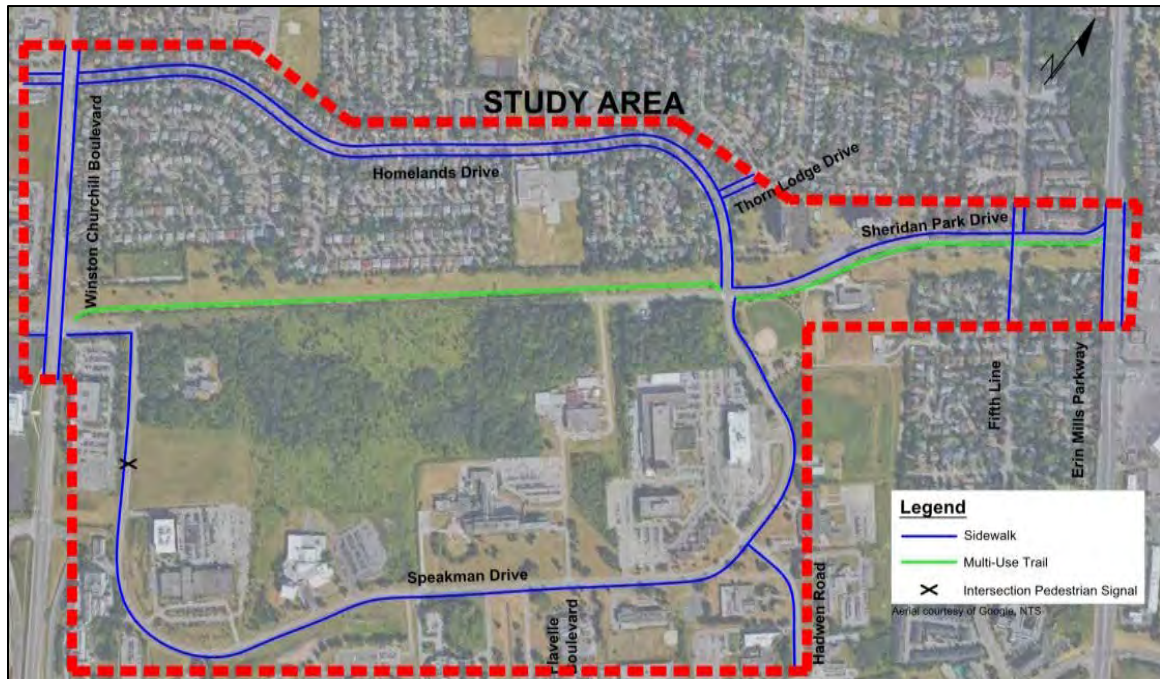


Reference: Mississauga Cycling Master Plan, iTRANS Consulting Inc., September 2010

2.3.2 Pedestrian Network

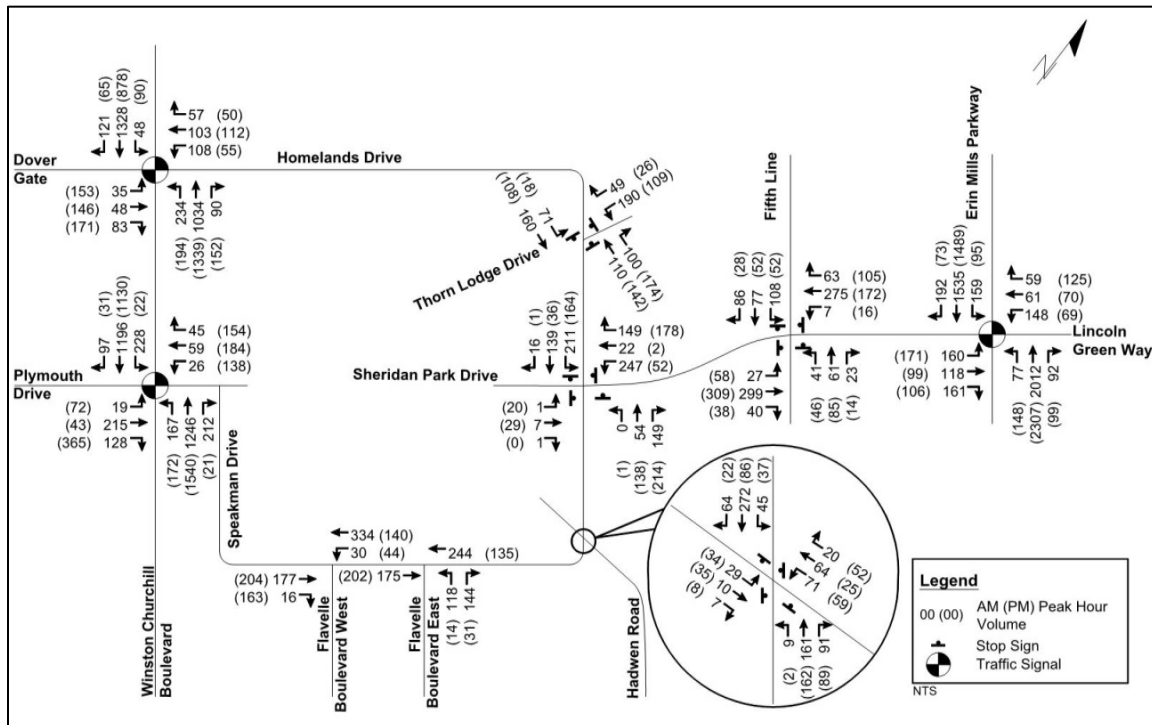
Existing pedestrian facilities are shown in Figure 6. The blue lines illustrate the sidewalk system and the green lines indicate the MUT.

Figure 6: Existing Pedestrian Network



2.4 Traffic Volumes

Existing traffic counts were conducted at study intersections by Accu-Traffic on behalf of Burnside, with the exception of the Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive intersection and Speakman Drive / Hadwen Road intersection. Turning movement counts for these two intersections were provided by the City and were conducted on Thursday, January 14, 2016 and Wednesday, March 4, 2015, respectively. Burnside's traffic counts were conducted on Wednesday, November 23, 2016 during the weekday AM (7:00 - 9:00 AM) and PM (4:00 - 6:00 PM) peak periods. The weekday AM and PM peak hours were selected as these are the typical peak traffic periods. Summaries of the traffic counts are provided in Appendix A. Existing traffic volumes are shown in Figure 7.

Figure 7: Existing Traffic Volumes

2.5 Existing Operations

Existing traffic operations were assessed based on the existing road network shown in Figure 2 and the existing volumes shown in Figure 7. Existing traffic operations are provided in Table 3, Table 4, and Table 5 for signalized, two-way stop, and all-way stop intersections, respectively. Detail Synchro reports can be found in Appendix B.

Under existing conditions, all signalized study intersections are operating at an overall level of service C. Individual movements are operating with excess capacity and a level of service E or better, with the exception of the westbound left turn movement at the Winston Churchill Boulevard / Dover Gate / Homelands Drive intersection. Site observations were made on Thursday, January 26, 2017 during the PM peak hour for this movement. The westbound green time was sufficient to clear all westbound queued vehicles. Green priority has been given to north-south movements that have higher traffic volumes and results in better overall performance. There is capacity that additional time could be provided to the east-west movements, and would be further reviewed by the Region of Peel and City of Mississauga staff.

During the weekday PM peak hour, delays are seen for eastbound left turns onto Erin Mills Parkway from Sheridan Park Drive; however, the movement is operating within the available capacity.

Table 3: Existing Signalized Intersection Operations

Intersection & Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
	v/c	LOS	v/c	LOS
Winston Churchill Boulevard / Dover Gate / Homelands Drive				
Overall	0.74	C	0.75	C
Eastbound Left	0.35	E	0.78	E
Eastbound Through-Right	0.42	E	0.87	E
Westbound Left	0.83	F	0.81	F
Westbound Through-Right	0.67	E	0.43	D
Northbound Left	0.70	E	0.51	A
Northbound Through-Right	0.47	A	0.73	B
Southbound Left	0.23	B	0.47	B
Southbound Through	0.70	C	0.43	B
Southbound Right	0.11	B	0.05	B
Winston Churchill Boulevard / Plymouth Drive / Sheridan Park Drive				
Overall	0.74	C	0.87	C
Eastbound Left	0.10	D	0.43	D
Eastbound Through	0.75	E	0.11	D
Eastbound Right	0.26	D	0.89	E
Westbound Left	0.29	D	0.38	D
Westbound Through-Right	0.31	D	0.64	D
Northbound Left	0.74	D	0.89	E
Northbound Through-Right	0.75	C	0.80	C
Southbound Left	0.69	E	0.20	B
Southbound Through	0.47	A	0.59	B
Southbound Right	0.06	A	0.02	A
Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way				
Overall	0.78	C	0.86	C
Eastbound Left	0.80	E	0.93	F
Eastbound Through	0.38	D	0.26	D
Eastbound Right	0.46	D	0.07	D
Westbound Left	0.75	E	0.26	D
Westbound Through-Right	0.36	D	0.43	D
Northbound Left	0.48	C	0.62	B
Northbound Through-Right	0.70	B	0.84	C
Southbound Left	0.76	D	0.62	D
Southbound Through	0.43	A	0.53	B
Southbound Right	0.13	A	0.06	B

Notes: 1. v/c (volume to capacity), LOS (level of service)
2. Based on existing signal timings as provided by the City

Given the volume of traffic exiting Sheridan Park in the PM peak hour, delays were observed for traffic trying to turn onto Winston Churchill Boulevard as illustrated in Photo 1.

Photo 1: PM Westbound Queues on Sheridan Park from Winston Churchill



Queues in employment areas are not unusual when employees are trying to exit after the work day. The length of the through-right turn queue extended beyond where left turning vehicles could get into the left turn lane, which result in left turning vehicles be added as part of the queue. This was previously identified by the Region of Peel. They have identified that a westbound right turn lane would be beneficial at the Winston Churchill Boulevard / Plymouth Drive / Sheridan Park Drive intersection and have included this improvement as part of their development charges. This change is appropriate, as the right turn lane would provide additional capacity. Further calibration of the analysis model has not been undertaken.

Table 4: Existing Two-Way Stop Intersection Operations

Intersection & Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
	v/c	LOS	v/c	LOS
Speakman Drive / Flavelle Boulevard West				
Westbound Left-Through	0.03	A	0.05	A
Speakman Drive / Flavelle Boulevard East				
Northbound Left-Right	0.56	C	0.08	B

Notes: v/c (volume to capacity), LOS (level of service)

Under existing conditions, the two-way stop unsignalized study intersections have critical movements operating with excess capacity and with level of service C or better. No changes are necessary.

Table 5: Existing All-way Stop Intersection Operations

Intersection & Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
	v/c	LOS	v/c	LOS
Homelands Drive / Thorn Lodge Drive				
Westbound Left-Right	0.47	B	0.22	A
Northbound Through-Right	0.38	B	0.42	B
Southbound Left-Through	0.44	B	0.19	A
Speakman Drive / Homelands Drive / Sheridan Park Drive				
Eastbound Left-Through-Right	0.02	B	0.10	A
Westbound Left-Through-Right	0.85	D	0.39	B
Northbound Left-Through-Right	0.42	B	0.55	B
Southbound Left-Through-Right	0.78	D	0.36	B
Fifth Line / Sheridan Park Drive				
Eastbound Left-Through-Right	0.75	D	0.67	C
Westbound Left-Through-Right	0.71	C	0.49	B
Northbound Left	0.12	B	0.11	B
Northbound Through-Right	0.21	B	0.20	B
Southbound Left	0.28	B	0.12	B
Southbound Through-Right	0.38	B	0.16	A
Speakman Drive / Hadwen Drive				
Eastbound Left-Through-Right	0.11	B	0.14	A
Westbound Left-Through-Right	0.35	B	0.24	A
Northbound Left-Through-Right	0.50	B	0.40	B
Southbound Left-Through-Right	0.71	C	0.25	A

Notes: v/c (volume to capacity), LOS (level of service)

Under existing conditions, all all-way stop unsignalized study intersections have movements operating with excess capacity and with level of service D or better.

2.6 Queueing Analysis

Queueing was reviewed for critical movements under existing conditions during both AM and PM Peak periods. A comparison of the existing storage and analysed queue lengths for critical movements are summarized in Table 6. Detail Synchro outputs for the queueing results can be found in Appendix C.

Table 6: Existing 95th Percentile Queuing Summary

Intersection and Movement	Existing Storage (m)	Existing Queue Length (m)	
		AM Peak Period Hour	PM Peak Period Hour
Winston Churchill Boulevard / Homelands Drive / Dover Gate			
Eastbound Through-Right	100	41	123
Westbound Left	20	52	40
Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive			
Westbound Left	35	15	46
Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way			
Eastbound Left	20	65	95
Eastbound Right	35	47	15

The results of the queue length review are discussed below for each intersection.

2.6.1 Winston Churchill Boulevard / Homelands Drive / Dover Gate

The eastbound through movement, during the PM peak hour, is currently exceeding the existing distance to the upstream constraint (ie. length of lane or next intersection) by 23 m under existing conditions. The westbound left turn movement, during the AM peak hour, is also exceeding existing storage by 32 m. These queues can be reduced with improved signal timing as there is excess green time for north/south movements.

2.6.2 Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive

The westbound left turn movement is exceeding the provided storage by 11 m. Field observations found that queueing for the westbound left turn movement was being impacted by the longer westbound through-right queue. However, the westbound green time was sufficient to clear all westbound queued vehicles. As previously identified, a westbound right turn lane was identified as an improvement by the Region of Peel, which would improve intersection operations and queues.

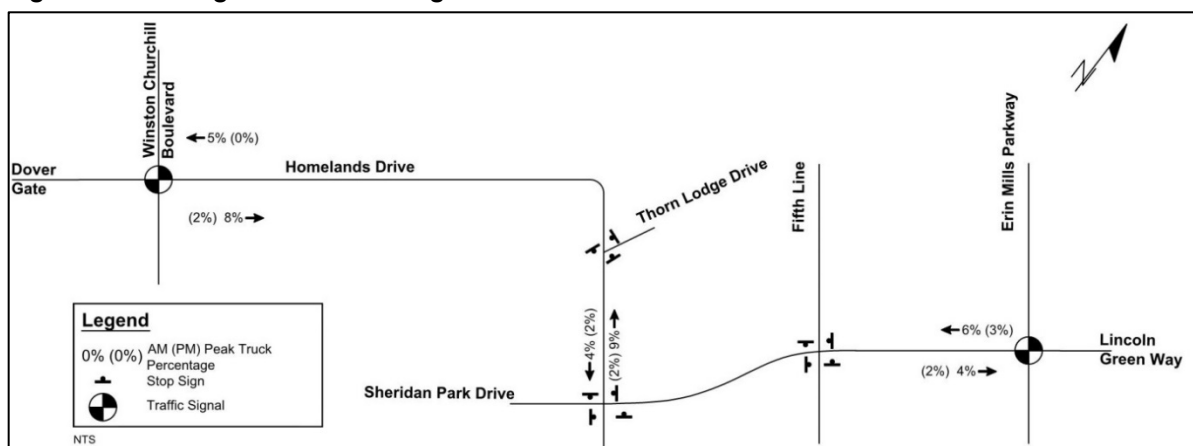
2.6.3 Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way

The eastbound left turn movement, during the PM peak hour, is exceeding the existing storage by 75 m. The storage length is also exceeded during the AM peak hour. Field observations found that there was sufficient green time allocated to clear the eastbound left turn queue. In addition, the eastbound right turn movement during the AM peak hour is exceeding the existing storage by 12 m. These queues can be reduced with improved signal timing as there is excess green time for north/south movements.

2.7 Truck Infiltration

Currently, there are posted signs prohibiting heavy trucks from 7:00 PM to 7:00 AM any day, along Sheridan Park Drive, between Erin Mills Parkway and the east terminus of the eastern section of Sheridan Park Drive. In addition, heavy trucks are prohibited at any time on Homelands Drive, north of Sheridan Park Drive. Despite these signed prohibitions, residents have reported truck traffic infiltrating the area. Existing truck traffic along Homelands Drive and Sheridan Park Drive was assessed. Figure 8 shows the percentage of truck traffic during the AM and PM peak hours traveling along Homelands Drive and Sheridan Park Drive, with the exception of the intersection of Sheridan Park Drive / Homelands Drive / Speakman Drive intersection where the percentages are based on 8 hour counts conducted by Accu-Traffic on behalf of Burnside on Wednesday, November 23, 2016 from 7:00 AM to 6:00 PM over eight hours. It should be noted that truck traffic would include buses and heavy trucks associated with home delivery services as well garbage pick-up, etc. Some truck traffic would have a purpose in the neighbourhood.

Figure 8: Existing Truck Percentages



The truck percentages appear to indicate that there could be some truck infiltration within the Sheridan Homelands neighbourhood. Truck volumes are lower during the weekday PM period, which is supported by field observations that were undertaken on Thursday, January 26, 2017.

Utilizing the traffic counts, truck traffic using Homelands Drive to access Sheridan Park Drive were reviewed and there was only one southbound truck in the weekday AM peak hour and one northbound truck in the weekday PM peak hour. Trucks using Homelands Drive to access the employment lands west of Winston Churchill Boulevard was one eastbound truck in the AM peak hour and no trucks in the weekday PM peak hour. Therefore, it is not conclusive that trucks are using Homelands Drive to access the employment areas to the south or west.

During the weekday AM peak hour, some trucks may be using Sheridan Park Drive and Homelands Drive to travel in a westerly direction between Erin Mills Parkway and Winston Churchill Boulevard. Some of this could be occurring in the weekday AM peak hour in the eastbound direction as well. There is insufficient evidence that this is occurring in the weekday PM peak period.

2.8 Homelands Drive

Sheridan Homelands residents expressed concerns regarding traffic volumes and speeding along Homelands Drive and within their neighbourhood. The City is undertaking another study that is addressing neighbourhood concerns regarding traffic calming in the neighbourhood.

This study has reviewed traffic volumes along Homelands Drive including trucks. The impact of the Sheridan Park Drive Extension on traffic volumes along Homelands Drive has also been reviewed and discussed below.

3.0 Future Traffic Projections

Future traffic volumes with and without Sheridan Park Drive Extension were developed from the City's EMME transportation model. The EMME traffic projection model results for 2011, 2021, and 2031 years are provided in Appendix D. To further understand how the Sheridan Park Drive Extension impacts the residential neighbourhood, the City's Travel Demand Model was utilized to assist in understanding how the travel patterns changed for each alternative transportation solutions proposed and to complete a number of sensitivity checks to assist in selecting a preferred solution for the study area. Specifically the model was utilized to assess the following:

1. How much traffic utilizes Homelands Drive when comparing the following scenarios:
 - a) Do-nothing scenario – the Do-nothing scenario (assumes four (4) lanes on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection).
 - b) Sheridan Park Drive Extension (with four (4) lanes on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection).
 - c) Speakman Drive widening to four (4) lanes (no Sheridan Park Drive Extension, four (4) lanes on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection)

Note: For the purpose of the sensitivity analysis, as part of the Do-Nothing scenarios includes a 4-lane cross-section on Sheridan Park Drive between Winston Churchill Boulevard and Speakman Drive west intersection as the modelling analysis indicated that with a 2 lane cross-section this section of Sheridan Park Drive experienced capacity constraints in the future horizon years which limited the amount of traffic demand which utilizes the Sheridan Park Drive extension/ Speakman Drive.

2. Origin and destination of trips utilizing Homelands Drive
3. Origin and destination of trips utilizing the Sheridan Park Drive Extension

It is important to note that the City's Travel Demand Model used in this work is developed to provide analysis/ results generally at a higher level, i.e. Freeways, Arterials and Major Collectors. Therefore, the numbers presented should not be taken as exact, but are intended to assist in comparing how the various scenarios impact travel demand in the area and thus help in selecting the preferred transportation solution for the area.

The following sections describe the results and approach taken to develop future traffic volumes.

3.1 Population and Employment Projections

The City provided population and employment forecast for the surrounding area. Table 7 summarizes the 2011, 2021 and 2031 projected population and employment within the Sheridan Homelands residential neighbourhood and Sheridan Park Corporate Centre.

Table 7: Projected Population and Employment Within the Study Area

	2011	2021	2031
Population	8500	8500	8540
Employment	7340	8650	9550

There is no population growth forecasted from year 2011 to 2021 and the growth from 2021 to 2031 is approximately 1% compounded annually for the residential. As the Sheridan Neighborhood is mainly developed, there is little to no space for new developments in the area. As a result, the population growth in the area is projected to be minimal.

Employment growth from year 2011 to 2021 is expected to be approximately 1.7% compounded annually and from 2021 to 2031 the rate is expected to be approximately 1% compounded annually. It is expected that the Sheridan Park Corporate Centre area will be the catalyst for growth within the study area.

3.2 Comparison between Traffic Counts and EMME Model

The 2011 estimated traffic from the City's EMME model was compared against observed 2016 traffic counts for traffic entering and exiting the Sheridan Park Corporate Centre. The results of this comparison are summarized in Table 8 for the weekday AM and PM peak hours.

Table 8: Sheridan Park Corporate Centre Observed Counts Versus 2011 Model Estimates

	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
EMME Model	1537	6	1543	359	1383	1742
Observed	1459	525	1984	355	1197	1552
Difference	78	-519	-441	4	186	190

For the Sheridan Park Corporate Area, the model projected well with the exception of the weekday AM peak hour. The model did not project outbound trips for the area; however, outbound trips are occurring.

As the traffic count data did not encompass the Sheridan Homelands residential neighbourhood at all connection points to the neighbourhood, a review of trips for the Sheridan Homelands trip projections was not undertaken. However, a review of link volumes along Homelands Drive and the 2016 traffic counts determined that estimates were within a reasonable range of the traffic counts along Homelands Drive.

To project the future traffic projections for 2021 and 2031, the growth rates between the model existing traffic and the projected traffic was determined and applied to the existing traffic counts.

3.3 Traffic Patterns for Various Scenarios

The following sections present the various scenarios reviewed to determine the traffic impacts along Homelands Drive.

3.3.1 Impact of Scenarios on the Amount of Vehicles Travelling along Homelands Drive

This section discusses the comparison of the Sheridan Park Drive Extension scenario and if it resulted in a reduction in overall traffic on Homelands Drive when compared to a Do-nothing scenario or the widening of Speakman Drive to four (4) lanes scenario. Table 9 depicts the 2021 horizon year simulated traffic along Homelands Drive for the three scenarios mentioned above with the traffic volumes summarized by direction for three separate segments along Homelands Drive. An average for the three segments is also provided. Based on the data, the following conclusions are made:

AM Peak Hour

- With the Sheridan Park Drive Extension, there will be an average decrease in traffic by approximately 2% (four (4) vehicles) in the eastbound direction and 16% (38 vehicles) in the westbound direction on Homelands Drive compared to the Do-nothing scenario.
- With the widening of Speakman Drive to four (4) lanes, there will be approximately 16% (40 vehicles) more traffic on Homelands Drive in the eastbound direction and 18% (36 vehicles) in the westbound direction as compared to the extension of Sheridan Park Drive scenario.
- With the Sheridan Park Drive Extension scenario, the greatest reductions in traffic will be experienced on the western end of Homelands Drive (west of the Thorn Lodge Drive east intersection) with volumes decreasing by approximately 29% (average for both directions).
- The eastern end of Homelands Drive (east of the Thorn Lodge Drive east intersection) will experience an increase in use (by approximately 24% - average for both directions) as the residential community is diverting to the extension. This results in the reduction in traffic volumes on Homelands Drive east of the Thorn Lodge Drive east intersection.

Table 9: Volumes Along Homelands Drive Between Winston Churchill Boulevard and Sheridan Park Drive (2021 Horizon Year)

AM Peak Hour								
Scenarios	EB Direction				WB Direction			
	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction
Do-Nothing	223	137	416	259	447	201	74	241
Sheridan Park Dr Extension	178	87	499	255	396	102	111	203
Speakman widening to 4 Lanes	256	172	457	295	444	196	78	239
Comparison between Scenarios	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction
Sheridan Park Dr Extension vs Do-Nothing	-20%	-36%	20%	-2%	-11%	-49%	50%	-16%
Speakman widening to 4 Lanes vs Sheridan Park Dr Extension	44%	98%	-8%	16%	12%	92%	-30%	18%
PM Peak Hour								
Scenarios	EB Direction				WB Direction			
	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction
Do-nothing	482	247	142	290	417	230	396	348
Sheridan Park Dr Extension	447	150	244	280	360	133	509	334
Speakman widening to 4 Lanes	487	238	145	290	427	232	435	365
Comparison between Scenarios	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction
Sheridan Park Dr Extension vs Do-Nothing	-7%	-39%	72%	-3%	-14%	-42%	29%	-4%
Speakman widening to 4 Lanes vs Sheridan Park Dr Extension	9%	59%	-41%	3%	19%	74%	-15%	9%
Absolute Difference	EB Direction				WB Direction			
	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction	Btwn WCB & Thorn Lodge	Btwn Thorn Lodge & Thorn Lodge	Btwn Thorn Lodge & Sheridan Park	Average for Direction
Sheridan Park Dr Extension vs Do-Nothing AM	-45	-50	83	-4	-51	-99	37	-38
Speakman widening to 4 Lanes vs Sheridan Park Dr Extension AM	78	85	-42	40	48	94	-33	36
Sheridan Park Dr Extension vs Do-Nothing PM	-35	-97	102	-10	-57	-97	113	-14
Speakman widening to 4 Lanes vs Sheridan Park Dr Extension PM	40	88	-99	10	67	99	-74	31
Sheridan Park Drive Extension vs Do-Nothing Change along West End and East End of Homelands	AM	PM						
Average for West End	-29%	-25%						
Average for East End	24%	40%						

PM Peak Hour

- Because of the Sheridan Park Drive Extension, Homelands Drive will experience an average decrease in traffic by approximately 3% (ten (10) vehicles) in the eastbound direction and 4% (14 vehicles) in the westbound direction.
- Comparing the Speakman Drive widening to four (4) lanes scenario against the Sheridan Park Drive Extension scenario, the widening will result in an increase in traffic along Homelands Drive by approximately 3% (10 vehicles) in the eastbound direction and 9% (31 vehicles) in the westbound direction.
- Similar to the AM peak hour, the Sheridan Park Drive Extension will result in the greatest traffic reduction on the western end of Homelands Drive with volumes decreasing by approximately 25% (average for both directions). The eastern end of Homelands Drive will see an increase in traffic by approximately 40% (average for both directions) as the residential community diverts to this link to access the extension.

Overall the results indicate that with the Sheridan Park Drive Extension, Homelands Drive will experience on average a decrease in traffic, while the Speakman Drive widening to four (4) lanes scenario will result in an overall increase in traffic on Homelands Drive. The Sheridan Park Drive Extension scenario leads to the residents living in the area to change their travel patterns to access the external road network via the extension. This in turn leads to a reduction in traffic in some sections of Homelands Drive while other sections experience an increase in neighbourhood traffic as residents utilize these sections to access the extension.

3.3.2 Origin and Destination of Trips Utilizing Homelands Drive

The previous analysis concluded that with the Sheridan Park Drive Extension in place, the number of vehicles utilizing sections of Homelands Drive will decrease. The origins and destination of trips utilizing Homelands Drive have been reviewed in this section and how those travel patterns changed between the scenarios analyzed. The objective of this analysis was to determine how the scenarios impact the number of trips utilizing Homelands Drive as a through route, i.e. not originating or destined to the residential area bounded by Dundas Street, Winston Churchill Boulevard, Erin Mills Parkway, and Sheridan Park Drive. A select link analysis was conducted using the City's model, where a select link analysis allows the user to select a link in the transportation network and review where the trips are coming from and going to using that link.

In this analysis, the link that was selected is located along Homelands Drive between Sheridan Park Drive and Thorn Lodge Drive (east intersection). The results of the select link analysis for the 2021 horizon year is summarized in Table 10. The table highlights the total number of vehicles that utilize the selected link and the number of vehicles that utilize the link but that are either originating/destined to the residential area or are originating/destined to an area outside the residential area.

Table 10: Through Trips Along Homelands Drive (2021 Horizon Year)

AM Peak Hour			
Scenarios	Total Trips	OD within Res. Area	OD outside of Res. Area
Do-Nothing	491	279	212
Sheridan Park Dr Extension	610	433	176
Speakman widening to four (4) Lanes	535	277	258
Change in through traffic along Homelands Drive between Scenarios			
Sheridan Park Dr Extension vs Do-nothing	-17%		
Speakman widening to four (4) Lanes vs Do-nothing	22%		
PM Peak Hour			
Scenarios	Total Trips	OD within Res. Area	OD outside of Res. Area
Do-nothing	538	251	287
Sheridan Park Dr Extension	753	504	249
Speakman widening to four (4) Lanes	580	268	312
Change in through traffic along Homelands Drive between Scenarios			
Sheridan Park Dr Extension vs Do-nothing	-13%		
Speakman widening to four (4) Lanes vs Do-Nothing	9%		

The results from the select link analysis indicate the following for Homelands Drive:

- With the Sheridan Park Drive Extension in place, the number of through trips utilizing Homelands Drive will decrease by approximately 17% in the AM peak hour and 13% in the PM peak hour as compared to the Do-nothing scenario.
- With the Speakman Drive widening to four 4 lanes scenario, there will be an increase in the number of through trips along Homelands Drive by approximately 22% in the AM peak hour and 9% in the PM peak hour as compared to the Do-nothing scenario.
- Generally, the results indicate that the Sheridan Park Drive Extension scenario has the greatest impact of reducing the number of trips utilizing Homelands Drive as a through route.

It is noted that the link traffic volumes analyzed for the scenario of Sheridan Park Extension or the Speakman Drive widening to four (4) lanes scenario had higher traffic volumes than the Do-nothing scenario. For the Sheridan Park Extension scenario, this is due to a change in residential traffic patterns and more residential traffic utilizing this section of the link rather than Homelands Drive further to the west.

3.3.3 Origin and Destination of Trips Utilizing Sheridan Park Drive Extension

Similar to the analysis presented in the previous section, a select link analysis was completed for the Sheridan Park Drive Extension. The purpose of the analysis was to understand where the trips are originating from and destined to that are using the Sheridan Park Drive Extension. The following three origin/destination areas were defined:

- Sheridan Homelands Residential Neighbourhood bounded by Dundas Street, Winston Churchill Boulevard, Erin Mills Parkway and Sheridan Park Drive
- Corporate Park Area bounded by Sheridan Park Drive, Winston Churchill Boulevard, Erin Mills Parkway and Queen Elizabeth Way.
- All other Origin's and Destinations outside the Residential and Corporate Park areas.

The select link analysis for the 2021 horizon year for the Sheridan Park Drive Extension link is summarized in Table 11. The table shows both absolute values and what those values translate into as a percentage of the total trips.

Table 11: Origin and Destination of Trips Using the Sheridan Park Drive Extension (2021 Horizon Year)

AM Peak Hour		
	Traffic Volume	as a percentage
Total Trips	233	
OD within Residential Area	179	77%
OD within Corporate Park Area	15	6%
OD outside of Residential and Corporate Area	38	16%
PM Peak Hour		
	Traffic Volume	as a percentage
Total Trips	383	
OD within Residential Area	278	72%
OD within Corporate Park Area	38	10%
OD outside of Residential and Corporate Area	68	18%

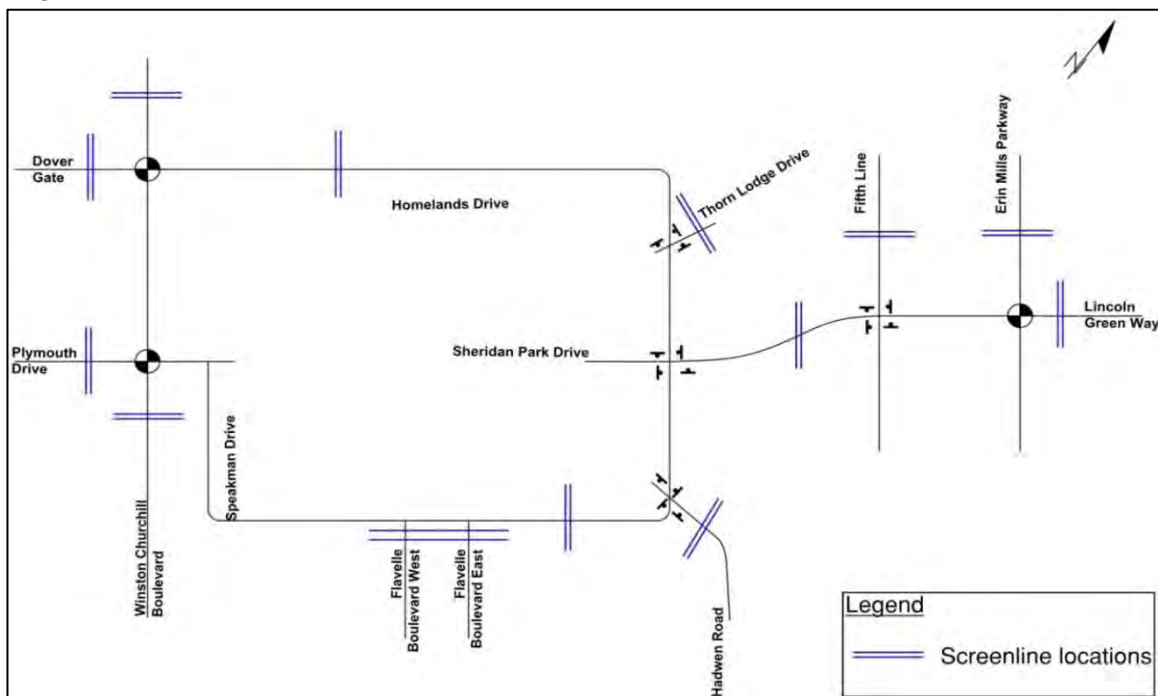
The results from the table indicate the following:

- For the AM peak hour, approximately 77% of the trips that utilize the Sheridan Park Drive Extension either originate from or are destined to the residential area to the north of Sheridan Park Drive. Only about 6% originate from or are destined to the Corporate Park, while approximately 16% of the traffic using the extension has neither an origin nor destination in the residential and Corporate Park areas.
- In the PM peak hour, approximately 72% of the traffic using the Sheridan Park Drive Extension has either an origin or destination in the residential area, 10% has an origin or destination in the Corporate Park area and approximately 18% of the traffic using the extension is originating from or are destined to areas outside of the residential and Corporate Park areas.
- The results indicate that the Sheridan Park Drive Extension will serve a large proportion of trips that are either originating from or are destined to the residential area to the north of the extension. The extension will provide additional network capacity in the area and provide additional opportunities for the residents living in the area to access and exit their neighbourhood.

3.4 Traffic Growth Rate

Based on the traffic projections from the City's EMME model for 2011, 2021 and 2031 traffic conditions during the weekday AM and PM peak hours, proposed growth rates along the study roadways have been identified. Note that the traffic projections provided included a with and without Sheridan Park Drive connection. To determine the projected traffic volume along the study roadways a screenline analysis was completed. A screenline analysis involves evaluating the total amount of traffic crossing a physical or imaginary boundary. Figure 9 illustrates the location of the traffic volumes screenlines that were considered in the analysis.

Figure 9: Screenline Locations



The total traffic volumes modelled at the screenlines were summarized for each of the study scenarios mentioned. A compounded annual growth rate at each screenline was determined based on the difference between the forecasted scenarios (projected EMME 2021 and 2031 with and without extension volumes) and the EMME 2011 modelled traffic volumes. The growth rates between weekday AM and PM peak hours were compared to determine a recommended growth rate along the main corridor.

The growth rates utilized by roadway are summarized in Table 12.

Table 12: Roadway Annual Growth Rates

Street	2021	2031
Winston Churchill Boulevard	0.5%	1.5%
Dover Gate	0%	0%
Plymouth Drive	3.5%	2.0%
Speakman Drive	1.0%	1.0%
Flavelle Boulevard	1.0%	1.0%
Hadwen Road	0.5%	1.0%
Erin Mills Parkway	0.5%	0.1%
Lincoln Green Way	0%	0%
Fifth Line	1.5%	0.5%
Sheridan Park Drive between Homelands Drive and Erin Mills Parkway		
Without Extension	1.5%	1.5%
With Extension	2.0%	1.5%
Thorn Lodge Drive		
Without Extension	1.0%	0.5%
With Extension	0.5%	0.5%
Homelands Drive between Winston Churchill Boulevard and Thorn Lodge Drive		
Without Extension	0.5%	1.0%
With Extension	-3.0%	-1.0%

The changes in traffic volumes occurred internally within the study area with the Sheridan Park Drive extension and there was limited impact on the greater external road network. Hence growth rates were kept the same on the external road network. Growth rates increase on Winston Churchill Boulevard for 2031 as it is planned to widen Winston Churchill Boulevard to six lanes by 2031 and the modelled assumed the widening. This likely relates to the reduce growth on Erin Mills Parkway as there is more north-south capacity with the widening of Winston Churchill Boulevard.

The growth rates were then applied to the existing traffic volumes to obtain estimates of traffic volumes for 2021 and 2031.

The projected 2021 and 2031 traffic volumes without and with Sheridan Park Drive Extension are shown in Figure 10 through Figure 13.

Sheridan Park Drive Extension Transportation Report
January 2018

Figure 10: 2021 Traffic Volumes Without the Extension

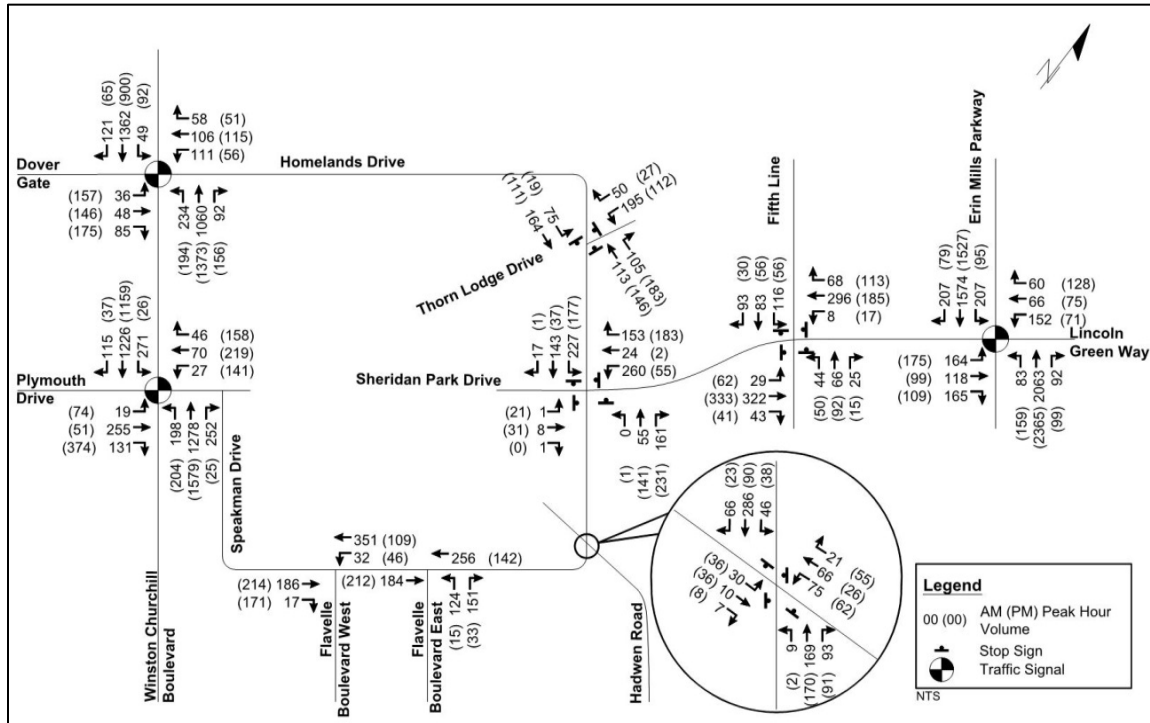
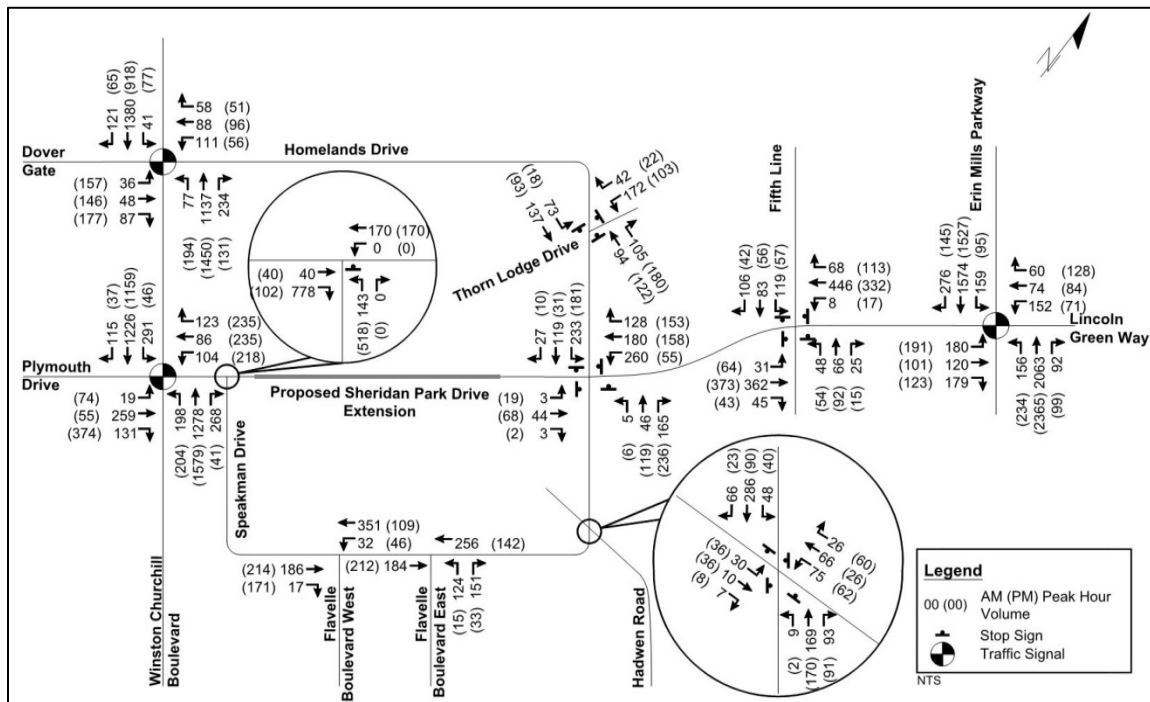


Figure 11: 2021 Traffic Volumes With Sheridan Park Drive Extension



Sheridan Park Drive Extension Transportation Report
January 2018

Figure 12: 2031 Traffic Volumes Without the Extension

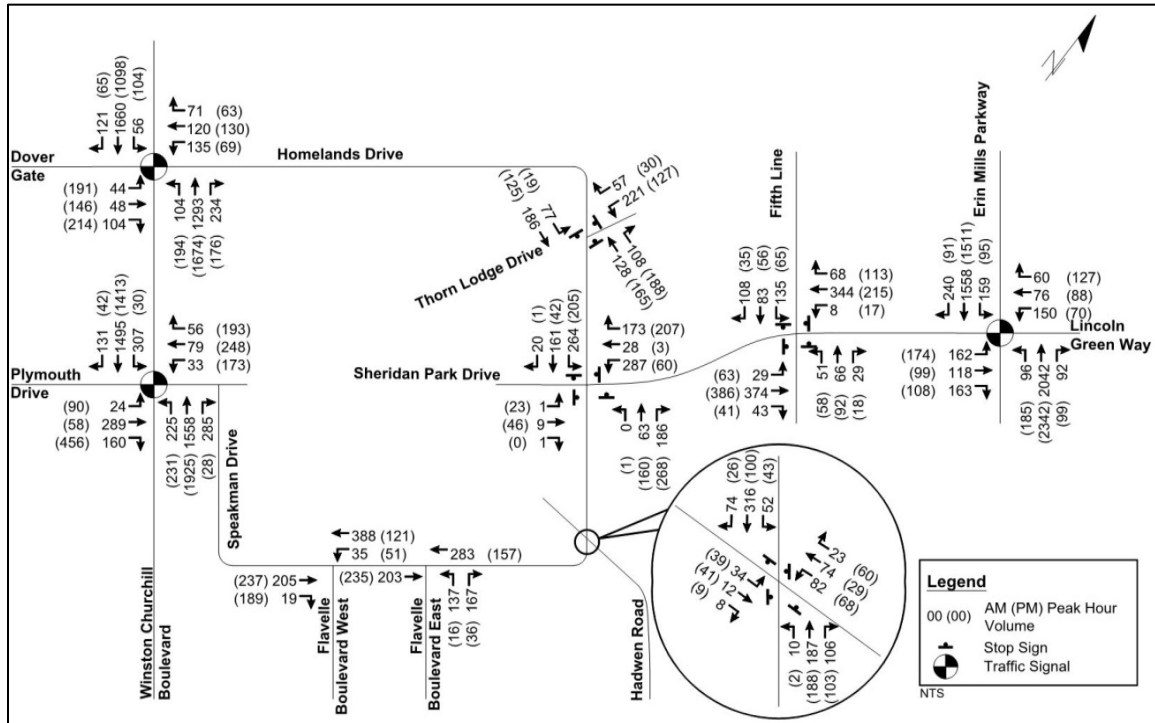
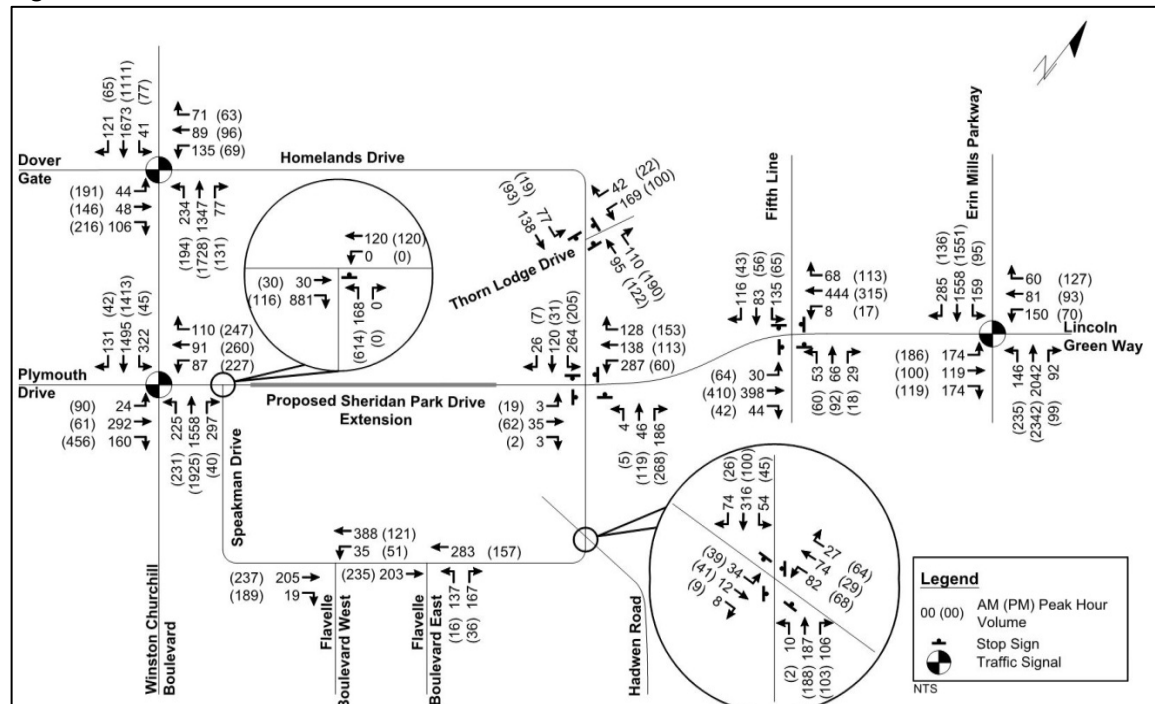


Figure 13: 2031 Traffic Volumes With Sheridan Park Drive Extension



3.5 Road Network Improvements for 2021 and 2031 Horizon Years

Within the study area, the EMME model had Winston Churchill Boulevard improved to 3 lanes per direction by 2031. This improvement will be assumed for the 2031 analysis. The EMME model does not include any other roadway improvements within the study area and there are no other planned improvements.

