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Proposed Redevelopment 485 Ancaster Avenue, Ottawa

Transportation Impact Assessment

Proposed Residential/Commercial Development 485 Ancaster Avenue

Transportation Impact Assessment

Prepared By:

NOVATECH Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario K2M 1P6

> Dated: June 2018 Revised: November 2018 Revised: August 2019 Revised: October 2019

Novatech File: 118035 Ref: R-2018-025



October 28, 2019

City of Ottawa Planning and Growth Management Department 110 Laurier Ave. W., 4th Floor, Ottawa, Ontario K1P 1J1

Attention: Mr. Mike Giampa Project Manager, Infrastructure Approvals

Dear Mr. Giampa:

Reference: 485 Ancaster Avenue Revised Transportation Impact Assessment Novatech File No. 118035

We are pleased to submit the following Revised Transportation Impact Assessment (TIA) in support of a Zoning By-Law Amendment for 485 Ancaster Avenue, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

A TIA was submitted to the City of Ottawa in June 2018, and revised in November 2018 and August 2019 in support of a Zoning By-Law Amendment. This revised TIA has been updated to include a review of the Neighbourhood Traffic Management module.

If you have any questions or comments regarding this report, please feel free to contact Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH

Ludia

Joshua Audia, B.Sc. E.I.T. | Transportation/Traffic

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TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

- 1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- 2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- 3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- 4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering or transportation planning □.

^{1,2} License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

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Dated at	Ottawa	this	<u>28th</u>	_ day of	October	, 2019.
	(City)					

Name:

Jennifer Luong, P.Eng. (Please Print)

Professional Title:

Senior Project Manager, Transportation/Traffic

Signature of Individual certifier that she meets the above four criteria

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning Application for the property located at 485 Ancaster Avenue. The subject site is currently occupied by a variety of retail land uses: two home furnishing stores, a restaurant, a pharmacy, dental and medical clinics, and offices for a tax consultant, a home security business and a non-profit organization.

The subject site is designated as 'Arterial Main Street' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is the 'Arterial Main Street Zone' (AM). The proposed residential and commercial uses are permitted in the AM10 Zone. There are no Secondary Plans or Community Design Plans applicable to the site. A Zoning By-Law Amendment is required to seek relief of various performance standards.

The proposed redevelopment will replace the current businesses with a 4-storey residential building with 78 units and a 22-storey residential building with 212 units, as well as approximately 11,553 ft² of commercial space on the ground floor. The amount of parking spaces available will increase, from approximately 110 to 229. The proposed redevelopment is anticipated to be completed in one phase, with full occupancy by the year 2022.

Access to the site is currently provided by a full movement driveway along Woodroffe Avenue and a right-in/right-out (RIRO) access along Carling Avenue. The proposed redevelopment will provide a right-in/left-out (RILO) access along Ancaster Avenue, a RIRO access on Woodroffe Avenue, and remove the RIRO access along Carling Avenue.

The study area for this report will include Carling Avenue, the west and east sections of Woodroffe Avenue, Fairlawn Avenue, Ancaster Avenue, Flower Avenue, Iroquois Road, and the signalized accesses to the Carlingwood Shopping Centre along Carling Avenue and Woodroffe Avenue East. The study area includes the signalized intersections at Carling Avenue/Woodroffe Avenue West, Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue, Carling Avenue/Carlingwood Shopping Centre, Carling Avenue/Iroquois Road, and Woodroffe Avenue East/Carlingwood Shopping Centre, as well as the unsignalized intersections at Carling Avenue/Ancaster Avenue, Woodroffe Avenue East/Carlingwood Shopping Centre, and Woodroffe Avenue East/Flower Avenue.

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The proposed redevelopment is expected to be completed with full occupancy by the year 2022. Therefore, this TIA will perform analysis for the weekday AM and PM peak hours in the buildout year 2022 and the horizon year 2027.

The conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

• The net increase in trips generated by the proposed redevelopment is approximately 293 person trips in the AM peak hour and 207 person trips in the PM peak hour, which includes an increase of approximately 133 vehicle trips in the AM peak hour and 100 vehicle trips in the PM peak hour.