4.0 Traffic Operations

4.1 2021 Conditions

Intersection operations were assessed for 2021 traffic conditions with and without extensions utilizing the volumes found in their respective figures. The results for all study intersections are summarized in Table 13 and Table 14 for weekday AM and PM peak hour respectively. Detailed Synchro and Arcady reports are provided in Appendix E for without Sheridan Park Extension and in Appendix F for with Sheridan Park Extension.

As identified for existing conditions, the addition of the westbound right turn lane has been assumed as part of the road network at the Winston Churchill Boulevard / Sheridan Park Drive / Plymouth Drive intersection.

The following improvements are recommended to accommodate 2021 traffic volumes:

- The Sheridan Park Drive / Speakman Drive (west leg) intersection will have a volume to capacity ratio of 0.78 during the PM peak hour. To improve intersection operations, a roundabout is recommended to be installed with the Sheridan Park Drive Extension.
- The Sheridan Park Drive / Speakman Drive / Homelands Drive intersection will experience delays with or without Sheridan Park Drive Extension. East and westbound left turn lanes could be installed to improve operations; however, the best improvement would be a roundabout that would result into improving level of service to B or better for each leg during both peak hours.
- At the Sheridan Park Drive / Fifth Line intersection, delays will be experienced with or without the Sheridan Park Drive Extension. However, with the Sheridan Park Drive Extension a left turn in the east and westbound directions would be required plus the installation of traffic signals.

At the signalized intersections to Winston Churchill Boulevard and Erin Mills Parkway, delays will be experienced for some movements; however, there is sufficient capacity to accommodate the demand.

Table 13: 2021 AM Peak Hour Intersection Operations

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Flavelle Boulevard West / Speakman Drive																
Westbound Left-Through	0.03	A	0.03	A												
Flavelle Boulevard East / Speakman Drive																
Northbound Left	0.35	C	0.35	C												
Northbound Right	0.25	B	0.25	B												
Speakman Drive / Sheridan Park Drive Extension																
Westbound Left-Through	N/A		0.01	A							0.19	A				
Northbound Left-Right	N/A		0.22	B							0.15	A				
Eastbound											0.63	A				
Homelands Drive / Thorn Lodge Drive																
Westbound Left-Right					0.48	B	0.41	B								
Northbound Through-Right					0.40	B	0.35	B								
Southbound Left-Through					0.46	B	0.39	B								
Sheridan Park Dr. / Speakman Dr. / Homelands Dr.																
Eastbound Left-Through-Right					0.03	B	N/A		0.02	A	0.09	A				
Eastbound Left					N/A		0.01	B								
Eastbound Through-Right							0.13	B								
Westbound Left-Through-Right					0.92	E	N/A		0.48	A	0.61	A				
Westbound Left					N/A		0.66	C								
Westbound Through-Right							0.71	C								
Northbound Left-Through-Right					0.46	B	0.47	C	0.29	A	0.31	A				
Southbound Left-Through-Right					0.84	E	0.84	D	0.46	A	0.54	A				
Sheridan Park Drive / Fifth Line																
Eastbound Left-Through-Right					0.85	E	N/A									
Eastbound Left					N/A		0.08	F							0.12	A
Eastbound Through-Right							0.96	F							0.53	A
Westbound Left-Through-Right					0.81	D	N/A									
Westbound Left					N/A		0.02	F							0.03	A
Westbound Through-Right							1.21	F							0.68	A
Northbound Left					0.13	B	0.14	B							0.20	B
Northbound Through-Right															0.22	B
Southbound Left					0.32	B	0.32	C							0.40	B
Southbound Through-Right															0.44	B
Speakman Drive / Hadwen Drive																
Eastbound Left-Through-Right					0.12	B	0.12	B								
Westbound Left-Through-Right					0.37	B	0.38	B								
Northbound Left-Through-Right					0.53	B	0.53	B								
Southbound Left-Through-Right					0.76	C	0.77	C								

Table 13: 2021 AM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Winston Churchill Blvd. / Dover Gate / Homelands Dr.																
Eastbound Left													0.35	E	0.31	E
Eastbound Through-Right													0.52	D	0.52	D
Westbound Left													0.83	F	0.84	F
Westbound Through-Right													0.69	E	0.61	E
Northbound Left													0.72	D	0.73	D
Northbound Through-Right													0.49	A	0.51	A
Southbound Left													0.24	B	0.22	B
Southbound Through													0.72	C	0.73	C
Southbound Right													0.14	A	0.14	A
Winston Churchill / Plymouth Dr. / Sheridan Park Dr.																
Eastbound Left													0.09	D	0.09	D
Eastbound Through													0.78	E	0.78	E
Eastbound Right													0.41	D	0.39	B
Westbound Left													0.31	E	0.67	E
Westbound Through													0.21	D	0.19	D
Westbound Right													0.15	B	0.26	A
Northbound Left													0.95	E	0.72	C
Northbound Through-Right													0.82	C	0.98	D
Southbound Left													0.89	E	0.93	E
Southbound Through													0.50	A	0.70	C
Southbound Right													0.10	A	0.14	A
Erin Mills Parkway / Sheridan Park / Lincoln Green Way																
Eastbound Left													0.81	F	0.86	F
Eastbound Through													0.37	D	0.35	D
Eastbound Right													0.54	D	0.43	A
Westbound Left													0.74	E	0.70	E
Westbound Through-Right													0.42	D	0.43	D
Northbound Left													0.54	D	0.63	C
Northbound Through-Right													0.72	C	0.74	C
Southbound Left													0.77	E	0.74	D
Southbound Through													0.45	A	0.54	B
Southbound Right													0.18	A	0.27	A

Notes: v/c (volume-to-capacity ratio), LOS (level of service)

Table 14: 2021 PM Peak Hour Intersection Operations

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Flavelle Boulevard West / Speakman Drive																
Westbound Left-Through	0.06	A	0.06	A												

Table 14: 2021 PM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Flavelle Boulevard East / Speakman Drive																
Northbound Left	0.03	B	0.03	B												
Northbound Right	0.05	A	0.05	A												
Speakman Drive / Sheridan Park Drive Extension																
Westbound Left-Through	N/A		0.01	A							0.24	A				
Northbound Left-Right			0.78	C							0.53	A				
Eastbound											0.07	A				
Homelands Drive / Thorn Lodge Drive																
Westbound Left-Right					0.23	A	0.20	A								
Northbound Through-Right					0.44	B	0.40	A								
Southbound Left-Through					0.20	A	0.17	A								
Sheridan Park Dr. / Speakman Dr. / Homelands Dr.																
Eastbound Left-Through-Right					0.11	B	NA		0.06	A	0.11	A				
Eastbound Left					NA		0.05	B								
Eastbound Through-Right							0.17	B								
Westbound Left-Through-Right					0.42	B	NA		0.30	A	0.44	A				
Westbound Left					NA		0.13	B								
Westbound Through-Right							0.70	C								
Northbound Left-Through-Right					0.60	C	0.68	C	0.51	A	0.52	B				
Southbound Left-Through-Right					0.40	B	0.47	C	0.22	A	0.27	A				
Fifth Line / Sheridan Park Drive																
Eastbound Left-Through-Right					0.75	C	NA									
Eastbound Left					NA		0.14	D							0.19	A
Eastbound Through-Right							0.82	D							0.55	A
Westbound Left-Through-Right					0.54	C	NA									
Westbound Left					NA		0.4	E							0.05	A
Westbound Through-Right							0.87	E							0.59	A
Northbound Left					0.12	B	0.13	B							0.18	B
Northbound Through-Right															0.25	B
Southbound Left					0.13	B	0.14	B							0.20	B
Southbound Through-Right															0.23	A
Speakman Drive / Hadwen Drive																
Eastbound Left-Through-Right					0.15	A	0.15	A								
Westbound Left-Through-Right					0.26	A	0.26	B								
Northbound Left-Through-Right					0.42	B	0.43	B								
Southbound Left-Through-Right					0.26	A	0.27	A								

Table 14: 2021 PM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Winston Churchill Blvd. / Dover Gate / Homelands Dr.																
Eastbound Left													0.81	F	0.74	E
Eastbound Through-Right													0.89	E	0.89	E
Westbound Left													0.83	F	0.85	F
Westbound Through-Right													0.46	D	0.40	D
Northbound Left													0.51	A	0.52	A
Northbound Through-Right													0.75	B	0.78	B
Southbound Left													0.49	B	0.44	B
Southbound Through													0.44	B	0.45	B
Southbound Right													0.07	A	0.07	A
Winston Churchill / Plymouth Dr. / Sheridan Park Dr.																
Eastbound Left													0.43	E	0.49	E
Eastbound Through													0.18	D	0.21	D
Eastbound Right													0.88	D	0.87	D
Westbound Left													0.48	D	0.54	D
Westbound Through													0.53	D	0.45	D
Westbound Right													0.37	B	0.46	C
Northbound Left													0.66	C	0.71	C
Northbound Through-Right													0.72	C	0.83	C
Southbound Left													0.16	A	0.33	C
Southbound Through													0.68	B	0.79	C
Southbound Right													0.04	A	0.05	A
Erin Mills Parkway / Sheridan Park / Lincoln Green Way																
Eastbound Left													0.95	F	0.93	F
Eastbound Through													0.25	D	0.23	D
Eastbound Right													0.27	A	0.28	A
Westbound Left													0.26	D	0.41	E
Westbound Through-Right													0.51	D	0.79	E
Northbound Left													0.66	C	0.77	D
Northbound Through-Right													0.86	C	0.90	C
Southbound Left													0.62	D	0.61	D
Southbound Through													0.55	C	0.64	C
Southbound Right													0.09	A	0.18	A

Notes: v/c (volume-to-capacity ratio), LOS (level of service)

The queues were reviewed with and without the extension with results summarized in Table 15 with details provided in Appendix G.

Table 15: 2021 95th Percentile Queues

Intersection and Movement (Peak Period)	Storage (m)	Without Extension		With Extension	
		AM Peak	PM Peak	AM Peak	PM Peak
Winston Churchill Boulevard / Dover Gate / Homelands Drive					
Eastbound Through-Right	100	41	125	42	126
Westbound Left	20	53	42	53	42
Winston Churchill Boulevard / Plymouth Drive / Sheridan Park Drive					
Westbound Left	59	16	47	37	63
Southbound Left	112	141	4	157	14
Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way					
Eastbound Left	20	66	79	74	79
Eastbound Right	25	48	14	19	15
Westbound Left	35	61	29	62	33

In general, the queues with and without the extension are similar.

4.2 2031 Intersection Operations

Intersection operations were assessed for 2031 traffic conditions with and without the Sheridan Park Drive Extension. The results for all study intersections are summarized in Table 16 and Table 17 for weekday AM and PM peak hour respectively. Detailed Synchro reports are provided in Appendix H for without Sheridan Park Extension and in Appendix I for with Sheridan Park Extension.

In addition to the transportation improvements identified for 2021 traffic conditions, the following additional improvements are identified:

- The Sheridan Park Drive / Fifth Line intersection will require traffic signals to be installed prior to 2031 without the Sheridan Park Drive Extension. It was previously identified as needing traffic signals by 2021 with the extension.

At the arterial intersections, some movements will approach capacity and experience delays; however, the intersection movements will operate within the available capacity.

Table 16: 2031 AM Peak Hour Intersection Operations

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Flavelle Boulevard West / Speakman Drive																
Westbound Left-Through	0.03	A	0.03	A												
Flavelle Boulevard East / Speakman Drive																
Northbound Left	0.42	C	0.42	C												
Northbound Right	0.29	B	0.29	B												
Speakman Drive / Sheridan Park Drive Extension																
Westbound Left-Through	N/A		0.02	A							0.13	A				
Northbound Left-Right			0.24	B							0.16	A				
Eastbound											0.73	A				
Homelands Drive / Thorn Lodge Drive																
Westbound Left-Right					0.57	C	0.40	B								
Northbound Through-Right					0.46	B	0.36	B								
Southbound Left-Through					0.53	B	0.40	B								
Sheridan Park Dr. / Speakman Dr. / Homelands Dr.																
Eastbound									0.02	A	0.07	A				
Westbound									0.51	A	0.56	A				
Northbound									0.33	A	0.33	A				
Southbound									0.51	A	0.53	A				
Fifth Line / Sheridan Park Drive																
Eastbound Left					0.07	F							0.10	A	0.12	A
Eastbound Through-Right					1.00	F							0.60	B	0.57	B
Westbound Left					0.02	F							0.03	A	0.03	A
Westbound Through-Right					0.99	F							0.60	B	0.67	B
Northbound Left					0.15	B							0.19	B	0.22	B
Northbound Through-Right													0.21	B	0.22	B
Southbound Left					0.38	C							0.41	B	0.44	B
Southbound Through-Right													0.41	B	0.46	B
Speakman Drive / Hadwen Drive																
Eastbound Left-Through-Right					0.14	B	0.14	B								
Westbound Left-Through-Right					0.44	B	0.45	C								
Northbound Left-Through-Right					0.63	C	0.64	C								
Southbound Left-Through-Right					0.90	E	0.90	E								
Winston Churchill Blvd. / Dover Gate / Homelands Dr.																
Eastbound Left													0.40	E	0.32	D
Eastbound Through-Right													0.51	D	0.51	C
Westbound Left													0.90	F	0.90	F
Westbound Through-Right													0.69	E	0.57	D
Northbound Left													0.84	E	0.80	E
Northbound Through-Right													0.463	A	0.43	A
Southbound Left													0.40	C	0.31	C
Southbound Through													0.62	C	0.64	C
Southbound Right													0.14	A	0.15	A

Table 16: 2031 AM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Winston Churchill / Plymouth Dr. / Sheridan Park Dr.																
Eastbound Left													0.10	D	0.10	D
Eastbound Through													0.81	E	0.78	E
Eastbound Right													0.45	C	0.43	C
Westbound Left													0.42	E	0.82	F
Westbound Through													0.22	D	0.30	D
Westbound Right													0.17	B	0.32	B
Northbound Left													0.75	C	0.72	D
Northbound Through-Right													0.76	C	0.81	D
Southbound Left													0.87	E	0.82	E
Southbound Through													0.56	C	0.57	C
Southbound Right													0.15	A	0.15	A
Erin Mills Parkway / Sheridan Park / Lincoln Green Way																
Eastbound Left													0.82	F	0.82	E
Eastbound Through													0.36	D	0.54	E
Eastbound Right													0.53	D	0.53	B
Westbound Left													0.72	E	0.65	E
Westbound Through-Right													0.46	D	0.71	E
Northbound Left													0.62	D	0.58	B
Northbound Through-Right													0.71	C	0.75	C
Southbound Left													0.78	E	0.71	D
Southbound Through													0.45	A	0.55	C
Southbound Right													0.20	A	0.29	A

Notes: v/c (volume-to-capacity ratio), LOS (level of service)

Table 17: 2031 PM Peak Hour Intersection Operations

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Flavelle Boulevard West / Speakman Drive																
Westbound Left-Through	0.07	A	0.07	A												
Flavelle Boulevard East / Speakman Drive																
Northbound Left	0.07	A	0.07	A												
Northbound Right	0.05	A	0.05	A												
Speakman Drive / Sheridan Park Drive Extension																
Westbound Left-Through	N/A		0.01	A							0.17	A				
Northbound Left-Right			0.81	B							0.59	A				
Eastbound											0.07	A				

Table 17: 2031 PM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Homelands Drive / Thorn Lodge Drive																
Westbound Left-Right					0.26	B	0.20	A								
Northbound Through-Right					0.49	B	0.41	A								
Southbound Left-Through					0.23	A	0.17	A								
Sheridan Park Dr. / Speakman Dr. / Homelands Dr.																
Eastbound									0.07	A	0.10	A				
Westbound									0.33	A	0.37	A				
Northbound									0.59	B	0.55	B				
Southbound									0.24	A	0.26	A				
Fifth Line / Sheridan Park Drive																
Eastbound Left					0.13	D							0.15	A	0.18	A
Eastbound Through-Right					0.81	D							0.57	A	0.58	A
Westbound Left					0.04	C							0.05	A	0.05	A
Westbound Through-Right					0.63	C							0.44	A	0.55	A
Northbound Left					0.14	B							0.19	B	0.21	B
Northbound Through-Right													0.25	B	0.26	B
Southbound Left					0.16	B							0.22	B	0.23	B
Southbound Through-Right													0.21	A	0.24	A
Speakman Drive / Hadwen Drive																
Eastbound Left-Through-Right					0.18	A	0.18	B								
Westbound Left-Through-Right					0.29	B	0.30	B								
Northbound Left-Through-Right					0.49	B	0.49	B								
Southbound Left-Through-Right					0.30	B	0.31	B								
Winston Churchill Blvd. / Dover Gate / Homelands Dr.																
Eastbound Left													0.88	F	0.77	E
Eastbound Through-Right													0.85	E	0.85	E
Westbound Left													0.86	F	0.86	F
Westbound Through-Right													0.46	D	0.37	D
Northbound Left													0.58	C	0.59	C
Northbound Through-Right													0.68	B	0.67	B
Southbound Left													0.60	C	0.49	C
Southbound Through													0.41	B	0.42	B
Southbound Right													0.08	A	0.08	A

Table 17: 2031 PM Peak Hour Intersection Operations continued

Intersection	Two-way Stop				All-way Stop				Roundabout				Signalized			
	Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension		Without Extension		With Extension	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
Winston Churchill / Plymouth Dr. / Sheridan Park Dr.																
Eastbound Left													0.49	E	0.43	D
Eastbound Through													0.18	D	0.17	D
Eastbound Right													0.91	D	0.92	D
Westbound Left													0.53	D	0.47	C
Westbound Through													0.54	D	0.41	D
Westbound Right													0.42	C	0.42	B
Northbound Left													0.74	D	0.85	E
Northbound Through-Right													0.64	C	0.78	C
Southbound Left													0.21	B	0.34	C
Southbound Through													0.64	C	0.78	C
Southbound Right													0.05	A	0.06	A
Erin Mills Parkway / Sheridan Park / Lincoln Green Way																
Eastbound Left													0.97	F	0.90	F
Eastbound Through													0.25	D	0.22	D
Eastbound Right													0.27	A	0.26	A
Westbound Left													0.26	D	0.38	E
Westbound Through-Right													0.54	D	0.79	E
Northbound Left													0.72	C	0.78	D
Northbound Through-Right													0.86	C	0.90	C
Southbound Left													0.61	D	0.62	D
Southbound Through													0.56	C	0.64	C
Southbound Right													0.11	A	0.17	A

Notes: v/c (volume-to-capacity ratio), LOS (level of service)
2. Optimized signal timing while maintaining the existing cycle length

The queues for 2031 conditions were reviewed and are summarized in Table 18 with the details provided in Appendix J.

Table 18: 2031 95th Percentile Queues

Intersection and Movement (Peak Period)	Storage (m)	Without Extension		With Extension	
		AM Peak	PM Peak	AM Peak	PM Peak
Winston Churchill Boulevard / Dover Gate / Homelands Drive					
Eastbound Left	100	25	105	23	96
Eastbound Through-Right	100	47	149	45	151
Westbound Left	20	75	55	68	55
Winston Churchill Boulevard / Plymouth Drive / Sheridan Park Drive					
Eastbound Left	28	13	53	12	39
Westbound Left	59	20	56	48	64
Northbound Left	98	66	118	70	103
Southbound Left	112	115	6	124	16
Erin Mills Parkway / Sheridan Park Drive / Lincoln Green Way					
Eastbound Left	20	65	82	62	74
Eastbound Right	25	47	14	20	14
Westbound Left	35	59	29	54	32

The queue lengths are similar with or without the Sheridan Park Drive extension.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Existing Traffic Counts and Signal Timing Plans

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

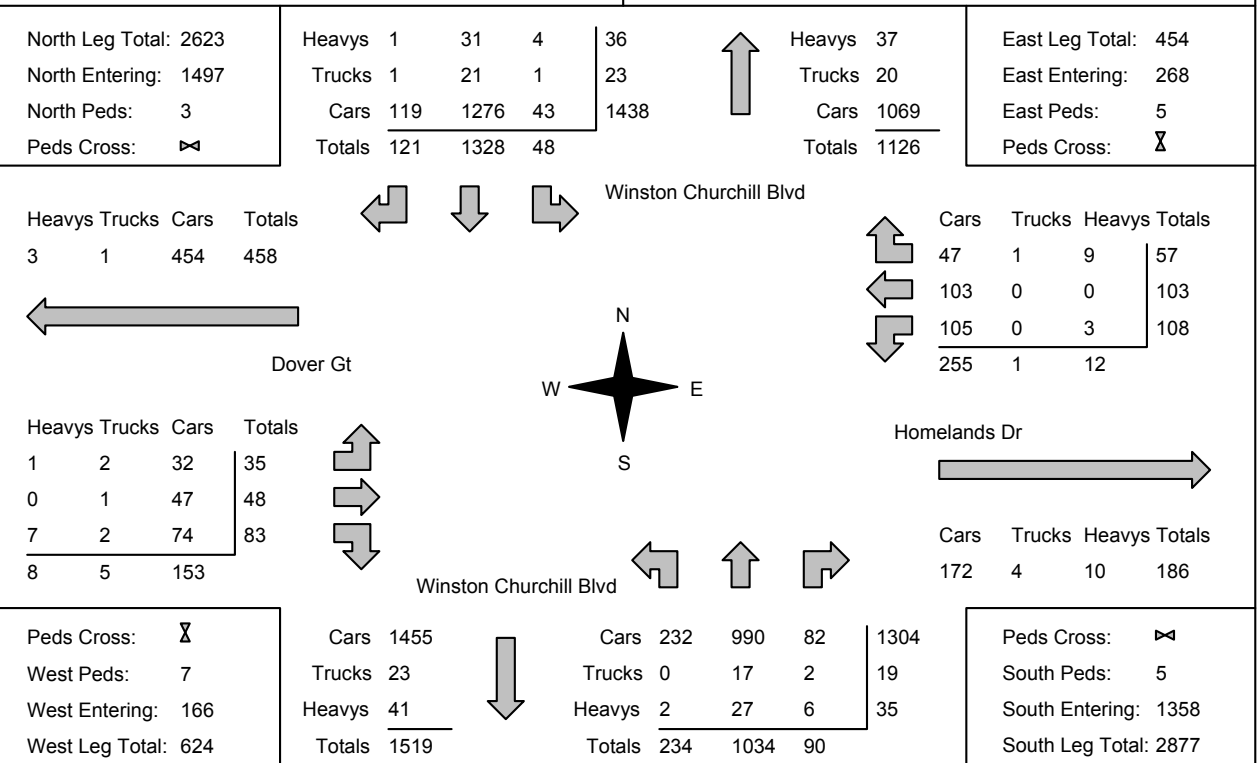
Municipality: Mississauga
Site #: 1618100001
Intersection: Winston Churchill Blvd & Homeland
TFR File #: 1
Count date: 23-Nov-16

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Signalized Intersection **

Major Road: Winston Churchill Blvd runs N/S



Comments

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Mississauga

Site #: 1618100001

Intersection: Winston Churchill Blvd & Homeland

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

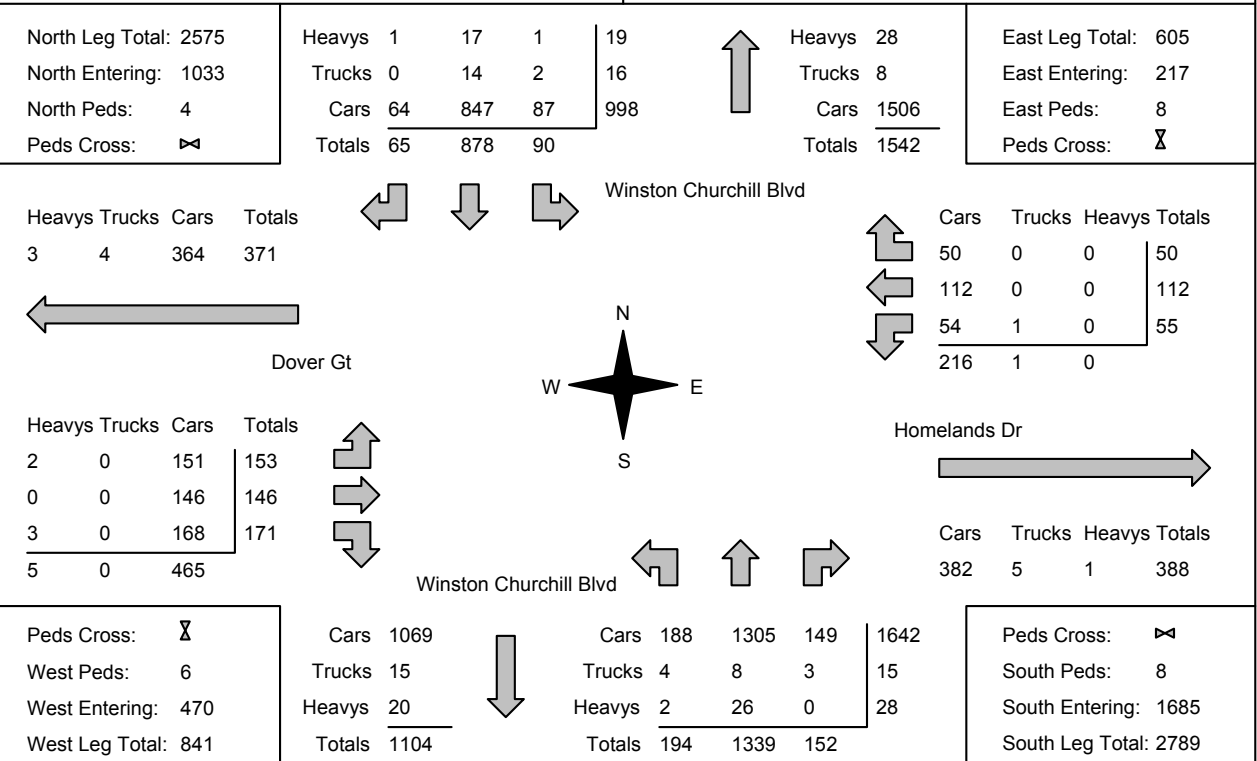
Person counted:

Person prepared:

Person checked:

**** Signalized Intersection ****

Major Road: Winston Churchill Blvd runs N/S



Comments

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: Mississauga Site #: 1618100002 Intersection: Homelands Dr & Thorn Lodge Dr TFR File #: 1 Count date: 23-Nov-16		Weather conditions: Person counted: Person prepared: Person checked:																																																		
** Non-Signalized Intersection **		Major Road: Homelands Dr runs N/S																																																		
North Leg Total: 390 North Entering: 231 North Peds: 3 Peds Cross: ➡	<table style="margin: auto;"> <tr> <td>Heavys</td><td>10</td><td>5</td><td>15</td><td rowspan="4" style="font-size: 2em; vertical-align: middle;">↑</td><td>Heavys</td><td>20</td></tr> <tr> <td>Trucks</td><td>1</td><td>0</td><td>1</td><td>Trucks</td><td>0</td></tr> <tr> <td>Cars</td><td>149</td><td>66</td><td>215</td><td>Cars</td><td>139</td></tr> <tr> <td>Totals</td><td>160</td><td>71</td><td></td><td>Totals</td><td>159</td></tr> </table> Homelands Dr Homelands Dr Thorn Lodge Dr <table style="margin: auto; margin-top: 10px;"> <tr> <td>Cars</td><td>336</td><td>Cars</td><td>94</td><td>97</td><td>191</td></tr> <tr> <td>Trucks</td><td>1</td><td>Trucks</td><td>0</td><td>0</td><td>0</td></tr> <tr> <td>Heavys</td><td>13</td><td>Heavys</td><td>16</td><td>3</td><td>19</td></tr> <tr> <td>Totals</td><td>350</td><td>Totals</td><td>110</td><td>100</td><td></td></tr> </table> Homelands Dr Homelands Dr			Heavys	10	5	15	↑	Heavys	20	Trucks	1	0	1	Trucks	0	Cars	149	66	215	Cars	139	Totals	160	71		Totals	159	Cars	336	Cars	94	97	191	Trucks	1	Trucks	0	0	0	Heavys	13	Heavys	16	3	19	Totals	350	Totals	110	100	
Heavys	10	5	15	↑	Heavys	20																																														
Trucks	1	0	1		Trucks	0																																														
Cars	149	66	215		Cars	139																																														
Totals	160	71			Totals	159																																														
Cars	336	Cars	94	97	191																																															
Trucks	1	Trucks	0	0	0																																															
Heavys	13	Heavys	16	3	19																																															
Totals	350	Totals	110	100																																																
Comments																																																				

Accu-Traffic Inc.

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Mississauga Site #: 1618100002 Intersection: Homelands Dr & Thorn Lodge Dr TFR File #: 1 Count date: 23-Nov-16		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Homelands Dr runs N/S	

North Leg Total: 294 North Entering: 126 North Peds: 0 Peds Cross: ➤	<table style="margin: auto;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">3</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">3</td> <td rowspan="4" style="font-size: 2em; vertical-align: middle;">↑</td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">3</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">3</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">3</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">102</td> <td style="text-align: right;">18</td> <td style="border-left: 1px solid black; text-align: right;">120</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">164</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">108</td> <td style="text-align: right;">18</td> <td style="border-left: 1px solid black; text-align: right;">120</td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">168</td> </tr> </table> Homelands Dr Homelands Dr <table style="margin: auto; margin-top: 10px;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">211</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">138</td> <td style="text-align: right;">173</td> <td style="border-left: 1px solid black; text-align: right;">311</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">3</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">3</td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">3</td> <td style="text-align: right;">1</td> <td style="border-left: 1px solid black; text-align: right;">4</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">217</td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">142</td> <td style="text-align: right;">174</td> <td style="border-left: 1px solid black; text-align: right;">174</td> </tr> </table>	Heavys	3	0	3	↑	Heavys	3	Trucks	3	0	3	Trucks	1	Cars	102	18	120	Cars	164	Totals	108	18	120	Totals	168	Cars	211	Cars	138	173	311	Trucks	3	Trucks	1	0	1	Heavys	3	Heavys	3	1	4	Totals	217	Totals	142	174	174	East Leg Total: 327 East Entering: 135 East Peds: 2 Peds Cross: ➤
Heavys	3	0	3	↑	Heavys		3																																												
Trucks	3	0	3		Trucks		1																																												
Cars	102	18	120		Cars		164																																												
Totals	108	18	120		Totals	168																																													
Cars	211	Cars	138	173	311																																														
Trucks	3	Trucks	1	0	1																																														
Heavys	3	Heavys	3	1	4																																														
Totals	217	Totals	142	174	174																																														

South Leg Total: 533 South Entering: 316 South Peds: 2 Peds Cross: ➤	<table style="margin: auto;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">26</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">26</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">109</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">109</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">135</td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">0</td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">135</td> </tr> </table> Thorn Lodge Dr <table style="margin: auto; margin-top: 10px;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">191</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">1</td> <td style="border-left: 1px solid black; text-align: right;">192</td> </tr> </table>	Cars	26	Trucks	0	Heavys	0	26	Cars	109	Trucks	0	Heavys	0	109	Totals	135	Totals	0	Totals	0	135	Cars	191	Trucks	0	Heavys	1	192	Peds Cross: ➤ South Leg Total: 533
Cars	26	Trucks	0	Heavys	0	26																								
Cars	109	Trucks	0	Heavys	0	109																								
Totals	135	Totals	0	Totals	0	135																								
Cars	191	Trucks	0	Heavys	1	192																								

Comments

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 10:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Mississauga

Site #: 1618100003

Intersection: Speakman Dr & Sheridan Park Dr

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

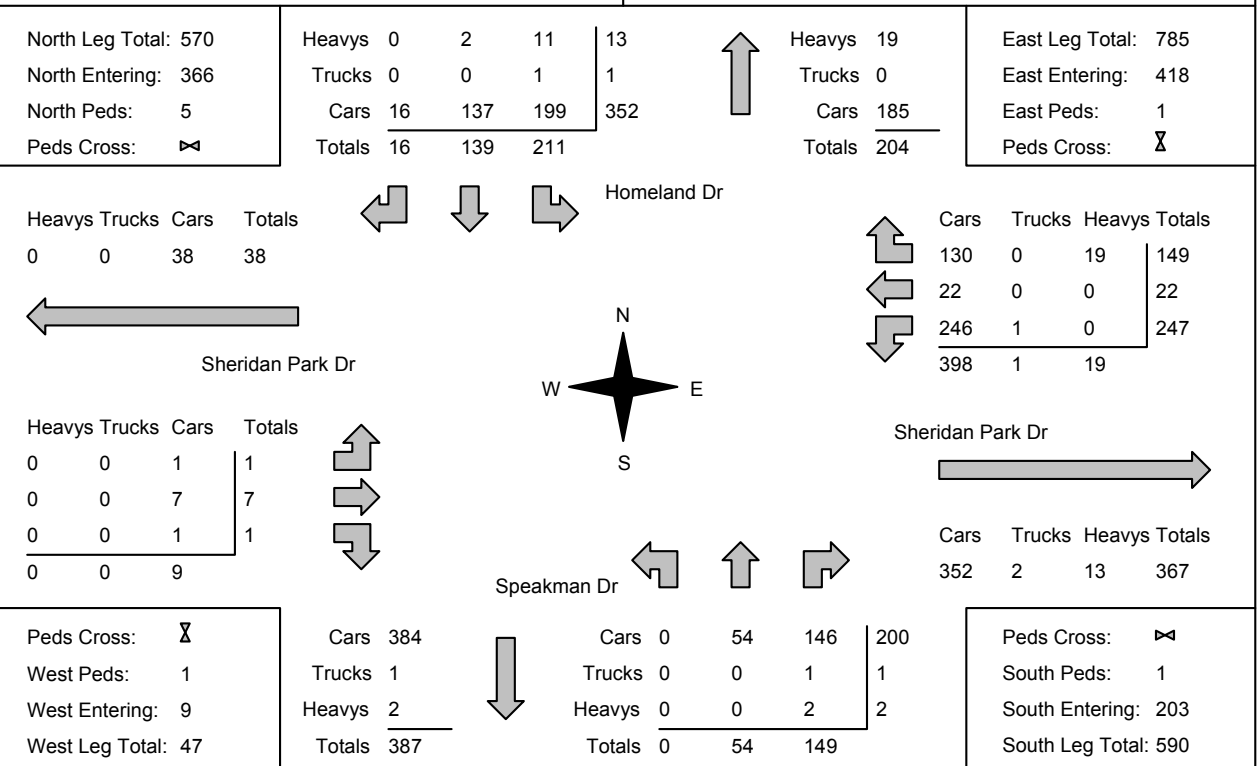
Person counted:

Person prepared:

Person checked:

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

Major Road: Speakman Dr runs N/S



Comments

Accu-Traffic Inc.

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: Mississauga

Site #: 1618100003

Intersection: Speakman Dr & Sheridan Park Dr

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

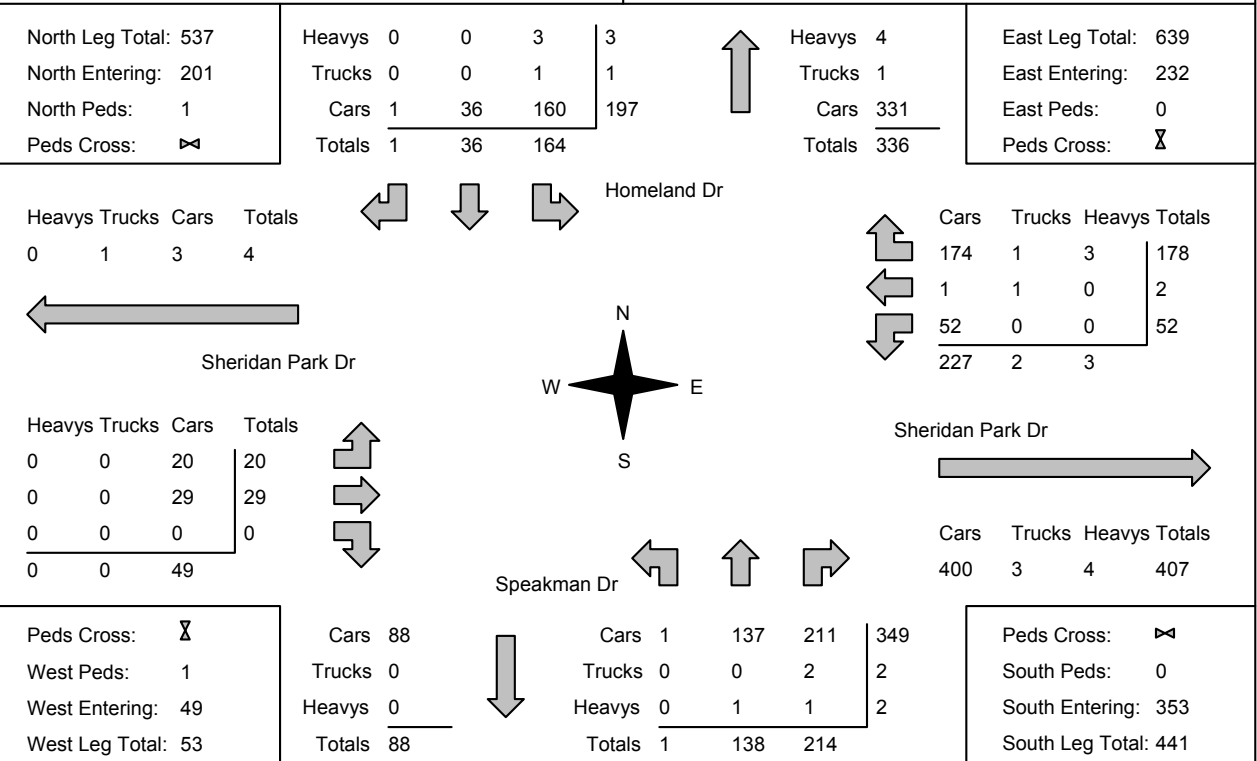
Person counted:

Person prepared:

Person checked:

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

Major Road: Speakman Dr runs N/S



Comments

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

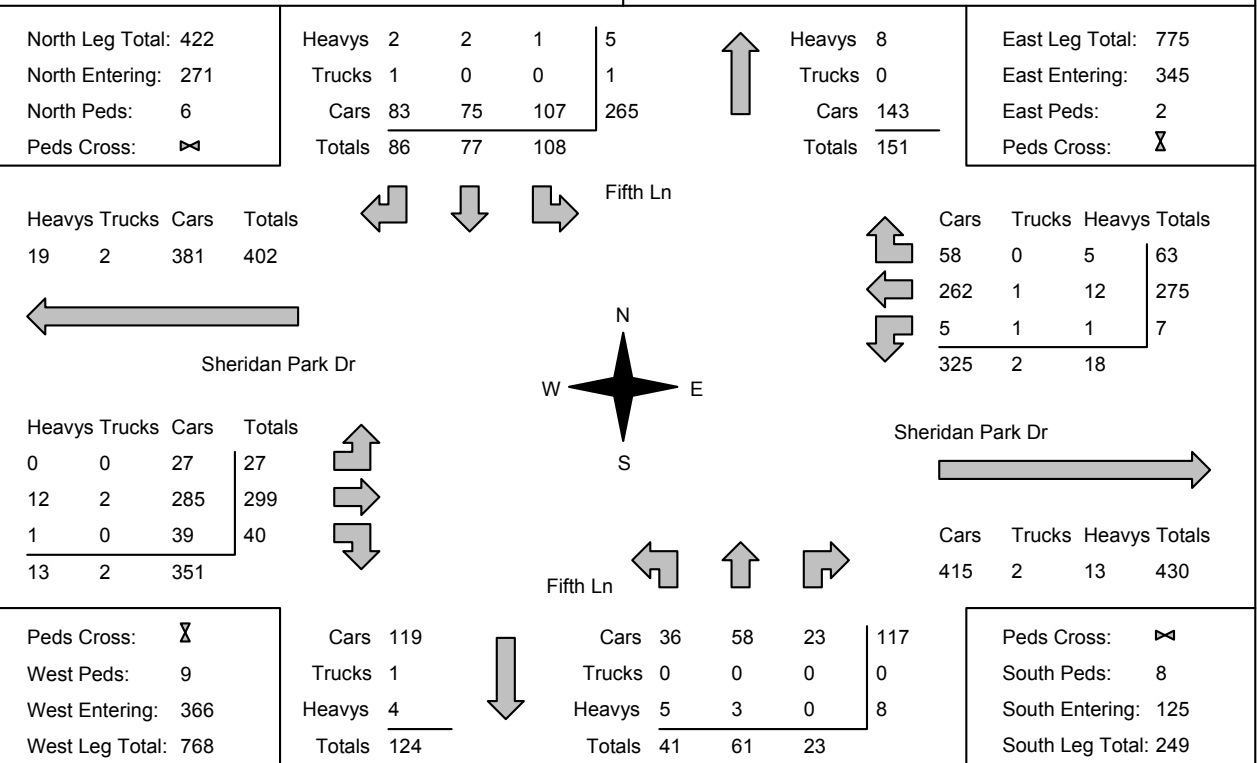
Municipality: Mississauga
Site #: 1618100004
Intersection: Sheridan Park Dr & Fifth Ln
TFR File #: 1
Count date: 23-Nov-16

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Sheridan Park Dr runs W/E



Comments

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:45:00

To: 17:45:00

Municipality: Mississauga

Site #: 1618100004

Intersection: Sheridan Park Dr & Fifth Ln

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

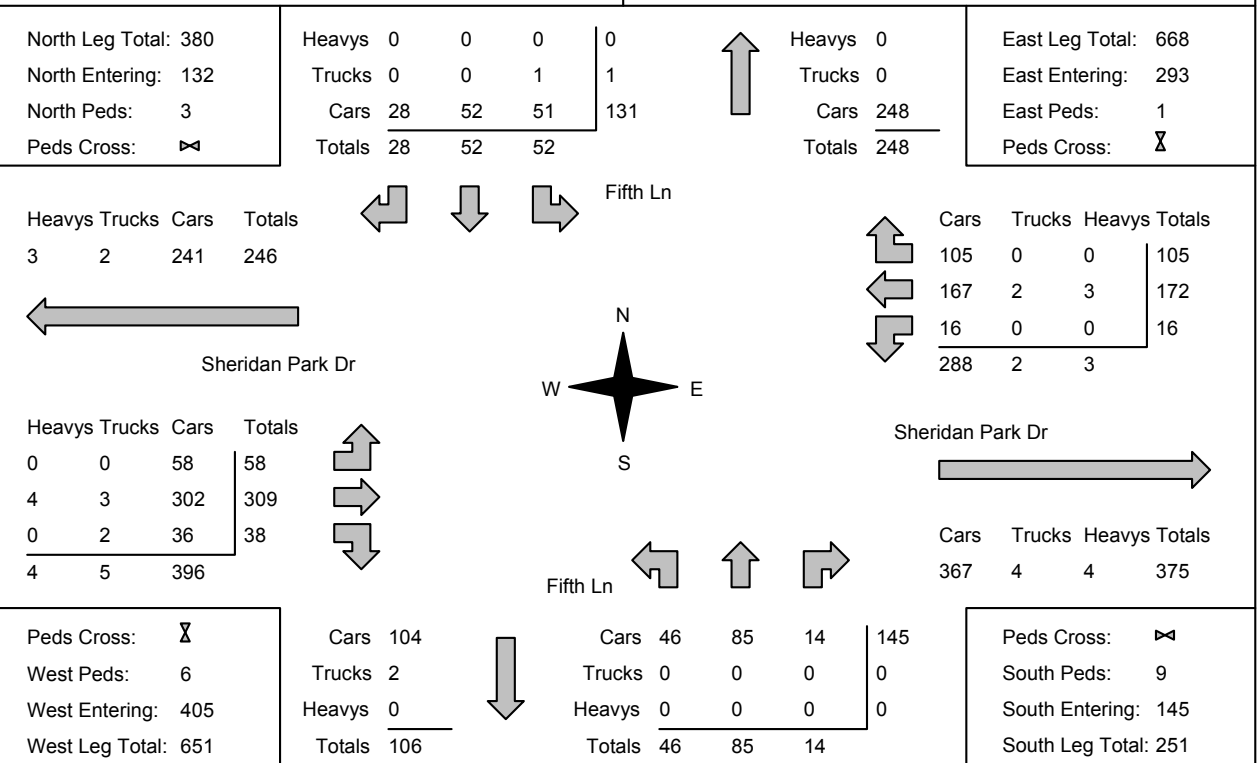
Person counted:

Person prepared:

Person checked:

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

Major Road: Sheridan Park Dr runs W/E



Comments

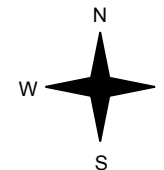
Accu-Traffic Inc.

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: Mississauga Site #: 1618100005 Intersection: Erin Mills Pkwy & Sheridan Park Dr TFR File #: 1 Count date: 23-Nov-16		Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Erin Mills Pkwy runs N/S	

North Leg Total: 4117 North Entering: 1886 North Peds: 1 Peds Cross: $\bowtie$	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">67</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">74</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">25</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">26</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">192</td> <td style="padding: 2px;">1443</td> <td style="padding: 2px;">151</td> <td style="padding: 2px;">1786</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">192</td> <td style="padding: 2px;">1535</td> <td style="padding: 2px;">159</td> <td style="padding: 2px;"></td> </tr> </table>	Heavys	0	67	7	74	Trucks	0	25	1	26	Cars	192	1443	151	1786	Totals	192	1535	159		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">68</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">17</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">2146</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">2231</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </table>	Heavys	68				Trucks	17				Cars	2146				Totals	2231				East Leg Total: 637 East Entering: 268 East Peds: 6 Peds Cross: $\bowtie$
Heavys	0	67	7	74																																							
Trucks	0	25	1	26																																							
Cars	192	1443	151	1786																																							
Totals	192	1535	159																																								
Heavys	68																																										
Trucks	17																																										
Cars	2146																																										
Totals	2231																																										

Heavys	Trucks	Cars	Totals
17	1	312	330

Erin Mills Pkwy



Cars	Trucks	Heavys	Totals
54	0	5	59
50	0	11	61
144	0	4	148
248	0	20	

Heavys	Trucks	Cars	Totals
3	0	157	160
4	1	113	118
7	3	151	161
14	4	421	

Sheridan Park Dr

Lincoln Green Way

Heavys	Trucks	Cars	Totals
3	0	157	160
4	1	113	118
7	3	151	161
14	4	421	

Erin Mills Pkwy

Cars	Trucks	Heavys	Totals
346	5	18	369

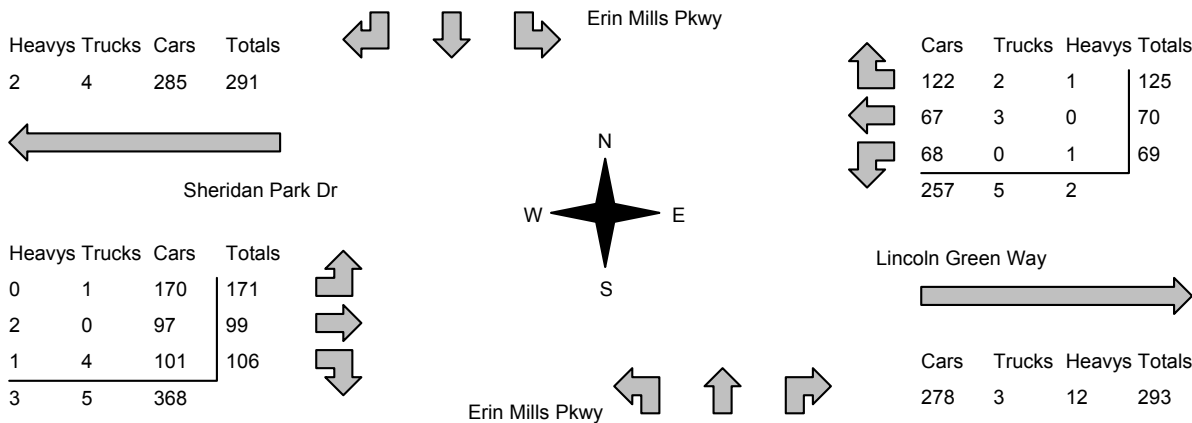
Peds Cross: $\bowtie$ West Peds: 6 West Entering: 439 West Leg Total: 769	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">1738</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">28</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">78</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">1844</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </table>	Cars	1738				Trucks	28				Heavys	78				Totals	1844				<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">70</td> <td style="padding: 2px;">1935</td> <td style="padding: 2px;">82</td> <td style="padding: 2px;">2087</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">17</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">21</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">6</td> <td style="padding: 2px;">60</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">73</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">77</td> <td style="padding: 2px;">2012</td> <td style="padding: 2px;">92</td> <td style="padding: 2px;"></td> </tr> </table>	Cars	70	1935	82	2087	Trucks	1	17	3	21	Heavys	6	60	7	73	Totals	77	2012	92		Peds Cross: $\bowtie$ South Peds: 11 South Entering: 2181 South Leg Total: 4025
Cars	1738																																										
Trucks	28																																										
Heavys	78																																										
Totals	1844																																										
Cars	70	1935	82	2087																																							
Trucks	1	17	3	21																																							
Heavys	6	60	7	73																																							
Totals	77	2012	92																																								

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
Municipality: Mississauga Site #: 1618100005 Intersection: Erin Mills Pkwy & Sheridan Park Dr TFR File #: 1 Count date: 23-Nov-16	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **		Major Road: Erin Mills Pkwy runs N/S

North Leg Total: 4260 North Entering: 1657 North Peds: 3 Peds Cross: $\bowtie$	<table style="width: 100%;"> <tr> <td>Heavys</td><td>0</td><td>29</td><td>8</td><td>37</td></tr> <tr> <td>Trucks</td><td>0</td><td>15</td><td>1</td><td>16</td></tr> <tr> <td>Cars</td><td>73</td><td>1445</td><td>86</td><td>1604</td></tr> <tr> <td>Totals</td><td>73</td><td>1489</td><td>95</td><td></td></tr> </table>	Heavys	0	29	8	37	Trucks	0	15	1	16	Cars	73	1445	86	1604	Totals	73	1489	95		<table style="width: 100%;"> <tr> <td>Heavys</td><td>41</td></tr> <tr> <td>Trucks</td><td>34</td></tr> <tr> <td>Cars</td><td>2528</td></tr> <tr> <td>Totals</td><td>2603</td></tr> </table>	Heavys	41	Trucks	34	Cars	2528	Totals	2603	East Leg Total: 557 East Entering: 264 East Peds: 9 Peds Cross: $\bowtie$
Heavys	0	29	8	37																											
Trucks	0	15	1	16																											
Cars	73	1445	86	1604																											
Totals	73	1489	95																												
Heavys	41																														
Trucks	34																														
Cars	2528																														
Totals	2603																														



Erin Mills Pkwy

Sheridan Park Dr

Lincoln Green Way

Erin Mills Pkwy

Heavys Trucks Cars Totals 2 4 285 291	Heavys Trucks Cars Totals 0 1 170 171 2 0 97 99 1 4 101 106 3 5 368	Cars Trucks Heavys Totals 122 2 1 125 67 3 0 70 68 0 1 69 257 5 2	Cars Trucks Heavys Totals 278 3 12 293
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Peds Cross: $\bowtie$ West Peds: 9 West Entering: 376 West Leg Total: 667	<table style="width: 100%;"> <tr> <td>Cars</td><td>1614</td></tr> <tr> <td>Trucks</td><td>19</td></tr> <tr> <td>Heavys</td><td>31</td></tr> <tr> <td>Totals</td><td>1664</td></tr> </table>	Cars	1614	Trucks	19	Heavys	31	Totals	1664	<table style="width: 100%;"> <tr> <td>Cars</td><td>145</td><td>2236</td><td>95</td><td>2476</td></tr> <tr> <td>Trucks</td><td>1</td><td>31</td><td>2</td><td>34</td></tr> <tr> <td>Heavys</td><td>2</td><td>40</td><td>2</td><td>44</td></tr> <tr> <td>Totals</td><td>148</td><td>2307</td><td>99</td><td></td></tr> </table>	Cars	145	2236	95	2476	Trucks	1	31	2	34	Heavys	2	40	2	44	Totals	148	2307	99		Peds Cross: $\bowtie$ South Peds: 13 South Entering: 2554 South Leg Total: 4218
Cars	1614																														
Trucks	19																														
Heavys	31																														
Totals	1664																														
Cars	145	2236	95	2476																											
Trucks	1	31	2	34																											
Heavys	2	40	2	44																											
Totals	148	2307	99																												

Comments

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: Mississauga Site #: 1618100006 Intersection: Speakman Dr & Flavelle Blvd_East TFR File #: 1 Count date: 23-Nov-16	Weather conditions: Person counted: Person prepared: Person checked:																																																	
** Non-Signalized Intersection **	Major Road: Speakman Dr runs W/E																																																	
East Leg Total: 563 East Entering: 244 East Peds: 0 Peds Cross: X																																																		
<table style="margin-bottom: 10px;"> <thead> <tr><th>Heavys</th><th>Trucks</th><th>Cars</th><th>Totals</th></tr> </thead> <tbody> <tr><td>4</td><td>1</td><td>357</td><td>362</td></tr> </tbody> </table> Speakman Dr N W E S <table style="margin-bottom: 10px;"> <thead> <tr><th>Cars</th><th>Trucks</th><th>Heavys</th><th>Totals</th></tr> </thead> <tbody> <tr><td>240</td><td>0</td><td>4</td><td>244</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>240</td><td>0</td><td>4</td><td></td></tr> </tbody> </table> Speakman Dr <table> <thead> <tr><th>Heavys</th><th>Trucks</th><th>Cars</th><th>Totals</th></tr> </thead> <tbody> <tr><td>3</td><td>0</td><td>172</td><td>175</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>3</td><td>0</td><td>172</td><td></td></tr> </tbody> </table> Flavelle Blvd_East N W E S <table> <thead> <tr><th>Cars</th><th>Trucks</th><th>Heavys</th><th>Totals</th></tr> </thead> <tbody> <tr><td>315</td><td>0</td><td>4</td><td>319</td></tr> </tbody> </table> Speakman Dr			Heavys	Trucks	Cars	Totals	4	1	357	362	Cars	Trucks	Heavys	Totals	240	0	4	244	0	0	0	0	240	0	4		Heavys	Trucks	Cars	Totals	3	0	172	175	0	0	0	0	3	0	172		Cars	Trucks	Heavys	Totals	315	0	4	319
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Heavys	Trucks	Cars	Totals																																															
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3	0	172																																																
Cars	Trucks	Heavys	Totals																																															
315	0	4	319																																															
Peds Cross: X West Peds: 0 West Entering: 175 West Leg Total: 537	<table style="width: 100%;"> <tr><td>Cars</td><td>0</td><td>Cars</td><td>117</td><td>143</td><td>260</td></tr> <tr><td>Trucks</td><td>0</td><td>Trucks</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>Heavys</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Totals</td><td>0</td><td>Totals</td><td>118</td><td>144</td><td></td></tr> </table>	Cars	0	Cars	117	143	260	Trucks	0	Trucks	1	0	1	Heavys	0	Heavys	0	1	1	Totals	0	Totals	118	144		Peds Cross: X South Peds: 0 South Entering: 262 South Leg Total: 262																								
Cars	0	Cars	117	143	260																																													
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Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Mississauga

Site #: 1618100006

Intersection: Speakman Dr & Flavelle Blvd_East

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

Person counted:

Person prepared:

Person checked:

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

Major Road: Speakman Dr runs W/E

East Leg Total: 368

East Entering: 135

East Peds: 0

Peds Cross: X

Heavys	Trucks	Cars	Totals
3	3	143	149

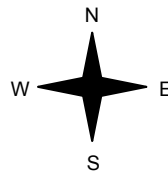


Speakman Dr

Heavys	Trucks	Cars	Totals
7	2	193	202
0	0	0	0
7	2	193	



Flavelle Blvd_East



Cars	Trucks	Heavys	Totals
129	3	3	135
0	0	0	0
129	3	3	



Speakman Dr

Speakman Dr

Cars	Trucks	Heavys	Totals
224	2	7	233

Cars	Trucks	Heavys	Totals
224	2	7	233

Peds Cross: X

West Peds: 0

West Entering: 202

West Leg Total: 351

Cars 0

Trucks 0

Heavys 0

Totals 0

Cars 14

Trucks 0

Heavys 0

Totals 14

31

0

0

31

Peds Cross: X

South Peds: 1

South Entering: 45

South Leg Total: 45

Comments

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: Mississauga

Site #: 1618100006

Intersection: Speakman Dr & Flavelle Blvd_West

TFR File #: 1

Count date: 23-Nov-16

Weather conditions:

Person counted:

Person prepared:

Person checked:

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

Major Road: Speakman Dr runs W/E

East Leg Total: 541

East Entering: 364

East Peds: 0

Peds Cross: X

Heavys	Trucks	Cars	Totals
3	1	330	334

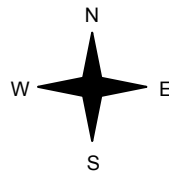


Speakman Dr

Heavys	Trucks	Cars	Totals
4	0	173	177
0	0	16	16
4	0	189	



Flavelle Blvd_West



Cars	Trucks	Heavys	Totals
330	1	3	334
29	0	1	30
359	1	4	



Speakman Dr



Cars	Trucks	Heavys	Totals
173	0	4	177

Peds Cross: X
West Peds: 0
West Entering: 193
West Leg Total: 527

Cars	45
Trucks	0
Heavys	1
Totals	46



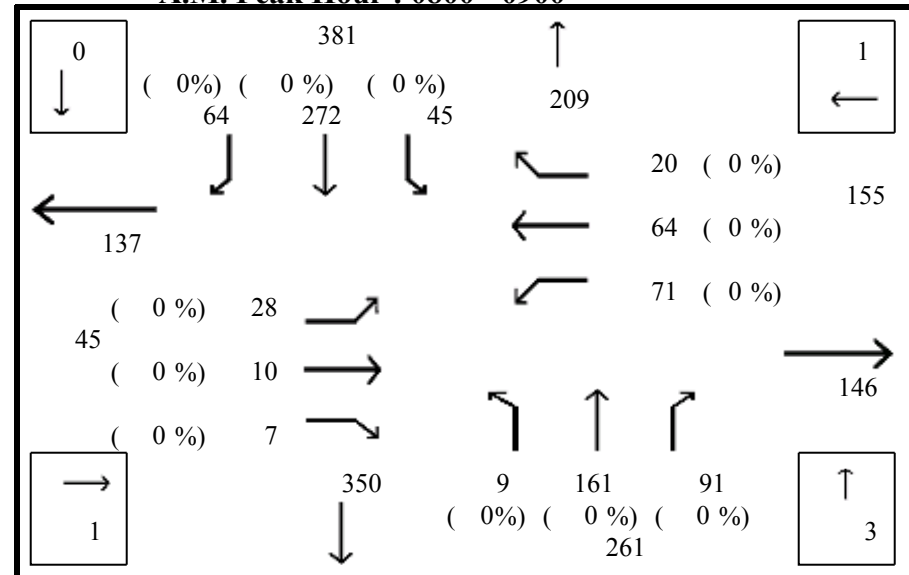
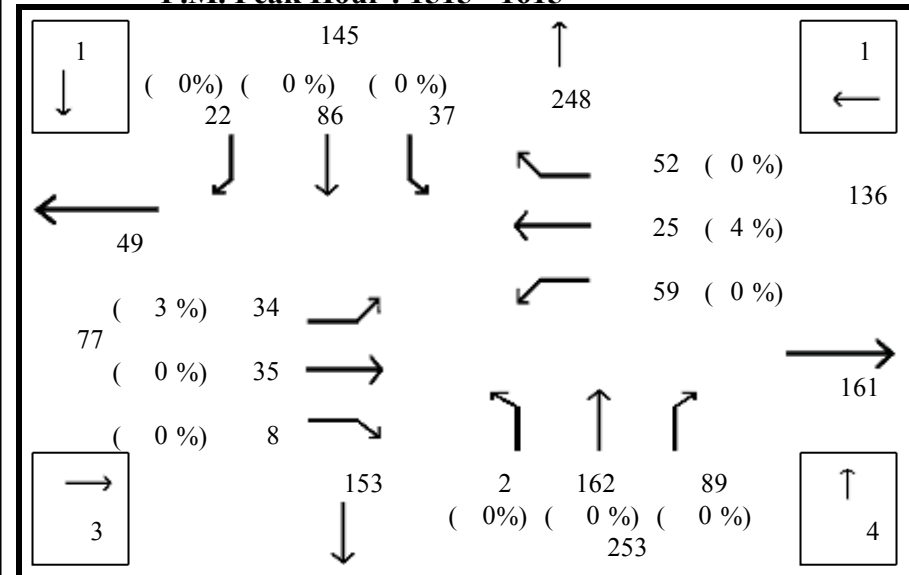
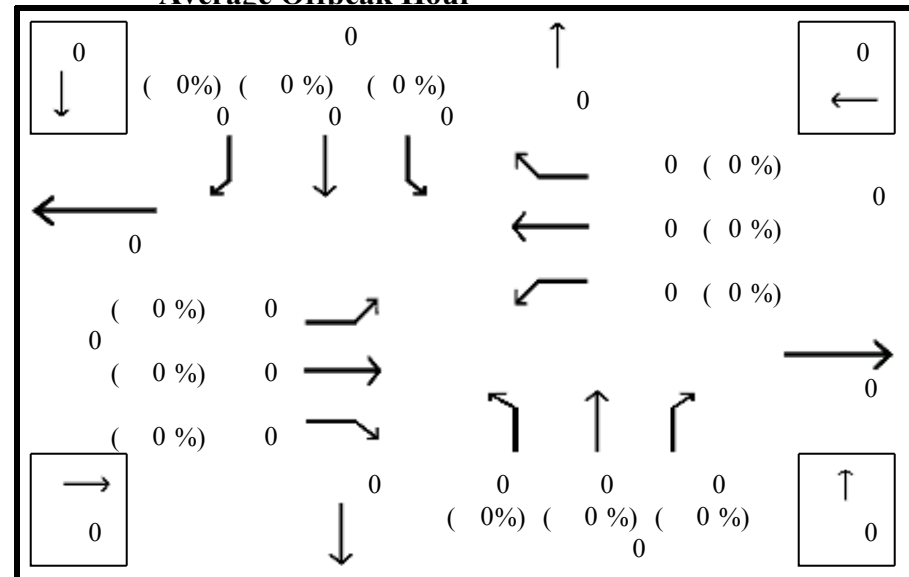
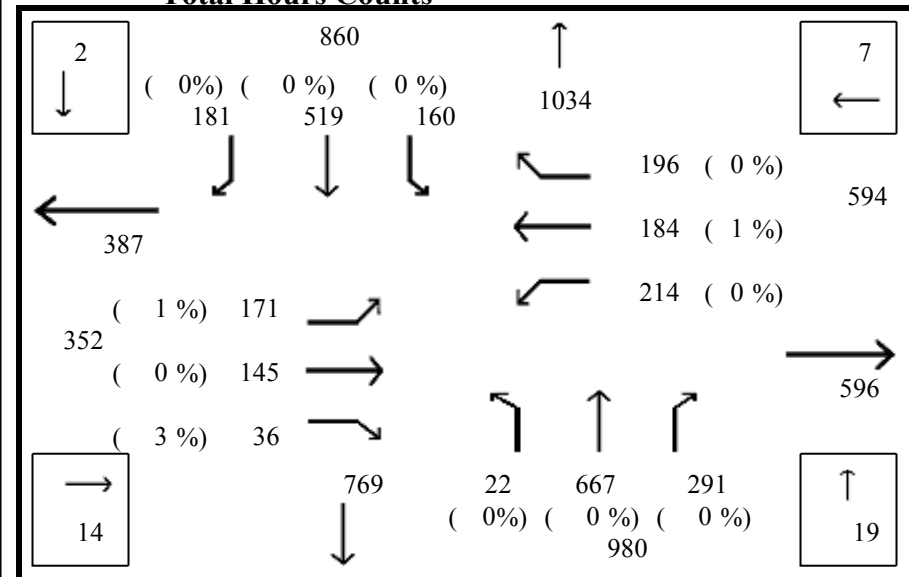
Cars	0	0	0
Trucks	0	0	0
Heavys	0	0	0
Totals	0	0	0

Peds Cross: X
South Peds: 0
South Entering: 0
South Leg Total: 46

Comments

Accu-Traffic Inc.

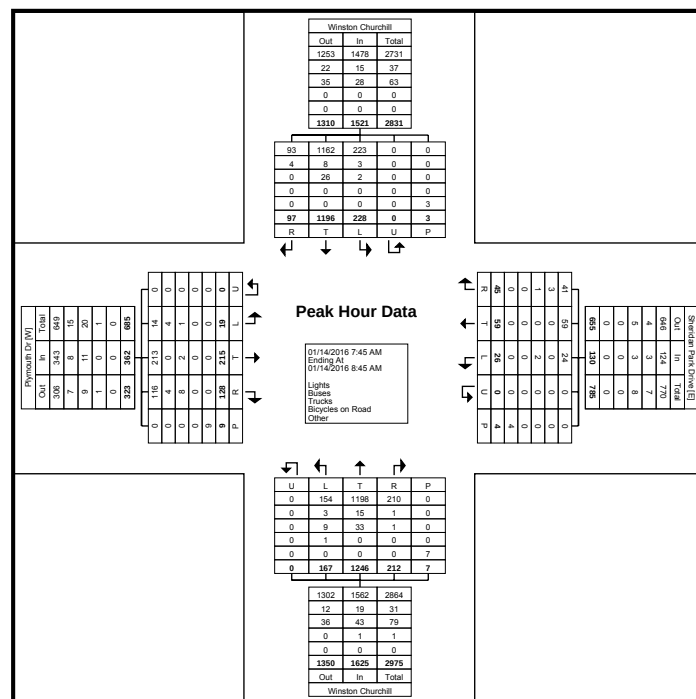
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A.M. Peak Hour : 0800 - 0900

P.M. Peak Hour : 1515 - 1615

Average Offpeak Hour

Total Hours Counts


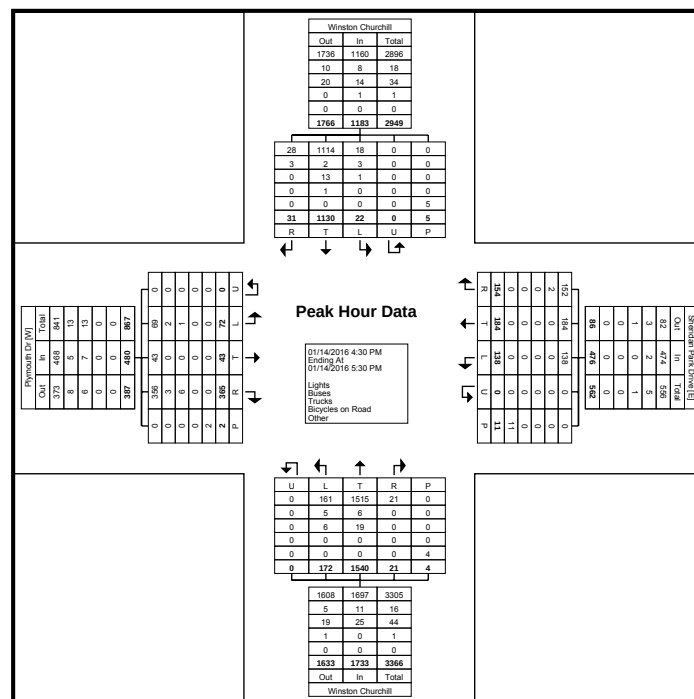
Note: North is at the top of the page

Value in (parenthesis) indicates truck/heavy vehicle percentages

Count Name: Winston Churchill Boulevard at
Sheridan Park Drive/Plymouth Drive
Site Code: 01905013
Start Date: 01/14/2016
Page No: 5



Count Name: Winston Churchill Boulevard at
Sheridan Park Drive/Plymouth Drive
Site Code: 01905013
Start Date: 01/14/2016
Page No: 11



07:47 USER 2/4 PRINT DAILY INT REP, INT 52 66 652, AS 1-3

DAILY INTERSECTION REPORT FOR ACT SCH 1 (MON TUE WED THU FRI)

INT	TIME	SELECTION PLANS IN USE					ALTERNATES						
		MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC	MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC
52	00:00	/	/	/	/	/	/	LO	101	2	2	2	
52	06:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	1099
52	09:30	1/1	/	/	/	1/1	/	CC	135	2	2	2	1099
52	15:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1099
52	19:30	1/1	/	/	/	1/1	/	CC	135	2	2	2	1099
66	00:00	/	/	/	/	/	/	LO	101	2	2	2	
66	06:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	1137
66	09:30	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137
66	15:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1137
66	19:30	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137
652	00:00	/	/	/	/	/	/	LO	101	2	2	2	
652	06:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	1137
652	09:30	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137
652	15:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1137
652	19:30	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137

DAILY INTERSECTION REPORT FOR ACT SCH 2 (SAT)

52	00:00	/	/	/	/	/	/	LO	101	2	2	2	
52	07:00	1/1	/	/	/	1/1	/	CC	135	2	2	2	1099
66	00:00	/	/	/	/	/	/	LO	101	2	2	2	
66	07:00	1/1	/	/	/	1/1	/	CC	100	4	4	4	
652	00:00	/	/	/	/	/	/	LO	101	2	2	2	
652	07:00	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137

DAILY INTERSECTION REPORT FOR ACT SCH 3 (SUN HOL)

52	00:00	/	/	/	/	/	/	LO	101	2	2	2	
52	08:00	1/1	/	/	/	1/1	/	CC	135	2	2	2	1099
52	23:00	/	/	/	/	/	/	LO	101	2	2	2	1099
66	00:00	/	/	/	/	/	/	LO	101	2	2	2	
66	08:00	1/1	/	/	/	1/1	/	CC	100	4	4	4	
66	23:00	/	/	/	/	/	/	LO	101	2	2	2	
652	00:00	/	/	/	/	/	/	LO	101	2	2	2	
652	08:00	1/1	/	/	/	1/1	/	CC	120	2	2	2	1137
652	23:00	/	/	/	/	/	/	LO	101	2	2	2	1137

07:49 USER 2/4 PRINT CDT 52 66 652

CYCLE DEFINITION TABLE: 52

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	NBL	5			3		1		ERIN MILLS PKWY
2	SB		12	19	5	2	1	C	ERIN MILLS PKWY
3							1		
4	WB		12	19	4	3	1		LINCOLN GREEN
5	SBL	5			3		1		ERIN MILLS PKWY
6	NB		12	19	5	2	1	C	ERIN MILLS PKWY
7							1		
8	EB		12	19	4	3	1		SHERIDAN PARK

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 66

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	NBL	5			3		1		WIN CHURCHILL B
2	SB		7	12	4	2	1	C	WIN CHURCHILL B
3							1		
4	WB	8	11	17	4	3	1		HOMELANDS DRIVE
5	SBL	5			3		1		WIN CHURCHILL B
6	NB		7	12	4	2	1	C	WIN CHURCHILL B
7							1		
8	EB	8	11	17	4	3	1		HOMELANDS DRIVE

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 652

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	SB		12	18	4	2	1	C	WCB
3							1		
4	WB	8	13	21	4	3	1	E	SHERIDAN PARK
5	SBL	5			3		1		WCB
6	NB		12	18	4	2	1	C	WCB
7	WBL	5			3		1		SHERIDAN PARK
8	EB	8	13	21	4	3	1	E	SHERIDAN PARK

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

07:50 USER 2/4 PRINT SPF 1-4, INT 52 66 652

SPECIAL FUNCTIONS

INTERSECTION 52 EMP@LINCOLN/SHERIDAN

SPECIAL IN(Y)/OUT(N)

FUNCTION	#	1	2	3	
		NBL	SBL	CAL	PHASE OMIT

1		Y	N	N	
---	--	---	---	---	--

2		N	N	N	
---	--	---	---	---	--

3		N	N	N	
---	--	---	---	---	--

4		N	N	N	
---	--	---	---	---	--

INTERSECTION 66 WCHURCH @ HOMELANDS

	NBL	SBL	CAL	PHASE OMIT
--	-----	-----	-----	------------

1	N	Y	N	
---	---	---	---	--

2	Y	Y	N	
---	---	---	---	--

3	N	N	N	
---	---	---	---	--

4	Y	N	N	
---	---	---	---	--

INTERSECTION 652 WCB @ SHER PARK/PLYM

	SBL	WBL	CAL	PHASE OMIT
--	-----	-----	-----	------------

1	N	Y	N	
---	---	---	---	--

2	Y	Y	N	
---	---	---	---	--

3	N	N	N	
---	---	---	---	--

4	N	N	N	
---	---	---	---	--

07:51 USER 2/4 PRINT OFFSET 1-4, INT 52 66 652

OFFSET TABLE

INTERSECTION 52 EMP@LINCOLN/SHERIDAN

OFFSET # OFFSET %

1 99

2 85

3 63

4 0

INTERSECTION 66 WCHURCH @ HOMELANDS

1 66

2 36

3 77

4 57

INTERSECTION 652 WCB @ SHER PARK/PLYM

1 79

2 33

3 64

4 0

07:51 USER 2/4 PRINT SPLIT 1-4, INT 52 66 652

SPLIT TABLE

INTERSECTION 52			EMP@LINCOLN/SHERIDAN													
TABLE NO.	(SPLIT)		PHASE NUMBER					(MAX SPLIT)					PHASE NUMBER			
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	NBL	SB		WB	SBL	NB		EB								
1	0	69		31	14	55		31	0	0		0	22	0		0
2	12	53		35	15	50		35	15	0		0	19	0		0
3	13	53		34	11	55		34	21	0		0	18	0		0
4	0	0		0	0	0		0	0	0		0	0	0		0
INTERSECTION 66			WCHURCH @ HOMELANDS													
	NBL	SB		WB	SBL	NB		EB								
1	8	64		28	0	72		28	0	0		0	0	0		0
2	0	67		33	0	67		33	0	0		0	0	0		0
3	8	64		28	11	61		28	0	0		0	0	0		0
4	0	67		33	12	55		33	0	0		0	0	0		0
INTERSECTION 652			WCB @ SHER PARK/PLYM													
		SB		WB	SBL	NB		WBL	EB							
1		77		23	10	67		0	23		0		0	0	0	0
2		77		23	0	77		0	23		0		0	0	0	0
3		63		37	9	54		13	24		0		0	13	0	0
4		0		0	0	0		0	0		0		0	0	0	0



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Existing Traffic Operations

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	35	48	108	103	234	1034	48	1328	121
Future Volume (vph)	35	48	108	103	234	1034	48	1328	121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	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)	35.0	35.0	35.0	35.0	9.5	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	101.0	90.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	72.1%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	20.0	20.0	20.0	20.0	110.0	107.0	84.2	84.2	84.2
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.79	0.76	0.60	0.60	0.60
v/c Ratio	0.35	0.52	0.83	0.69	0.70	0.47	0.23	0.70	0.14
Control Delay	60.0	38.3	96.9	63.7	46.3	6.0	16.1	21.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	38.3	96.9	63.7	46.3	6.0	16.1	21.5	5.7
LOS	E	D	F	E	D	A	B	C	A
Approach Delay		42.9		77.1		12.9		20.0	
Approach LOS		D		E		B		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 22.9

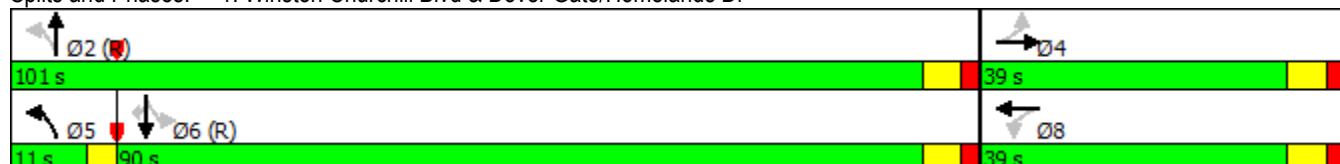
Intersection LOS: C

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Signalized Intersection Capacity Analysis

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	48	83	108	103	57	234	1034	90	48	1328	121
Future Volume (vph)	35	48	83	108	103	57	234	1034	90	48	1328	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.95		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)	1669	1594		1762	1699		1807	3444		1654	3510	1528
Flt Permitted	0.45	1.00		0.55	1.00		0.10	1.00		0.22	1.00	1.00
Satd. Flow (perm)	789	1594		1016	1699		185	3444		389	3510	1528
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	53	92	120	114	63	260	1149	100	53	1476	134
RTOR Reduction (vph)	0	50	0	0	15	0	0	3	0	0	0	31
Lane Group Flow (vph)	39	95	0	120	162	0	260	1246	0	53	1476	103
Confl. Peds. (#/hr)	3		5	5		3	7		5	5		7
Heavy Vehicles (%)	9%	2%	11%	3%	0%	18%	1%	4%	9%	10%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	20.0	20.0		20.0	20.0		107.0	107.0		84.2	84.2	84.2
Effective Green, g (s)	20.0	20.0		20.0	20.0		107.0	107.0		84.2	84.2	84.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.76	0.76		0.60	0.60	0.60
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.0		6.0	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)	112	227		145	242		370	2632		233	2111	918
v/s Ratio Prot		0.06			0.10		c0.10	0.36			0.42	
v/s Ratio Perm	0.05			c0.12			c0.44			0.14		0.07
v/c Ratio	0.35	0.42		0.83	0.67		0.70	0.47		0.23	0.70	0.11
Uniform Delay, d1	54.1	54.7		58.3	56.9		28.3	6.1		12.9	19.2	11.9
Progression Factor	1.00	1.00		1.00	1.00		2.00	0.82		1.00	1.00	1.00
Incremental Delay, d2	1.9	1.3		30.5	6.8		4.5	0.5		2.3	2.0	0.2
Delay (s)	56.0	56.0		88.8	63.7		61.2	5.4		15.1	21.1	12.2
Level of Service	E	E		F	E		E	A		B	C	B
Approach Delay (s)		56.0			73.8			15.0			20.2	
Approach LOS		E			E			B			C	
Intersection Summary												
HCM 2000 Control Delay			24.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			86.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

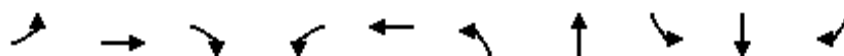
12/04/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	190	49	110	100	71	160
Future Volume (vph)	190	49	110	100	71	160
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	244	63	141	128	91	205
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	307	269	296			
Volume Left (vph)	244	0	91			
Volume Right (vph)	63	128	0			
Hadj (s)	0.09	-0.13	0.18			
Departure Headway (s)	5.5	5.1	5.4			
Degree Utilization, x	0.47	0.38	0.44			
Capacity (veh/h)	619	665	636			
Control Delay (s)	13.1	11.3	12.6			
Approach Delay (s)	13.1	11.3	12.6			
Approach LOS	B	B	B			
Intersection Summary						
Delay			12.4			
Level of Service			B			
Intersection Capacity Utilization			48.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	19	215	128	26	59	167	1246	228	1196	97
Future Volume (vph)	19	215	128	26	59	167	1246	228	1196	97
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	1	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	5.0
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	36.0	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	85.0	85.0	14.0	99.0	99.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	60.7%	60.7%	10.0%	70.7%	70.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	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)	7.0	7.0	7.0	7.0	7.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.1	22.1	22.1	22.1	22.1	82.2	82.2	107.9	104.9	104.9
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.77	0.75	0.75
v/c Ratio	0.10	0.75	0.44	0.29	0.36	0.74	0.75	0.69	0.47	0.08
Control Delay	48.8	71.6	24.0	57.7	41.8	44.3	24.6	45.2	6.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	71.6	24.0	57.7	41.8	44.3	24.6	45.2	6.5	1.2
LOS	D	E	C	E	D	D	C	D	A	A
Approach Delay		53.5			44.9		26.6		12.0	
Approach LOS		D			D		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.8

Intersection LOS: C

Intersection Capacity Utilization 90.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

	Ø1		Ø2 (R)		Ø4
14 s		85 s		41 s	
	Ø6 (R)				Ø8
99 s				41 s	

HCM Signalized Intersection Capacity Analysis

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	215	128	26	59	45	167	1246	212	228	1196	97
Future Volume (vph)	19	215	128	26	59	45	167	1246	212	228	1196	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		6.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		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)	1731	1902	1505	1678	1769		1736	3458		1807	3579	1589
Flt Permitted	0.67	1.00	1.00	0.34	1.00		0.22	1.00		0.08	1.00	1.00
Satd. Flow (perm)	1217	1902	1505	601	1769		404	3458		154	3579	1589
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)	20	226	135	27	62	47	176	1312	223	240	1259	102
RTOR Reduction (vph)	0	0	73	0	22	0	0	9	0	0	0	26
Lane Group Flow (vph)	20	226	62	27	87	0	176	1526	0	240	1259	76
Confl. Peds. (#/hr)	4		9	9		4	3		7	7		3
Heavy Vehicles (%)	5%	1%	6%	8%	0%	2%	5%	3%	1%	1%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	22.1	22.1	22.1	22.1	22.1		82.2	82.2		104.9	104.9	104.9
Effective Green, g (s)	22.1	22.1	22.1	22.1	22.1		82.2	82.2		104.9	104.9	104.9
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.59	0.59		0.75	0.75	0.75
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		6.0	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)	192	300	237	94	279		237	2030		347	2681	1190
v/s Ratio Prot		c0.12			0.05			c0.44		c0.10	0.35	
v/s Ratio Perm	0.02		0.04	0.04			0.44			0.42		0.05
v/c Ratio	0.10	0.75	0.26	0.29	0.31		0.74	0.75		0.69	0.47	0.06
Uniform Delay, d1	50.5	56.3	51.8	52.0	52.2		21.2	21.4		32.4	6.8	4.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.57	0.82	0.91
Incremental Delay, d2	0.2	10.2	0.6	1.7	0.6		18.8	2.6		4.4	0.4	0.1
Delay (s)	50.7	66.6	52.4	53.7	52.9		40.0	24.0		55.3	6.0	4.3
Level of Service	D	E	D	D	D		D	C		E	A	A
Approach Delay (s)		60.7			53.0			25.6			13.3	
Approach LOS		E			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			24.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			90.6%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	7	1	247	22	149	0	54	149	211	139	16
Future Volume (vph)	1	7	1	247	22	149	0	54	149	211	139	16
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
Hourly flow rate (vph)	1	9	1	301	27	182	0	66	182	257	170	20
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	11	510	248	447								
Volume Left (vph)	1	301	0	257								
Volume Right (vph)	1	182	182	20								
Hadj (s)	-0.04	-0.02	-0.42	0.15								
Departure Headway (s)	7.4	6.0	6.1	6.2								
Degree Utilization, x	0.02	0.85	0.42	0.78								
Capacity (veh/h)	417	585	538	549								
Control Delay (s)	10.5	34.1	13.5	27.5								
Approach Delay (s)	10.5	34.1	13.5	27.5								
Approach LOS	B	D	B	D								
Intersection Summary												
Delay				27.2								
Level of Service				D								
Intersection Capacity Utilization				72.9%	ICU Level of Service	C						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 5: Fifth Line & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	299	40	7	275	63	41	61	23	108	77	86
Future Volume (vph)	27	299	40	7	275	63	41	61	23	108	77	86
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	31	348	47	8	320	73	48	71	27	126	90	100
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	426	401	48	98	126	190						
Volume Left (vph)	31	8	48	0	126	0						
Volume Right (vph)	47	73	0	27	0	100						
Hadj (s)	0.02	0.00	0.70	-0.13	0.52	-0.32						
Departure Headway (s)	6.3	6.4	8.7	7.8	8.0	7.2						
Degree Utilization, x	0.75	0.71	0.12	0.21	0.28	0.38						
Capacity (veh/h)	549	538	372	408	412	452						
Control Delay (s)	25.8	23.3	11.6	11.7	13.0	13.3						
Approach Delay (s)	25.8	23.3	11.7		13.2							
Approach LOS	D	C	B		B							
Intersection Summary												
Delay			20.3									
Level of Service			C									
Intersection Capacity Utilization			56.8%		ICU Level of Service				B			
Analysis Period (min)			15									

Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	160	118	161	148	61	77	2012	159	1535	192
Future Volume (vph)	160	118	161	148	61	77	2012	159	1535	192
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	9.5	38.0	38.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	77.0	77.0	20.0	97.0	97.0
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%	55.0%	55.0%	14.3%	69.3%	69.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	23.9	23.9	23.9	23.9	23.9	86.2	86.2	106.1	102.1	102.1
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.62	0.62	0.76	0.73	0.73
v/c Ratio	0.80	0.38	0.54	0.75	0.41	0.48	0.70	0.75	0.43	0.16
Control Delay	81.3	53.1	40.1	76.1	39.9	32.5	21.7	52.4	8.6	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	53.1	40.1	76.1	39.9	32.5	21.7	52.4	8.6	1.6
LOS	F	D	D	E	D	C	C	D	A	A
Approach Delay		58.6			59.9		22.1		11.6	
Approach LOS		E			E		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

											
20 s	77 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s
											
97 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s	43 s

HCM Signalized Intersection Capacity Analysis

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	118	161	148	61	59	77	2012	92	159	1535	192
Future Volume (vph)	160	118	161	148	61	59	77	2012	92	159	1535	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		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)	1787	1847	1500	1750	1563		1672	4988		1738	4948	1579
Flt Permitted	0.64	1.00	1.00	0.64	1.00		0.15	1.00		0.05	1.00	1.00
Satd. Flow (perm)	1200	1847	1500	1185	1563		266	4988		85	4948	1579
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	163	120	164	151	62	60	79	2053	94	162	1566	196
RTOR Reduction (vph)	0	0	46	0	27	0	0	3	0	0	0	50
Lane Group Flow (vph)	163	120	118	151	95	0	79	2144	0	162	1566	146
Confl. Peds. (#/hr)	1		11	11		1	6		6	6		6
Heavy Vehicles (%)	2%	4%	6%	3%	18%	8%	9%	4%	11%	5%	6%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	23.9	23.9	23.9	23.9	23.9		86.2	86.2		102.1	102.1	102.1
Effective Green, g (s)	23.9	23.9	23.9	23.9	23.9		86.2	86.2		102.1	102.1	102.1
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17		0.62	0.62		0.73	0.73	0.73
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		3.0	7.0	7.0
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)	204	315	256	202	266		163	3071		214	3608	1151
v/s Ratio Prot		0.06			0.06			0.43		c0.07	0.32	
v/s Ratio Perm	c0.14		0.08	0.13			0.30			c0.48		0.09
v/c Ratio	0.80	0.38	0.46	0.75	0.36		0.48	0.70		0.76	0.43	0.13
Uniform Delay, d1	55.7	51.5	52.3	55.2	51.3		14.7	18.1		38.7	7.5	5.7
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	19.3	0.8	1.3	14.0	0.8		10.0	1.3		14.2	0.4	0.2
Delay (s)	75.0	52.3	53.6	69.2	52.1		24.7	19.5		52.9	7.9	5.9
Level of Service	E	D	D	E	D		C	B		D	A	A
Approach Delay (s)		61.0			61.5			19.7			11.5	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			83.5%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	10	7	71	64	20	9	161	91	45	272	64
Future Volume (vph)	29	10	7	71	64	20	9	161	91	45	272	64
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	13	9	92	83	26	12	209	118	58	353	83
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	60	201	339	494								
Volume Left (vph)	38	92	12	58								
Volume Right (vph)	9	26	118	83								
Hadj (s)	0.04	0.01	-0.20	-0.08								
Departure Headway (s)	6.6	6.2	5.3	5.2								
Degree Utilization, x	0.11	0.35	0.50	0.71								
Capacity (veh/h)	456	517	636	671								
Control Delay (s)	10.4	12.4	13.5	20.0								
Approach Delay (s)	10.4	12.4	13.5	20.0								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay			16.1									
Level of Service			C									
Intersection Capacity Utilization			54.4%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/04/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	177	16	30	334	0	0
Future Volume (Veh/h)	177	16	30	334	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	221	20	38	418	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			241		725	231
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		725	231
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1320		384	813
Direction, Lane #	EB 1	WB 1				
Volume Total	241	456				
Volume Left	0	38				
Volume Right	20	0				
cSH	1700	1320				
Volume to Capacity	0.14	0.03				
Queue Length 95th (m)	0.0	0.7				
Control Delay (s)	0.0	0.9				
Lane LOS		A				
Approach Delay (s)	0.0	0.9				
Approach LOS						
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/04/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	175	0	0	244	118	144
Future Volume (Veh/h)	175	0	0	244	118	144
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	233	0	0	325	157	192
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			233		558	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			233		558	233
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		68	76
cM capacity (veh/h)			1346		492	809
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	233	325	157	192		
Volume Left	0	0	157	0		
Volume Right	0	0	0	192		
cSH	1700	1700	492	809		
Volume to Capacity	0.14	0.19	0.32	0.24		
Queue Length 95th (m)	0.0	0.0	10.3	7.0		
Control Delay (s)	0.0	0.0	15.7	10.8		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	13.0			
Approach LOS			B			
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization			26.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	153	146	55	112	194	1339	90	878	65
Future Volume (vph)	153	146	55	112	194	1339	90	878	65
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	1	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)	35.0	35.0	35.0	35.0	9.5	25.0	9.5	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	86.0	15.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	61.4%	10.7%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	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)	7.0	7.0	7.0	7.0	3.0	6.0	3.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	28.5	28.5	28.5	28.5	98.5	87.2	98.3	87.2	87.2
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.70	0.62	0.70	0.62	0.62
v/c Ratio	0.79	0.88	0.81	0.45	0.50	0.73	0.46	0.43	0.07
Control Delay	77.9	71.7	114.2	47.6	9.2	12.5	13.4	14.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	71.7	114.2	47.6	9.2	12.5	13.4	14.8	3.4
LOS	E	E	F	D	A	B	B	B	A
Approach Delay		73.7		64.6		12.1		14.0	
Approach LOS		E		E		B		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.5