Development Design and Parking

- Pedestrian facilities will be provided between the building entrances and the parking lot. Additionally, pedestrian facilities will connect the building to the existing sidewalks along Carling Avenue and Woodroffe Avenue East, and sidewalks along the frontage that are not 1.8m concrete will be upgraded to City standards. Sidewalks will be depressed and continuous across the Woodroffe Avenue East access, in accordance with City standards. There are no existing or proposed sidewalks along Ancaster Avenue.
- The nearest transit stops are within a walking distance of approximately 300m from all entrances to the proposed redevelopment.
- The proposed redevelopment allocates ground-floor storage areas devoted to bicycle parking.
- Garbage collection and deliveries will occur within the subject site. Garbage rooms are proposed at the western end of each building. The fire route is curbside along Carling Avenue and Woodroffe Avenue East.
- The proposed underground parking will be provided in a single garage, which can be accessed from both Ancaster Avenue and Woodroffe Avenue East.
- Approximately 229 vehicle parking spaces are proposed for the subject site, meeting the requirements of the ZBL. Bicycle parking will be provided in accordance with the minimum requirement of the ZBL as part of the Site Plan Control application.

Boundary Streets

- The results of the segment MMLOS analysis can be summarized as follows:
 - Ancaster Avenue meets the target pedestrian level of service (PLOS), while Carling Avenue and Woodroffe Avenue East do not;
 - Ancaster Avenue meets the target bicycle level of service (BLOS), while Carling Avenue and Woodroffe Avenue East do not;
 - Carling Avenue meets the target transit level of service (TLOS);
 - Carling Avenue and Woodroffe Avenue East meet the truck level of service (TkLOS);
 - All roadways meet the target vehicular level of service (Auto LOS).
- The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous transit lanes in its Affordable Network. While these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services on Carling Avenue as well.
- The PLOS of Woodroffe Avenue East can be improved to the target PLOS C by implementing sidewalks with a minimum width of 2.0m on the east side, and implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m on the west side.

However, there is insufficient ROW width to accommodate these sidewalk and boulevard widths.

- The Ancaster Avenue road closure approximately 50m north of Carling Avenue is anticipated to calm traffic such that the operating speed is reduced to approximately 30 km/h. The PLOS of Ancaster Avenue achieves the target PLOS C despite having no sidewalks due to the reduction in the operating speed to approximately 30 km/h.
- The BLOS of Woodroffe Avenue East can be improved to a BLOS A by implementing a cycle track or other physically separated bikeway. The Ontario Traffic Manual Book 18 identifies separated bicycle facilities as most appropriate for Woodroffe Avenue East, given the high operating speed and daily traffic volumes. However, lane reductions would be required to accommodate a separate cycling facility in this area, which is not feasible based on the current traffic volumes.

Access Design

- The proposed redevelopment will be serviced by a right-in/right-out access along Woodroffe Avenue East (approximately 60m north of the existing ROW of Carling Avenue) and a right-in/left-out access along Ancaster Avenue (approximately 50m north of the existing ROW of Carling Avenue).
- Section 25 (c) of the *Private Approach By-Law* identifies a maximum width requirement of 9m for two-way accesses. This requirement is met by both proposed accesses.
- Section 107 (1)(a) of the *Zoning By-Law* identifies a minimum width requirement of 6.7m for a two-way driveway to a parking lot, and 6.0m for a two-way driveway to a parking garage. These requirements are met by the proposed Woodroffe Avenue East access. The conceptual design of the accesses will be refined and reviewed as part of the Site Plan Control application.
- Section 25 (I) of the *Private Approach By-Law* identifies a minimum distance requirement of 30m between the private approach and the nearest intersecting street line. This requirement is met by both proposed accesses.
- TAC identifies a minimum distance requirement of 70m for arterials and 15m for local roadways, measuring between the private approach and the nearest intersecting street line. While it is acknowledged that the access of Woodroffe Avenue East does not meet this requirement, it is located as far from the intersection with Carling Avenue as possible.
- Section 25 (o) of the *Private Approach By-Law* identifies a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. This requirement is met by the access along Woodroffe Avenue East and the access along Ancaster Avenue.
- The clear throat length is approximately 9.5m, however queueing concerns will be significantly alleviated by restricting inbound and outbound left turns at this access, as it will not cause northbound queuing back to Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue. It is requested that this requirement be waived, based on the above.

• Based on the location of the proposed access on Ancaster Avenue, the road closure on Ancaster Avenue must be shifted north. A functional design is included in this report.

Neighbourhood Traffic Management

• With the addition of site-generated traffic to Woodland Avenue/Byron Avenue, the two-way traffic volume on Woodland Avenue is projected to be approximately 41 vehicles during the AM peak hour and 38 vehicles during the PM peak hour. This equates to 30% of the City's threshold for considering Neighbourhood Traffic Management measures. Therefore, no NTM measures are recommended, as none are required.

<u>Transit</u>

- The additional transit trips generated by the proposed redevelopment are not anticipated to have a significant impact on the operations of OC Transpo routes 16, 85, and 87.
- City staff have noted that a bus shelter is warranted at Stop #6481 adjacent to the subject site. The proponent will consider the provision of a bus shelter during the Site Plan Control application stage.

Intersection Design

- Based on the results of the intersection MMLOS analysis:
 - No intersections meet the pedestrian level of service (PLOS);
 - No intersections meet the bicycle level of service (BLOS);
 - Of intersections with targets, only Carling Avenue/Carlingwood Shopping Centre and Carling Avenue/Iroquois Road meet the transit level of service (TLOS);
 - All intersections meet the truck level of service (TkLOS);
 - Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue and the unsignalized Woodroffe Avenue East/Carlingwood Shopping Centre access do not meet the vehicular level of service (Auto LOS).
- Pedestrian Level of Service:
 - No crosswalks crossing Carling Avenue, Woodroffe Avenue West, or Woodroffe Avenue East/Fairlawn Avenue can achieve the target PLOS C without significantly reducing the number of lanes and restricting turning movements. These approaches all meet the City's warrant for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period), and could be considered where they have not already been implemented.
 - The south approach of Woodroffe Avenue East/Carlingwood Shopping Centre can meet the target PLOS C by implementing zebra-striped crosswalks. This approach meets the City's warrant for zebra-striped crosswalks. The east approach can meet the target PLOS C by implementing either a curb extension or wider sidewalks, such that the number of lanes crossed decreases from four to three. As this is a private approach, any modification would have to be negotiated between the City and the landowner.
- Bicycle Level of Service:
 - The BLOS of Carling Avenue/Woodroffe Avenue West can meet the target BLOS C by implementing a cycle track or other physically separated bikeway. Two-stage left turn bike boxes could be implemented at the south and west approaches. A jug handle

and crossbike could be implemented at the east approach. The effect of implementing a ten-second crossbike phase is anticipated to have a marginal effect on the performance of the intersection.