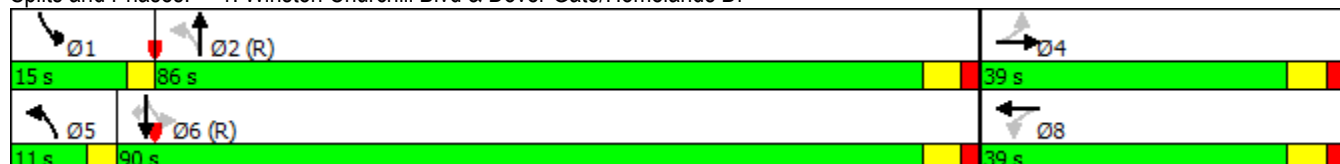
Intersection LOS: C

Intersection Capacity Utilization 90.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Signalized Intersection Capacity Analysis

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	146	171	55	112	50	194	1339	152	90	878	65
Future Volume (vph)	153	146	171	55	112	50	194	1339	152	90	878	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.95		1.00	0.98		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)	1799	1724		1780	1822		1770	3476		1772	3510	1534
Flt Permitted	0.54	1.00		0.19	1.00		0.26	1.00		0.09	1.00	1.00
Satd. Flow (perm)	1022	1724		360	1822		480	3476		162	3510	1534
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)	163	155	182	59	119	53	206	1424	162	96	934	69
RTOR Reduction (vph)	0	31	0	0	12	0	0	5	0	0	0	23
Lane Group Flow (vph)	163	306	0	59	160	0	206	1581	0	96	934	46
Confl. Peds. (#/hr)	4		8	8		4	6		8	8		6
Heavy Vehicles (%)	1%	0%	2%	2%	0%	0%	3%	3%	2%	3%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	28.5	28.5		28.5	28.5		95.5	87.2		95.5	87.2	87.2
Effective Green, g (s)	28.5	28.5		28.5	28.5		95.5	87.2		95.5	87.2	87.2
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.68	0.62		0.68	0.62	0.62
Clearance Time (s)	7.0	7.0		7.0	7.0		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
Lane Grp Cap (vph)	208	350		73	370		403	2165		205	2186	955
v/s Ratio Prot		c0.18			0.09		c0.03	c0.45		0.03	0.27	
v/s Ratio Perm	0.16			0.16			0.32			0.29		0.03
v/c Ratio	0.78	0.87		0.81	0.43		0.51	0.73		0.47	0.43	0.05
Uniform Delay, d1	52.8	54.0		53.1	48.7		9.1	18.3		15.8	13.6	10.3
Progression Factor	1.00	1.00		1.00	1.00		0.94	0.57		1.00	1.00	1.00
Incremental Delay, d2	17.3	20.7		46.1	0.8		0.7	1.4		1.7	0.6	0.1
Delay (s)	70.2	74.7		99.2	49.5		9.2	11.8		17.5	14.2	10.4
Level of Service	E	E		F	D		A	B		B	B	B
Approach Delay (s)		73.2			62.2			11.5			14.2	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay	24.1			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.75											
Actuated Cycle Length (s)	140.0			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	90.8%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

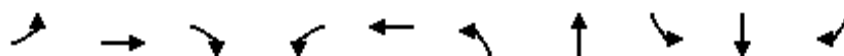
12/04/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	109	26	142	174	18	108
Future Volume (vph)	109	26	142	174	18	108
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	125	30	163	200	21	124
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	155	363	145			
Volume Left (vph)	125	0	21			
Volume Right (vph)	30	200	0			
Hadj (s)	0.05	-0.30	0.12			
Departure Headway (s)	5.1	4.2	4.8			
Degree Utilization, x	0.22	0.42	0.19			
Capacity (veh/h)	650	828	705			
Control Delay (s)	9.5	10.3	9.0			
Approach Delay (s)	9.5	10.3	9.0			
Approach LOS	A	B	A			
Intersection Summary						
Delay			9.8			
Level of Service			A			
Intersection Capacity Utilization			35.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	72	43	365	138	184	172	1540	22	1130	31
Future Volume (vph)	72	43	365	138	184	172	1540	22	1130	31
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	3	8	2	2	1	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	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	36.0	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	75.0	75.0	13.0	88.0	88.0
Total Split (%)	29.3%	29.3%	29.3%	7.9%	37.1%	53.6%	53.6%	9.3%	62.9%	62.9%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	2.0	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)	7.0	7.0	7.0	4.5	7.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead		Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	29.7	29.7	29.7	43.2	40.7	80.5	80.5	89.3	86.3	86.3
Actuated g/C Ratio	0.21	0.21	0.21	0.31	0.29	0.58	0.58	0.64	0.62	0.62
v/c Ratio	0.43	0.11	0.91	0.36	0.66	0.87	0.78	0.16	0.59	0.03
Control Delay	54.5	42.9	64.2	38.2	45.0	67.6	28.4	11.4	13.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	42.9	64.2	38.2	45.0	67.6	28.4	11.4	13.6	0.1
LOS	D	D	E	D	D	E	C	B	B	A
Approach Delay		60.8			43.0		32.3		13.2	
Approach LOS		E			D		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 31.3

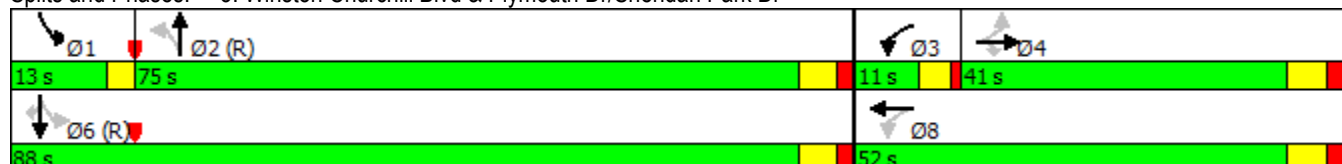
Intersection LOS: C

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



HCM Signalized Intersection Capacity Analysis

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	43	365	138	184	154	172	1540	21	22	1130	31
Future Volume (vph)	72	43	365	138	184	154	172	1540	21	22	1130	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.5	7.0		6.0	6.0		3.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	0.99	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	0.93		1.00	1.00		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)	1793	1921	1578	1823	1770		1752	3606		1807	3230	1582
Flt Permitted	0.44	1.00	1.00	0.63	1.00		0.19	1.00		0.06	1.00	1.00
Satd. Flow (perm)	824	1921	1578	1212	1770		358	3606		107	3230	1582
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)	75	45	380	144	192	160	179	1604	22	23	1177	32
RTOR Reduction (vph)	0	0	84	0	23	0	0	0	0	0	0	12
Lane Group Flow (vph)	75	45	296	144	329	0	179	1626	0	23	1177	20
Confl. Peds. (#/hr)	11		2	2		11	5		4	4		5
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	4%	1%	0%	1%	13%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	29.7	29.7	29.7	40.7	40.7		79.3	79.3		86.3	86.3	86.3
Effective Green, g (s)	29.7	29.7	29.7	40.7	40.7		79.3	79.3		86.3	86.3	86.3
Actuated g/C Ratio	0.21	0.21	0.21	0.29	0.29		0.57	0.57		0.62	0.62	0.62
Clearance Time (s)	7.0	7.0	7.0	4.5	7.0		6.0	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)	174	407	334	380	514		202	2042		114	1991	975
v/s Ratio Prot		0.02		0.02	c0.19			0.45		0.01	c0.36	
v/s Ratio Perm	0.09		c0.19	0.09			c0.50			0.12		0.01
v/c Ratio	0.43	0.11	0.89	0.38	0.64		0.89	0.80		0.20	0.59	0.02
Uniform Delay, d1	47.8	44.5	53.5	39.2	43.3		26.4	24.0		20.9	16.2	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.86	0.72	0.00
Incremental Delay, d2	1.7	0.1	23.5	0.6	2.7		39.3	3.3		0.8	1.2	0.0
Delay (s)	49.5	44.6	77.0	39.9	46.0		65.7	27.3		18.7	12.9	0.0
Level of Service	D	D	E	D	D		E	C		B	B	A
Approach Delay (s)		70.0			44.2			31.1			12.6	
Approach LOS		E			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			31.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				20.5		
Intersection Capacity Utilization			93.9%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	29	0	52	2	178	1	138	214	164	36	1
Future Volume (vph)	20	29	0	52	2	178	1	138	214	164	36	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	23	34	0	60	2	207	1	160	249	191	42	1
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	57	269	410	234								
Volume Left (vph)	23	60	1	191								
Volume Right (vph)	0	207	249	1								
Hadj (s)	0.08	-0.38	-0.35	0.19								
Departure Headway (s)	6.2	5.3	4.9	5.6								
Degree Utilization, x	0.10	0.39	0.55	0.36								
Capacity (veh/h)	479	621	699	598								
Control Delay (s)	9.8	11.7	13.7	11.8								
Approach Delay (s)	9.8	11.7	13.7	11.8								
Approach LOS	A	B	B	B								
Intersection Summary												
Delay				12.5								
Level of Service				B								
Intersection Capacity Utilization				59.7%	ICU Level of Service	B						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis5: Fifth Line & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	58	309	38	16	172	105	46	85	14	52	52	28
Future Volume (vph)	58	309	38	16	172	105	46	85	14	52	52	28
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	64	340	42	18	189	115	51	93	15	57	57	31
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	446	322	51	108	57	88						
Volume Left (vph)	64	18	51	0	57	0						
Volume Right (vph)	42	115	0	15	0	31						
Hadj (s)	0.01	-0.17	0.50	-0.10	0.53	-0.25						
Departure Headway (s)	5.4	5.4	7.4	6.8	7.5	6.7						
Degree Utilization, x	0.67	0.49	0.11	0.20	0.12	0.16						
Capacity (veh/h)	641	627	426	469	425	473						
Control Delay (s)	18.6	13.4	10.1	10.4	10.3	9.8						
Approach Delay (s)	18.6	13.4	10.3		10.0							
Approach LOS	C	B	B		B							
Intersection Summary												
Delay			14.7									
Level of Service			B									
Intersection Capacity Utilization			55.8%	ICU Level of Service		B						
Analysis Period (min)			15									

Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR		
Lane Configurations												
Traffic Volume (vph)	171	99	106	69	70	148	2307	95	1489	73		
Future Volume (vph)	171	99	106	69	70	148	2307	95	1489	73		
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm		
Protected Phases		4			8	5	2	1	6			
Permitted Phases	4		4	8		2		6		6		
Detector Phase	4	4	4	8	8	5	2	1	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	5.0		
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0		
Total Split (s)	48.0	48.0	48.0	48.0	48.0	18.0	77.0	15.0	74.0	74.0		
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	12.9%	55.0%	10.7%	52.9%	52.9%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0		
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	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)	7.0	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0		
Lead/Lag						Lead	Lag	Lead	Lag	Lag		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max		
Act Effct Green (s)	30.0	30.0	30.0	30.0	30.0	96.5	83.8	94.5	81.4	81.4		
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.69	0.60	0.68	0.58	0.58		
v/c Ratio	0.93	0.26	0.27	0.26	0.50	0.61	0.84	0.62	0.53	0.08		
Control Delay	100.9	45.0	8.2	45.4	35.3	20.8	27.5	41.4	20.2	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	100.9	45.0	8.2	45.4	35.3	20.8	27.5	41.4	20.2	6.9		
LOS	F	D	A	D	D	C	C	D	C	A		
Approach Delay		60.0			38.0		27.1		20.8			
Approach LOS		E			D		C		C			

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 28.1

Intersection LOS: C

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

			
Ø1	Ø2 (R)		Ø4
15 s	77 s		48 s
			
Ø5	Ø6 (R)		Ø8
18 s	74 s		48 s

HCM Signalized Intersection Capacity Analysis

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	99	106	69	70	125	148	2307	99	95	1489	73
Future Volume (vph)	171	99	106	69	70	125	148	2307	99	95	1489	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		4.5	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	0.98	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.90		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)	1802	1883	1510	1779	1673		1789	5050		1674	5092	1568
Flt Permitted	0.48	1.00	1.00	0.69	1.00		0.11	1.00		0.05	1.00	1.00
Satd. Flow (perm)	906	1883	1510	1292	1673		207	5050		87	5092	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)	180	104	112	73	74	132	156	2428	104	100	1567	77
RTOR Reduction (vph)	0	0	88	0	51	0	0	2	0	0	0	23
Lane Group Flow (vph)	180	104	24	73	155	0	156	2530	0	100	1567	54
Confl. Peds. (#/hr)	3		13	13		3	9		9	9		9
Heavy Vehicles (%)	1%	2%	5%	1%	4%	2%	2%	3%	4%	9%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	30.0	30.0	30.0	30.0	30.0		93.9	83.8		90.6	81.4	81.4
Effective Green, g (s)	30.0	30.0	30.0	30.0	30.0		93.9	83.8		90.6	81.4	81.4
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21		0.67	0.60		0.65	0.58	0.58
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		4.5	7.0		3.0	7.0	7.0
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)	194	403	323	276	358		252	3022		160	2960	911
v/s Ratio Prot		0.06			0.09		c0.04	c0.50		0.04	0.31	
v/s Ratio Perm	c0.20		0.02	0.06			0.37			0.36		0.03
v/c Ratio	0.93	0.26	0.07	0.26	0.43		0.62	0.84		0.62	0.53	0.06
Uniform Delay, d1	53.9	45.7	43.9	45.8	47.6		12.4	22.6		29.2	17.7	12.7
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	44.1	0.3	0.1	0.5	0.8		4.5	2.9		7.4	0.7	0.1
Delay (s)	98.0	46.1	44.0	46.3	48.5		16.9	25.5		36.6	18.4	12.8
Level of Service	F	D	D	D	D		B	C		D	B	B
Approach Delay (s)		69.1			47.9			25.0			19.2	
Approach LOS		E			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			27.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				18.5		
Intersection Capacity Utilization			95.3%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	35	8	59	25	52	2	162	89	37	86	22
Future Volume (vph)	34	35	8	59	25	52	2	162	89	37	86	22
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	42	43	10	73	31	64	2	200	110	46	106	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	95	168	312	179								
Volume Left (vph)	42	73	2	46								
Volume Right (vph)	10	64	110	27								
Hadj (s)	0.05	-0.13	-0.21	-0.04								
Departure Headway (s)	5.4	5.1	4.6	5.0								
Degree Utilization, x	0.14	0.24	0.40	0.25								
Capacity (veh/h)	591	637	736	670								
Control Delay (s)	9.3	9.7	10.7	9.6								
Approach Delay (s)	9.3	9.7	10.7	9.6								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay				10.1								
Level of Service				B								
Intersection Capacity Utilization				42.3%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/04/2017

										
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations										
Traffic Volume (veh/h)	204	163	44	104	0	0				
Future Volume (Veh/h)	204	163	44	104	0	0				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				
Hourly flow rate (vph)	272	217	59	139	0	0				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		None							
Median storage veh										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume			489		638	380				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol			489		638	380				
tC, single (s)			4.1		6.4	6.2				
tC, 2 stage (s)										
tF (s)			2.2		3.5	3.3				
p0 queue free %			95		100	100				
cM capacity (veh/h)			1074		420	671				
Direction, Lane #	EB 1	WB 1								
Volume Total	489	198								
Volume Left	0	59								
Volume Right	217	0								
cSH	1700	1074								
Volume to Capacity	0.29	0.05								
Queue Length 95th (m)	0.0	1.3								
Control Delay (s)	0.0	2.9								
Lane LOS		A								
Approach Delay (s)	0.0	2.9								
Approach LOS										
Intersection Summary										
Average Delay			0.8							
Intersection Capacity Utilization			35.3%	ICU Level of Service		A				
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/04/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	202	0	0	135	14	31
Future Volume (Veh/h)	202	0	0	135	14	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	253	0	0	169	18	39
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			254		423	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		423	254
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	95
cM capacity (veh/h)			1322		591	789
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	253	169	18	39		
Volume Left	0	0	18	0		
Volume Right	0	0	0	39		
cSH	1700	1700	591	789		
Volume to Capacity	0.15	0.10	0.03	0.05		
Queue Length 95th (m)	0.0	0.0	0.7	1.2		
Control Delay (s)	0.0	0.0	11.3	9.8		
Lane LOS			B	A		
Approach Delay (s)	0.0	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			20.7%	ICU Level of Service		A
Analysis Period (min)			15			



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Appendix C

Existing 95th Percentile Queues

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	39	145	120	177	260	1249	53	1476	134
v/c Ratio	0.35	0.52	0.83	0.69	0.70	0.47	0.23	0.70	0.14
Control Delay	60.0	38.3	96.9	63.7	46.3	6.0	16.1	21.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	38.3	96.9	63.7	46.3	6.0	16.1	21.5	5.7
Queue Length 50th (m)	9.9	22.2	32.7	42.4	50.9	40.4	6.5	141.6	6.3
Queue Length 95th (m)	20.4	41.3	52.0	63.0	m#91.3	60.1	14.8	166.3	15.2
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	180	409	232	402	374	2634	233	2111	949
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	0.22	0.35	0.52	0.44	0.70	0.47	0.23	0.70	0.14

Intersection Summary

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

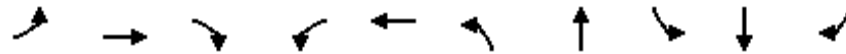
Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	20	226	135	27	109	176	1535	240	1259	102
v/c Ratio	0.10	0.75	0.44	0.29	0.36	0.74	0.75	0.69	0.47	0.08
Control Delay	48.8	71.6	24.0	57.7	41.8	44.3	24.6	45.2	6.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	71.6	24.0	57.7	41.8	44.3	24.6	45.2	6.5	1.2
Queue Length 50th (m)	4.8	60.7	11.7	6.7	20.6	35.1	161.0	46.4	43.2	0.0
Queue Length 95th (m)	11.7	83.4	29.9	15.5	36.3	#82.7	196.0	#82.1	70.4	m3.1
Internal Link Dist (m)		197.7			123.8		371.2		464.2	
Turn Bay Length (m)	32.0		30.0	30.0		170.0		78.0		130.0
Base Capacity (vph)	295	461	431	145	449	237	2039	350	2681	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.49	0.31	0.19	0.24	0.74	0.75	0.69	0.47	0.08

Intersection Summary

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

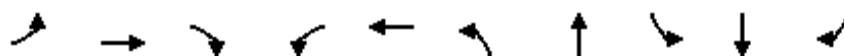
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	163	120	164	151	122	79	2147	162	1566	196
v/c Ratio	0.80	0.38	0.54	0.75	0.41	0.48	0.70	0.75	0.43	0.16
Control Delay	81.3	53.1	40.1	76.1	39.9	32.5	21.7	52.4	8.6	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	53.1	40.1	76.1	39.9	32.5	21.7	52.4	8.6	1.6
Queue Length 50th (m)	44.0	29.9	27.8	40.4	22.1	11.2	137.4	27.0	55.8	0.7
Queue Length 95th (m)	64.0	44.7	46.9	60.0	38.1	#41.1	207.5	51.7	84.6	9.1
Internal Link Dist (m)	167.9				140.2		718.6		284.6	
Turn Bay Length (m)	31.0			35.0	45.0	120.0		112.0	50.0	
Base Capacity (vph)	308	474	426	304	426	163	3073	270	3607	1201
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	0.53	0.25	0.38	0.50	0.29	0.48	0.70	0.60	0.43	0.16

Intersection Summary

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

Queue shown is maximum after two cycles.

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	163	337	59	172	206	1586	96	934	69
v/c Ratio	0.79	0.88	0.81	0.45	0.50	0.73	0.46	0.43	0.07
Control Delay	77.9	71.7	114.2	47.6	9.2	12.5	13.4	14.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	71.7	114.2	47.6	9.2	12.5	13.4	14.8	3.4
Queue Length 50th (m)	42.1	79.8	15.3	37.4	10.2	57.0	7.6	70.7	0.7
Queue Length 95th (m)	#71.9	#122.8	#40.1	59.3	m19.6	92.2	13.4	85.5	6.8
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	233	424	82	428	413	2170	255	2186	978
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	0.70	0.79	0.72	0.40	0.50	0.73	0.38	0.43	0.07

Intersection Summary

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

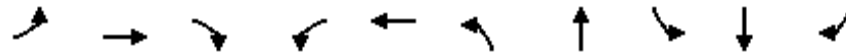
Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	75	45	380	144	352	179	1626	23	1177	32
v/c Ratio	0.43	0.11	0.91	0.36	0.66	0.87	0.78	0.16	0.59	0.03
Control Delay	54.5	42.9	64.2	38.2	45.0	67.6	28.4	11.4	13.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	42.9	64.2	38.2	45.0	67.6	28.4	11.4	13.6	0.1
Queue Length 50th (m)	17.6	9.8	75.2	28.9	75.4	45.4	197.3	1.7	77.6	0.0
Queue Length 95th (m)	33.2	20.2	#124.3	45.7	107.4	#97.7	238.8	m3.9	86.3	m0.0
Internal Link Dist (m)		197.7			123.8		371.2		464.2	
Turn Bay Length (m)	32.0		30.0	30.0		170.0		78.0		130.0
Base Capacity (vph)	199	466	463	402	590	205	2073	189	1990	999
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	0.38	0.10	0.82	0.36	0.60	0.87	0.78	0.12	0.59	0.03

Intersection Summary

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

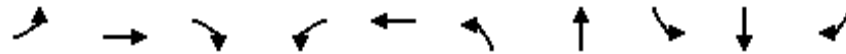
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	180	104	112	73	206	156	2532	100	1567	77
v/c Ratio	0.93	0.26	0.27	0.26	0.50	0.61	0.84	0.62	0.53	0.08
Control Delay	100.9	45.0	8.2	45.4	35.3	20.8	27.5	41.4	20.2	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	100.9	45.0	8.2	45.4	35.3	20.8	27.5	41.4	20.2	6.9
Queue Length 50th (m)	49.3	24.2	0.0	17.0	34.3	12.8	196.9	11.4	91.3	2.5
Queue Length 95th (m)	72.8	36.7	14.0	28.4	53.3	32.0	#293.1	32.9	133.1	11.9
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	265	551	521	378	535	297	3027	195	2959	934
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	0.68	0.19	0.21	0.19	0.39	0.53	0.84	0.51	0.53	0.08

Intersection Summary

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



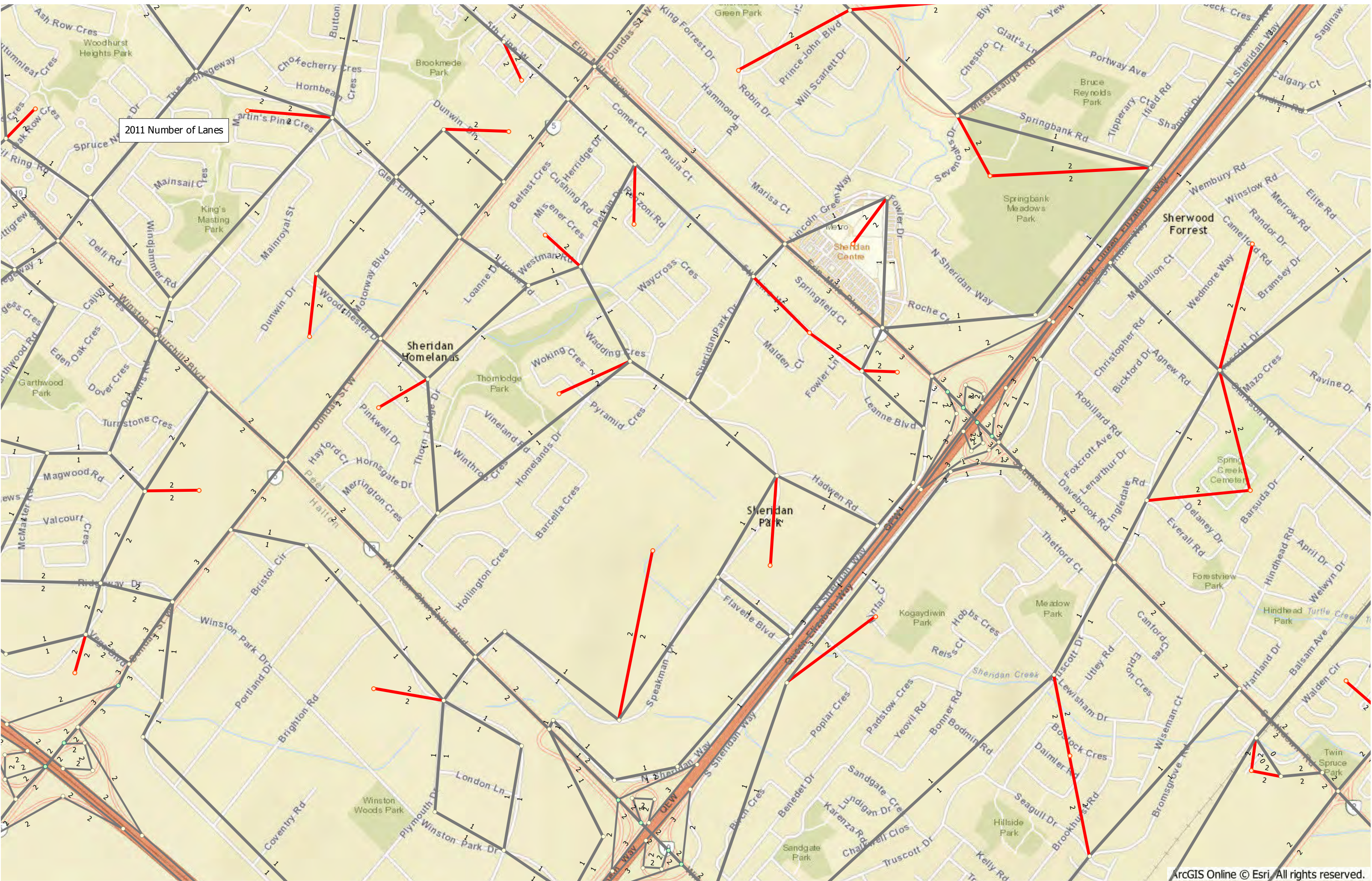
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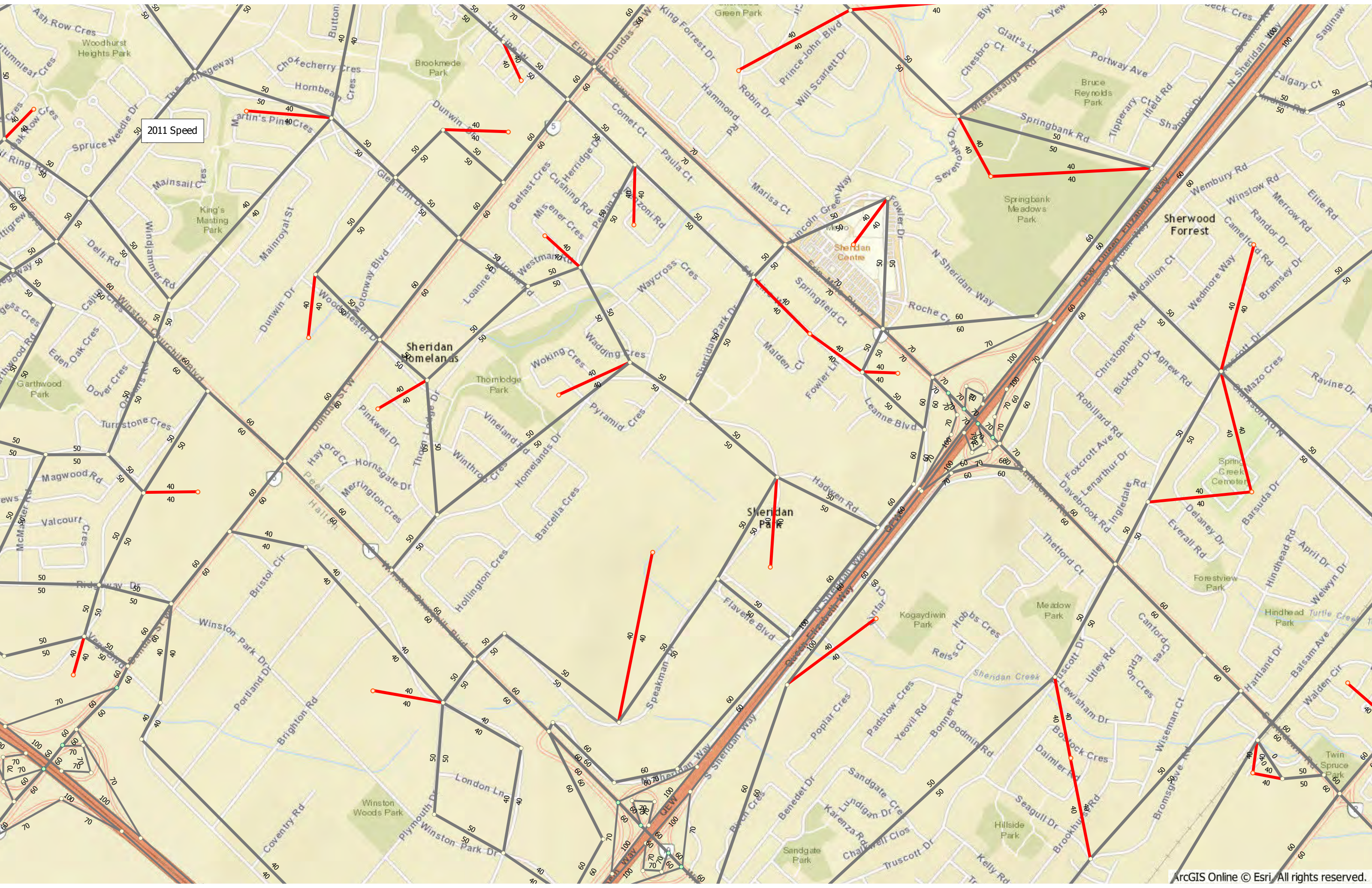
Appendix D