- The BLOS of Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue can meet the target BLOS C by implementing two-stage left-turn bike boxes and higher order cycling facilities for all approaches. However, there is insufficient ROW width on Woodroffe Avenue East to accommodate a separated bike facility.
- The BLOS of Carling Avenue/Carlingwood Shopping Centre can meet the target BLOS C by implementing two-stage left-turn bike boxes at all approaches.
- The BLOS of Carling Avenue/Iroquois Road can meet the target BLOS C by implementing higher order cycling facilities, and two-stage left-turn bike boxes for all approaches.
- The BLOS of Woodroffe Avenue East/Carlingwood Shopping Centre can meet the target BLOS C by implementing a cycle track or other physically separated bikeway. Two-stage left turn bike boxes could be implemented at the south and east approaches. A jug handle and crossbike could be implemented at the north approach. The effect of implementing a ten-second crossbike phase is anticipated to have a marginal effect on the performance of the intersection. There is insufficient ROW width on Woodroffe Avenue East to accommodate a separated bike facility.
- Transit Level of Service:
 - The TLOS of the east and west approaches at Carling Avenue/Woodroffe Avenue West and Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue can surpass the target TLOS D by implementing continuous bus lanes or at-grade LRT (with continuous bus lanes identified in the RTTP 2031 Affordable Network and at-grade LRT identified in the 2031 Network Concept). While the RTTP 2031 Network Concept also identifies Woodroffe Avenue East as a Transit Priority Corridor with Isolated Measures, there are limited opportunities to improve the TLOS at the north and south approaches of the Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue intersection.
- Vehicular Level of Service:
 - The Auto LOS of Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue does not currently meet the target Auto LOS D. To meet the target Auto LOS D, a reduction of approximately 20 vehicles in the AM peak hour and approximately 70 vehicles in the PM peak hour is required.
- In existing and future traffic conditions, queueing issues were identified for the following movements:
 - Carling Avenue/Woodroffe Avenue West
 - Westbound left turn (PM peak)

- o Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue
 - Southbound left turn (AM peak)
 - Southbound right turn (PM peak)
 - Eastbound left turn (AM and PM peaks)
 - Eastbound through (AM peak)
 - Westbound through (PM peak)
- Under the background traffic conditions, there is anticipated traffic growth on Woodroffe Avenues West and East. All intersections are anticipated to operate at approximately the same level of service, with Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue failing to meet the target Auto LOS D.
- Under the total traffic conditions, Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue is anticipated to downgrade to an Auto LOS F during the AM peak hour in 2022. All other intersections are anticipated to operate at approximately the same level of service.
- To meet the target Auto LOS D at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue in 2027 total traffic conditions (considered the worst case in this analysis), a reduction of approximately 50 vehicles in the AM peak hour and approximately 90 vehicles in the PM peak hour is required. This is comparable to the findings of the existing conditions analysis.
- A review of the Ontario Traffic Manual Books 5, 12, and 15 identify that an eastbound/ westbound pedestrian crossing treatment at Woodroffe Avenue East/Flower Avenue is not warranted.
- In conclusion, the roadway modification to accommodate the proposed redevelopment is limited to the relocation of the Ancaster Avenue road closure to the north of the proposed site access.

1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning Application for the property located at 485 Ancaster Avenue. The subject site is currently occupied by a variety of retail land uses: two home furnishing stores, a restaurant, a pharmacy, dental and medical clinics, and offices for a tax consultant, a home security business and a non-profit organization.

The proposed redevelopment will include two residential buildings containing 290 dwellings, as well as approximately 11,553 ft² of commercial space on the ground floor. A combination of underground and surface parking has been proposed, with 17 spaces above ground and 212 spaces underground.

The subject site is surrounded by the following:

- Residences to the north;
- Woodroffe Avenue and Carlingwood Shopping Centre to the east;
- Carling Avenue and commercial uses to the south;
- Ancaster Avenue and commercial/residential uses to the west.

A view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site



2.0 PROPOSED DEVELOPMENT

The subject site is designated as 'Arterial Main Street' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is the 'Arterial Main Street Zone' (AM). The proposed residential and commercial uses are permitted in the AM Zone. There are no Secondary Plans or Community Design Plans applicable to the site. A Zoning By-Law Amendment is required to seek relief of various performance standards.

The proposed redevelopment will replace the current businesses with a 4-storey residential building with 78 units and a 22-storey residential building with 212 units, as well as approximately 11,553 ft² of commercial space on the ground floor. The amount of parking spaces available will increase, from approximately 110 to 229. The proposed redevelopment is anticipated to be completed in one phase, with full occupancy by the year 2022.

Access to the site is currently provided by a full movement driveway along Woodroffe Avenue and a right-in/right-out (RIRO) access along Carling Avenue. The proposed redevelopment will provide a right-in/left-out (RILO) access along Ancaster Avenue, a RIRO access on Woodroffe Avenue, and remove the RIRO access along Carling Avenue.

A copy of the concept plan is included in **Appendix A**.

A context figure for the concept plan, which includes details of the boundary streets such as pavement markings, sidewalks, accesses, and right-of-way locations, is included in **Figure 2**.

3.0 SCREENING

3.1 Screening Form

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form. The trigger results are as follows:

- Trip Generation Trigger The development is expected to generate over 60 person trips/peak hour more than the existing development; further assessment is required based on this trigger.
- Location Triggers The development is located along a Rapid Transit or Transit Priority (RTTP) Route, a Spine Cycling Route, and is located in a Design Priority Area; further assessment is required based on this trigger.
- Safety Triggers The access along Woodroffe Avenue East is within 150 metres of the traffic signal at Carling Avenue/Woodroffe Avenue East, and is within the auxiliary left-turn lane along southbound Woodroffe Avenue East. For these reasons, further assessment is required based on this trigger.

A copy of the TIA Screening Form is included in **Appendix B**.



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4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa.

Carling Avenue is an arterial roadway that generally runs on an east-west alignment between March Road in Kanata and Bronson Avenue. It has a six-lane divided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit is 60 km/h. Carling Avenue is classified as an urban truck route, allowing full loads. Street parking is not permitted. The right-of-way (ROW) at the subject site is currently 31m, however the City of Ottawa's Official Plan identifies a ROW protection for Carling Avenue of 44.5m throughout the entire study area. We understand that it has been agreed with the City that a widening will not be taken as part of this development application.

Woodroffe Avenue West is an arterial roadway that runs on a north-south alignment between Carling Avenue and Strandherd Drive. South of Strandherd Drive, Woodroffe Avenue West continues as a major collector, and then a local roadway to Prince of Wales Drive. It has a four-lane undivided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 50 km/h within the study area. This section of Woodroffe Avenue is classified as a truck route, allowing full loads. Street parking is not permitted.

Woodroffe Avenue East is an arterial roadway that runs on a north-south alignment between the Sir John A. MacDonald Parkway and Carling Avenue. South of Carling Avenue, it continues as Fairlawn Avenue, a major collector roadway. Near the subject site, it has a four-lane undivided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 50 km/h. This section of Woodroffe Avenue is classified as a truck route, allowing only for partial loads. Street parking is not permitted. The ROW is approximately 26m near the subject site. For both sections of Woodroffe Avenue, the Official Plan identifies a ROW protection of 26m throughout the entire study area.

Iroquois Road is a local roadway that generally runs on a north-south alignment between Strathmore Boulevard and Prince Charles Road. It has a two-lane undivided urban cross-section. Sidewalks are provided on both sides of the roadway north of Carling Avenue for approximately 200m, and no sidewalks are provided south of Carling Avenue. Iroquois Road has a posted speed limit of 40 km/h. Street parking is permitted south of Carling Avenue.

Ancaster Avenue is a local roadway that runs on a north-south alignment between Carling Avenue and Richmond Road. It has a two-lane undivided urban cross-section, no sidewalks, and a regulatory speed limit of 50 km/h under the Highway Traffic Act. In October 2017, Ancaster Avenue was closed to vehicular traffic with a chain, approximately 50m north of Carling Avenue. Between Carling Avenue and this closure, street parking is not permitted. North of the closure, parking is prohibited on weekdays from 9:00am to 5:00pm.

Flower Avenue is a local roadway that runs on an east-west alignment between Ancaster Avenue and Woodroffe Avenue. It has a two-lane undivided urban cross-section, sidewalk on the north side of the roadway, and a regulatory speed limit of 50 km/h under the Highway Traffic Act. Street parking is not permitted.