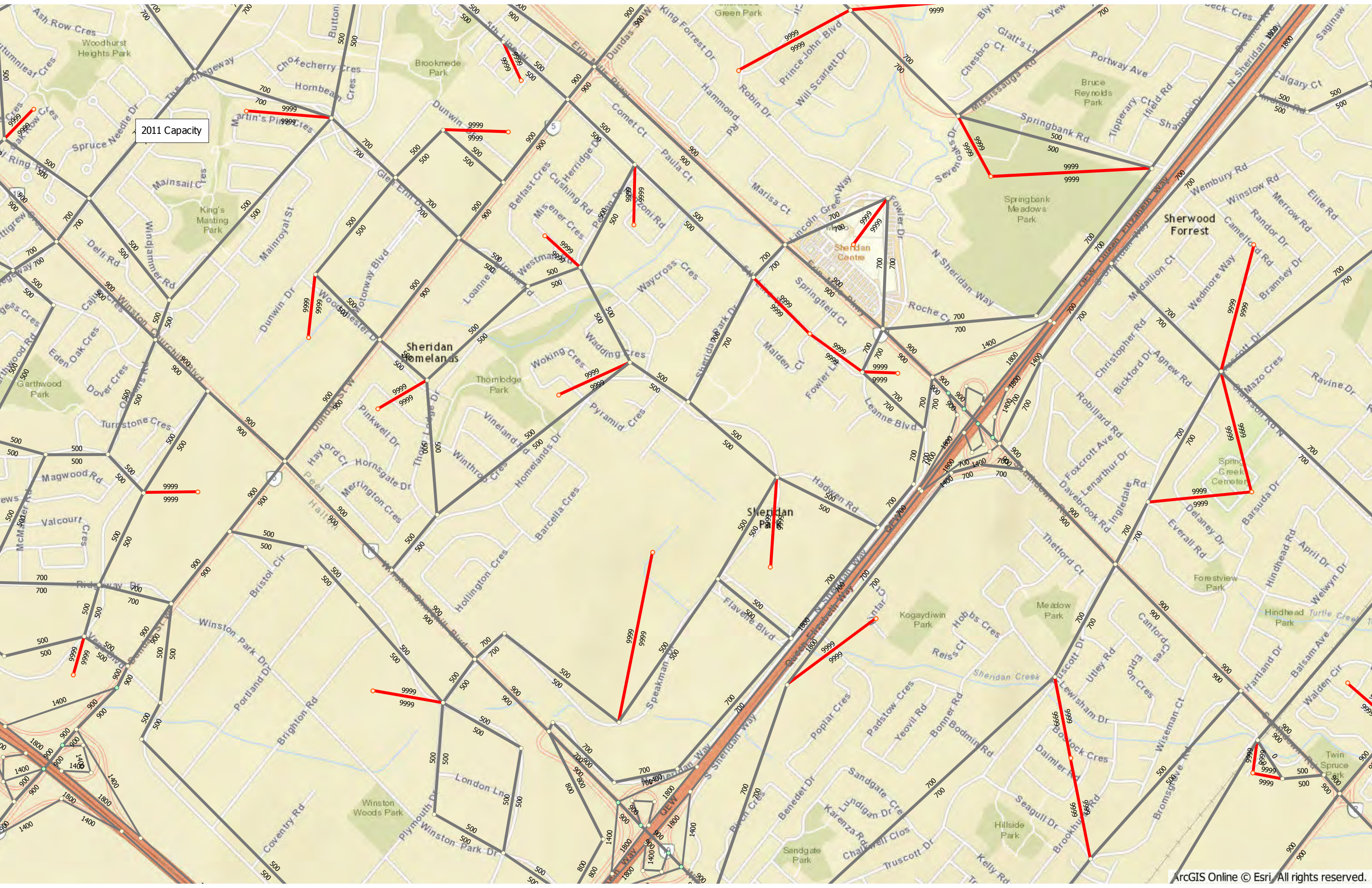
EMME Model Output

Existing Conditions

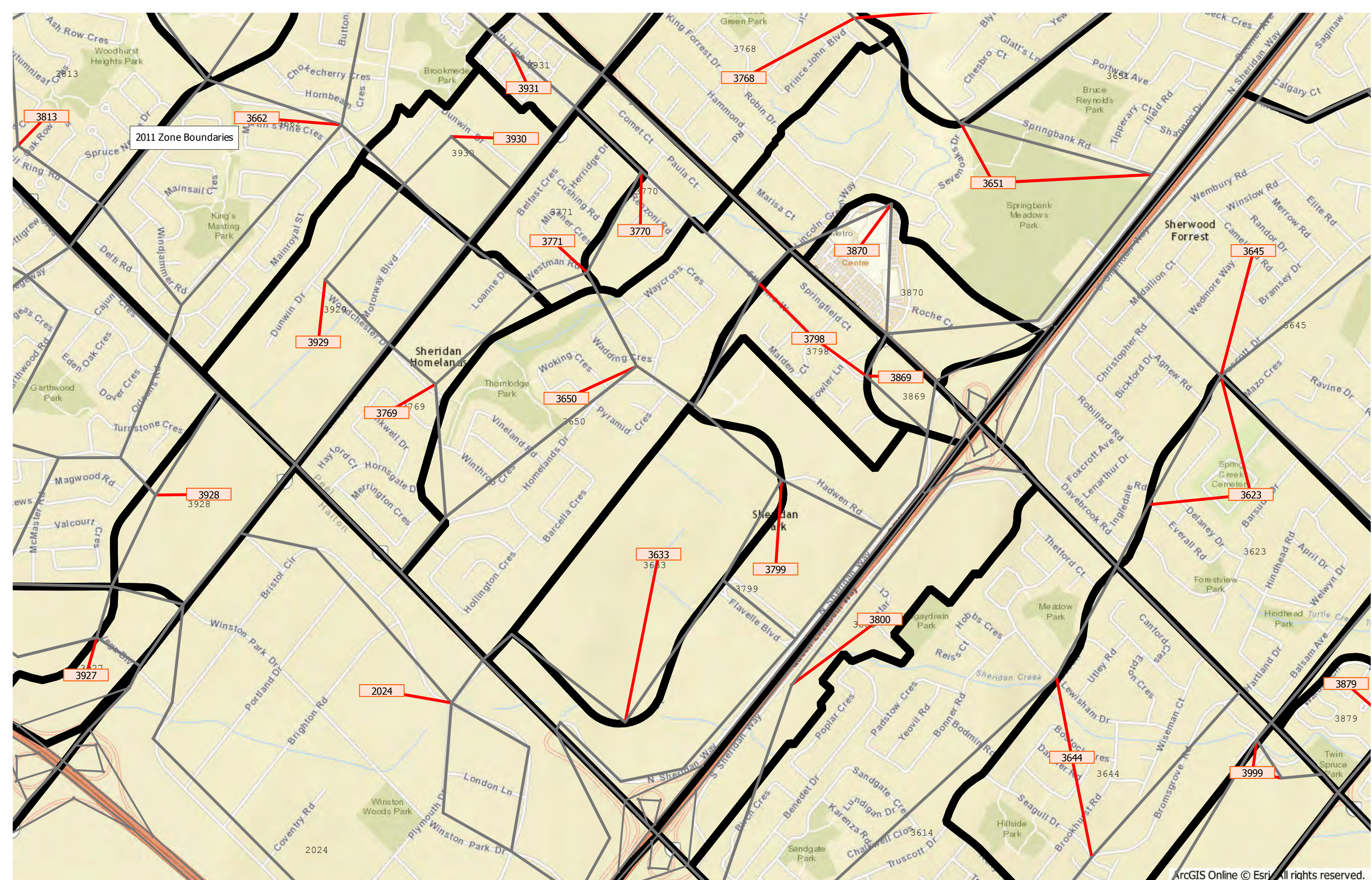


2011 Number of Lanes

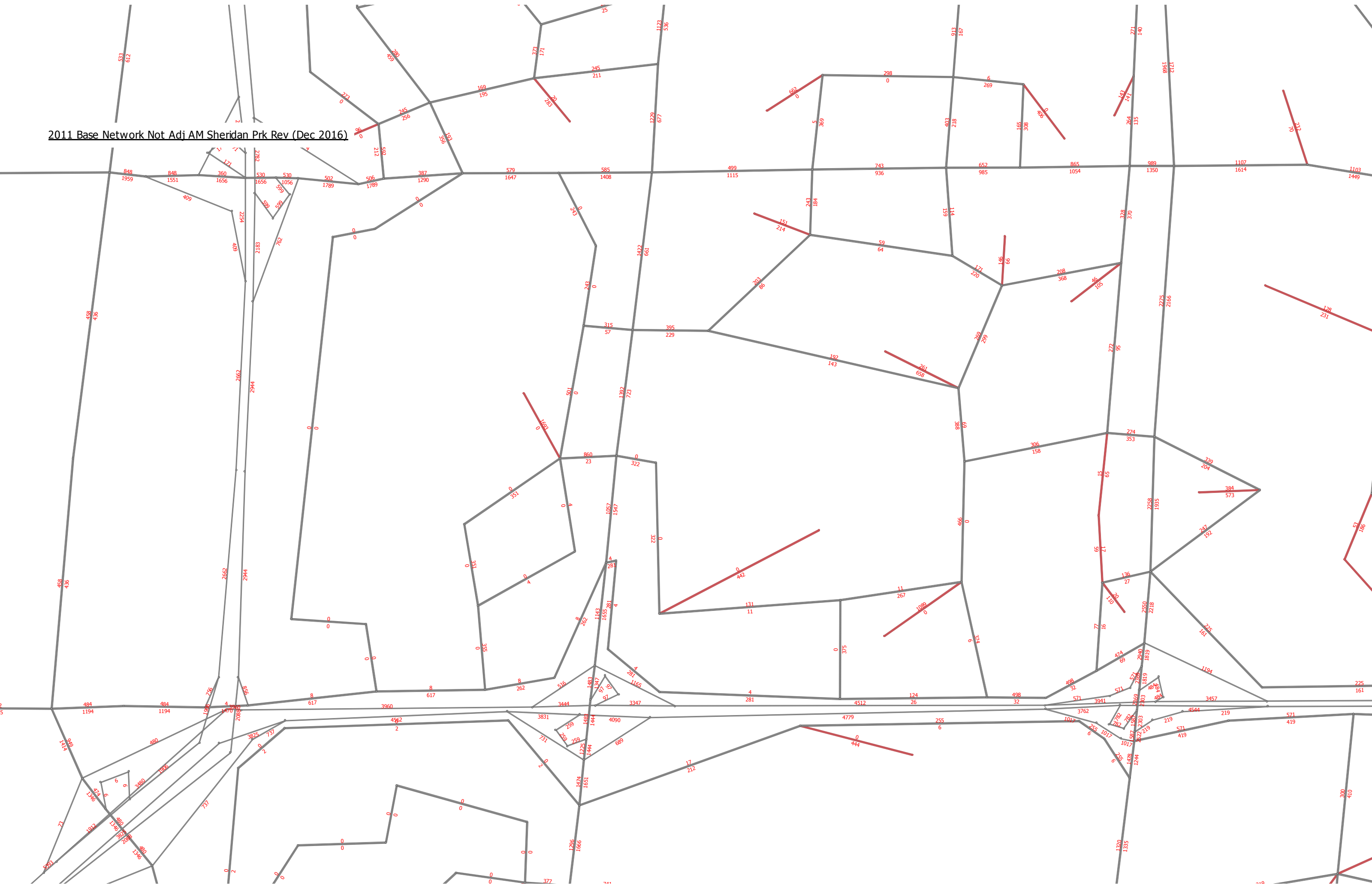




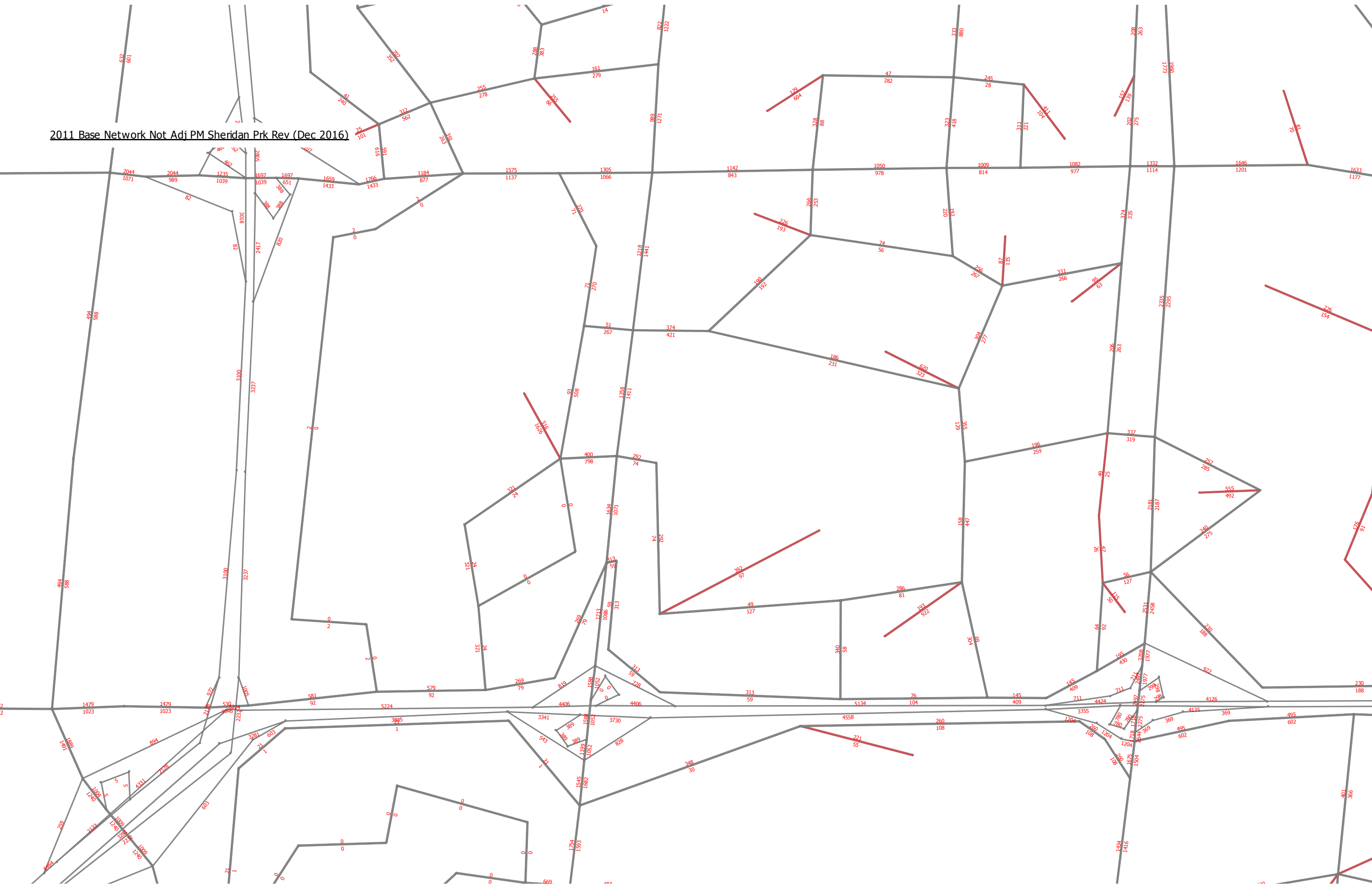
2011 Capacity



2011 Base Network Not Adj AM Sheridan Prk Rev (Dec 2016)



2011 Base Network Not Adj PM Sheridan Prk Rev (Dec 2016)

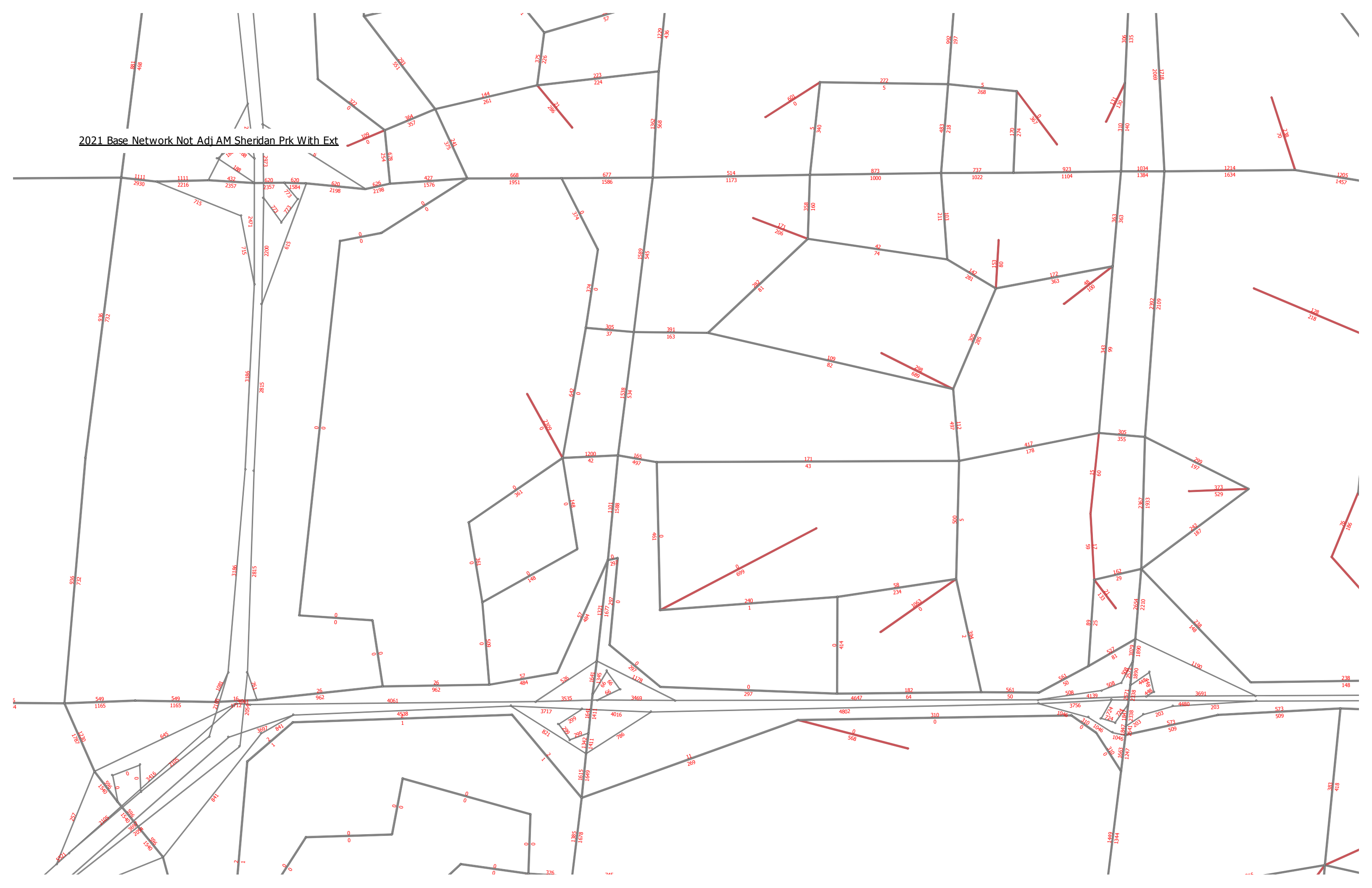


2021 Conditions

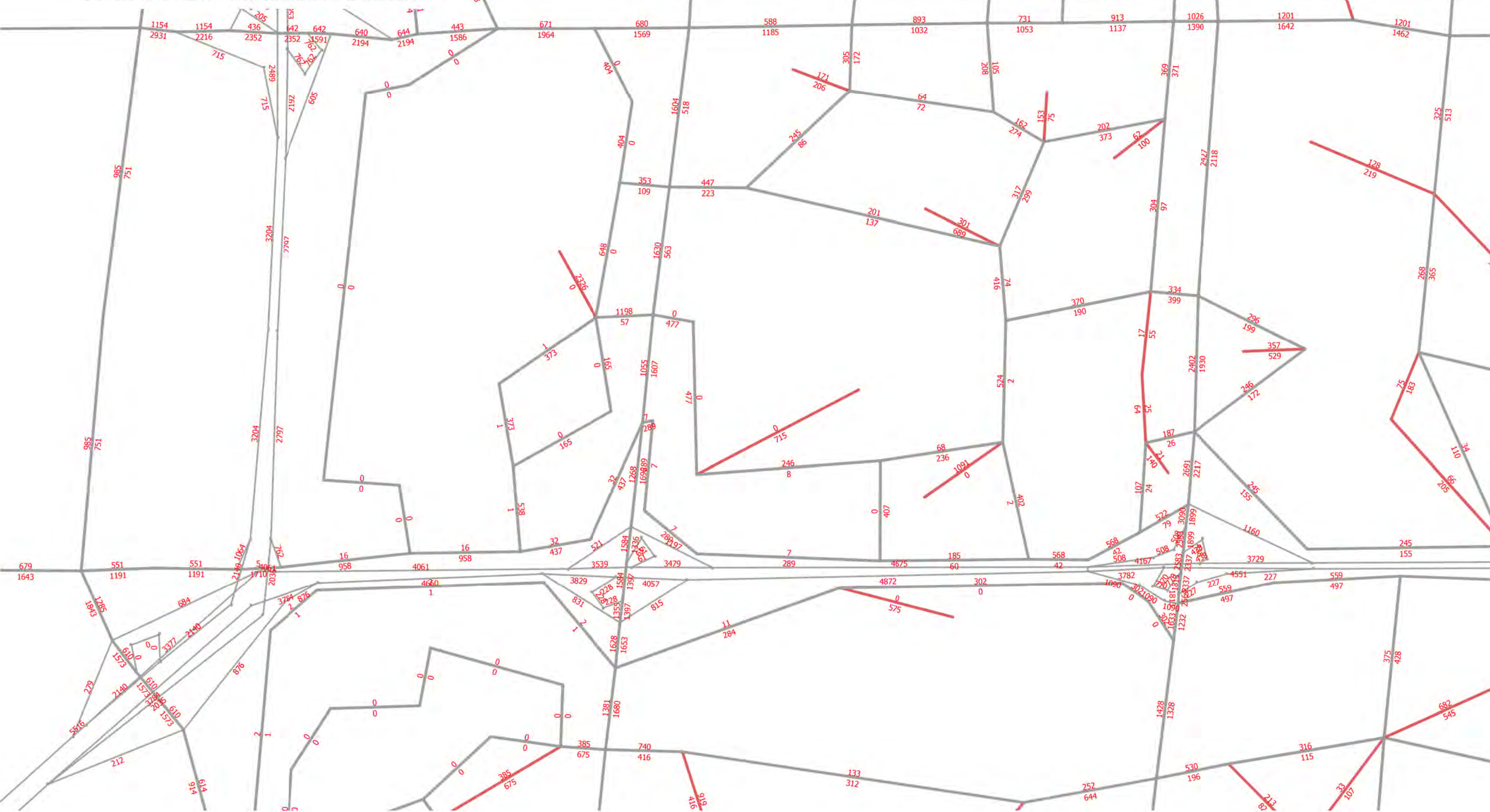
AM

2021 Base Network Not Adj AM Sheridan Prk Without Ext

2021 Base Network Not Adj AM Sheridan Prk With Ext



2021 AM Sheridan Park Drive without ext- Shrdn 4 Lanes

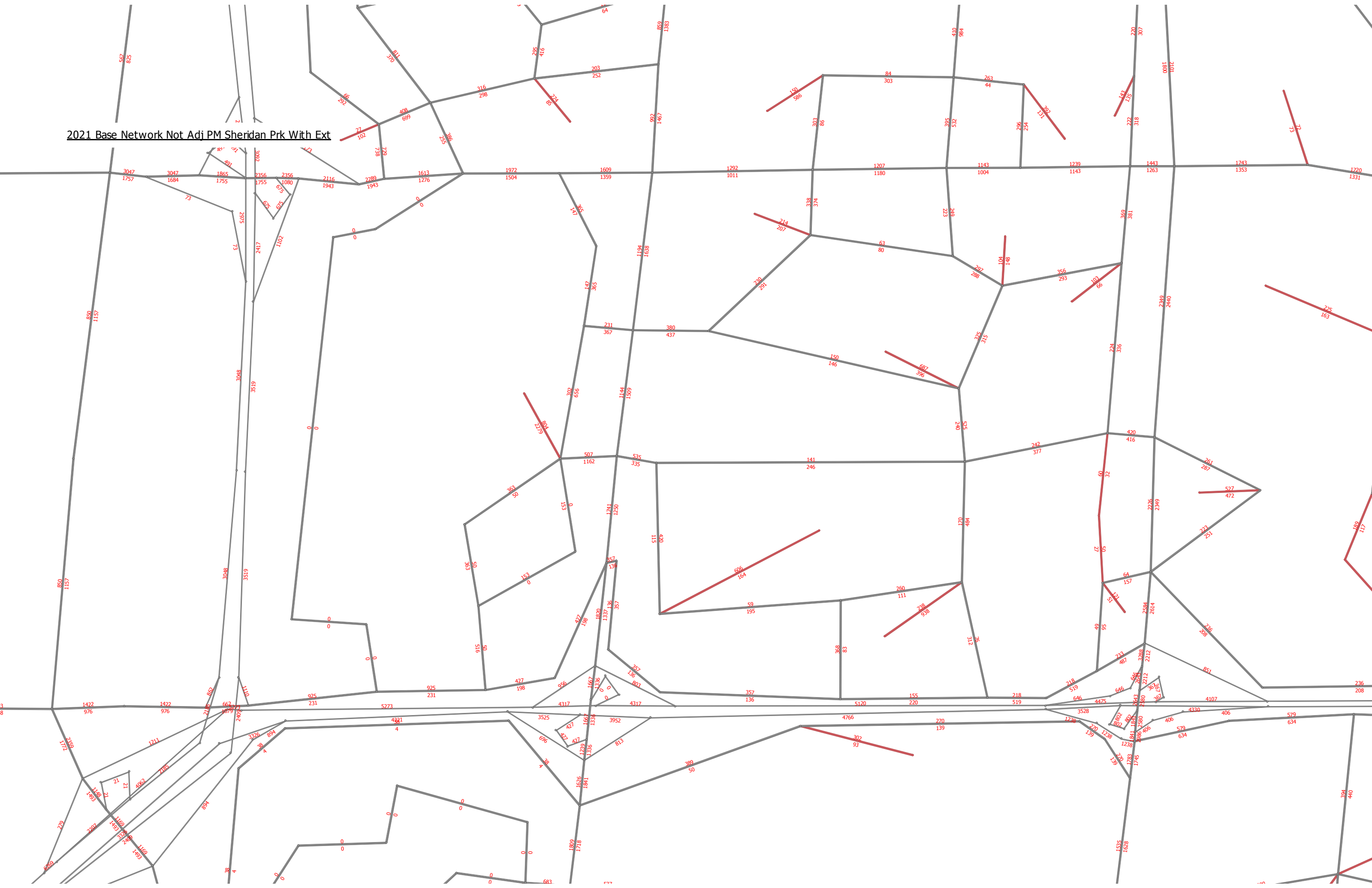


2021 AM Sheridan Park Drive With Ext-4 Lanes on SheridanPark

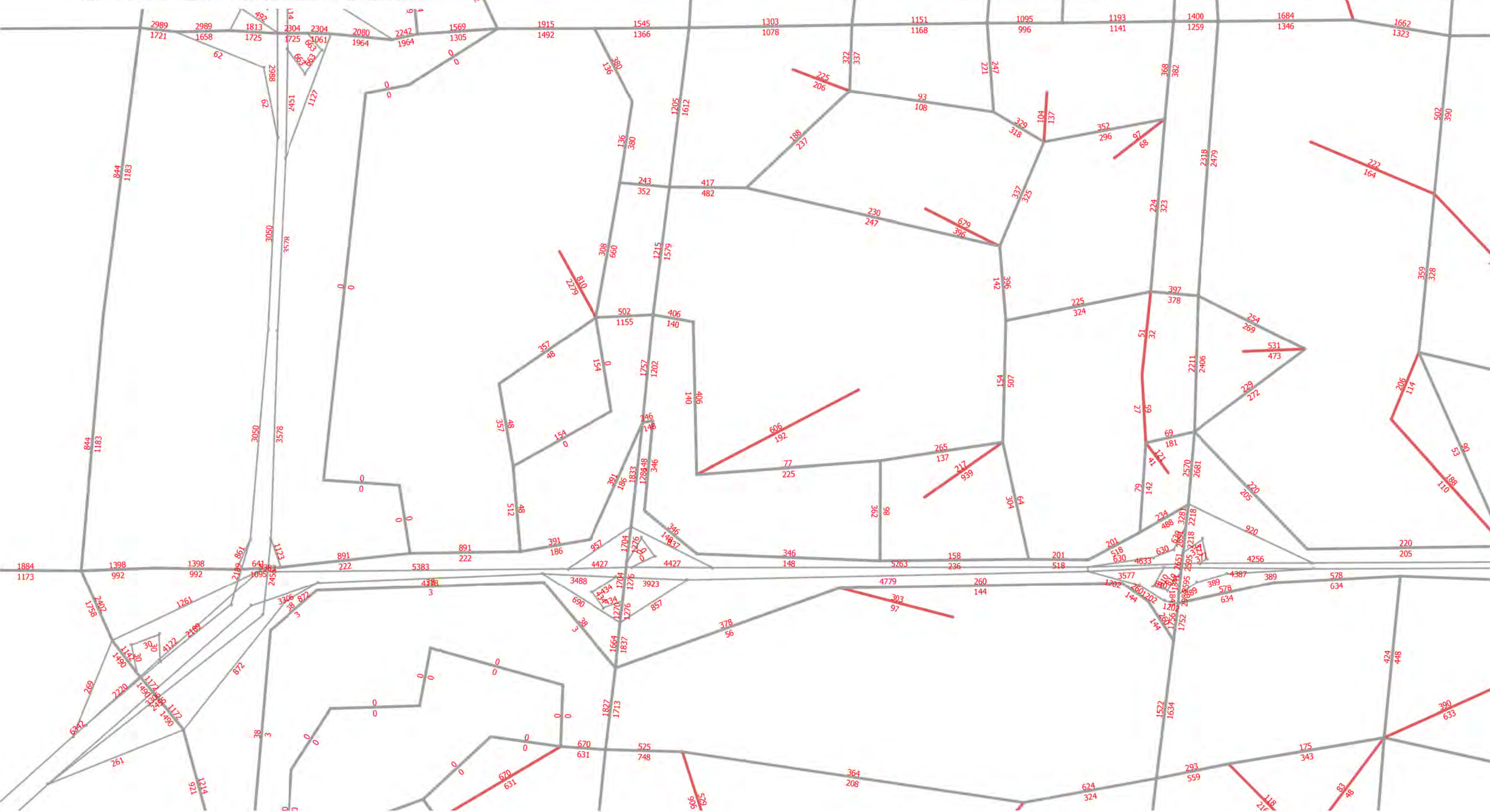
PM

2021 Base Network Not Adj PM Sheridan Prk Without Ext

2021 Base Network Not Adj PM Sheridan Prk With Ext



2021 PM Sheridan Park Drive without ext- Shrdn 4 Lanes



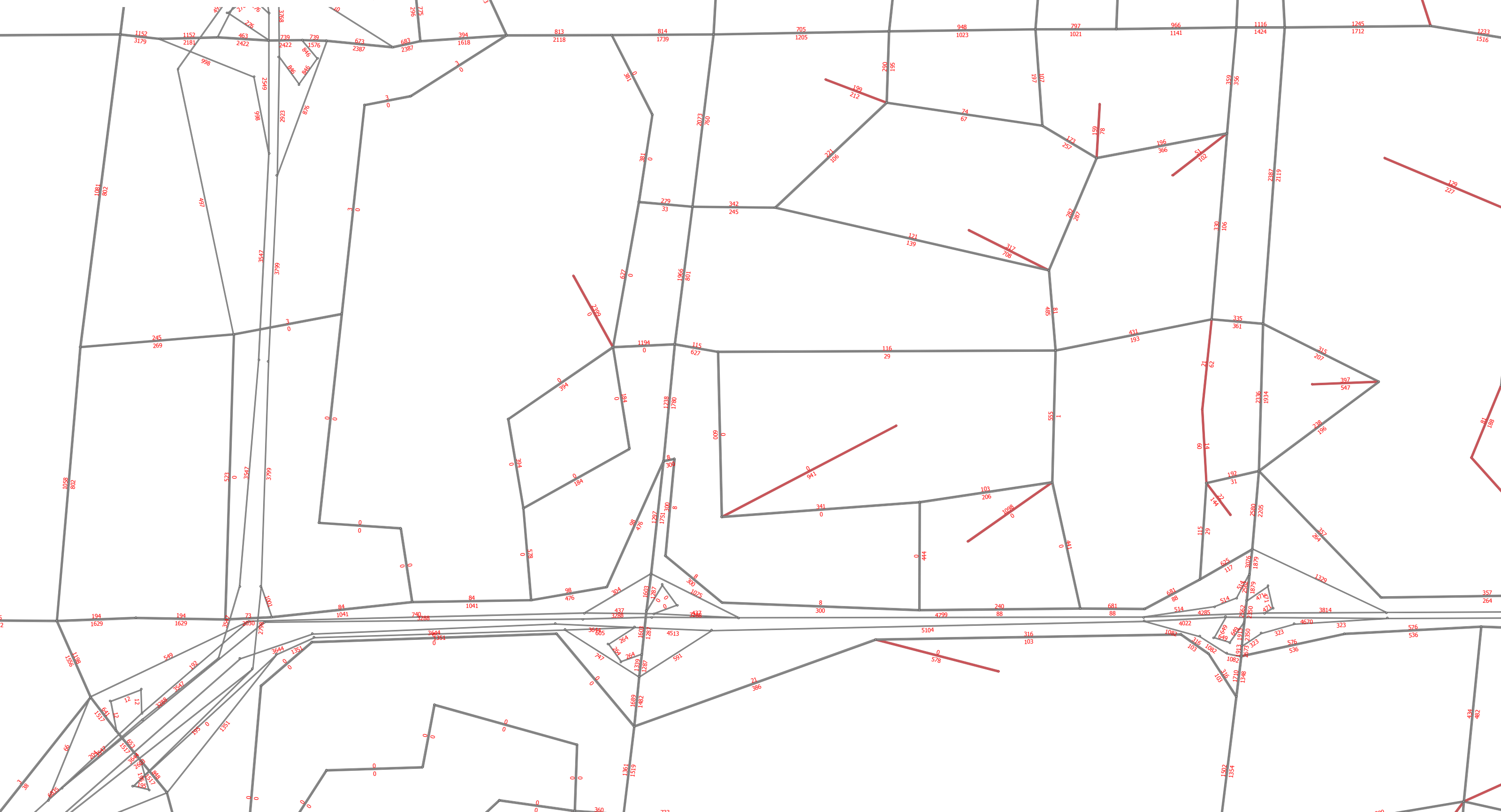
2021 PM Sheridan Park Drive With Ext-4 Lanes on SheridanPark

2031 Conditions

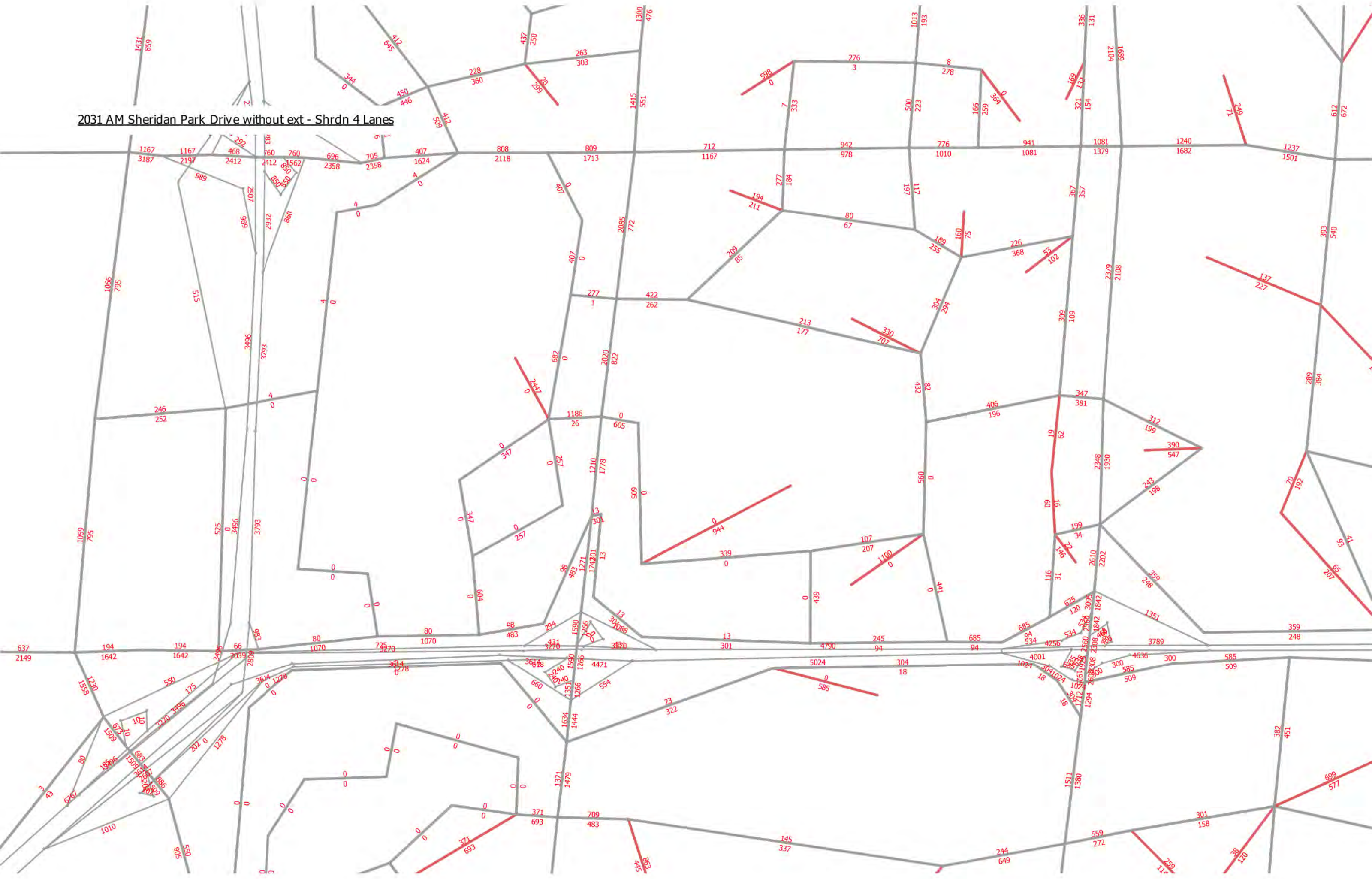
AM

2031 Base Network Not Adj AM Sheridan Prk Without Ext

2031 Base Network Not Adj AM Sheridan Prk With Ext



2031 AM Sheridan Park Drive without ext - Shrdn 4 Lanes

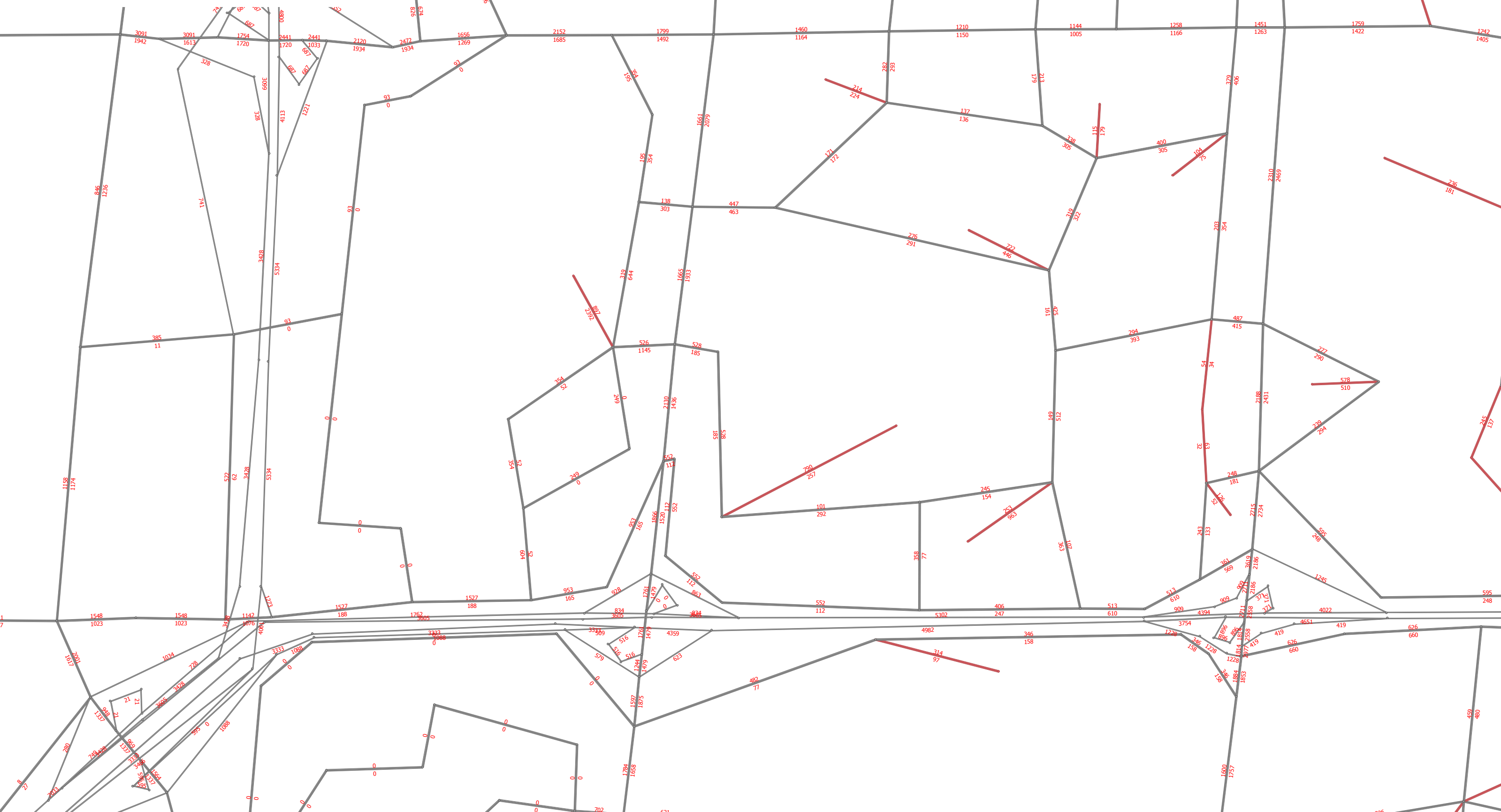


2031 AM Sheridan Park Drive With Ext-4 Lanes on SheridanPark

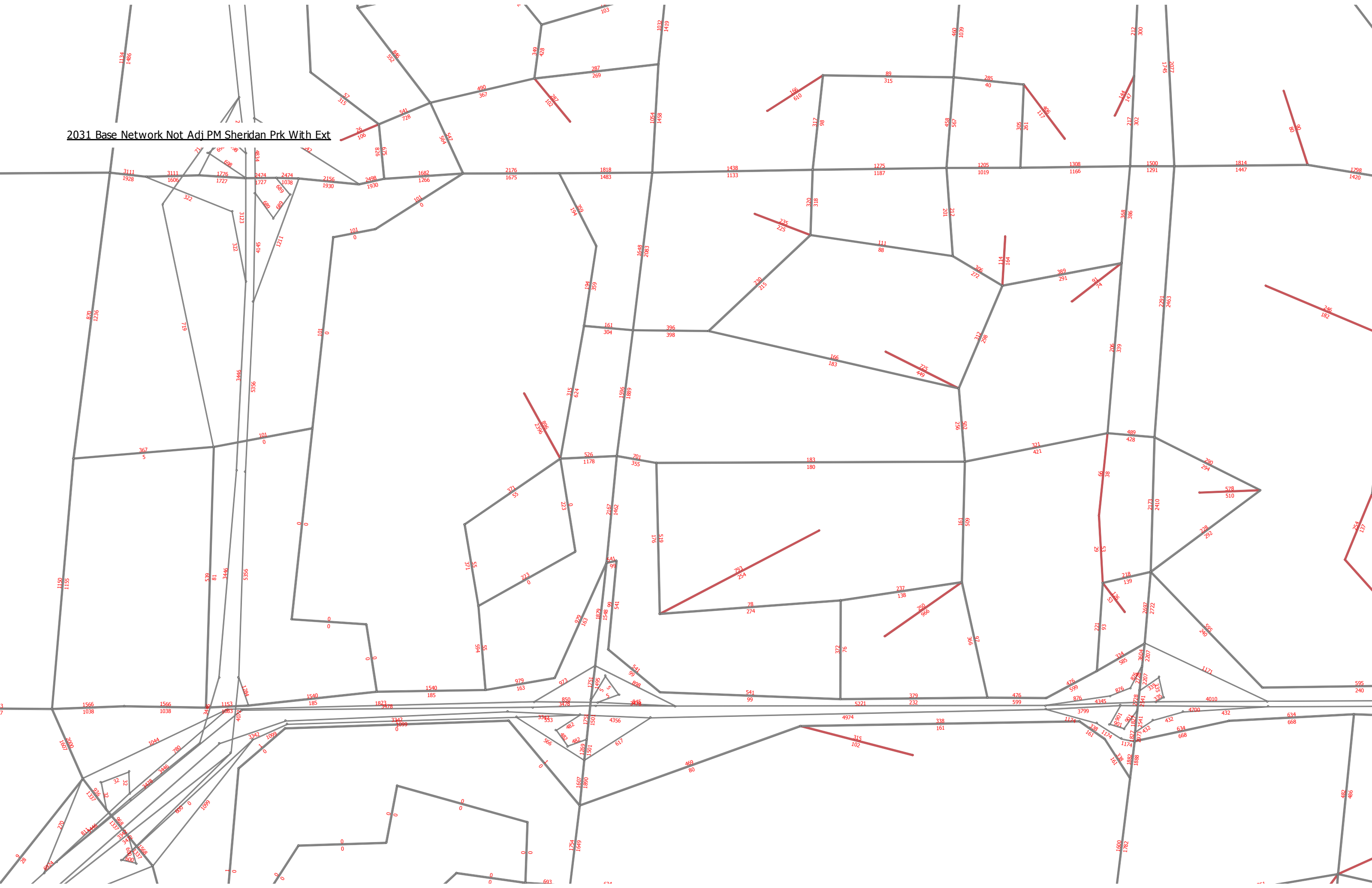


PM

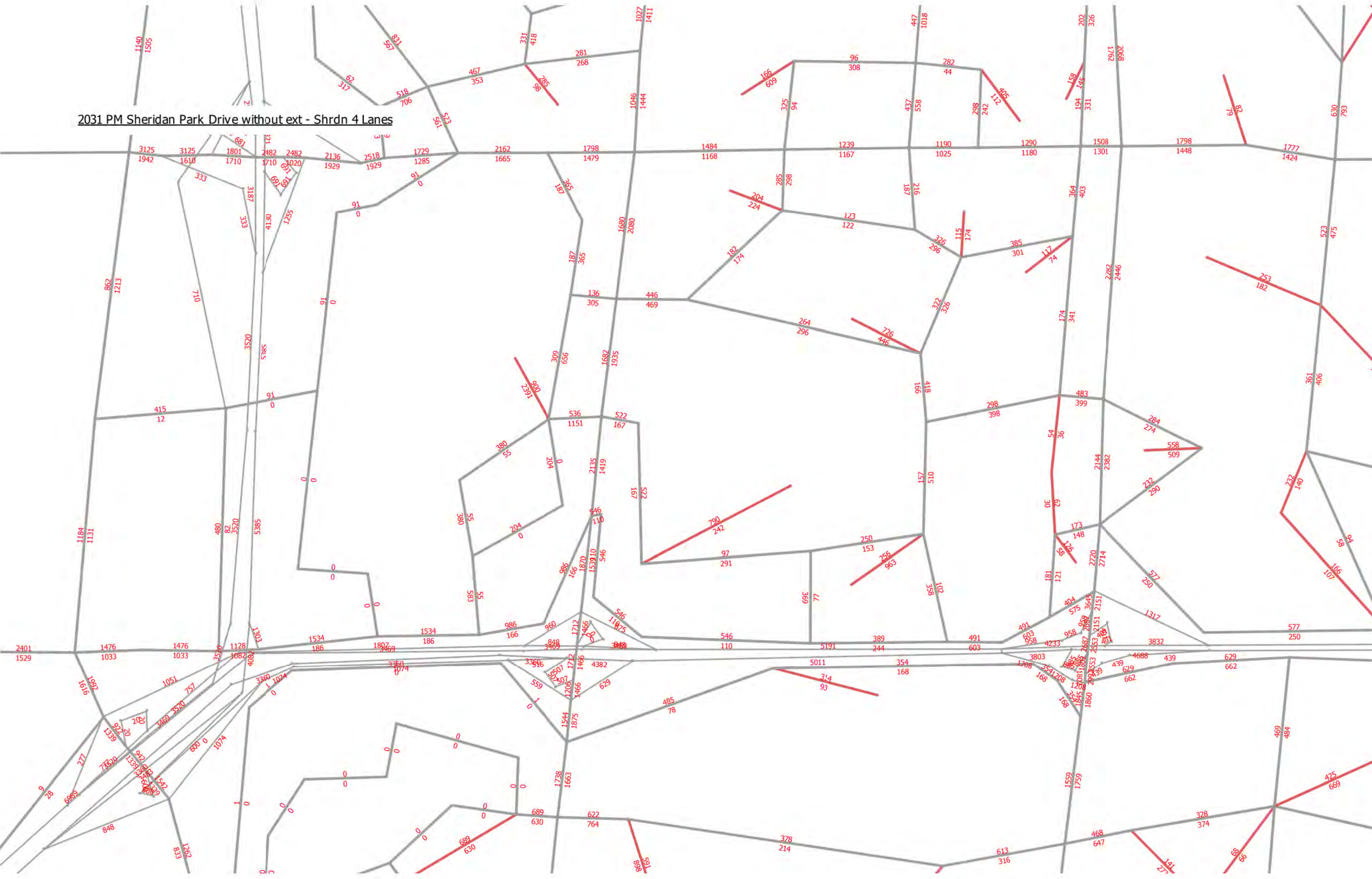
2031 Base Network Not Adj PM Sheridan Prk Without Ext



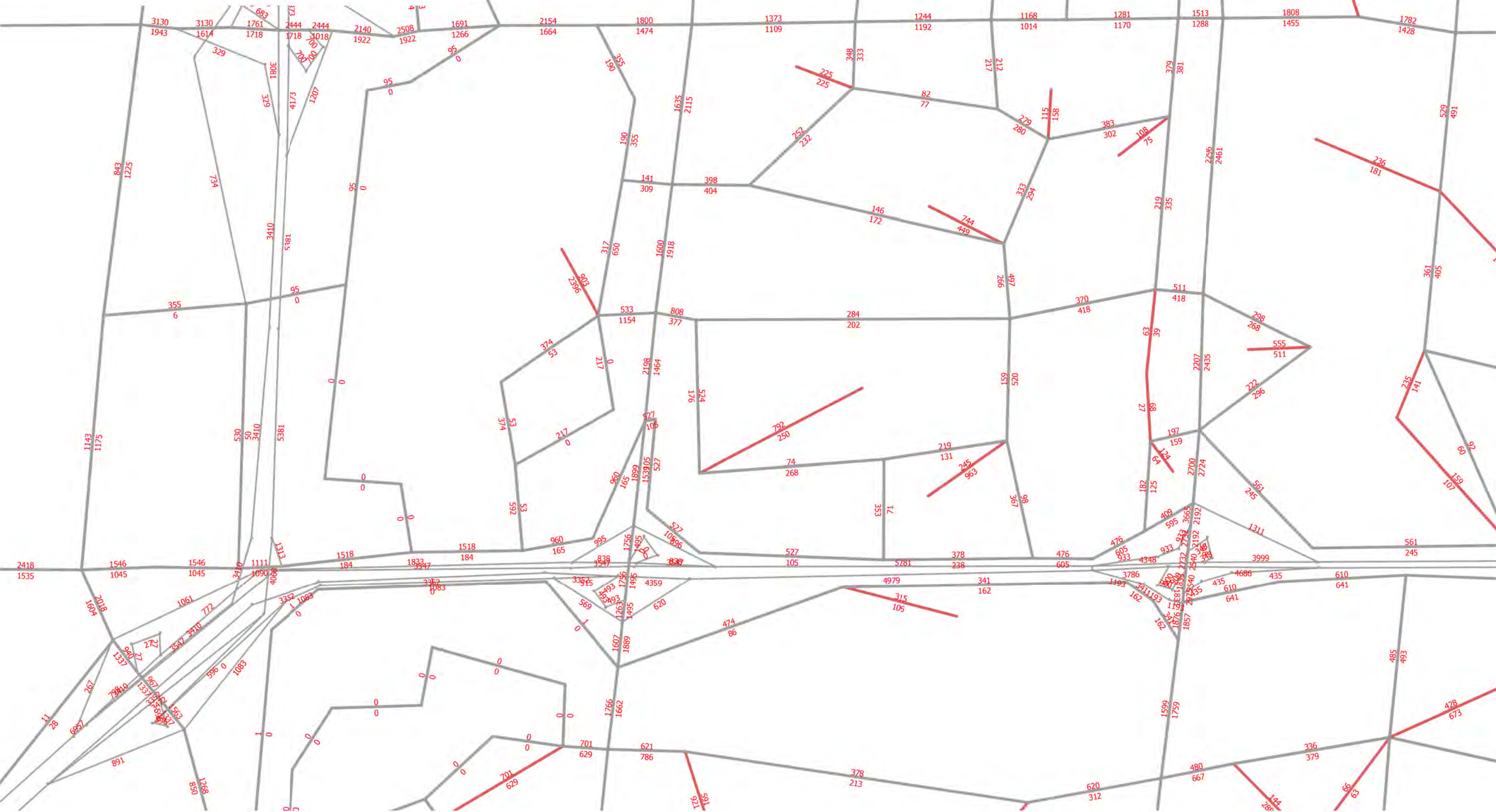
2031 Base Network Not Adj PM Sheridan Prk With Ext



2031 PM Sheridan Park Drive without ext - Shrdn 4 Lanes



2031 PM Sheridan Park Drive With Ext-4 Lanes on SheridanPark





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Appendix E

2021 Traffic Operations Without Sheridan Park Drive Extension

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	36	48	111	106	234	1060	49	1362	121
Future Volume (vph)	36	48	111	106	234	1060	49	1362	121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	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)	35.0	35.0	35.0	35.0	9.5	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	101.0	90.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	72.1%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	20.5	20.5	20.5	20.5	109.5	106.5	84.0	84.0	84.0
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.78	0.76	0.60	0.60	0.60
v/c Ratio	0.35	0.52	0.83	0.69	0.72	0.49	0.24	0.72	0.14
Control Delay	59.9	37.8	96.6	63.5	48.1	6.7	16.5	22.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	37.8	96.6	63.5	48.1	6.7	16.5	22.2	5.9
LOS	E	D	F	E	D	A	B	C	A
Approach Delay		42.5		76.8		13.7		20.7	
Approach LOS		D		E		B		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 23.5

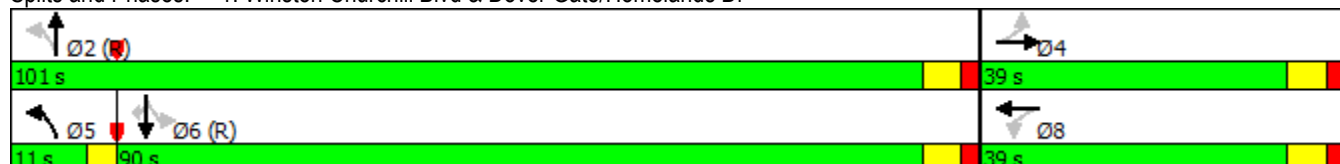
Intersection LOS: C

Intersection Capacity Utilization 87.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/04/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	195	50	113	105	75	164
Future Volume (vph)	195	50	113	105	75	164
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	250	64	145	135	96	210
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	314	280	306			
Volume Left (vph)	250	0	96			
Volume Right (vph)	64	135	0			
Hadj (s)	0.09	-0.13	0.18			
Departure Headway (s)	5.5	5.2	5.4			
Degree Utilization, x	0.48	0.40	0.46			
Capacity (veh/h)	612	659	630			
Control Delay (s)	13.6	11.6	13.0			
Approach Delay (s)	13.6	11.6	13.0			
Approach LOS	B	B	B			
Intersection Summary						
Delay			12.8			
Level of Service			B			
Intersection Capacity Utilization			49.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	255	131	27	70	46	198	1278	271	1226	115
Future Volume (vph)	19	255	131	27	70	46	198	1278	271	1226	115
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm
Protected Phases		4			8			2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	8	8	8	2	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	36.0	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	85.0	85.0	14.0	99.0	99.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%	60.7%	60.7%	10.0%	70.7%	70.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	3.0	6.0	6.0
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.3	25.3	25.3	25.3	25.3	25.3	79.0	79.0	104.7	101.7	101.7
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.18	0.56	0.56	0.75	0.73	0.73
v/c Ratio	0.09	0.78	0.41	0.31	0.21	0.15	0.95	0.82	0.89	0.50	0.10
Control Delay	45.5	70.0	24.2	56.5	48.4	12.2	78.6	28.9	68.7	7.8	1.4
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	45.5	70.0	24.2	56.5	48.4	12.2	78.6	28.9	68.7	7.8	1.4
LOS	D	E	C	E	D	B	E	C	E	A	A
Approach Delay		54.0			38.3			34.6		17.6	
Approach LOS		D			D			C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

					
Ø1	Ø2 (R)			Ø4	
14 s	85 s			41 s	
					
Ø6 (R)				Ø8	
99 s				41 s	

HCM Unsignalized Intersection Capacity Analysis 4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	8	1	260	24	153	0	55	161	227	143	17
Future Volume (vph)	1	8	1	260	24	153	0	55	161	227	143	17
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
Hourly flow rate (vph)	1	10	1	317	29	187	0	67	196	277	174	21
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	12	533	263	472								
Volume Left (vph)	1	317	0	277								
Volume Right (vph)	1	187	196	21								
Hadj (s)	-0.03	-0.01	-0.42	0.16								
Departure Headway (s)	7.8	6.2	6.3	6.4								
Degree Utilization, x	0.03	0.92	0.46	0.84								
Capacity (veh/h)	412	571	545	539								
Control Delay (s)	11.0	44.3	14.7	35.1								
Approach Delay (s)	11.0	44.3	14.7	35.1								
Approach LOS	B	E	B	E								
Intersection Summary												
Delay			34.5									
Level of Service			D									
Intersection Capacity Utilization			75.9%		ICU Level of Service					D		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

5: Fifth Line & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	322	43	8	296	68	44	66	25	116	83	93
Future Volume (vph)	29	322	43	8	296	68	44	66	25	116	83	93
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	34	374	50	9	344	79	51	77	29	135	97	108
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	458	432	51	106	135	205						
Volume Left (vph)	34	9	51	0	135	0						
Volume Right (vph)	50	79	0	29	0	108						
Hadj (s)	0.02	0.00	0.70	-0.13	0.52	-0.32						
Departure Headway (s)	6.7	6.7	9.2	8.3	8.5	7.6						
Degree Utilization, x	0.85	0.81	0.13	0.25	0.32	0.43						
Capacity (veh/h)	458	511	367	402	406	448						
Control Delay (s)	37.0	32.2	12.4	12.8	14.2	15.1						
Approach Delay (s)	37.0	32.2	12.7		14.7							
Approach LOS	E	D	B		B							
Intersection Summary												
Delay			27.3									
Level of Service			D									
Intersection Capacity Utilization			59.5%		ICU Level of Service				B			
Analysis Period (min)			15									

Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	164	118	165	152	66	83	2063	159	1574	207
Future Volume (vph)	164	118	165	152	66	83	2063	159	1574	207
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	9.5	38.0	38.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	77.0	77.0	20.0	97.0	97.0
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%	55.0%	55.0%	14.3%	69.3%	69.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.7	24.7	24.7	24.7	24.7	85.7	85.7	105.3	101.3	101.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.61	0.61	0.75	0.72	0.72
v/c Ratio	0.81	0.37	0.54	0.74	0.42	0.54	0.72	0.77	0.45	0.18
Control Delay	81.8	52.2	40.0	74.3	40.6	37.2	22.6	56.0	9.1	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.8	52.2	40.0	74.3	40.6	37.2	22.6	56.0	9.1	1.7
LOS	F	D	D	E	D	D	C	E	A	A
Approach Delay		58.6			59.1		23.1		12.2	
Approach LOS		E			E		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