4.1.2 Intersections

Carling Avenue/Ancaster Avenue

- Unsignalized three-legged intersection
- Southbound: one right turn lane
- Westbound: two through lanes, one lane tapering into two left turn lanes for downstream intersection



Carling Avenue/Woodroffe Avenue West

- Signalized three-legged intersection
- Northbound: one left turn lane and one right turn lane
- Eastbound: three through lanes and one channelized right turn lane
- Westbound: two left turn lanes and two through lanes
- Westbound U-turns are restricted

Carling Avenue/Woodroffe Avenue East/ Fairlawn Avenue

- Signalized four-legged intersection
- Northbound: one left turn lane, one through lane, and one shared through/right turn lane
- Southbound: one left turn lane, one through lane, and one right turn lane
- Eastbound: two left turn lanes, one through lane and one shared through/right turn lane
- Westbound: one left turn lane, three through lanes, and one channelized right turn lane
- Eastbound and westbound U-turn movements are restricted





Carling Avenue/Carlingwood Shopping Centre

- Signalized four-legged intersection
- Northbound: one shared left turn/through/ right turn lane
- Southbound: one left turn lane, one shared through/right turn lane, one transit-only right turn lane[‡]
- Eastbound: one left turn lane, two through lanes, and one shared through/right turn lane
- Westbound: one left turn lane, three through lanes, and one shared through/right turn lane

‡ Signal timings do not indicate a fully protected phase for southbound right turns, which is required for dual right turn lanes. Therefore, this lane is assumed to be for transit only.

Carling Avenue/Iroquois Road

- Signalized four-legged intersection
- Northbound: one shared left turn/through/ right turn lane
- Southbound: one left turn lane and one shared through/right turn lane
- Eastbound: one left turn lane, three through lanes, and one channelized right turn
- Westbound: one left turn lane, three through lanes, and one channelized right turn lane with a transit queue jump lane

<u>Woodroffe Avenue East/</u> <u>Carlingwood Shopping Centre</u> (approximately 125m north of Carling Avenue)

- Unsignalized three-legged intersection
- Northbound: two through lanes and one right turn lane
- Southbound: one shared left turn/through lane and one through lane
- Westbound: one left turn lane and one right turn lane







<u>Woodroffe Avenue East/</u> <u>Carlingwood Shopping Centre</u> (approximately 220m north of Carling Avenue)

- Signalized three-legged intersection
- Northbound: two through lanes and one right turn lane
- Southbound: one shared left turn/through lane and one through lane
- Westbound: one left turn lane and one right turn lane





Woodroffe Avenue East/Flower Avenue

- Unsignalized three-legged intersection
- Northbound: one shared left turn/through lane, one right turn lane for downstream intersection
- Southbound: one through lane, one shared through/right turn lane
- Eastbound: one shared left turn/through/ right turn lane

4.1.3 Driveways

In accordance with the City's 2017 TIA guidelines, a review of adjacent driveways along the boundary roads are provided as follows:

Carling Avenue, North Side:

 3 driveways to businesses at 2195, 2199, and 2211 Carling Avenue (adjacent driveway offset approximately 18m to the west, measuring nearest edge to nearest edge at the ROW)

Carling Avenue, South Side:

• 4 driveways to businesses at 2194, 2200, 2222, and 2238 Carling Avenue

Ancaster Avenue, East Side:

- 11 driveways to residences at 429, 433, 437, 445, 449, 451, 455, 463, 469, 471, and 473 Ancaster Avenue
- 2 driveways to businesses at 2199 Carling Avenue

Woodroffe Avenue, East Side:

• 1 unsignalized access to Carlingwood Shopping Centre

Ancaster Avenue, West Side:

- 14 driveways to residences at 442, 444, 446, 448, 450, 452, 458, 460, 462, 464, 476, 478, 484, and 486 Ancaster Avenue
- 1 driveway to businesses at 2207 Carling Avenue

Woodroffe Avenue, West Side:

8 driveways to residences at 310, 316 & 318, 324, 326, 338, 342, 346, and 348
 Woodroffe Avenue (adjacent driveway offset approximately 8m to the north, measuring nearest edge to nearest edge at the ROW)

Fairlawn Avenue, East Side:

• 2 driveways to retail businesses at 2148 Carling Avenue

Fairlawn Avenue, West Side:

• 1 driveway to retail businesses at 2194 Carling Avenue

4.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Carling Avenue, Woodroffe Avenue, and Fairlawn Avenue. An asphalt sidewalk is provided on Flower Avenue. No sidewalks are provided on Ancaster Avenue.