			
Ø1	Ø2 (R)		Ø4
20 s	77 s		43 s
			
Ø6 (R)			Ø8
97 s			43 s

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	30	10	7	75	66	21	9	169	93	46	286	66
Future Volume (vph)	30	10	7	75	66	21	9	169	93	46	286	66
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	39	13	9	97	86	27	12	219	121	60	371	86
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	61	210	352	517								
Volume Left (vph)	39	97	12	60								
Volume Right (vph)	9	27	121	86								
Hadj (s)	0.04	0.02	-0.20	-0.08								
Departure Headway (s)	6.8	6.4	5.4	5.3								
Degree Utilization, x	0.12	0.37	0.53	0.76								
Capacity (veh/h)	440	504	624	662								
Control Delay (s)	10.7	13.0	14.4	23.2								
Approach Delay (s)	10.7	13.0	14.4	23.2								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay			18.0									
Level of Service			C									
Intersection Capacity Utilization			56.4%	ICU Level of Service					B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/04/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱		
Traffic Volume (veh/h)	186	17	32	351	0	0
Future Volume (Veh/h)	186	17	32	351	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	233	21	40	439	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			254		762	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		762	244
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1305		364	800
Direction, Lane #	EB 1	WB 1				
Volume Total	254	479				
Volume Left	0	40				
Volume Right	21	0				
cSH	1700	1305				
Volume to Capacity	0.15	0.03				
Queue Length 95th (m)	0.0	0.7				
Control Delay (s)	0.0	1.0				
Lane LOS		A				
Approach Delay (s)	0.0	1.0				
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		37.7%	ICU Level of Service		A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/04/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	184	0	0	256	124	151
Future Volume (Veh/h)	184	0	0	256	124	151
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	245	0	0	341	165	201
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			245		586	245
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			245		586	245
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		65	75
cM capacity (veh/h)			1333		474	796
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	245	341	165	201		
Volume Left	0	0	165	0		
Volume Right	0	0	0	201		
cSH	1700	1700	474	796		
Volume to Capacity	0.14	0.20	0.35	0.25		
Queue Length 95th (m)	0.0	0.0	11.7	7.6		
Control Delay (s)	0.0	0.0	16.6	11.0		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	13.5			
Approach LOS			B			
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			27.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	157	146	56	115	194	1373	92	900	65
Future Volume (vph)	157	146	56	115	194	1373	92	900	65
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	1	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)	35.0	35.0	35.0	35.0	9.5	25.0	9.5	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	86.0	15.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	61.4%	10.7%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	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)	7.0	7.0	7.0	7.0	3.0	6.0	3.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	28.7	28.7	28.7	28.7	98.0	86.7	98.4	87.0	87.0
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.70	0.62	0.70	0.62	0.62
v/c Ratio	0.81	0.89	0.83	0.46	0.51	0.75	0.49	0.44	0.07
Control Delay	80.8	71.9	120.4	47.7	8.9	10.7	16.6	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	71.9	120.4	47.7	8.9	10.7	16.6	15.0	3.5
LOS	F	E	F	D	A	B	B	B	A
Approach Delay		74.8		66.2		10.5		14.4	
Approach LOS		E		E		B		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 24.1

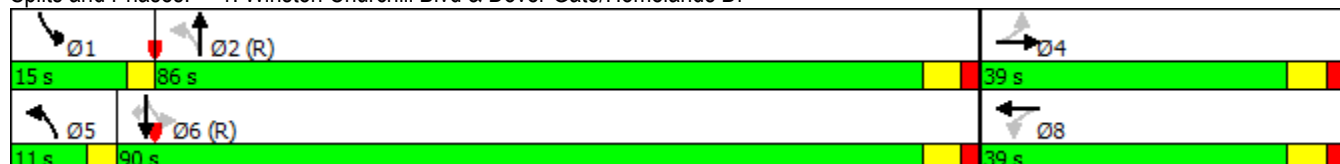
Intersection LOS: C

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis2: Homelands Dr & Thorn Lodge Dr

12/04/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	112	27	146	183	19	111
Future Volume (vph)	112	27	146	183	19	111
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	129	31	168	210	22	128
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	160	378	150			
Volume Left (vph)	129	0	22			
Volume Right (vph)	31	210	0			
Hadj (s)	0.05	-0.30	0.12			
Departure Headway (s)	5.1	4.2	4.9			
Degree Utilization, x	0.23	0.44	0.20			
Capacity (veh/h)	644	824	699			
Control Delay (s)	9.6	10.6	9.1			
Approach Delay (s)	9.6	10.6	9.1			
Approach LOS	A	B	A			
Intersection Summary						
Delay			10.0			
Level of Service			B			
Intersection Capacity Utilization			36.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	74	51	374	141	219	158	204	1579	26	1159	37
Future Volume (vph)	74	51	374	141	219	158	204	1579	26	1159	37
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	3	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	9.8	50.8	50.8	21.0	79.7	9.5	68.2	68.2
Total Split (%)	29.3%	29.3%	29.3%	7.0%	36.3%	36.3%	15.0%	56.9%	6.8%	48.7%	48.7%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.7	21.7	21.7	34.0	31.5	31.5	97.0	89.8	86.5	77.4	77.4
Actuated g/C Ratio	0.16	0.16	0.16	0.24	0.22	0.22	0.69	0.64	0.62	0.55	0.55
v/c Ratio	0.43	0.18	0.88	0.48	0.53	0.37	0.66	0.72	0.16	0.68	0.04
Control Delay	57.8	48.7	43.7	47.6	50.6	17.6	21.3	21.9	9.6	19.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	48.7	43.7	47.6	50.6	17.6	21.3	21.9	9.6	19.7	0.1
LOS	E	D	D	D	D	B	C	C	A	B	A
Approach Delay		46.3			39.7			21.8		18.9	
Approach LOS		D			D			C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 26.2

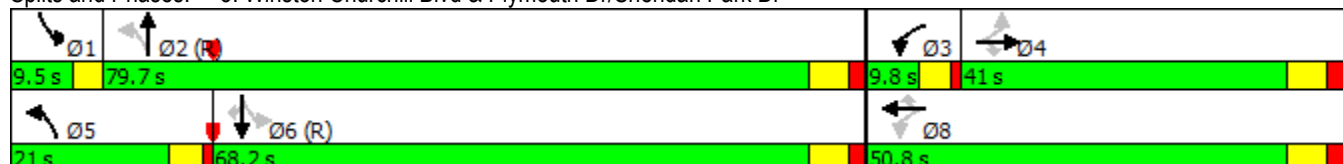
Intersection LOS: C

Intersection Capacity Utilization 89.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



HCM Unsignalized Intersection Capacity Analysis 4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	31	0	55	2	183	1	141	231	177	37	1
Future Volume (vph)	21	31	0	55	2	183	1	141	231	177	37	1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	24	36	0	64	2	213	1	164	269	206	43	1
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	60	279	434	250								
Volume Left (vph)	24	64	1	206								
Volume Right (vph)	0	213	269	1								
Hadj (s)	0.08	-0.38	-0.35	0.19								
Departure Headway (s)	6.4	5.4	5.0	5.7								
Degree Utilization, x	0.11	0.42	0.60	0.40								
Capacity (veh/h)	461	602	688	585								
Control Delay (s)	10.1	12.3	15.0	12.5								
Approach Delay (s)	10.1	12.3	15.0	12.5								
Approach LOS	B	B	C	B								
Intersection Summary												
Delay			13.4									
Level of Service			B									
Intersection Capacity Utilization			61.8%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 5: Fifth Line & Sheridan Park Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	62	333	41	17	185	113	50	92	15	56	56	30
Future Volume (vph)	62	333	41	17	185	113	50	92	15	56	56	30
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	68	366	45	19	203	124	55	101	16	62	62	33
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	479	346	55	117	62	95						
Volume Left (vph)	68	19	55	0	62	0						
Volume Right (vph)	45	124	0	16	0	33						
Hadj (s)	0.01	-0.17	0.50	-0.10	0.53	-0.24						
Departure Headway (s)	5.6	5.7	7.7	7.1	7.8	7.0						
Degree Utilization, x	0.75	0.54	0.12	0.23	0.13	0.19						
Capacity (veh/h)	479	602	409	440	419	443						
Control Delay (s)	23.2	15.2	10.6	11.1	10.8	10.4						
Approach Delay (s)	23.2	15.2	10.9		10.6							
Approach LOS	C	C	B		B							
Intersection Summary												
Delay			17.3									
Level of Service			C									
Intersection Capacity Utilization			59.0%		ICU Level of Service				B			
Analysis Period (min)			15									

Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	175	99	109	71	75	159	2365	95	1527	79
Future Volume (vph)	175	99	109	71	75	159	2365	95	1527	79
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	5	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	48.0	48.0	48.0	48.0	48.0	18.0	77.0	15.0	74.0	74.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	12.9%	55.0%	10.7%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	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)	7.0	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	30.8	30.8	30.8	30.8	30.8	96.4	83.0	93.0	79.9	79.9
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.69	0.59	0.66	0.57	0.57
v/c Ratio	0.95	0.25	0.27	0.26	0.51	0.66	0.86	0.62	0.55	0.09
Control Delay	104.5	44.3	8.0	45.0	36.5	25.8	29.3	41.4	21.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	44.3	8.0	45.0	36.5	25.8	29.3	41.4	21.4	7.7
LOS	F	D	A	D	D	C	C	D	C	A
Approach Delay		61.5			38.7		29.1		21.9	
Approach LOS		E			D		C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 29.6

Intersection LOS: C

Intersection Capacity Utilization 97.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

			
Ø1	Ø2 (R)		Ø4
15 s	77 s		48 s
			
Ø5	Ø6 (R)		Ø8
18 s	74 s		48 s

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	36	8	62	26	55	2	170	91	38	90	23
Future Volume (vph)	36	36	8	62	26	55	2	170	91	38	90	23
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	44	44	10	77	32	68	2	210	112	47	111	28
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	98	177	324	186								
Volume Left (vph)	44	77	2	47								
Volume Right (vph)	10	68	112	28								
Hadj (s)	0.05	-0.13	-0.21	-0.04								
Departure Headway (s)	5.5	5.2	4.7	5.1								
Degree Utilization, x	0.15	0.26	0.42	0.26								
Capacity (veh/h)	580	628	727	660								
Control Delay (s)	9.5	10.0	11.2	9.8								
Approach Delay (s)	9.5	10.0	11.2	9.8								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay				10.4								
Level of Service				B								
Intersection Capacity Utilization				43.6%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/04/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	214	171	46	109	0	0
Future Volume (Veh/h)	214	171	46	109	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	285	228	61	145	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			513		666	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			513		666	399
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		100	100
cM capacity (veh/h)			1052		403	655
Direction, Lane #	EB 1	WB 1				
Volume Total	513	206				
Volume Left	0	61				
Volume Right	228	0				
cSH	1700	1052				
Volume to Capacity	0.30	0.06				
Queue Length 95th (m)	0.0	1.4				
Control Delay (s)	0.0	2.9				
Lane LOS		A				
Approach Delay (s)	0.0	2.9				
Approach LOS						
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			36.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/04/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	212	0	0	142	15	33
Future Volume (Veh/h)	212	0	0	142	15	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	265	0	0	178	19	41
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			266		444	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			266		444	266
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	95
cM capacity (veh/h)			1308		575	777
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	265	178	19	41		
Volume Left	0	0	19	0		
Volume Right	0	0	0	41		
cSH	1700	1700	575	777		
Volume to Capacity	0.16	0.10	0.03	0.05		
Queue Length 95th (m)	0.0	0.0	0.8	1.3		
Control Delay (s)	0.0	0.0	11.5	9.9		
Lane LOS			B	A		
Approach Delay (s)	0.0	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			21.2%	ICU Level of Service		A
Analysis Period (min)			15			

Junctions 9															
ARCADY 9 - Roundabout Module															
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2017															
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Filename: 039474_Roundabout_Analysis 85 BG.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 7/25/2017 8:50:49 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2021 Background																
1 - Homelands Dr - N	0.9	2.7	7.44	0.46	A	7.01	A	65 % [1 - Homelands Dr - N]	0.3	1.3	4.42	0.22	A	6.88	A	40 % [3 - Speakman Dr - S]
2 - Sheridan Park Dr - E	0.9	2.3	7.01	0.48	A				0.4	1.8	5.92	0.30	A			
3 - Speakman Dr - S	0.4	1.6	6.29	0.29	A				1.1	3.0	9.31	0.51	A			
4 - Sheridan Park Dr - W	0.0	0.5	6.14	0.02	A				0.1	0.5	4.27	0.06	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

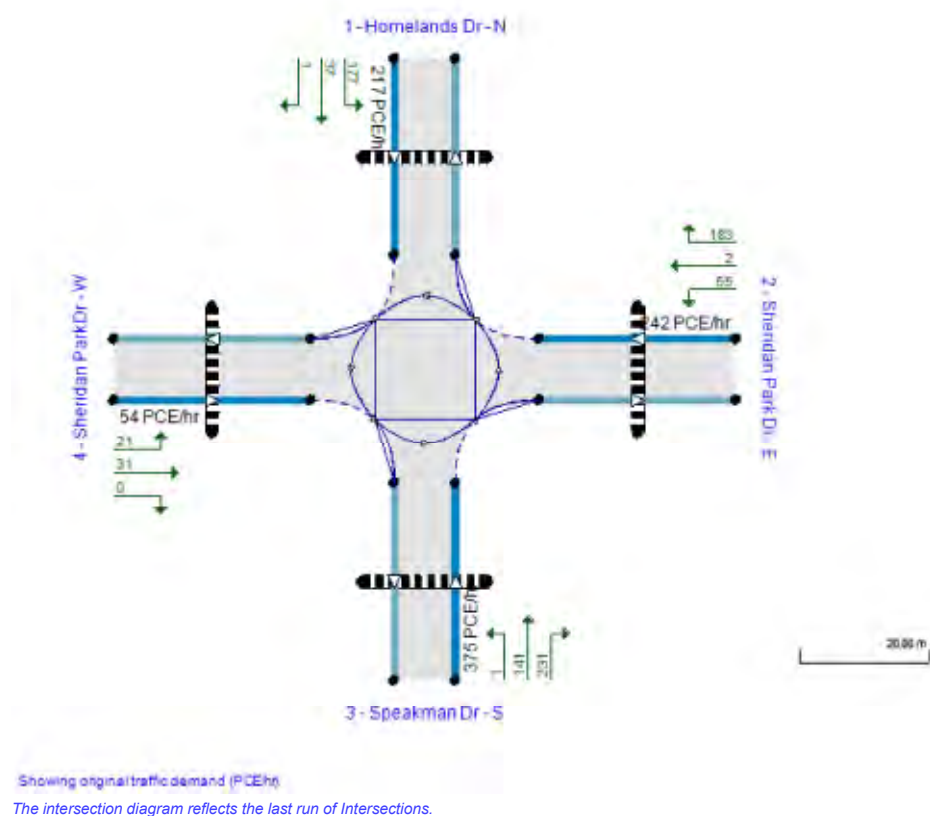
File summary

File Description

Title	Sheridan Park Drive 85 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE"Jlester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2021 Background	AM	ONE HOUR	08:00	09:30	15	✓
2021 Background	PM	ONE HOUR	16:00	17:30	15	✓

Single Lane Roundabout - 2021 Background, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - Homelands Dr - N	0.46	7.44	0.9	2.7	A	356.95	535.43
2 - Sheridan Park Dr - E	0.48	7.01	0.9	2.3	A	402.83	604.25
3 - Speakman Dr - S	0.29	6.29	0.4	1.6	A	200.04	300.06
4 - Sheridan Park Dr - W	0.02	6.14	0.0	0.5	A	11.01	16.52

Single Lane Roundabout - 2021 Background, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - Homelands Dr - N	0.22	4.42	0.3	1.3	A	199.12	298.68
2 - Sheridan Park Dr - E	0.30	5.92	0.4	1.8	A	222.06	333.10
3 - Speakman Dr - S	0.51	9.31	1.1	3.0	A	344.11	516.16
4 - Sheridan Park Dr - W	0.06	4.27	0.1	0.5	A	49.55	74.33



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

2021 Traffic Operations with Sheridan Park Drive Extension

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	36	48	111	88	234	1137	41	1380	121
Future Volume (vph)	36	48	111	88	234	1137	41	1380	121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	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)	35.0	35.0	35.0	35.0	9.5	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	101.0	90.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	72.1%	64.3%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	20.7	20.7	20.7	20.7	109.3	106.3	84.0	84.0	84.0
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.78	0.76	0.60	0.60	0.60
v/c Ratio	0.31	0.52	0.84	0.61	0.73	0.51	0.22	0.73	0.14
Control Delay	56.8	37.5	97.4	56.8	48.5	6.0	16.2	22.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	37.5	97.4	56.8	48.5	6.0	16.2	22.5	6.0
LOS	E	D	F	E	D	A	B	C	A
Approach Delay		41.6		74.3		12.9		21.0	
Approach LOS		D		E		B		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 22.6

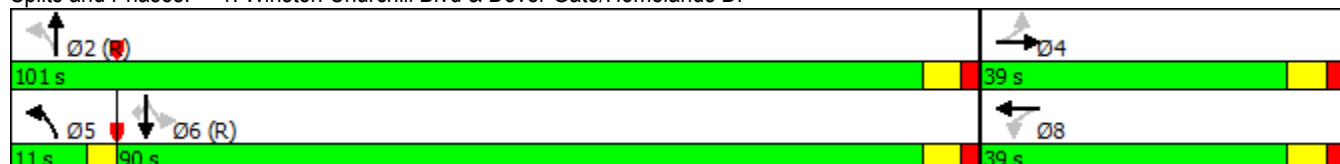
Intersection LOS: C

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	172	42	94	105	73	137
Future Volume (vph)	172	42	94	105	73	137
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	221	54	121	135	94	176
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	275	256	270			
Volume Left (vph)	221	0	94			
Volume Right (vph)	54	135	0			
Hadj (s)	0.10	-0.17	0.19			
Departure Headway (s)	5.3	4.9	5.2			
Degree Utilization, x	0.41	0.35	0.39			
Capacity (veh/h)	633	694	653			
Control Delay (s)	11.9	10.5	11.5			
Approach Delay (s)	11.9	10.5	11.5			
Approach LOS	B	B	B			
Intersection Summary						
Delay			11.3			
Level of Service			B			
Intersection Capacity Utilization			45.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/19/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	259	131	104	86	123	198	1278	291	1226	115
Future Volume (vph)	19	259	131	104	86	123	198	1278	291	1226	115
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	3	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	9.8	50.8	50.8	16.0	73.2	16.0	73.2	73.2
Total Split (%)	29.3%	29.3%	29.3%	7.0%	36.3%	36.3%	11.4%	52.3%	11.4%	52.3%	52.3%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.6	25.6	25.6	37.9	35.4	35.4	83.2	67.2	93.3	72.6	72.6
Actuated g/C Ratio	0.18	0.18	0.18	0.27	0.25	0.25	0.59	0.48	0.67	0.52	0.52
v/c Ratio	0.09	0.78	0.39	0.67	0.19	0.26	0.72	0.98	0.93	0.70	0.14
Control Delay	45.2	69.9	20.0	60.8	40.3	7.0	33.1	52.1	74.8	25.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	69.9	20.0	60.8	40.3	7.0	33.1	52.1	74.8	25.0	5.7
LOS	D	E	B	E	D	A	C	D	E	C	A
Approach Delay		52.8			34.1			49.9		32.5	
Approach LOS		D			C			D		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 42.1

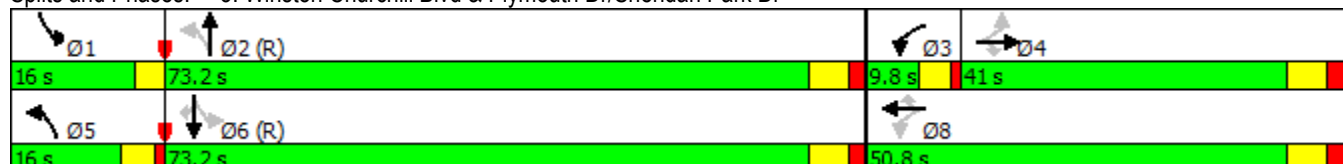
Intersection LOS: D

Intersection Capacity Utilization 101.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



HCM Unsignalized Intersection Capacity Analysis

4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop				Stop			Stop	
Traffic Volume (vph)	3	44	3	260	180	128	5	46	165	233	119	27
Future Volume (vph)	3	44	3	260	180	128	5	46	165	233	119	27
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
Hourly flow rate (vph)	4	54	4	317	220	156	6	56	201	284	145	33
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total (vph)	4	58	317	376	263	462						
Volume Left (vph)	4	0	317	0	6	284						
Volume Right (vph)	0	4	0	156	201	33						
Hadj (s)	0.50	-0.05	0.50	-0.20	-0.43	0.15						
Departure Headway (s)	8.8	8.3	7.5	6.8	6.5	6.5						
Degree Utilization, x	0.01	0.13	0.66	0.71	0.47	0.84						
Capacity (veh/h)	378	402	467	513	521	543						
Control Delay (s)	10.7	11.3	23.0	23.7	15.1	34.6						
Approach Delay (s)	11.3		23.4		15.1	34.6						
Approach LOS	B		C		C	D						
Intersection Summary												
Delay			24.9									
Level of Service			C									
Intersection Capacity Utilization			64.8%		ICU Level of Service		C					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

5: Fifth Line & Sheridan Park Dr

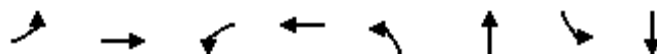
12/19/2017

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Sign Control	Stop			Stop			Stop			Stop						
Traffic Volume (vph)	31	362	45	8	446	68	48	66	25	119	83	106				
Future Volume (vph)	31	362	45	8	446	68	48	66	25	119	83	106				
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86				
Hourly flow rate (vph)	36	421	52	9	519	79	56	77	29	138	97	123				
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2								
Volume Total (vph)	36	473	9	598	56	106	138	220								
Volume Left (vph)	36	0	9	0	56	0	138	0								
Volume Right (vph)	0	52	0	79	0	29	0	123								
Hadj (s)	0.50	0.00	0.99	0.00	0.70	-0.13	0.52	-0.34								
Departure Headway (s)	7.8	7.3	8.3	7.3	9.1	8.3	8.5	7.6								
Degree Utilization, x	0.08	0.96	0.02	1.21	0.14	0.25	0.32	0.47								
Capacity (veh/h)	451	486	423	498	376	411	407	454								
Control Delay (s)	10.2	57.0	10.3	136.1	12.4	12.8	14.3	16.0								
Approach Delay (s)	53.7		134.3		12.7		15.3									
Approach LOS	F		F		B		C									
Intersection Summary																
Delay			71.1													
Level of Service			F													
Intersection Capacity Utilization			52.9%		ICU Level of Service		A									
Analysis Period (min)			15													

Timings

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	←	→	←	→	←	→	←	→
Traffic Volume (vph)	31	362	8	446	48	66	119	83
Future Volume (vph)	31	362	8	446	48	66	119	83
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	51.0	51.0	51.0	51.0	29.0	29.0	29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%	36.3%	36.3%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	19.5	19.5	19.5	19.5	10.5	10.5	10.5	10.5
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.26	0.26	0.26	0.26
v/c Ratio	0.12	0.53	0.03	0.68	0.20	0.22	0.40	0.44
Control Delay	6.8	9.3	5.9	12.1	15.8	12.4	18.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	9.3	5.9	12.1	15.8	12.4	18.2	12.4
LOS	A	A	A	B	B	B	B	B
Approach Delay		9.2		12.0		13.6		14.6
Approach LOS		A		B		B		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 39.8

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/19/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	180	120	179	152	74	156	2063	159	1574	276
Future Volume (vph)	180	120	179	152	74	156	2063	159	1574	276
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	5	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	21.6	80.0	20.0	78.4	78.4
Total Split (%)	28.6%	28.6%	28.6%	28.6%	28.6%	15.4%	57.1%	14.3%	56.0%	56.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	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)	7.0	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	26.3	26.3	26.3	26.3	26.3	97.4	83.5	101.0	83.9	83.9
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.70	0.60	0.72	0.60	0.60
v/c Ratio	0.86	0.35	0.43	0.70	0.43	0.63	0.74	0.74	0.54	0.27
Control Delay	87.5	50.8	9.0	68.6	42.9	22.7	23.9	52.8	18.9	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	50.8	9.0	68.6	42.9	22.7	23.9	52.8	18.9	6.1
LOS	F	D	A	E	D	C	C	D	B	A
Approach Delay		48.9			56.5		23.8		19.8	
Approach LOS		D			E		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

			
Ø1	Ø2 (R)		Ø4
20 s	80 s		40 s
			
Ø5	Ø6 (R)		Ø8
21.6 s	78.4 s		40 s

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	30	10	7	75	66	26	9	169	93	48	286	66
Future Volume (vph)	30	10	7	75	66	26	9	169	93	48	286	66
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	39	13	9	97	86	34	12	219	121	62	371	86
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	61	217	352	519								
Volume Left (vph)	39	97	12	62								
Volume Right (vph)	9	34	121	86								
Hadj (s)	0.04	0.00	-0.20	-0.08								
Departure Headway (s)	6.9	6.4	5.5	5.3								
Degree Utilization, x	0.12	0.38	0.53	0.77								
Capacity (veh/h)	437	505	620	658								
Control Delay (s)	10.8	13.2	14.6	23.9								
Approach Delay (s)	10.8	13.2	14.6	23.9								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay			18.3									
Level of Service			C									
Intersection Capacity Utilization			56.9%	ICU Level of Service					B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱		
Traffic Volume (veh/h)	186	17	32	351	0	0
Future Volume (Veh/h)	186	17	32	351	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	233	21	40	439	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			254		762	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		762	244
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1305		364	800
Direction, Lane #	EB 1	WB 1				
Volume Total	254	479				
Volume Left	0	40				
Volume Right	21	0				
cSH	1700	1305				
Volume to Capacity	0.15	0.03				
Queue Length 95th (m)	0.0	0.7				
Control Delay (s)	0.0	1.0				
Lane LOS		A				
Approach Delay (s)	0.0	1.0				
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		37.7%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	184	0	0	256	124	151
Future Volume (Veh/h)	184	0	0	256	124	151
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	245	0	0	341	165	201
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			245		586	245
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			245		586	245
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		65	75
cM capacity (veh/h)			1333		474	796
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	245	341	165	201		
Volume Left	0	0	165	0		
Volume Right	0	0	0	201		
cSH	1700	1700	474	796		
Volume to Capacity	0.14	0.20	0.35	0.25		
Queue Length 95th (m)	0.0	0.0	11.7	7.6		
Control Delay (s)	0.0	0.0	16.6	11.0		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	13.5			
Approach LOS			B			
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			27.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Speakman Dr & Sheridan Park Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	
Traffic Volume (veh/h)	40	778	10	170	143	10
Future Volume (Veh/h)	40	778	10	170	143	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	846	11	185	155	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	149					
pX, platoon unblocked						
vC, conflicting volume			889		250	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			889		250	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		79	99
cM capacity (veh/h)			762		728	1027
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	43	846	196	166		
Volume Left	0	0	11	155		
Volume Right	0	846	0	11		
cSH	1700	1700	762	742		
Volume to Capacity	0.03	0.50	0.01	0.22		
Queue Length 95th (m)	0.0	0.0	0.3	6.5		
Control Delay (s)	0.0	0.0	0.7	11.2		
Lane LOS			A	B		
Approach Delay (s)	0.0		0.7	11.2		
Approach LOS				B		
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			64.3%	ICU Level of Service		C
Analysis Period (min)			15			

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	157	146	56	96	194	1450	77	918	65
Future Volume (vph)	157	146	56	96	194	1450	77	918	65
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	1	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)	35.0	35.0	35.0	35.0	9.5	25.0	9.5	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	11.0	86.0	15.0	90.0	90.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	7.9%	61.4%	10.7%	64.3%	64.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	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)	7.0	7.0	7.0	7.0	3.0	6.0	3.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	28.8	28.8	28.8	28.8	98.1	86.9	98.0	86.9	86.9
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.70	0.62	0.70	0.62	0.62
v/c Ratio	0.74	0.89	0.85	0.40	0.52	0.78	0.44	0.45	0.07
Control Delay	71.9	72.1	122.8	44.8	9.5	11.0	15.3	15.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	72.1	122.8	44.8	9.5	11.0	15.3	15.2	3.6
LOS	E	E	F	D	A	B	B	B	A
Approach Delay		72.0		66.5		10.8		14.5	
Approach LOS		E		E		B		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 23.5

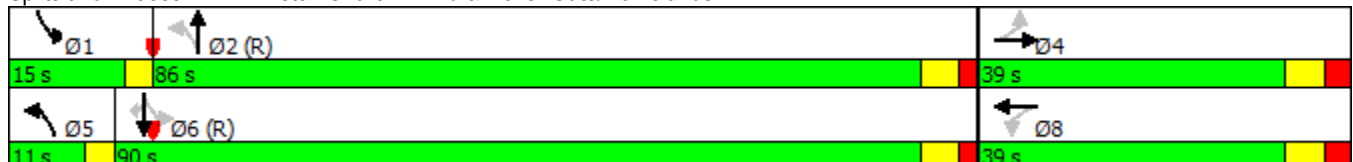
Intersection LOS: C

Intersection Capacity Utilization 92.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	103	22	122	180	18	93
Future Volume (vph)	103	22	122	180	18	93
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	118	25	140	207	21	107
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	143	347	128			
Volume Left (vph)	118	0	21			
Volume Right (vph)	25	207	0			
Hadj (s)	0.06	-0.33	0.12			
Departure Headway (s)	5.0	4.1	4.8			
Degree Utilization, x	0.20	0.40	0.17			
Capacity (veh/h)	661	847	715			
Control Delay (s)	9.2	9.8	8.7			
Approach Delay (s)	9.2	9.8	8.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.4			
Level of Service			A			
Intersection Capacity Utilization			34.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

01/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	74	55	374	218	235	235	204	1579	46	1159	37
Future Volume (vph)	74	55	374	218	235	235	204	1579	46	1159	37
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	3	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	41.5	41.5	41.5	21.0	62.5	62.5	20.4	68.0	9.5	57.1	57.1
Total Split (%)	29.6%	29.6%	29.6%	15.0%	44.6%	44.6%	14.6%	48.6%	6.8%	40.8%	40.8%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.4	19.4	19.4	42.4	39.9	39.9	88.6	79.0	76.3	66.5	66.5
Actuated g/C Ratio	0.14	0.14	0.14	0.30	0.28	0.28	0.63	0.56	0.54	0.48	0.48
v/c Ratio	0.49	0.21	0.87	0.54	0.45	0.46	0.71	0.83	0.33	0.79	0.05
Control Delay	63.0	51.5	37.6	42.1	42.0	21.9	33.3	31.8	26.3	28.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	51.5	37.6	42.1	42.0	21.9	33.3	31.8	26.3	28.8	0.1
LOS	E	D	D	D	D	C	C	C	C	C	A
Approach Delay		42.9			35.2			32.0		27.9	
Approach LOS		D			D			C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.6

Intersection LOS: C

Intersection Capacity Utilization 90.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

				
9.5 s	68 s		21 s	41.5 s
				
20.4 s	57.1 s		62.5 s	

HCM Unsignalized Intersection Capacity Analysis 4: Speakman Dr/Homelands Dr & Sheridan Park Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop				Stop			Stop	
Traffic Volume (vph)	19	68	2	55	158	153	6	119	236	181	31	10
Future Volume (vph)	19	68	2	55	158	153	6	119	236	181	31	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	22	79	2	64	184	178	7	138	274	210	36	12
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total (vph)	22	81	64	362	419	258						
Volume Left (vph)	22	0	64	0	7	210						
Volume Right (vph)	0	2	0	178	274	12						
Hadj (s)	0.50	-0.02	0.50	0.10	-0.37	0.16						
Departure Headway (s)	8.1	7.6	7.4	6.9	5.8	6.6						
Degree Utilization, x	0.05	0.17	0.13	0.70	0.68	0.47						
Capacity (veh/h)	368	396	464	496	591	496						
Control Delay (s)	10.4	11.0	10.3	23.3	20.1	15.5						
Approach Delay (s)	10.8		21.3		20.1	15.5						
Approach LOS	B		C		C	C						
Intersection Summary												
Delay			18.7									
Level of Service			C									
Intersection Capacity Utilization			63.0%		ICU Level of Service		B					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

5: Fifth Line & Sheridan Park Dr

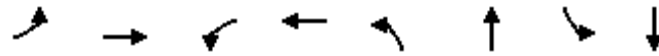
12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	64	373	43	17	332	113	54	92	15	57	56	42
Future Volume (vph)	64	373	43	17	332	113	54	92	15	57	56	42
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	70	410	47	19	365	124	59	101	16	63	62	46
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	70	457	19	489	59	117	63	108				
Volume Left (vph)	70	0	19	0	59	0	63	0				
Volume Right (vph)	0	47	0	124	0	16	0	46				
Hadj (s)	0.50	-0.03	0.50	-0.14	0.50	-0.10	0.53	-0.30				
Departure Headway (s)	7.0	6.5	7.0	6.4	8.2	7.6	8.2	7.4				
Degree Utilization, x	0.14	0.82	0.04	0.87	0.13	0.25	0.14	0.22				
Capacity (veh/h)	493	545	493	554	401	429	404	448				
Control Delay (s)	9.9	31.2	9.1	36.4	11.2	11.8	11.4	11.3				
Approach Delay (s)	28.4		35.4		11.6		11.3					
Approach LOS	D		E		B		B					
Intersection Summary												
Delay			26.7									
Level of Service			D									
Intersection Capacity Utilization			48.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Timings

5: Fifth Line & Sheridan Park Dr

01/12/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	LT	RT	LT	RT	LT	RT	LT	RT
Traffic Volume (vph)	64	373	17	332	54	92	57	56
Future Volume (vph)	64	373	17	332	54	92	57	56
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	67.0	67.0	67.0	67.0	33.0	33.0	33.0	33.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	14.0	14.0	14.0	14.0	7.6	7.6	7.6	7.6
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.25	0.25	0.25	0.25
v/c Ratio	0.19	0.55	0.05	0.59	0.18	0.25	0.20	0.23
Control Delay	6.5	8.8	5.0	9.1	12.3	11.7	12.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	8.8	5.0	9.1	12.3	11.7	12.5	9.3
LOS	A	A	A	A	B	B	B	A
Approach Delay		8.4		8.9		11.9		10.5
Approach LOS		A		A		B		B

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 30.9

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 9.3

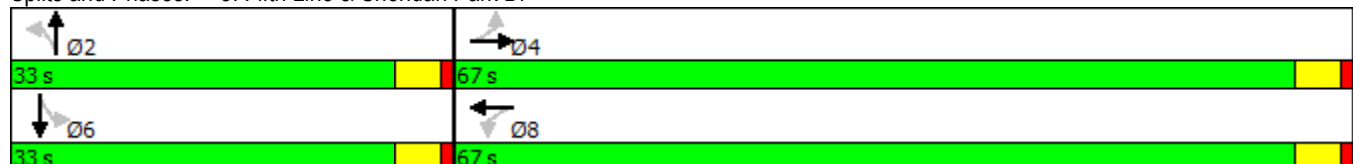
Intersection LOS: A

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

01/18/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	191	101	123	71	84	234	2365	95	1527	145
Future Volume (vph)	191	101	123	71	84	234	2365	95	1527	145
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	7	4	4	8	8	5	2	1	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	5.0
Minimum Split (s)	9.5	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	14.0	52.0	52.0	38.0	38.0	24.2	78.0	10.0	63.8	63.8
Total Split (%)	10.0%	37.1%	37.1%	27.1%	27.1%	17.3%	55.7%	7.1%	45.6%	45.6%
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	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)	4.5	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	36.5	34.0	34.0	20.0	20.0	94.5	79.7	82.1	68.9	68.9
Actuated g/C Ratio	0.26	0.24	0.24	0.14	0.14	0.68	0.57	0.59	0.49	0.49
v/c Ratio	0.93	0.23	0.28	0.41	0.79	0.77	0.90	0.61	0.64	0.18
Control Delay	91.6	42.2	7.4	59.4	62.8	44.1	32.9	43.0	29.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.6	42.2	7.4	59.4	62.8	44.1	32.9	43.0	29.6	6.8
LOS	F	D	A	E	E	D	C	D	C	A
Approach Delay		54.7			61.9		33.9		28.4	
Approach LOS		D			E		C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 35.2

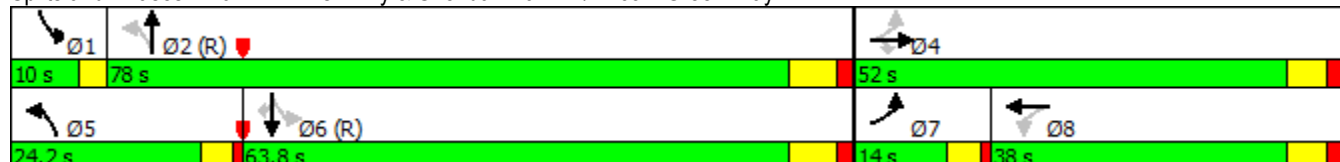
Intersection LOS: D

Intersection Capacity Utilization 96.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way



HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	36	8	62	26	60	2	170	91	40	90	23
Future Volume (vph)	36	36	8	62	26	60	2	170	91	40	90	23
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	44	44	10	77	32	74	2	210	112	49	111	28
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	98	183	324	188								
Volume Left (vph)	44	77	2	49								
Volume Right (vph)	10	74	112	28								
Hadj (s)	0.05	-0.15	-0.21	-0.04								
Departure Headway (s)	5.5	5.2	4.7	5.1								
Degree Utilization, x	0.15	0.26	0.43	0.27								
Capacity (veh/h)	577	628	723	657								
Control Delay (s)	9.5	10.1	11.2	9.9								
Approach Delay (s)	9.5	10.1	11.2	9.9								
Approach LOS	A	B	B	A								
Intersection Summary												
Delay				10.4								
Level of Service				B								
Intersection Capacity Utilization				43.9%	ICU Level of Service		A					
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	214	171	46	109	0	0
Future Volume (Veh/h)	214	171	46	109	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	285	228	61	145	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			513		666	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			513		666	399
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		100	100
cM capacity (veh/h)			1052		403	655
Direction, Lane #	EB 1	WB 1				
Volume Total	513	206				
Volume Left	0	61				
Volume Right	228	0				
cSH	1700	1052				
Volume to Capacity	0.30	0.06				
Queue Length 95th (m)	0.0	1.4				
Control Delay (s)	0.0	2.9				
Lane LOS		A				
Approach Delay (s)	0.0	2.9				
Approach LOS						
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			36.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	212	0	0	142	15	33
Future Volume (Veh/h)	212	0	0	142	15	33
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	265	0	0	178	19	41
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			266		444	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			266		444	266
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	95
cM capacity (veh/h)			1308		575	777
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	265	178	19	41		
Volume Left	0	0	19	0		
Volume Right	0	0	0	41		
cSH	1700	1700	575	777		
Volume to Capacity	0.16	0.10	0.03	0.05		
Queue Length 95th (m)	0.0	0.0	0.8	1.3		
Control Delay (s)	0.0	0.0	11.5	9.9		
Lane LOS			B	A		
Approach Delay (s)	0.0	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			21.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Speakman Dr & Sheridan Park Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	40	102	10	170	518	10
Future Volume (Veh/h)	40	102	10	170	518	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	111	11	185	563	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	148					
pX, platoon unblocked						
vC, conflicting volume			154		250	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			154		250	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		23	99
cM capacity (veh/h)			1426		733	1027
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	43	111	196	574		
Volume Left	0	0	11	563		
Volume Right	0	111	0	11		
cSH	1700	1700	1426	737		
Volume to Capacity	0.03	0.07	0.01	0.78		
Queue Length 95th (m)	0.0	0.0	0.2	58.4		
Control Delay (s)	0.0	0.0	0.5	24.9		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.5	24.9		
Approach LOS				C		
Intersection Summary						
Average Delay			15.5			
Intersection Capacity Utilization			52.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Junctions 9															
ARCADY 9 - Roundabout Module															
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Filename: 039474_Roundabout_Analysis 85 With Ext.j9
Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
Report generation date: 1/9/2018 11:52:11 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2021 With Extension																
1 - East End - 1 - Homelands Dr - N	1.2	3.1	10.26	0.54	B	9.05	A	23 %	0.4	1.2	5.42	0.27	A	7.54	A	35 %
1 - East End - 2 - Sheridan Park Dr - E	1.6	2.0	9.33	0.61	A				0.8	2.8	7.11	0.44	A			
1 - East End - 3 - Speakman Dr - S	0.5	1.9	6.81	0.31	A				1.1	3.3	10.04	0.52	B			
1 - East End - 4 - Sheridan Park Dr - W	0.1	0.5	6.45	0.09	A	6.11	A	[2 - West End - 4 - Sheridan Park Dr - W]	0.1	0.5	4.47	0.11	A	6.13	A	[1 - East End - 3 - Speakman Dr - S]
2 - West End - 2 - Sheridan Park Dr - E	0.2	0.7	4.43	0.19	A				0.3	1.4	6.18	0.24	A			
2 - West End - 3 - Speakman Dr - S	0.2	0.5	4.01	0.15	A				1.2	1.6	7.30	0.53	A			
2 - West End - 4 - Sheridan Park Dr - W	1.7	1.9	6.83	0.63	A				0.1	0.5	1.83	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

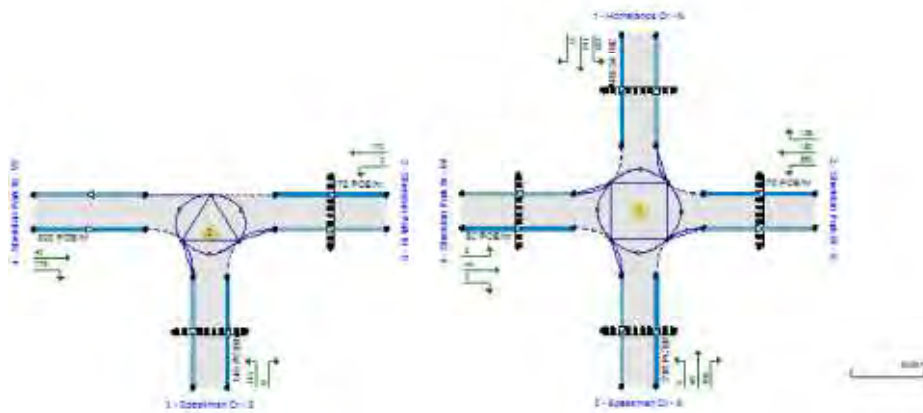
File summary

File Description

Title	Sheridan Park Drive With Extension 85 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE\jester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/h)

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2021 With Extension	AM	ONE HOUR	08:00	09:30	15	✓
2021 With Extension	PM	ONE HOUR	16:00	17:30	15	✓

Single Lane Roundabout - 2021 With Extension, AM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	2 - West End - 3 - Speakman Dr - S - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - East End	1 - Homelands Dr - N	0.54	10.26	1.2	3.1	B	349.61	524.42
	2 - Sheridan Park Dr - E	0.61	9.33	1.6	2.0	A	523.04	784.56
	3 - Speakman Dr - S	0.31	6.81	0.5	1.9	A	200.04	300.06
	4 - Sheridan Park Dr - W	0.09	6.45	0.1	0.5	A	47.72	71.57
2 - West End	2 - Sheridan Park Dr - E	0.19	4.43	0.2	0.7	A	157.83	236.75
	3 - Speakman Dr - S	0.15	4.01	0.2	0.5	A	133.05	199.58
	4 - Sheridan Park Dr - W	0.63	6.83	1.7	1.9	A	752.45	1128.67

Single Lane Roundabout - 2021 With Extension, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	1 - East End - 2 - Sheridan Park Dr - E - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - East End	1 - Homelands Dr - N	0.27	5.42	0.4	1.2	A	205.55	308.32
	2 - Sheridan Park Dr - E	0.44	7.11	0.8	2.8	A	337.68	506.52
	3 - Speakman Dr - S	0.52	10.04	1.1	3.3	B	333.10	499.64
	4 - Sheridan Park Dr - W	0.11	4.47	0.1	0.5	A	83.50	125.25
2 - West End	2 - Sheridan Park Dr - E	0.24	6.18	0.3	1.4	A	157.83	236.75
	3 - Speakman Dr - S	0.53	7.30	1.2	1.6	A	477.16	715.74
	4 - Sheridan Park Dr - W	0.07	1.83	0.1	0.5	A	132.14	198.21



BURNSIDE

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Appendix G

2021 95th Percentile Queues

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	40	147	123	182	260	1280	54	1513	134
v/c Ratio	0.35	0.52	0.83	0.69	0.72	0.49	0.24	0.72	0.14
Control Delay	59.9	37.8	96.6	63.5	48.1	6.7	16.5	22.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	37.8	96.6	63.5	48.1	6.7	16.5	22.2	5.9
Queue Length 50th (m)	10.1	22.4	33.6	43.8	52.8	38.4	6.7	147.8	6.5
Queue Length 95th (m)	20.8	41.3	53.1	64.7	m#83.4	66.9	15.2	173.6	15.4
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	177	409	231	402	361	2622	226	2106	946
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	0.23	0.36	0.53	0.45	0.72	0.49	0.24	0.72	0.14

Intersection Summary

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

Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	20	268	138	28	74	48	208	1610	285	1291	121
v/c Ratio	0.09	0.78	0.41	0.31	0.21	0.15	0.95	0.82	0.89	0.50	0.10
Control Delay	45.5	70.0	24.2	56.5	48.4	12.2	78.6	28.9	68.7	7.8	1.4
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	45.5	70.0	24.2	56.5	48.4	12.2	78.6	28.9	68.7	7.8	1.4
Queue Length 50th (m)	4.7	71.8	13.6	6.8	17.7	0.0	51.6	181.2	68.7	52.8	0.0
Queue Length 95th (m)	11.3	96.1	31.2	15.9	29.9	10.3	#106.1	214.0	#140.9	78.7	m4.1
Internal Link Dist (m)		197.7			123.8			371.2		464.2	
Turn Bay Length (m)	32.0		30.0	30.0			170.0		78.0		130.0
Base Capacity (vph)	313	461	426	123	466	418	220	1956	321	2600	1187
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	0.06	0.58	0.32	0.23	0.16	0.11	0.95	0.82	0.89	0.50	0.10

Intersection Summary

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

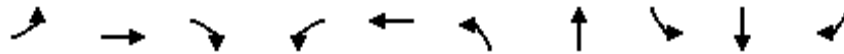
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	167	120	168	155	128	85	2199	162	1606	211
v/c Ratio	0.81	0.37	0.54	0.74	0.42	0.54	0.72	0.77	0.45	0.18
Control Delay	81.8	52.2	40.0	74.3	40.6	37.2	22.6	56.0	9.1	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.8	52.2	40.0	74.3	40.6	37.2	22.6	56.0	9.1	1.7
Queue Length 50th (m)	45.1	29.7	28.7	41.3	23.8	12.9	145.8	28.0	59.4	1.1
Queue Length 95th (m)	65.7	44.3	47.6	60.6	39.8	#47.3	215.8	53.0	89.5	10.0
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	302	474	426	306	426	156	3056	265	3581	1197
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	0.25	0.39	0.51	0.30	0.54	0.72	0.61	0.45	0.18

Intersection Summary

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

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	167	341	60	176	206	1627	98	957	69
v/c Ratio	0.81	0.89	0.83	0.46	0.51	0.75	0.49	0.44	0.07
Control Delay	80.8	71.9	120.4	47.7	8.9	10.7	16.6	15.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	71.9	120.4	47.7	8.9	10.7	16.6	15.0	3.5
Queue Length 50th (m)	43.3	80.5	15.7	38.3	8.3	41.6	7.8	73.1	0.9
Queue Length 95th (m)	#76.3	#125.3	#41.8	60.7	m19.2	66.6	17.3	88.3	6.9
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	230	424	80	428	403	2159	244	2182	976
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	0.73	0.80	0.75	0.41	0.51	0.75	0.40	0.44	0.07

Intersection Summary

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

Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	77	53	390	147	228	165	213	1671	27	1207	39
v/c Ratio	0.43	0.18	0.88	0.48	0.53	0.37	0.66	0.72	0.16	0.68	0.04
Control Delay	57.8	48.7	43.7	47.6	50.6	17.6	21.3	21.9	9.6	19.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	48.7	43.7	47.6	50.6	17.6	21.3	21.9	9.6	19.7	0.1
Queue Length 50th (m)	19.5	12.8	45.2	33.5	55.6	12.9	19.3	166.8	1.6	88.3	0.0
Queue Length 95th (m)	32.2	23.0	78.2	47.1	72.8	29.5	45.5	243.6	m4.3	101.1	m0.0
Internal Link Dist (m)	197.7				123.8				371.2		464.2
Turn Bay Length (m)	32.0	30.0		30.0			170.0	78.0		130.0	
Base Capacity (vph)	281	466	559	304	600	571	359	2314	178	1785	930
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.11	0.70	0.48	0.38	0.29	0.59	0.72	0.15	0.68	0.04

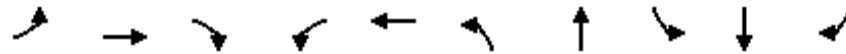
Intersection Summary

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	184	104	115	75	214	167	2593	100	1607	83
v/c Ratio	0.95	0.25	0.27	0.26	0.51	0.66	0.86	0.62	0.55	0.09
Control Delay	104.5	44.3	8.0	45.0	36.5	25.8	29.3	41.4	21.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	44.3	8.0	45.0	36.5	25.8	29.3	41.4	21.4	7.7
Queue Length 50th (m)	50.4	23.9	0.0	17.3	36.9	14.3	211.3	11.6	99.3	3.3
Queue Length 95th (m)	#78.9	36.7	14.2	28.9	56.6	39.5	#305.7	32.5	137.8	13.2
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	259	551	523	378	534	288	2998	196	2904	918
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	0.71	0.19	0.22	0.20	0.40	0.58	0.86	0.51	0.55	0.09

Intersection Summary

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

Queue shown is maximum after two cycles.

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	40	150	123	162	260	1349	46	1533	134
v/c Ratio	0.31	0.52	0.84	0.61	0.73	0.51	0.22	0.73	0.14
Control Delay	56.8	37.5	97.4	56.8	48.5	6.0	16.2	22.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	37.5	97.4	56.8	48.5	6.0	16.2	22.5	6.0
Queue Length 50th (m)	10.0	22.7	33.6	36.8	53.0	39.8	5.6	151.3	6.6
Queue Length 95th (m)	20.5	41.8	53.1	56.1	m#63.2	m51.5	13.4	177.8	15.5
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	202	410	228	400	354	2627	211	2106	946
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	0.20	0.37	0.54	0.41	0.73	0.51	0.22	0.73	0.14

Intersection Summary

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

Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	20	273	138	109	91	129	208	1627	306	1291	121
v/c Ratio	0.09	0.78	0.39	0.67	0.19	0.26	0.72	0.98	0.93	0.70	0.14
Control Delay	45.2	69.9	20.0	60.8	40.3	7.0	33.1	52.1	74.8	25.0	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	69.9	20.0	60.8	40.3	7.0	33.1	52.1	74.8	25.0	5.7
Queue Length 50th (m)	4.7	73.1	10.4	23.7	19.9	0.0	21.6	225.0	78.0	90.3	0.3
Queue Length 95th (m)	11.3	97.3	27.7	36.5	32.0	14.6	#64.8	#280.5	#157.3	118.2	m8.7
Internal Link Dist (m)		197.7			124.6			371.2		464.2	
Turn Bay Length (m)	32.0		30.0	50.0		60.0	170.0		78.0		130.0
Base Capacity (vph)	308	461	436	162	600	581	287	1668	330	1855	882
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	0.06	0.59	0.32	0.67	0.15	0.22	0.72	0.98	0.93	0.70	0.14

Intersection Summary

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

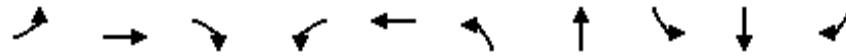
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



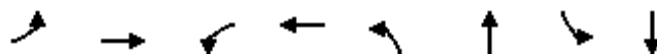
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	184	122	183	155	137	159	2199	162	1606	282
v/c Ratio	0.86	0.35	0.43	0.70	0.43	0.63	0.74	0.74	0.54	0.27
Control Delay	87.5	50.8	9.0	68.6	42.9	22.7	23.9	52.8	18.9	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	50.8	9.0	68.6	42.9	22.7	23.9	52.8	18.9	6.1
Queue Length 50th (m)	49.2	29.4	0.0	40.0	26.7	12.3	158.9	27.4	93.2	10.4
Queue Length 95th (m)	74.3	45.9	18.7	61.8	45.2	32.4	205.7	52.8	130.7	29.7
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	270	435	493	280	390	320	2980	264	2964	1034
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	0.68	0.28	0.37	0.55	0.35	0.50	0.74	0.61	0.54	0.27

Intersection Summary

Queues

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	473	9	598	56	106	138	220
v/c Ratio	0.12	0.53	0.03	0.68	0.20	0.22	0.40	0.44
Control Delay	6.8	9.3	5.9	12.1	15.8	12.4	18.2	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	9.3	5.9	12.1	15.8	12.4	18.2	12.4
Queue Length 50th (m)	1.0	16.6	0.3	23.3	2.7	3.9	6.9	6.8
Queue Length 95th (m)	4.9	42.5	1.9	59.0	11.5	15.6	23.6	25.2
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)	30.0		30.0		43.0		27.0	
Base Capacity (vph)	588	1716	607	1698	703	1190	874	1146
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	0.06	0.28	0.01	0.35	0.08	0.09	0.16	0.19
Intersection Summary								

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	167	343	60	156	206	1682	82	977	69
v/c Ratio	0.74	0.89	0.85	0.40	0.52	0.78	0.44	0.45	0.07
Control Delay	71.9	72.1	122.8	44.8	9.5	11.0	15.3	15.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	72.1	122.8	44.8	9.5	11.0	15.3	15.2	3.6
Queue Length 50th (m)	42.5	81.0	15.7	32.3	9.8	50.9	6.5	75.1	1.0
Queue Length 95th (m)	69.1	#125.9	#42.2	53.2	m16.7	75.1	14.3	90.7	7.1
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	249	424	79	427	394	2170	234	2180	975
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	0.67	0.81	0.76	0.37	0.52	0.78	0.35	0.45	0.07

Intersection Summary

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

Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	77	57	390	227	245	245	213	1688	48	1207	39
v/c Ratio	0.49	0.21	0.87	0.54	0.45	0.46	0.71	0.83	0.33	0.79	0.05
Control Delay	63.0	51.5	37.6	42.1	42.0	21.9	33.3	31.8	26.3	28.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	51.5	37.6	42.1	42.0	21.9	33.3	31.8	26.3	28.8	0.1
Queue Length 50th (m)	20.1	14.3	35.5	50.1	55.7	28.5	26.2	200.6	3.8	101.2	0.0
Queue Length 95th (m)	32.6	24.4	68.1	62.9	69.2	45.7	#64.7	#312.4	m14.1	#222.8	m0.3
Internal Link Dist (m)	197.7				123.8				371.2		464.2
Turn Bay Length (m)	32.0			30.0	60.0			60.0	170.0	78.0	130.0
Base Capacity (vph)	281	473	589	422	761	701	320	2031	147	1534	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.12	0.66	0.54	0.32	0.35	0.67	0.83	0.33	0.79	0.05

Intersection Summary

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

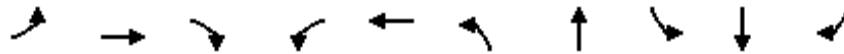
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

01/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	201	106	129	75	223	246	2593	100	1607	153
v/c Ratio	0.93	0.23	0.28	0.41	0.79	0.77	0.90	0.61	0.64	0.18
Control Delay	91.6	42.2	7.4	59.4	62.8	44.1	32.9	43.0	29.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.6	42.2	7.4	59.4	62.8	44.1	32.9	43.0	29.6	6.8
Queue Length 50th (m)	46.5	23.7	0.0	19.1	47.0	40.9	225.2	11.1	120.5	4.0
Queue Length 95th (m)	#78.7	36.9	14.9	32.9	71.1	73.0	#301.8	#35.3	158.7	18.3
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	215	605	572	285	412	349	2879	163	2505	847
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	0.93	0.18	0.23	0.26	0.54	0.70	0.90	0.61	0.64	0.18

Intersection Summary

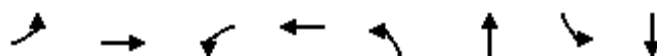
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

5: Fifth Line & Sheridan Park Dr

01/12/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	457	19	489	59	117	63	108
v/c Ratio	0.19	0.55	0.05	0.59	0.18	0.25	0.20	0.23
Control Delay	6.5	8.8	5.0	9.1	12.3	11.7	12.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	8.8	5.0	9.1	12.3	11.7	12.5	9.3
Queue Length 50th (m)	1.7	13.0	0.4	13.4	2.2	4.1	2.4	2.7
Queue Length 95th (m)	6.4	31.4	2.4	33.2	9.4	14.7	9.9	11.9
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)					43.0		27.0	
Base Capacity (vph)	816	1841	873	1808	1181	1687	1153	1609
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	0.09	0.25	0.02	0.27	0.05	0.07	0.05	0.07
Intersection Summary								

Junctions 9
ARCADY 9 - Roundabout Module
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Filename: 039474_Roundabout_Analysis 85 BG.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 7/25/2017 8:50:49 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2021 Background																
1 - Homelands Dr - N	0.9	2.7	7.44	0.46	A	7.01	A	65 % [1 - Homelands Dr - N]	0.3	1.3	4.42	0.22	A	6.88	A	40 % [3 - Speakman Dr - S]
2 - Sheridan Park Dr - E	0.9	2.3	7.01	0.48	A				0.4	1.8	5.92	0.30	A			
3 - Speakman Dr - S	0.4	1.6	6.29	0.29	A				1.1	3.0	9.31	0.51	A			
4 - Sheridan Park Dr - W	0.0	0.5	6.14	0.02	A				0.1	0.5	4.27	0.06	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

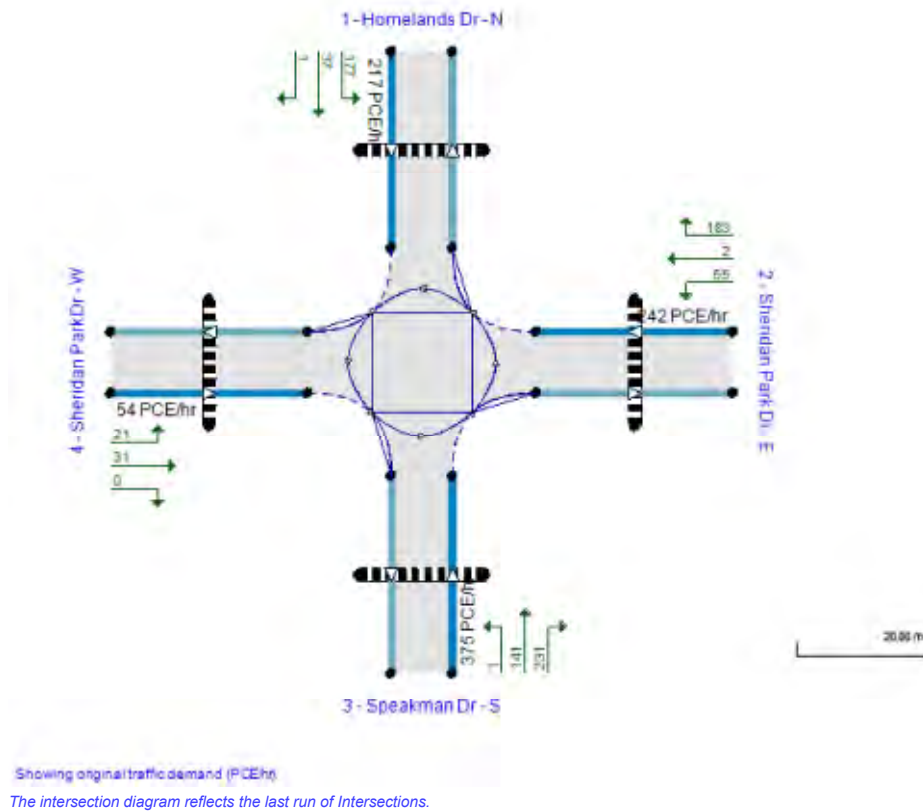
File summary

File Description

Title	Sheridan Park Drive 85 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE"Jlester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2021 Background	AM	ONE HOUR	08:00	09:30	15	✓
2021 Background	PM	ONE HOUR	16:00	17:30	15	✓

Junctions 9															
ARCADY 9 - Roundabout Module															
Version: 9.0.0.4211 []															
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Filename: 039474_Roundabout_Analysis 85 With Ext.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 1/9/2018 11:52:11 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2021 With Extension																
1 - East End - 1 - Homelands Dr - N	1.2	3.1	10.26	0.54	B	9.05	A	23 %	0.4	1.2	5.42	0.27	A	7.54	A	35 %
1 - East End - 2 - Sheridan Park Dr - E	1.6	2.0	9.33	0.61	A				0.8	2.8	7.11	0.44	A			
1 - East End - 3 - Speakman Dr - S	0.5	1.9	6.81	0.31	A				1.1	3.3	10.04	0.52	B			
1 - East End - 4 - Sheridan Park Dr - W	0.1	0.5	6.45	0.09	A	6.11	A	[2 - West End - 4 - Sheridan Park Dr - W]	0.1	0.5	4.47	0.11	A	6.13	A	[1 - East End - 3 - Speakman Dr - S]
2 - West End - 2 - Sheridan Park Dr - E	0.2	0.7	4.43	0.19	A				0.3	1.4	6.18	0.24	A			
2 - West End - 3 - Speakman Dr - S	0.2	0.5	4.01	0.15	A				1.2	1.6	7.30	0.53	A			
2 - West End - 4 - Sheridan Park Dr - W	1.7	1.9	6.83	0.63	A				0.1	0.5	1.83	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

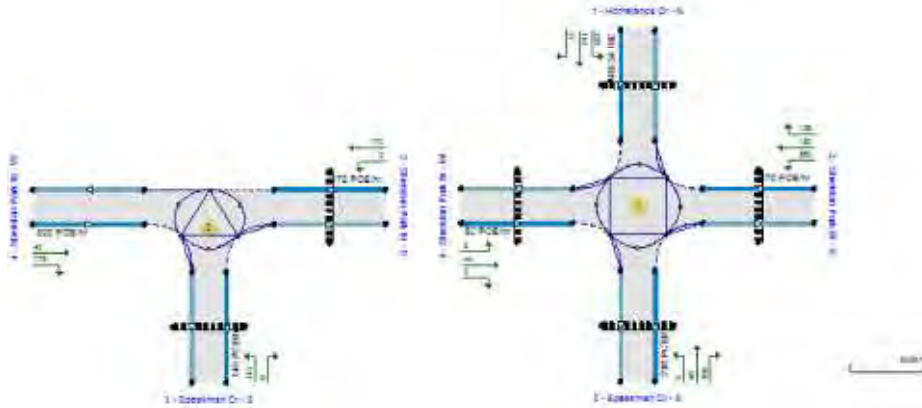
File summary

File Description

Title	Sheridan Park Drive With Extension 85 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE\jester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/h)

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2021 With Extension	AM	ONE HOUR	08:00	09:30	15	✓
2021 With Extension	PM	ONE HOUR	16:00	17:30	15	✓



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix H

2031 Traffic Operations Without Sheridan Park Drive Extension

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	44	48	135	120	234	1293	56	1660	121
Future Volume (vph)	44	48	135	120	234	1293	56	1660	121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	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)	35.0	35.0	35.0	35.0	9.5	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	21.0	105.0	84.0	84.0	84.0
Total Split (%)	25.0%	25.0%	25.0%	25.0%	15.0%	75.0%	60.0%	60.0%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.3	24.3	24.3	24.3	105.7	102.7	83.0	83.0	83.0
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.76	0.73	0.59	0.59	0.59
v/c Ratio	0.40	0.51	0.90	0.69	0.86	0.43	0.39	0.62	0.14
Control Delay	59.7	35.0	104.1	60.6	72.5	5.4	26.8	20.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	35.0	104.1	60.6	72.5	5.4	26.8	20.3	6.6
LOS	E	D	F	E	E	A	C	C	A
Approach Delay		40.6		78.6		15.0		19.6	
Approach LOS		D		E		B		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 23.6

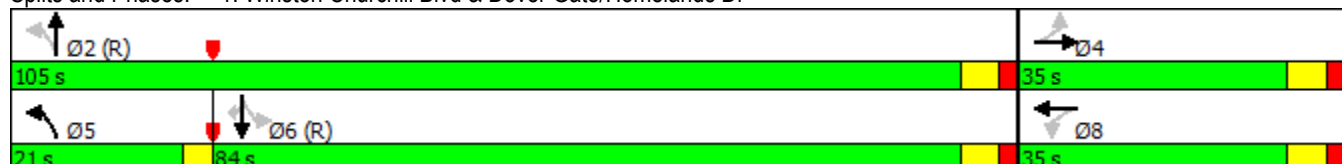
Intersection LOS: C

Intersection Capacity Utilization 84.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	221	57	128	108	77	186
Future Volume (vph)	221	57	128	108	77	186
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	283	73	164	138	99	238
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	356	302	337			
Volume Left (vph)	283	0	99			
Volume Right (vph)	73	138	0			
Hadj (s)	0.09	-0.11	0.18			
Departure Headway (s)	5.7	5.5	5.7			
Degree Utilization, x	0.57	0.46	0.53			
Capacity (veh/h)	595	616	604			
Control Delay (s)	15.9	13.0	14.9			
Approach Delay (s)	15.9	13.0	14.9			
Approach LOS	C	B	B			
Intersection Summary						
Delay			14.7			
Level of Service			B			
Intersection Capacity Utilization			53.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/19/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	289	160	33	79	56	225	1558	307	1495	131
Future Volume (vph)	24	289	160	33	79	56	225	1558	307	1495	131
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4			8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	8	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	31.0	68.0	31.0	68.0	68.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%	22.1%	48.6%	22.1%	48.6%	48.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag							Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	27.5	27.5	27.5	27.5	27.5	27.5	92.3	71.8	101.9	76.0	76.0
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.66	0.51	0.73	0.54	0.54
v/c Ratio	0.10	0.81	0.45	0.42	0.22	0.17	0.70	0.76	0.87	0.56	0.15
Control Delay	44.3	70.6	25.0	62.7	46.9	10.9	33.8	30.7	64.0	21.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	70.6	25.0	62.7	46.9	10.9	33.8	30.7	64.0	21.1	5.1
LOS	D	E	C	E	D	B	C	C	E	C	A
Approach Delay		53.9			38.1			31.0		26.8	
Approach LOS		D			D			C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 31.8

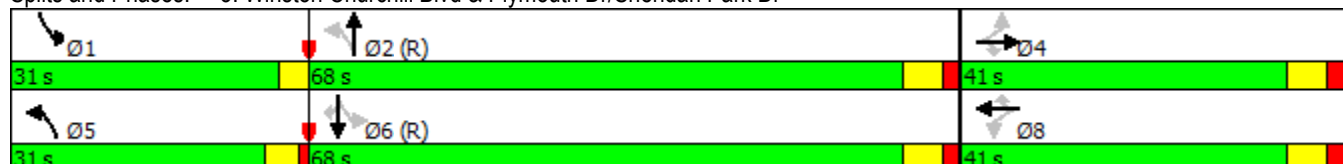
Intersection LOS: C

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



HCM Unsignalized Intersection Capacity Analysis

5: Fifth Line & Sheridan Park Dr

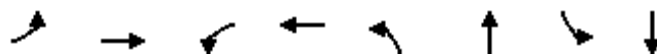
12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	29	374	43	8	344	68	51	66	29	135	83	108
Future Volume (vph)	29	374	43	8	344	68	51	66	29	135	83	108
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	34	435	50	9	400	79	59	77	34	157	97	126
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	34	485	9	479	59	111	157	223				
Volume Left (vph)	34	0	9	0	59	0	157	0				
Volume Right (vph)	0	50	0	79	0	34	0	126				
Hadj (s)	0.50	0.01	0.99	-0.02	0.70	-0.16	0.52	-0.34				
Departure Headway (s)	7.9	7.4	8.4	7.4	9.3	8.5	8.6	7.7				
Degree Utilization, x	0.07	1.00	0.02	0.99	0.15	0.26	0.38	0.48				
Capacity (veh/h)	444	485	418	479	374	410	406	452				
Control Delay (s)	10.3	66.5	10.4	63.8	12.8	13.2	15.5	16.5				
Approach Delay (s)	62.8		62.8		13.1		16.1					
Approach LOS	F		F		B		C					
Intersection Summary												
Delay			46.0									
Level of Service			E									
Intersection Capacity Utilization			49.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Timings

5: Fifth Line & Sheridan Park Dr

01/12/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	29	374	8	344	51	66	135	83
Future Volume (vph)	29	374	8	344	51	66	135	83
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	61.0	61.0	61.0	61.0	39.0	39.0	39.0	39.0
Total Split (%)	61.0%	61.0%	61.0%	61.0%	39.0%	39.0%	39.0%	39.0%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	16.4	16.4	16.4	16.4	10.8	10.8	10.8	10.8
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.29	0.29	0.29	0.29
v/c Ratio	0.10	0.60	0.03	0.60	0.19	0.21	0.41	0.41
Control Delay	7.1	11.4	6.6	11.4	13.1	10.4	15.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	11.4	6.6	11.4	13.1	10.4	15.7	10.9
LOS	A	B	A	B	B	B	B	B
Approach Delay		11.1		11.3		11.3		12.9
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 36.8

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.6

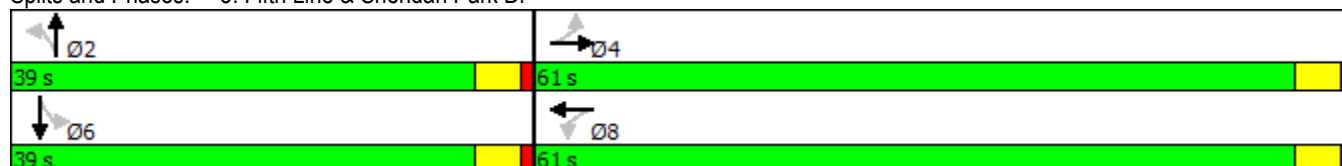
Intersection LOS: B

Intersection Capacity Utilization 51.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/19/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	162	118	163	150	76	96	2042	159	1558	240
Future Volume (vph)	162	118	163	150	76	96	2042	159	1558	240
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	pm+pt	NA	Perm
Protected Phases		4			8		2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	2	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	9.5	38.0	38.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	77.0	77.0	20.0	97.0	97.0
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%	55.0%	55.0%	14.3%	69.3%	69.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	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)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0	85.5	85.5	105.0	101.0	101.0
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.61	0.61	0.75	0.72	0.72
v/c Ratio	0.82	0.36	0.53	0.72	0.46	0.62	0.71	0.78	0.45	0.20
Control Delay	84.4	51.7	39.1	71.7	44.4	42.4	22.5	57.0	9.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.4	51.7	39.1	71.7	44.4	42.4	22.5	57.0	9.2	1.7
LOS	F	D	D	E	D	D	C	E	A	A
Approach Delay		59.0			58.7		23.4		12.2	
Approach LOS		E			E		C		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 24.2

Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

											
20 s	77 s								43 s		
											
97 s									43 s		

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	12	8	82	74	23	10	187	106	52	316	74
Future Volume (vph)	34	12	8	82	74	23	10	187	106	52	316	74
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	44	16	10	106	96	30	13	243	138	68	410	96
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	70	232	394	574								
Volume Left (vph)	44	106	13	68								
Volume Right (vph)	10	30	138	96								
Hadj (s)	0.04	0.01	-0.20	-0.08								
Departure Headway (s)	7.4	6.8	5.8	5.6								
Degree Utilization, x	0.14	0.44	0.63	0.90								
Capacity (veh/h)	417	498	589	574								
Control Delay (s)	11.7	14.9	18.3	38.3								
Approach Delay (s)	11.7	14.9	18.3	38.3								
Approach LOS	B	B	C	E								
Intersection Summary												
Delay				26.3								
Level of Service				D								
Intersection Capacity Utilization				61.7%	ICU Level of Service	B						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	205	19	35	388	0	0
Future Volume (Veh/h)	205	19	35	388	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	256	24	44	485	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			280		841	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			280		841	268
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1277		326	776
Direction, Lane #	EB 1	WB 1				
Volume Total	280	529				
Volume Left	0	44				
Volume Right	24	0				
cSH	1700	1277				
Volume to Capacity	0.16	0.03				
Queue Length 95th (m)	0.0	0.8				
Control Delay (s)	0.0	1.0				
Lane LOS		A				
Approach Delay (s)	0.0	1.0				
Approach LOS						
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			41.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	203	0	0	283	137	167
Future Volume (Veh/h)	203	0	0	283	137	167
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	271	0	0	377	183	223
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			271		648	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			271		648	271
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		58	71
cM capacity (veh/h)			1304		437	770
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	271	377	183	223		
Volume Left	0	0	183	0		
Volume Right	0	0	0	223		
cSH	1700	1700	437	770		
Volume to Capacity	0.16	0.22	0.42	0.29		
Queue Length 95th (m)	0.0	0.0	15.5	9.1		
Control Delay (s)	0.0	0.0	19.1	11.6		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	15.0			
Approach LOS			B			
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			29.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	191	146	69	130	194	1674	104	1098	65
Future Volume (vph)	191	146	69	130	194	1674	104	1098	65
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	1	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)	35.0	35.0	35.0	35.0	9.5	25.0	9.5	25.0	25.0
Total Split (s)	50.0	50.0	50.0	50.0	22.0	73.8	16.2	68.0	68.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	15.7%	52.7%	11.6%	48.6%	48.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	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)	7.0	7.0	7.0	7.0	3.0	6.0	3.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.7	33.7	33.7	33.7	95.3	80.6	91.2	78.5	78.5
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.68	0.58	0.65	0.56	0.56
v/c Ratio	0.88	0.85	0.86	0.46	0.58	0.68	0.60	0.41	0.08
Control Delay	85.8	60.0	113.9	43.1	25.0	12.2	34.4	19.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.8	60.0	113.9	43.1	25.0	12.2	34.4	19.6	3.6
LOS	F	E	F	D	C	B	C	B	A
Approach Delay		69.0		61.7		13.4		20.0	
Approach LOS		E		E		B		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 25.9

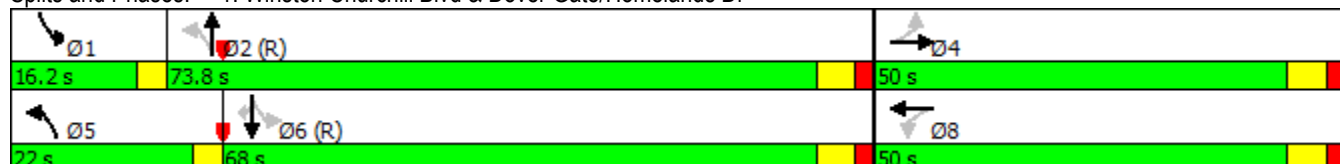
Intersection LOS: C

Intersection Capacity Utilization 88.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	127	30	165	188	19	125
Future Volume (vph)	127	30	165	188	19	125
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	146	34	190	216	22	144
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	180	406	166			
Volume Left (vph)	146	0	22			
Volume Right (vph)	34	216	0			
Hadj (s)	0.05	-0.29	0.11			
Departure Headway (s)	5.2	4.3	5.0			
Degree Utilization, x	0.26	0.49	0.23			
Capacity (veh/h)	627	803	682			
Control Delay (s)	10.1	11.4	9.5			
Approach Delay (s)	10.1	11.4	9.5			
Approach LOS	B	B	A			
Intersection Summary						
Delay			10.7			
Level of Service			B			
Intersection Capacity Utilization			38.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/19/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	90	58	456	173	248	193	231	1925	30	1413	42
Future Volume (vph)	90	58	456	173	248	193	231	1925	30	1413	42
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	3	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	42.0	42.0	42.0	11.0	53.0	53.0	27.0	77.5	9.5	60.0	60.0
Total Split (%)	30.0%	30.0%	30.0%	7.9%	37.9%	37.9%	19.3%	55.4%	6.8%	42.9%	42.9%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.0	24.0	24.0	37.5	35.0	35.0	93.5	86.3	79.0	69.8	69.8
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.25	0.25	0.67	0.62	0.56	0.50	0.50
v/c Ratio	0.49	0.18	0.91	0.53	0.54	0.42	0.74	0.64	0.21	0.64	0.05
Control Delay	58.3	47.1	42.2	46.3	48.2	22.1	36.3	20.5	17.6	21.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	47.1	42.2	46.3	48.2	22.1	36.3	20.5	17.6	21.3	0.1
LOS	E	D	D	D	D	C	D	C	B	C	A
Approach Delay		45.0			39.5			22.1		20.6	
Approach LOS		D			D			C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 26.7

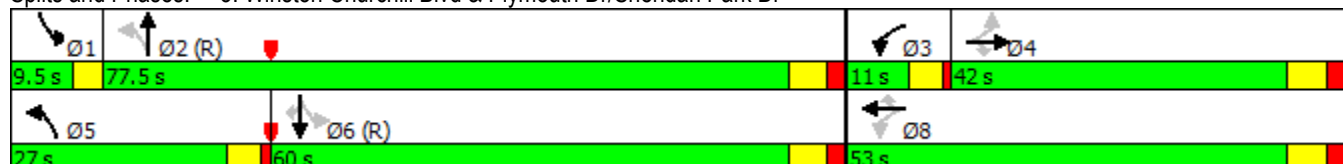
Intersection LOS: C

Intersection Capacity Utilization 84.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



HCM Unsignalized Intersection Capacity Analysis

5: Fifth Line & Sheridan Park Dr

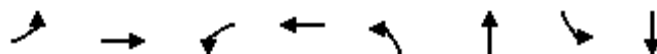
12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	63	386	41	17	215	113	58	92	18	65	56	35
Future Volume (vph)	63	386	41	17	215	113	58	92	18	65	56	35
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	69	424	45	19	236	124	64	101	20	71	62	38
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	69	469	19	360	64	121	71	100				
Volume Left (vph)	69	0	19	0	64	0	71	0				
Volume Right (vph)	0	45	0	124	0	20	0	38				
Hadj (s)	0.50	-0.03	0.50	-0.21	0.50	-0.12	0.53	-0.27				
Departure Headway (s)	6.7	6.2	7.0	6.3	7.8	7.2	7.9	7.1				
Degree Utilization, x	0.13	0.81	0.04	0.63	0.14	0.24	0.16	0.20				
Capacity (veh/h)	511	565	491	548	428	462	422	467				
Control Delay (s)	9.5	29.2	9.0	17.9	10.9	11.3	11.1	10.6				
Approach Delay (s)	26.7		17.5		11.1		10.8					
Approach LOS	D		C		B		B					
Intersection Summary												
Delay			19.5									
Level of Service			C									
Intersection Capacity Utilization			46.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Timings

5: Fifth Line & Sheridan Park Dr

01/12/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	LT	RT	LT	RT	LT	RT	LT	RT
Traffic Volume (vph)	63	386	17	215	58	92	65	56
Future Volume (vph)	63	386	17	215	58	92	65	56
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	66.0	66.0	66.0	66.0	34.0	34.0	34.0	34.0
Total Split (%)	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%	34.0%	34.0%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	13.8	13.8	13.8	13.8	7.7	7.7	7.7	7.7
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.25	0.25	0.25	0.25
v/c Ratio	0.15	0.57	0.05	0.44	0.19	0.25	0.22	0.21
Control Delay	5.9	9.2	5.2	6.8	12.2	11.4	12.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	9.2	5.2	6.8	12.2	11.4	12.6	9.3
LOS	A	A	A	A	B	B	B	A
Approach Delay		8.8		6.8		11.7		10.6
Approach LOS		A		A		B		B

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 30.8

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 8.8

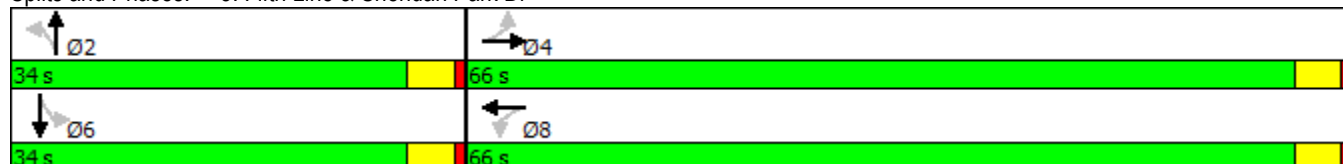
Intersection LOS: A

Intersection Capacity Utilization 49.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/19/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	174	99	108	70	88	185	2342	95	1511	91
Future Volume (vph)	174	99	108	70	88	185	2342	95	1511	91
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	5	2	1	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	5.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	48.0	48.0	48.0	48.0	48.0	18.0	77.0	15.0	74.0	74.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	12.9%	55.0%	10.7%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	1.0	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)	7.0	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	31.4	31.4	31.4	31.4	31.4	96.6	82.5	90.8	77.7	77.7
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.69	0.59	0.65	0.56	0.56
v/c Ratio	0.97	0.25	0.27	0.26	0.54	0.72	0.86	0.61	0.56	0.11
Control Delay	110.3	43.8	7.9	44.3	40.1	33.0	29.5	41.0	22.7	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.3	43.8	7.9	44.3	40.1	33.0	29.5	41.0	22.7	8.1
LOS	F	D	A	D	D	C	C	D	C	A
Approach Delay		63.9			41.1		29.7		23.0	
Approach LOS		E			D		C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 97.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

 Ø1	 Ø2 (R)	 Ø4
15 s	77 s	48 s
 Ø5	 Ø6 (R)	 Ø8
18 s	74 s	48 s

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	39	41	9	68	29	60	2	188	103	43	100	26
Future Volume (vph)	39	41	9	68	29	60	2	188	103	43	100	26
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	48	51	11	84	36	74	2	232	127	53	123	32
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	110	194	361	208								
Volume Left (vph)	48	84	2	53								
Volume Right (vph)	11	74	127	32								
Hadj (s)	0.05	-0.13	-0.21	-0.04								
Departure Headway (s)	5.8	5.4	4.9	5.3								
Degree Utilization, x	0.18	0.29	0.49	0.30								
Capacity (veh/h)	547	599	692	634								
Control Delay (s)	10.0	10.7	12.5	10.5								
Approach Delay (s)	10.0	10.7	12.5	10.5								
Approach LOS	A	B	B	B								
Intersection Summary												
Delay				11.3								
Level of Service				B								
Intersection Capacity Utilization				47.3%	ICU Level of Service		A					
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	237	189	51	121	0	0
Future Volume (Veh/h)	237	189	51	121	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	316	252	68	161	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			568		739	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			568		739	442
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	100
cM capacity (veh/h)			1004		361	620
Direction, Lane #	EB 1	WB 1				
Volume Total	568	229				
Volume Left	0	68				
Volume Right	252	0				
cSH	1700	1004				
Volume to Capacity	0.33	0.07				
Queue Length 95th (m)	0.0	1.7				
Control Delay (s)	0.0	3.1				
Lane LOS		A				
Approach Delay (s)	0.0	3.1				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			39.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	235	0	0	157	16	36
Future Volume (Veh/h)	235	0	0	157	16	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	294	0	0	196	20	45
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			295		491	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			295		491	295
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	94
cM capacity (veh/h)			1277		540	748
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	294	196	20	45		
Volume Left	0	0	20	0		
Volume Right	0	0	0	45		
cSH	1700	1700	540	748		
Volume to Capacity	0.17	0.12	0.04	0.06		
Queue Length 95th (m)	0.0	0.0	0.9	1.5		
Control Delay (s)	0.0	0.0	11.9	10.1		
Lane LOS			B	B		
Approach Delay (s)	0.0	0.0	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			22.4%		ICU Level of Service	A
Analysis Period (min)			15			

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2017
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Filename: 039474_Roundabout_Analysis 90 BG.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 7/25/2017 9:10:16 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2031 Background																
1 - Homelands Dr - N	1.0	2.3	7.75	0.51	A	7.27	A	54 %	0.3	1.4	4.29	0.24	A	7.59	A	27 %
2 - Sheridan Park Dr - E	1.1	1.9	7.17	0.51	A			[1 - Homelands Dr - N]	0.5	2.2	6.01	0.33	A			[3 - Speakman Dr - S]
3 - Speakman Dr - S	0.5	2.3	6.65	0.33	A				1.4	3.4	11.00	0.59	B			
4 - Sheridan Park Dr - W	0.0	0.5	6.20	0.02	A				0.1	0.5	4.12	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

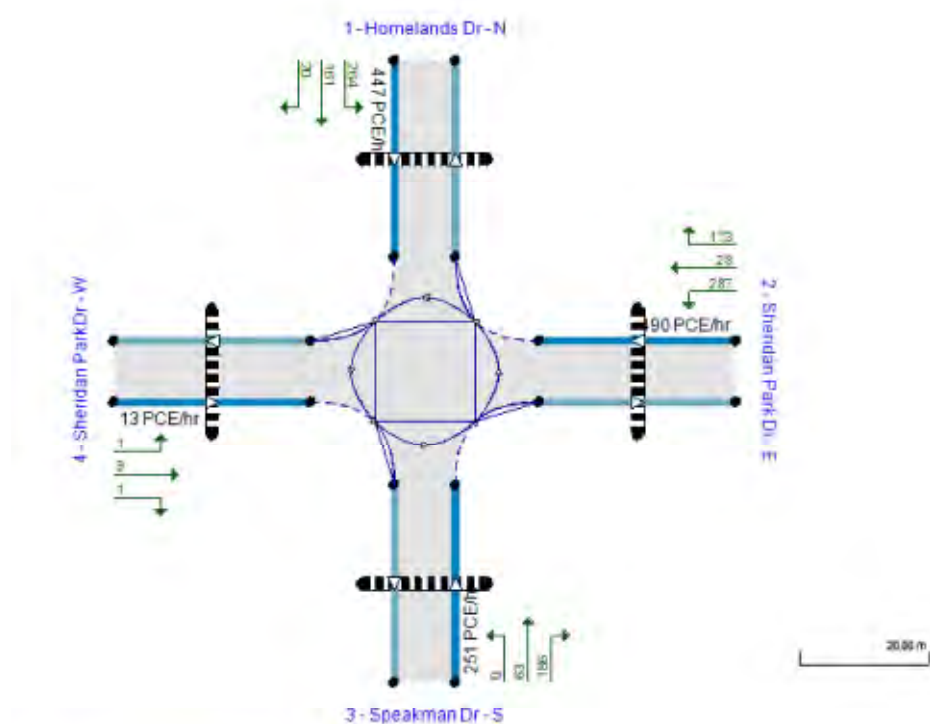
File summary

File Description

Title	Sheridan Park Drive 90 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE"Jlester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/hr)

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2031 Background	AM	ONE HOUR	08:00	09:30	15	✓
2031 Background	PM	ONE HOUR	16:00	17:30	15	✓

Single Lane Roundabout - 2031 Background, AM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	2 - Sheridan Park Dr - E - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - Homelands Dr - N	0.51	7.75	1.0	2.3	A	410.18	615.26
2 - Sheridan Park Dr - E	0.51	7.17	1.1	1.9	A	449.63	674.45
3 - Speakman Dr - S	0.33	6.65	0.5	2.3	A	230.32	345.48
4 - Sheridan Park Dr - W	0.02	6.20	0.0	0.5	A	11.93	17.89

Single Lane Roundabout - 2031 Background, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	2 - Sheridan Park Dr - E - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - Homelands Dr - N	0.24	4.29	0.3	1.4	A	229.40	344.11
2 - Sheridan Park Dr - E	0.33	6.01	0.5	2.2	A	249.59	374.39
3 - Speakman Dr - S	0.59	11.00	1.4	3.4	B	395.49	593.24
4 - Sheridan Park Dr - W	0.07	4.12	0.1	0.5	A	55.97	83.96



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix I

2031 Intersection Operations With Sheridan Park Drive Extension

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	44	48	135	89	234	1347	41	1673	121
Future Volume (vph)	44	48	135	89	234	1347	41	1673	121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		4		8	5	2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	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)	35.0	35.0	35.0	35.0	9.5	25.0	25.0	25.0	25.0
Total Split (s)	39.0	39.0	39.0	39.0	15.0	101.0	86.0	86.0	86.0
Total Split (%)	27.9%	27.9%	27.9%	27.9%	10.7%	72.1%	61.4%	61.4%	61.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.6	24.6	24.6	24.6	105.4	102.4	80.3	80.3	80.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.75	0.73	0.57	0.57	0.57
v/c Ratio	0.32	0.51	0.90	0.57	0.80	0.43	0.31	0.64	0.15
Control Delay	53.7	33.2	103.0	50.8	67.6	3.4	22.9	21.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	33.2	103.0	50.8	67.6	3.4	22.9	21.5	6.1
LOS	D	C	F	D	E	A	C	C	A
Approach Delay		37.7		74.7		12.5		20.5	
Approach LOS		D		E		B		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 22.0

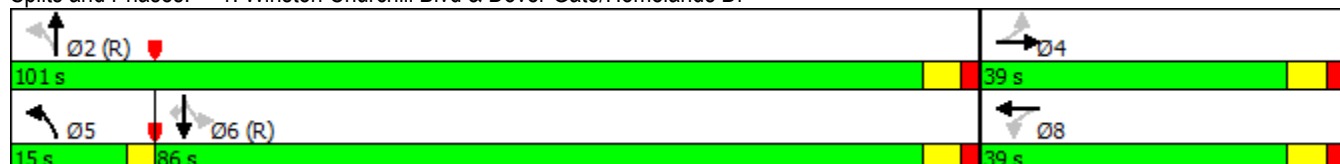
Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	169	42	95	110	77	138
Future Volume (vph)	169	42	95	110	77	138
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	217	54	122	141	99	177
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	271	263	276			
Volume Left (vph)	217	0	99			
Volume Right (vph)	54	141	0			
Hadj (s)	0.09	-0.18	0.19			
Departure Headway (s)	5.3	4.9	5.2			
Degree Utilization, x	0.40	0.36	0.40			
Capacity (veh/h)	629	696	653			
Control Delay (s)	11.9	10.6	11.7			
Approach Delay (s)	11.9	10.6	11.7			
Approach LOS	B	B	B			
Intersection Summary						
Delay			11.4			
Level of Service			B			
Intersection Capacity Utilization			46.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/19/2017

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	292	160	87	91	110	225	1558	322	1495	131
Future Volume (vph)	24	292	160	87	91	110	225	1558	322	1495	131
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	7	4	4	8	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	9.5	41.0	41.0	41.0	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	9.6	50.6	50.6	41.0	41.0	41.0	24.9	62.3	27.1	64.5	64.5
Total Split (%)	6.9%	36.1%	36.1%	29.3%	29.3%	29.3%	17.8%	44.5%	19.4%	46.1%	46.1%
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	4.5	7.0	7.0	7.0	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	31.6	29.1	29.1	23.3	23.3	23.3	87.8	67.5	100.8	74.6	74.6
Actuated g/C Ratio	0.23	0.21	0.21	0.17	0.17	0.17	0.63	0.48	0.72	0.53	0.53
v/c Ratio	0.10	0.78	0.43	0.82	0.30	0.32	0.72	0.81	0.82	0.57	0.15
Control Delay	39.9	65.5	21.6	104.0	53.1	10.4	37.7	35.1	55.3	26.3	7.8
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	39.9	65.5	21.6	104.0	53.1	10.4	37.7	35.1	55.3	26.3	7.8
LOS	D	E	C	F	D	B	D	D	E	C	A
Approach Delay		49.5			52.2			35.3		29.9	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 35.5

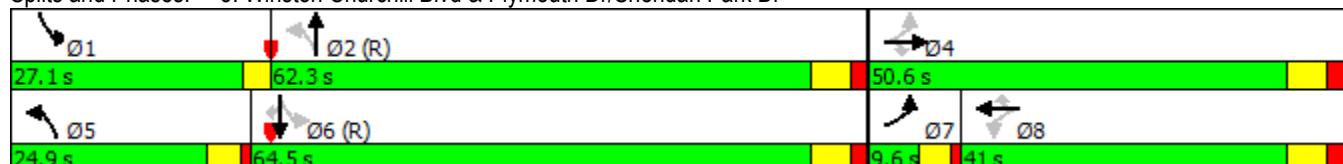
Intersection LOS: D

Intersection Capacity Utilization 98.2%

ICU Level of Service F

Analysis Period (min) 15

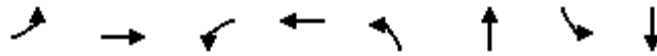
Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr



Timings

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	LT	RT	LT	RT	LT	RT	LT	RT
Traffic Volume (vph)	30	398	8	444	53	66	135	83
Future Volume (vph)	30	398	8	444	53	66	135	83
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	65.0	65.0	65.0	65.0	35.0	35.0	35.0	35.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%	35.0%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	21.0	21.0	21.0	21.0	11.6	11.6	11.6	11.6
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.27	0.27	0.27	0.27
v/c Ratio	0.12	0.57	0.03	0.67	0.22	0.22	0.44	0.46
Control Delay	7.1	10.4	6.2	12.3	16.5	12.9	19.4	13.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	7.1	10.4	6.2	12.4	16.5	12.9	19.4	13.7
LOS	A	B	A	B	B	B	B	B
Approach Delay		10.2		12.3		14.2		16.0
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 42.4

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.7

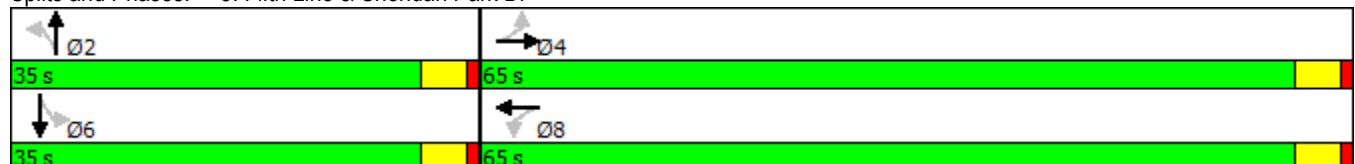
Intersection LOS: B

Intersection Capacity Utilization 55.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/19/2017

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	174	119	174	150	81	146	2042	159	1558	285
Future Volume (vph)	174	119	174	150	81	146	2042	159	1558	285
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	38.0	38.0	9.5	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	11.6	38.8	38.8	10.8	38.0	21.7	74.0	16.4	68.7	68.7
Total Split (%)	8.3%	27.7%	27.7%	7.7%	27.1%	15.5%	52.9%	11.7%	49.1%	49.1%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	1.0	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)	4.5	7.0	7.0	4.5	7.0	4.5	7.0	3.0	7.0	7.0
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
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	26.6	17.0	17.0	25.0	16.2	95.7	81.2	99.7	81.7	81.7
Actuated g/C Ratio	0.19	0.12	0.12	0.18	0.12	0.68	0.58	0.71	0.58	0.58
v/c Ratio	0.82	0.54	0.53	0.65	0.71	0.58	0.75	0.71	0.55	0.29
Control Delay	77.9	65.8	12.9	62.1	67.6	19.5	25.6	48.2	20.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	65.8	12.9	62.1	67.6	19.5	25.6	48.2	20.2	7.6
LOS	E	E	B	E	E	B	C	D	C	A
Approach Delay		50.6			64.8		25.2		20.6	
Approach LOS		D			E		C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 89.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

			
Ø1	Ø2 (R)	Ø3	Ø4
16.4 s	74 s	10.8 s	38.8 s
			
Ø5	Ø6 (R)	Ø7	Ø8
21.7 s	68.7 s	11.6 s	38 s

HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	12	8	82	74	27	10	187	106	54	316	74
Future Volume (vph)	34	12	8	82	74	27	10	187	106	54	316	74
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	44	16	10	106	96	35	13	243	138	70	410	96
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	70	237	394	576								
Volume Left (vph)	44	106	13	70								
Volume Right (vph)	10	35	138	96								
Hadj (s)	0.04	0.00	-0.20	-0.08								
Departure Headway (s)	7.5	6.8	5.8	5.6								
Degree Utilization, x	0.14	0.45	0.64	0.90								
Capacity (veh/h)	415	499	586	576								
Control Delay (s)	11.7	15.2	18.5	39.6								
Approach Delay (s)	11.7	15.2	18.5	39.6								
Approach LOS	B	C	C	E								
Intersection Summary												
Delay				27.0								
Level of Service				D								
Intersection Capacity Utilization				62.1%	ICU Level of Service	B						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 8: Flavelle Blvd West & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰		
Traffic Volume (veh/h)	205	19	35	388	0	0
Future Volume (Veh/h)	205	19	35	388	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	256	24	44	485	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			280		841	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			280		841	268
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1277		326	776
Direction, Lane #	EB 1	WB 1				
Volume Total	280	529				
Volume Left	0	44				
Volume Right	24	0				
cSH	1700	1277				
Volume to Capacity	0.16	0.03				
Queue Length 95th (m)	0.0	0.8				
Control Delay (s)	0.0	1.0				
Lane LOS		A				
Approach Delay (s)	0.0	1.0				
Approach LOS						
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		41.0%	ICU Level of Service		A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Flavelle Blvd East & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	203	0	0	283	137	167
Future Volume (Veh/h)	203	0	0	283	137	167
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	271	0	0	377	183	223
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			271		648	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			271		648	271
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		58	71
cM capacity (veh/h)			1304		437	770
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	271	377	183	223		
Volume Left	0	0	183	0		
Volume Right	0	0	0	223		
cSH	1700	1700	437	770		
Volume to Capacity	0.16	0.22	0.42	0.29		
Queue Length 95th (m)	0.0	0.0	15.5	9.1		
Control Delay (s)	0.0	0.0	19.1	11.6		
Lane LOS			C	B		
Approach Delay (s)	0.0	0.0	15.0			
Approach LOS			B			
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			29.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Speakman Dr & Sheridan Park Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Volume (veh/h)	30	881	10	120	168	10
Future Volume (Veh/h)	30	881	10	120	168	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	958	11	130	183	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)	149					
pX, platoon unblocked						
vC, conflicting volume			991		185	33
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			991		185	33
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		77	99
cM capacity (veh/h)			698		792	1041
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	33	958	141	194		
Volume Left	0	0	11	183		
Volume Right	0	958	0	11		
cSH	1700	1700	698	802		
Volume to Capacity	0.02	0.56	0.02	0.24		
Queue Length 95th (m)	0.0	0.0	0.4	7.2		
Control Delay (s)	0.0	0.0	1.0	10.9		
Lane LOS			A	B		
Approach Delay (s)	0.0		1.0	10.9		
Approach LOS				B		
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			68.1%	ICU Level of Service		C
Analysis Period (min)			15			

Timings

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/19/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↰	↱	↰	↱	↰
Traffic Volume (vph)	191	146	69	96	194	1728	77	1111	65
Future Volume (vph)	191	146	69	96	194	1728	77	1111	65
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	5	2	1	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)	35.0	35.0	35.0	35.0	9.5	25.0	9.5	25.0	25.0
Total Split (s)	50.0	50.0	50.0	50.0	22.0	74.0	16.0	68.0	68.0
Total Split (%)	35.7%	35.7%	35.7%	35.7%	15.7%	52.9%	11.4%	48.6%	48.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	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)	7.0	7.0	7.0	7.0	3.0	6.0	3.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	33.8	33.8	33.8	33.8	95.9	81.9	89.7	78.4	78.4
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.68	0.58	0.64	0.56	0.56
v/c Ratio	0.77	0.85	0.86	0.37	0.59	0.67	0.49	0.42	0.08
Control Delay	68.5	60.2	114.9	38.6	25.5	12.4	25.1	19.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.5	60.2	114.9	38.6	25.5	12.4	25.1	19.8	3.6
LOS	E	E	F	D	C	B	C	B	A
Approach Delay		63.1		61.6		13.7		19.3	
Approach LOS		E		E		B		B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.7

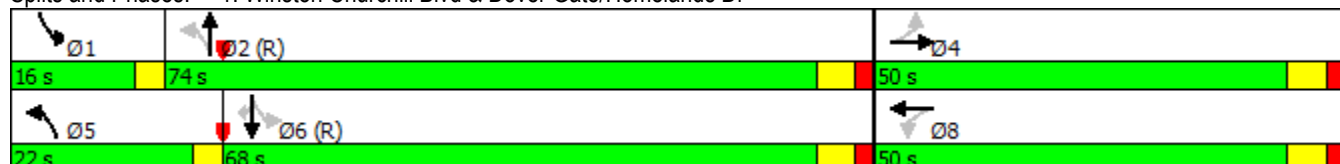
Intersection LOS: C

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Winston Churchill Blvd & Dover Gate/Homelands Dr



HCM Unsignalized Intersection Capacity Analysis

2: Homelands Dr & Thorn Lodge Dr

12/19/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	100	22	122	190	19	93
Future Volume (vph)	100	22	122	190	19	93
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	115	25	140	218	22	107
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total (vph)	140	358	129			
Volume Left (vph)	115	0	22			
Volume Right (vph)	25	218	0			
Hadj (s)	0.06	-0.34	0.12			
Departure Headway (s)	5.0	4.1	4.8			
Degree Utilization, x	0.20	0.41	0.17			
Capacity (veh/h)	657	850	715			
Control Delay (s)	9.2	9.9	8.7			
Approach Delay (s)	9.2	9.9	8.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.5			
Level of Service			A			
Intersection Capacity Utilization			34.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Timings

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

01/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	90	61	456	227	260	247	231	1925	45	1413	42
Future Volume (vph)	90	61	456	227	260	247	231	1925	45	1413	42
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	4	4	4	3	8	8	5	2	1	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	5.0	5.0
Minimum Split (s)	41.0	41.0	41.0	9.5	41.0	41.0	9.5	36.0	9.5	36.0	36.0
Total Split (s)	41.5	41.5	41.5	21.0	62.5	62.5	20.0	68.0	9.5	57.5	57.5
Total Split (%)	29.6%	29.6%	29.6%	15.0%	44.6%	44.6%	14.3%	48.6%	6.8%	41.1%	41.1%
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	3.5	4.0	3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	1.0	3.0	3.0	1.0	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	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.5	7.0	7.0	4.5	6.0	3.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	27.5	27.5	27.5	50.5	48.0	48.0	80.5	71.3	66.3	56.9	56.9
Actuated g/C Ratio	0.20	0.20	0.20	0.36	0.34	0.34	0.58	0.51	0.47	0.41	0.41
v/c Ratio	0.43	0.17	0.92	0.47	0.41	0.42	0.85	0.78	0.34	0.78	0.06
Control Delay	53.5	45.0	49.1	34.9	36.0	19.9	61.4	32.5	29.4	30.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	45.0	49.1	34.9	36.0	19.9	61.4	32.5	29.4	30.6	0.3
LOS	D	D	D	C	D	B	E	C	C	C	A
Approach Delay		49.4			30.2			35.5		29.7	
Approach LOS		D			C			D		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 34.7

Intersection LOS: C

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

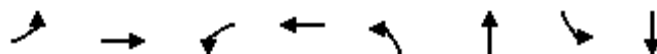
Splits and Phases: 3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

								
9.5 s	68 s		21 s	41.5 s		20 s	57.5 s	62.5 s

Timings

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	LT	RT	LT	RT	LT	RT	LT	RT
Traffic Volume (vph)	64	410	17	315	60	92	65	56
Future Volume (vph)	64	410	17	315	60	92	65	56
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
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)	67.0	67.0	67.0	67.0	33.0	33.0	33.0	33.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%
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	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	14.7	14.7	14.7	14.7	7.8	7.8	7.8	7.8
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.24	0.24	0.24	0.24
v/c Ratio	0.18	0.58	0.05	0.55	0.21	0.26	0.23	0.24
Control Delay	6.2	9.2	5.1	8.5	13.1	12.2	13.4	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	9.2	5.1	8.5	13.1	12.2	13.4	9.7
LOS	A	A	A	A	B	B	B	A
Approach Delay		8.9		8.3		12.5		11.2
Approach LOS		A		A		B		B

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 31.9

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 9.5

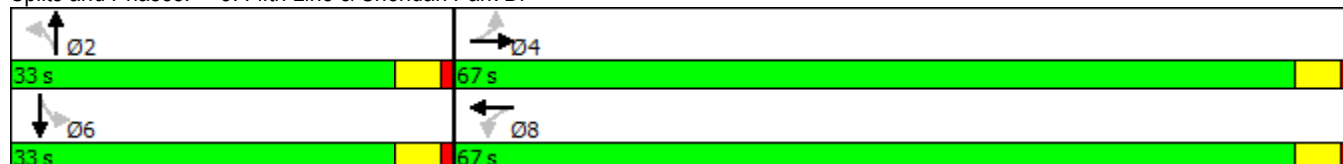
Intersection LOS: A

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Fifth Line & Sheridan Park Dr



Timings

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

01/18/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	186	100	119	70	93	235	2342	95	1511	136
Future Volume (vph)	186	100	119	70	93	235	2342	95	1511	136
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	7	4	4	8	8	5	2	1	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	5.0
Minimum Split (s)	9.5	38.0	38.0	38.0	38.0	9.5	38.0	9.5	38.0	38.0
Total Split (s)	14.0	52.0	52.0	38.0	38.0	24.4	78.0	10.0	63.6	63.6
Total Split (%)	10.0%	37.1%	37.1%	27.1%	27.1%	17.4%	55.7%	7.1%	45.4%	45.4%
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	3.5	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	1.0	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)	4.5	7.0	7.0	7.0	7.0	4.5	7.0	3.0	7.0	7.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	37.6	35.1	35.1	21.1	21.1	93.4	78.9	80.9	67.9	67.9
Actuated g/C Ratio	0.27	0.25	0.25	0.15	0.15	0.67	0.56	0.58	0.48	0.48
v/c Ratio	0.90	0.22	0.26	0.38	0.79	0.78	0.90	0.62	0.64	0.17
Control Delay	83.1	41.2	7.3	57.3	64.4	45.0	33.5	43.6	30.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.1	41.2	7.3	57.3	64.4	45.0	33.5	43.6	30.2	6.2
LOS	F	D	A	E	E	D	C	D	C	A
Approach Delay		50.5			62.7		34.5		29.1	
Approach LOS		D			E		C		C	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 35.5

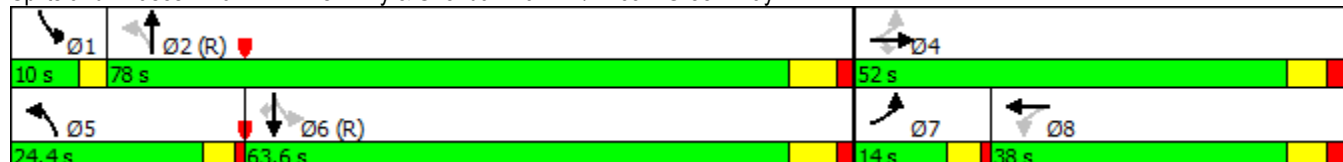
Intersection LOS: D

Intersection Capacity Utilization 95.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way



HCM Unsignalized Intersection Capacity Analysis

7: Speakman Dr & Hadwen Dr

12/19/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	39	41	9	68	29	64	2	188	103	45	100	26
Future Volume (vph)	39	41	9	68	29	64	2	188	103	45	100	26
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	48	51	11	84	36	79	2	232	127	56	123	32
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	110	199	361	211								
Volume Left (vph)	48	84	2	56								
Volume Right (vph)	11	79	127	32								
Hadj (s)	0.05	-0.14	-0.21	-0.04								
Departure Headway (s)	5.8	5.4	4.9	5.3								
Degree Utilization, x	0.18	0.30	0.49	0.31								
Capacity (veh/h)	544	599	689	631								
Control Delay (s)	10.0	10.7	12.6	10.6								
Approach Delay (s)	10.0	10.7	12.6	10.6								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				11.4								
Level of Service				B								
Intersection Capacity Utilization				47.6%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

8: Flavelle Blvd West & Speakman Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	237	189	51	121	0	0
Future Volume (Veh/h)	237	189	51	121	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	316	252	68	161	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			568		739	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			568		739	442
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	100
cM capacity (veh/h)			1004		361	620
Direction, Lane #	EB 1	WB 1				
Volume Total	568	229				
Volume Left	0	68				
Volume Right	252	0				
cSH	1700	1004				
Volume to Capacity	0.33	0.07				
Queue Length 95th (m)	0.0	1.7				
Control Delay (s)	0.0	3.1				
Lane LOS		A				
Approach Delay (s)	0.0	3.1				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			39.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis9: Flavelle Blvd East & Speakman Dr

12/19/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↗
Traffic Volume (veh/h)	235	0	0	157	16	36
Future Volume (Veh/h)	235	0	0	157	16	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	294	0	0	196	20	45
Pedestrians					1	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			295		491	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			295		491	295
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	94
cM capacity (veh/h)			1277		540	748
Direction, Lane #	EB 1	WB 1	NB 1	NB 2		
Volume Total	294	196	20	45		
Volume Left	0	0	20	0		
Volume Right	0	0	0	45		
cSH	1700	1700	540	748		
Volume to Capacity	0.17	0.12	0.04	0.06		
Queue Length 95th (m)	0.0	0.0	0.9	1.5		
Control Delay (s)	0.0	0.0	11.9	10.1		
Lane LOS			B	B		
Approach Delay (s)	0.0	0.0	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			22.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Speakman Dr & Sheridan Park Dr

12/19/2017

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	30	116	0	120	614	0
Future Volume (Veh/h)	30	116	0	120	614	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	126	0	130	667	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	148					
pX, platoon unblocked						
vC, conflicting volume			159		163	33
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			159		163	33
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		19	100
cM capacity (veh/h)			1420		828	1041
Direction, Lane #	EB 1	EB 2	WB 1	NB 1		
Volume Total	33	126	130	667		
Volume Left	0	0	0	667		
Volume Right	0	126	0	0		
cSH	1700	1700	1420	828		
Volume to Capacity	0.02	0.07	0.00	0.81		
Queue Length 95th (m)	0.0	0.0	0.0	66.0		
Control Delay (s)	0.0	0.0	0.0	24.7		
Lane LOS				C		
Approach Delay (s)	0.0		0.0	24.7		
Approach LOS				C		
Intersection Summary						
Average Delay			17.2			
Intersection Capacity Utilization			47.0%	ICU Level of Service		A
Analysis Period (min)			15			

Junctions 9															
ARCADY 9 - Roundabout Module															
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Filename: 039474_Roundabout_Analysis 90 With Ext.j9
Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
Report generation date: 1/9/2018 11:50:17 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2031 With Extension																
1 - East End - 1 - Homelands Dr - N	1.1	2.8	8.98	0.53	A	7.93	A	13 %	0.4	1.0	4.84	0.26	A	7.25	A	29 %
1 - East End - 2 - Sheridan Park Dr - E	1.3	1.5	7.77	0.56	A				0.6	2.7	5.92	0.37	A			
1 - East End - 3 - Speakman Dr - S	0.5	2.1	6.81	0.33	A				1.2	3.4	10.50	0.55	B			
1 - East End - 4 - Sheridan Park Dr - W	0.1	0.5	6.18	0.07	A	8.40	A	[2 - West End - 4 - Sheridan Park Dr - W]	0.1	0.5	4.21	0.10	A	6.49	A	[1 - East End - 3 - Speakman Dr - S]
2 - West End - 2 - Sheridan Park Dr - E	0.1	0.5	3.93	0.13	A				0.2	0.5	5.61	0.17	A			
2 - West End - 3 - Speakman Dr - S	0.2	0.5	3.82	0.16	A				1.5	1.8	7.80	0.59	A			
2 - West End - 4 - Sheridan Park Dr - W	2.7	7.8	9.86	0.73	A				0.1	0.5	1.74	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

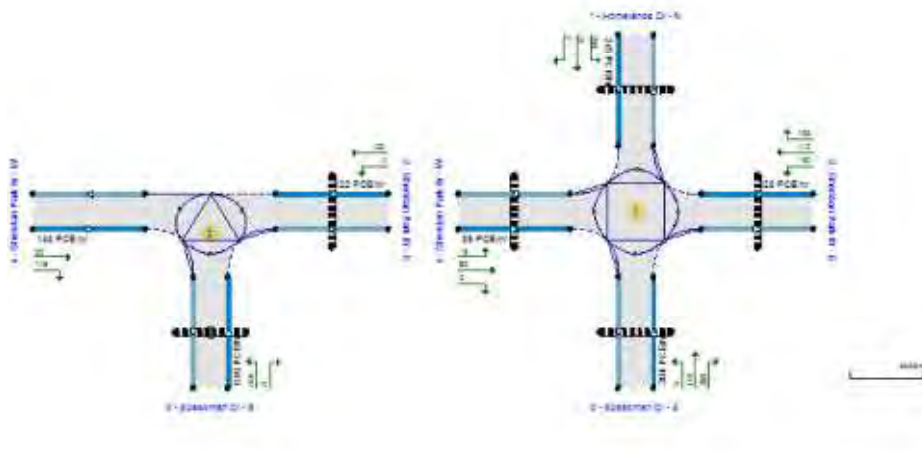
File summary

File Description

Title	Sheridan Park Drive With Extension 90 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE\jester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/h).

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2031 With Extension	AM	ONE HOUR	08:00	09:30	15	✓
2031 With Extension	PM	ONE HOUR	16:00	17:30	15	✓

Single Lane Roundabout - 2031 With Extension, AM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	1 - East End - 2 - Sheridan Park Dr - E - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queuing to leave the intersection in 6 timesegment(s).
Last Run	Last Run	2 - West End - 3 - Speakman Dr - S - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queuing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - East End	1 - Homelands Dr - N	0.53	8.98	1.1	2.8	A	378.06	567.09
	2 - Sheridan Park Dr - E	0.56	7.77	1.3	1.5	A	509.28	763.92
	3 - Speakman Dr - S	0.33	6.81	0.5	2.1	A	218.39	327.59
	4 - Sheridan Park Dr - W	0.07	6.18	0.1	0.5	A	39.46	59.19
2 - West End	2 - Sheridan Park Dr - E	0.13	3.93	0.1	0.5	A	111.95	167.92
	3 - Speakman Dr - S	0.16	3.82	0.2	0.5	A	155.99	233.99
	4 - Sheridan Park Dr - W	0.73	9.86	2.7	7.8	A	837.78	1256.68

Single Lane Roundabout - 2031 With Extension, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	1 - East End - 2 - Sheridan Park Dr - E - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 6 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C Ratio	Max delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
1 - East End	1 - Homelands Dr - N	0.26	4.84	0.4	1.0	A	224.82	337.22
	2 - Sheridan Park Dr - E	0.37	5.92	0.6	2.7	A	300.98	451.47
	3 - Speakman Dr - S	0.55	10.50	1.2	3.4	B	361.54	542.31
	4 - Sheridan Park Dr - W	0.10	4.21	0.1	0.5	A	78.00	117.00
2 - West End	2 - Sheridan Park Dr - E	0.17	5.61	0.2	0.5	A	111.95	167.92
	3 - Speakman Dr - S	0.59	7.80	1.5	1.8	A	565.25	847.88
	4 - Sheridan Park Dr - W	0.07	1.74	0.1	0.5	A	135.81	203.71



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

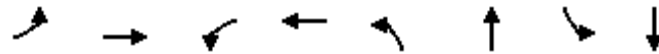
Appendix J

2031 95th Percentile Queues

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	169	150	212	260	1553	62	1978
v/c Ratio	0.40	0.51	0.90	0.69	0.88	0.43	0.40	0.68
Control Delay	59.7	35.0	104.1	60.6	78.4	5.4	27.1	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	35.0	104.1	60.6	78.4	5.4	27.1	22.0
Queue Length 50th (m)	11.9	24.1	40.2	49.6	61.7	20.3	9.5	141.0
Queue Length 95th (m)	24.8	46.6	#75.3	76.2	m#97.1	44.2	23.9	157.8
Internal Link Dist (m)		99.2		1187.3		464.2		152.1
Turn Bay Length (m)			15.0		126.0		75.0	
Base Capacity (vph)	143	370	191	353	305	3640	156	2925
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	0.34	0.46	0.79	0.60	0.85	0.43	0.40	0.68

Intersection Summary

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

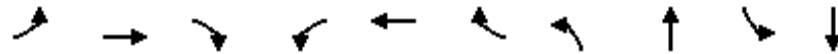
Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	304	168	35	83	59	237	1940	323	1712
v/c Ratio	0.10	0.81	0.45	0.42	0.22	0.17	0.75	0.76	0.87	0.62
Control Delay	44.3	70.6	25.0	62.7	46.9	10.9	43.5	30.7	61.7	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	70.6	25.0	62.7	46.9	10.9	43.5	30.7	61.7	23.5
Queue Length 50th (m)	5.7	80.7	17.6	8.5	19.4	0.0	39.2	155.7	80.3	87.4
Queue Length 95th (m)	13.3	108.3	37.8	19.5	32.6	11.4	66.2	195.1 m#114.5	108.8	108.8
Internal Link Dist (m)		197.7			123.8			371.2		464.2
Turn Bay Length (m)	32.0		30.0	50.0		60.0	170.0		78.0	
Base Capacity (vph)	311	461	435	104	466	426	409	2562	418	2763
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.66	0.39	0.34	0.18	0.14	0.58	0.76	0.77	0.62

Intersection Summary

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

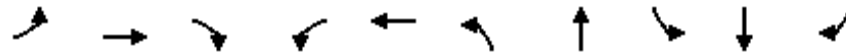
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	165	120	166	153	139	98	2178	162	1590	245
v/c Ratio	0.82	0.36	0.53	0.72	0.46	0.62	0.71	0.78	0.45	0.20
Control Delay	84.4	51.7	39.1	71.7	44.4	42.4	22.5	57.0	9.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.4	51.7	39.1	71.7	44.4	42.4	22.5	57.0	9.2	1.7
Queue Length 50th (m)	44.7	29.7	28.1	40.5	28.0	16.1	144.1	28.0	59.0	1.0
Queue Length 95th (m)	65.1	44.0	46.7	59.2	44.4	#56.5	212.2	53.4	89.7	10.7
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	289	474	426	306	423	158	3049	263	3569	1203
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	0.57	0.25	0.39	0.50	0.33	0.62	0.71	0.62	0.45	0.20

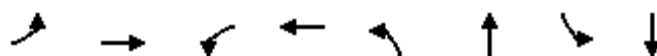
Intersection Summary

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

Queues

5: Fifth Line & Sheridan Park Dr

01/12/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	485	9	479	59	111	157	223
v/c Ratio	0.10	0.60	0.03	0.60	0.19	0.21	0.41	0.41
Control Delay	7.1	11.4	6.6	11.4	13.1	10.4	15.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	11.4	6.6	11.4	13.1	10.4	15.7	10.9
Queue Length 50th (m)	1.0	18.0	0.3	17.6	2.5	3.7	7.2	6.7
Queue Length 95th (m)	4.8	45.3	2.0	44.5	10.2	13.8	22.7	22.7
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)	30.0		30.0		43.0		27.0	
Base Capacity (vph)	783	1798	597	1765	937	1577	1163	1499
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	0.04	0.27	0.02	0.27	0.06	0.07	0.13	0.15
Intersection Summary								

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	203	383	73	205	206	1968	111	1168	69
v/c Ratio	0.95	0.90	1.04	0.48	0.62	0.66	0.60	0.39	0.07
Control Delay	103.7	69.9	172.0	47.4	21.1	9.8	30.8	15.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.7	69.9	172.0	47.4	21.1	9.8	30.8	15.0	2.7
Queue Length 50th (m)	55.8	92.0	~21.7	45.6	11.3	49.1	9.7	58.7	0.0
Queue Length 95th (m)	#105.2	#148.6	#54.5	70.6	m33.7	58.4	29.1	68.3	6.0
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	213	427	70	427	330	2964	219	3025	948
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	0.95	0.90	1.04	0.48	0.62	0.66	0.51	0.39	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

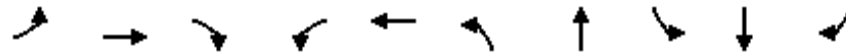
Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	94	60	475	180	459	241	2034	31	1472	44
v/c Ratio	0.72	0.13	1.07	0.41	0.78	1.71	0.72	0.23	0.54	0.05
Control Delay	78.9	42.4	103.0	37.7	50.5	374.9	26.6	17.6	13.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.9	42.4	103.0	37.7	50.5	374.9	26.6	17.6	13.7	0.2
Queue Length 50th (m)	24.0	13.1	~126.9	36.5	108.2	~99.7	158.8	2.5	62.5	0.0
Queue Length 95th (m)	#53.0	25.4	#194.5	56.1	150.6	#117.9	180.4	m5.6	m67.3	m0.0
Internal Link Dist (m)		197.7			123.8		371.2		464.2	
Turn Bay Length (m)	32.0		30.0	30.0		170.0		78.0		130.0
Base Capacity (vph)	131	466	445	440	590	141	2814	181	2718	953
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	0.72	0.13	1.07	0.41	0.78	1.71	0.72	0.17	0.54	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

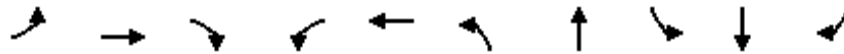
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	183	104	114	74	227	195	2569	100	1591	96
v/c Ratio	0.97	0.25	0.27	0.26	0.54	0.72	0.86	0.61	0.56	0.11
Control Delay	110.3	43.8	7.9	44.3	40.1	33.0	29.5	41.0	22.7	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.3	43.8	7.9	44.3	40.1	33.0	29.5	41.0	22.7	8.1
Queue Length 50th (m)	50.3	23.7	0.0	16.9	42.8	19.5	210.6	11.5	104.1	4.3
Queue Length 95th (m)	#81.6	36.7	14.2	28.6	63.6	#55.9	#300.8	31.9	136.0	14.8
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	247	551	522	378	530	289	2978	197	2825	897
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	0.74	0.19	0.22	0.20	0.43	0.67	0.86	0.51	0.56	0.11

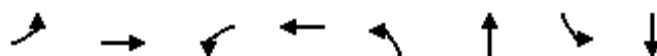
Intersection Summary

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

Queues

5: Fifth Line & Sheridan Park Dr

01/12/2018

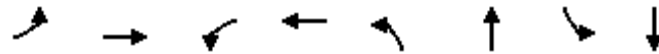


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	69	469	19	360	64	121	71	100
v/c Ratio	0.15	0.57	0.05	0.44	0.19	0.25	0.22	0.21
Control Delay	5.9	9.2	5.2	6.8	12.2	11.4	12.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	9.2	5.2	6.8	12.2	11.4	12.6	9.3
Queue Length 50th (m)	1.7	13.6	0.4	8.4	2.4	4.2	2.7	2.5
Queue Length 95th (m)	6.1	33.2	2.4	22.0	9.8	14.8	10.7	11.3
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)	30.0		30.0		43.0		27.0	
Base Capacity (vph)	1044	1844	847	1786	1213	1716	1173	1650
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	0.02	0.20	0.05	0.07	0.06	0.06
Intersection Summary								

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	171	150	178	260	1583	46	1993
v/c Ratio	0.32	0.51	0.90	0.57	0.84	0.43	0.31	0.70
Control Delay	53.7	33.2	103.0	50.8	73.9	3.4	23.0	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	33.2	103.0	50.8	73.9	3.4	23.0	22.9
Queue Length 50th (m)	11.9	23.9	40.8	38.4	61.8	12.7	6.4	137.7
Queue Length 95th (m)	23.3	44.6	#67.8	59.2 m	#110.5	27.8	16.6	154.0
Internal Link Dist (m)		99.2		1187.3		464.2		152.1
Turn Bay Length (m)			15.0		126.0		75.0	
Base Capacity (vph)	199	415	217	397	311	3646	147	2853
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	0.25	0.41	0.69	0.45	0.84	0.43	0.31	0.70

Intersection Summary

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

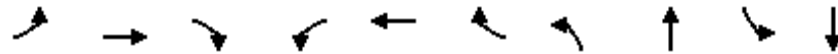
Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

12/04/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	307	168	92	96	116	237	1953	339	1712
v/c Ratio	0.10	0.78	0.43	0.82	0.30	0.32	0.77	0.81	0.82	0.63
Control Delay	39.9	65.5	21.6	104.0	53.1	10.4	47.8	35.1	53.3	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	65.5	21.6	104.0	53.1	10.4	47.8	35.1	53.3	29.5
Queue Length 50th (m)	5.5	81.2	15.5	25.8	24.5	0.0	41.1	167.0	81.8	104.8
Queue Length 95th (m)	12.1	104.1	33.7	#48.3	38.5	15.9	70.3	#225.6	#123.5	125.1
Internal Link Dist (m)		197.7			124.6			371.2		464.2
Turn Bay Length (m)	32.0		30.0	50.0		60.0	170.0		78.0	
Base Capacity (vph)	263	592	538	163	466	470	347	2413	418	2710
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	0.10	0.52	0.31	0.56	0.21	0.25	0.68	0.81	0.81	0.63

Intersection Summary

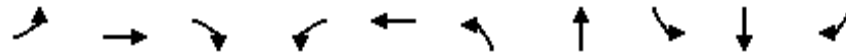
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

12/04/2017



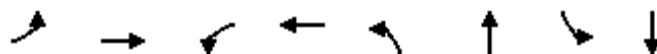
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	178	121	178	153	144	149	2178	162	1590	291
v/c Ratio	0.82	0.54	0.53	0.65	0.71	0.58	0.75	0.71	0.55	0.29
Control Delay	77.9	65.8	12.9	62.1	67.6	19.5	25.6	48.2	20.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	65.8	12.9	62.1	67.6	19.5	25.6	48.2	20.2	7.6
Queue Length 50th (m)	43.3	32.0	0.0	36.6	32.5	11.5	157.9	27.1	93.8	13.8
Queue Length 95th (m)	62.1	49.8	20.3	54.0	53.0	30.1	218.5	51.4	136.3	37.2
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	218	419	478	235	366	323	2896	248	2887	993
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	0.29	0.37	0.65	0.39	0.46	0.75	0.65	0.55	0.29

Intersection Summary

Queues

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	514	9	595	62	111	157	232
v/c Ratio	0.12	0.57	0.03	0.67	0.22	0.22	0.44	0.46
Control Delay	7.1	10.4	6.2	12.3	16.5	12.9	19.4	13.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	7.1	10.4	6.2	12.4	16.5	12.9	19.4	13.7
Queue Length 50th (m)	1.1	20.5	0.3	25.2	3.2	4.5	8.6	8.5
Queue Length 95th (m)	5.1	50.8	2.0	62.4	13.0	16.8	27.7	29.1
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)	30.0		30.0		43.0		27.0	
Base Capacity (vph)	607	1778	570	1759	785	1336	982	1274
Starvation Cap Reductn	0	0	0	293	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	0.06	0.29	0.02	0.41	0.08	0.08	0.16	0.18
Intersection Summary								

Queues

1: Winston Churchill Blvd & Dover Gate/Homelands Dr

12/04/2017



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	203	385	73	169	206	1977	82	1182	69
v/c Ratio	0.83	0.90	1.07	0.40	0.63	0.66	0.48	0.39	0.07
Control Delay	79.0	70.6	181.6	42.8	19.3	5.1	19.9	15.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.0	70.6	181.6	42.8	19.3	5.1	19.9	15.1	2.7
Queue Length 50th (m)	53.9	92.8	~22.3	34.7	7.9	31.5	6.5	59.7	0.0
Queue Length 95th (m)	#96.4	#150.5	#55.0	56.5	m19.6	34.5	17.7	69.2	6.0
Internal Link Dist (m)		99.2		1187.3		464.2		152.1	
Turn Bay Length (m)			15.0		126.0		75.0		45.0
Base Capacity (vph)	244	427	68	427	326	3013	220	3025	948
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	0.83	0.90	1.07	0.40	0.63	0.66	0.37	0.39	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Queues

3: Winston Churchill Blvd & Plymouth Dr/Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	94	64	475	236	271	257	241	2047	47	1472	44
v/c Ratio	0.43	0.17	0.92	0.47	0.41	0.42	0.85	0.78	0.34	0.78	0.06
Control Delay	53.5	45.0	49.1	34.9	36.0	19.9	61.4	32.5	29.4	30.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	45.0	49.1	34.9	36.0	19.9	61.4	32.5	29.4	30.6	0.3
Queue Length 50th (m)	22.6	14.5	64.5	46.1	55.3	28.6	48.0	178.1	4.3	142.8	0.0
Queue Length 95th (m)	38.7	26.4	#115.9	64.2	75.2	49.2	#103.4	209.8	m15.8	90.4	m0.0
Internal Link Dist (m)	197.7				123.8				371.2		464.2
Turn Bay Length (m)	32.0			30.0	60.0			60.0	170.0	78.0	130.0
Base Capacity (vph)	275	473	581	501	761	698	282	2638	142	1885	716
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	0.34	0.14	0.82	0.47	0.36	0.37	0.85	0.78	0.33	0.78	0.06

Intersection Summary

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

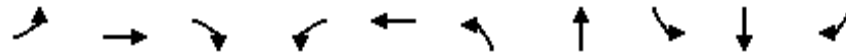
Queue shown is maximum after two cycles.

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

Queues

6: Erin Mills Pkwy & Sheridan Park Dr/Lincoln Green Way

01/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	196	105	125	74	232	247	2569	100	1591	143
v/c Ratio	0.90	0.22	0.26	0.38	0.79	0.78	0.90	0.62	0.64	0.17
Control Delay	83.1	41.2	7.3	57.3	64.4	45.0	33.5	43.6	30.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.1	41.2	7.3	57.3	64.4	45.0	33.5	43.6	30.2	6.2
Queue Length 50th (m)	44.7	23.2	0.0	18.7	51.0	41.3	225.6	11.1	121.1	2.6
Queue Length 95th (m)	#73.7	36.0	14.3	32.2	75.2	74.2	#296.9	#39.2	157.0	16.4
Internal Link Dist (m)		167.9			140.2		718.6		284.6	
Turn Bay Length (m)	31.0		35.0	45.0		120.0		112.0		50.0
Base Capacity (vph)	218	605	570	285	409	347	2847	161	2468	824
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	0.17	0.22	0.26	0.57	0.71	0.90	0.62	0.64	0.17

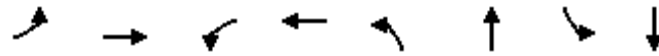
Intersection Summary

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

Queues

5: Fifth Line & Sheridan Park Dr

01/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	497	19	470	66	121	71	109
v/c Ratio	0.18	0.58	0.05	0.55	0.21	0.26	0.23	0.24
Control Delay	6.2	9.2	5.1	8.5	13.1	12.2	13.4	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	9.2	5.1	8.5	13.1	12.2	13.4	9.7
Queue Length 50th (m)	1.7	14.7	0.4	12.8	2.5	4.3	2.8	2.7
Queue Length 95th (m)	6.5	35.7	2.5	32.0	10.7	15.7	11.4	12.5
Internal Link Dist (m)		552.8		167.9		418.3		255.1
Turn Bay Length (m)	30.0		30.0		43.0		27.0	
Base Capacity (vph)	852	1844	798	1804	1154	1644	1124	1567
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.27	0.02	0.26	0.06	0.07	0.06	0.07
Intersection Summary								

Junctions 9															
ARCADY 9 - Roundabout Module															
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Filename: 039474_Roundabout_Analysis 90 BG.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 7/25/2017 9:10:16 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2031 Background																
1 - Homelands Dr - N	1.0	2.3	7.75	0.51	A	7.27	A	54 %	0.3	1.4	4.29	0.24	A	7.59	A	27 %
2 - Sheridan Park Dr - E	1.1	1.9	7.17	0.51	A			[1 - Homelands Dr - N]	0.5	2.2	6.01	0.33	A			[3 - Speakman Dr - S]
3 - Speakman Dr - S	0.5	2.3	6.65	0.33	A				1.4	3.4	11.00	0.59	B			
4 - Sheridan Park Dr - W	0.0	0.5	6.20	0.02	A				0.1	0.5	4.12	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

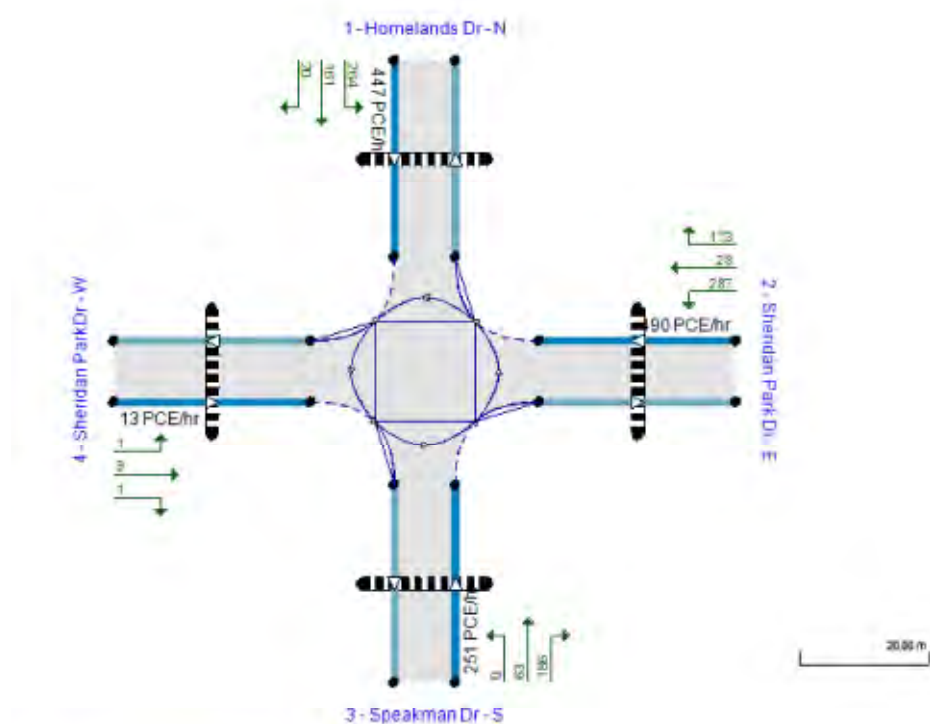
File summary

File Description

Title	Sheridan Park Drive 90 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE"Jlester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/hr)

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2031 Background	AM	ONE HOUR	08:00	09:30	15	✓
2031 Background	PM	ONE HOUR	16:00	17:30	15	✓

Junctions 9															
ARCADY 9 - Roundabout Module															
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Filename: 039474_Roundabout_Analysis 90 With Ext.j9
 Path: \\monty\Shared Work Areas\039474 - Sheridan\traffic\Analysis\Arcady
 Report generation date: 1/9/2018 11:50:17 AM

Summary of intersection performance

	AM								PM							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Single Lane Roundabout - 2031 With Extension																
1 - East End - 1 - Homelands Dr - N	1.1	2.8	8.98	0.53	A	7.93	A	13 %	0.4	1.0	4.84	0.26	A	7.25	A	29 %
1 - East End - 2 - Sheridan Park Dr - E	1.3	1.5	7.77	0.56	A				0.6	2.7	5.92	0.37	A			
1 - East End - 3 - Speakman Dr - S	0.5	2.1	6.81	0.33	A				1.2	3.4	10.50	0.55	B			
1 - East End - 4 - Sheridan Park Dr - W	0.1	0.5	6.18	0.07	A	8.40	A	[2 - West End - 4 - Sheridan Park Dr - W]	0.1	0.5	4.21	0.10	A	6.49	A	[1 - East End - 3 - Speakman Dr - S]
2 - West End - 2 - Sheridan Park Dr - E	0.1	0.5	3.93	0.13	A				0.2	0.5	5.61	0.17	A			
2 - West End - 3 - Speakman Dr - S	0.2	0.5	3.82	0.16	A				1.5	1.8	7.80	0.59	A			
2 - West End - 4 - Sheridan Park Dr - W	2.7	7.8	9.86	0.73	A				0.1	0.5	1.74	0.07	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

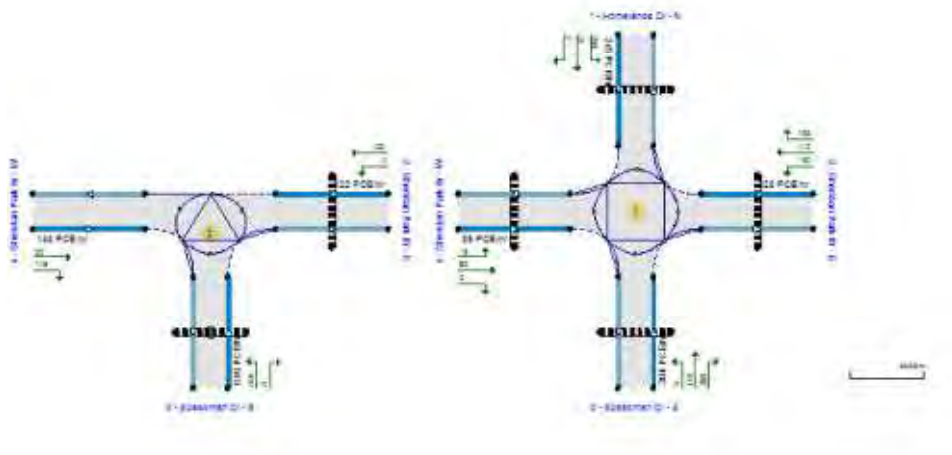
File summary

File Description

Title	Sheridan Park Drive With Extension 90 percent Capacity
Location	Mississauga
Site number	
Date	7/25/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	RJBURNSIDE\jester
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Showing original traffic demand (PCE/h)

The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2031 With Extension	AM	ONE HOUR	08:00	09:30	15	✓
2031 With Extension	PM	ONE HOUR	16:00	17:30	15	✓