Carling Avenue, both sections of Woodroffe Avenue, and Fairlawn Avenue for one block south of Carling Avenue, are classified as part of Ottawa's primary cycling network as Spine Routes. There are no designated cycling facilities for these routes within the study area. Iroquois Road is designated as a Local Route. Flower Avenue is also designated as a Local Route, and the 2013 Ottawa Cycling Plan identifies the implementation of a shared use lane along Flower Avenue as part of the Westboro Neighbourhood Bikeway. The shared use lane is listed as a Phase 1 (2014-2019) project.

4.1.5 Transit

The nearest bus stops to the subject site are stop #4067 (for routes 11, 16, 85, 87, 301, 303, and 305; located on the south side of Carling Avenue, east of Fairlawn Avenue), #6481 (for routes 16, 85, 301, 303, and 305; located on the north side of Carling Avenue, west of Woodroffe Avenue East), #6484 (for route 87; located on the west side of Fairlawn Avenue, south of Carling Avenue) and #6488 (for routes 11, 16, 87, and 153; located at the northeast corner of Woodroffe Avenue and the unsignalized access to the Carlingwood Shopping Centre). These bus stop locations are shown in **Figure 3**.

OC Transpo Route 11 travels between Rideau Centre to Bayshore, with select trips travelling between Westboro station and the Carlingwood Shopping Centre instead. Only these select trips travel near the subject site, at 10:20am, 12:20pm, 2:20pm and 6:00pm on weekdays.

OC Transpo Route 16 travels from either the Ring Road/General Hospital station or Saint Paul University to either the Britannia Park Loop or Rideau Centre. The majority of these trips travel

between Saint Paul University and Britannia Park Loop, operating every 10 to 20 minutes from 7:00am to 11:00pm on weekdays. On weekends, the route operates every 15 minutes from 10:00am to 6:30pm, and every 30 minutes from 7:30am to 10:00am and 6:30pm to 11:30pm.

OC Transpo Route 85 travels from Lees to Bayshore. The route operates every 15 minutes from 8:00am to 8:00pm, every 20 minutes from 8:00pm to 12:00am, and every 30 minutes from 5:00am to 8:00am on weekdays. On weekends, the route operates every 15 minutes from 11:00am to 7:00pm, and every 30 minutes from 6:00am to 11:00am and 7:00pm to 1:00am.

OC Transpo Route 87 travels between Greenboro and Baseline, though trips before 7:30am terminate at Carlingwood Shopping Centre and trips after 9:30pm terminate at Hurdman. Within the study area, the route operates every 15 minutes from 6:30am to 7:00pm, and every 30 minutes from 7:00pm to 9:30pm on weekdays. The route operates within the study area every 30 minutes from 8:00am to 7:00pm on Saturdays and every 30 minutes from 11:30am to 7:00pm on Sundays.

OC Transpo Route 153 travels between Carlingwood Shopping Centre and Lincoln Fields. The route operates every 60 minutes from 8:00am to 7:00pm on weekdays. On weekends, the route operates at 8:20am, 10:10am, 12:15pm, 2:15pm, 5:20pm, and 7:20pm.

OC Transpo Routes 301 to 305 are shopping routes for residents of rural communities, with each route operating to different communities on a different weekday. Route 301 connects to Richmond and Stittsville on Mondays, arriving at Carlingwood Shopping Centre at 10:00am and departing at 2:30pm. Route 303 connects to Dunrobin and Carp on Wednesdays, arriving at Carlingwood Shopping Centre at 10:00am and departing at 2:30pm. Route 305 connects to Kars, North Gower, and Manotick on Fridays, arriving at Carlingwood Shopping Centre at 10:50am and departing at 2:30pm.



Figure 3: OC Transpo Bus Stop Locations

4.1.6 Existing Traffic Volumes

4.1.6.1 Existing Weekday Volumes

Weekday traffic counts completed by the City of Ottawa were used to determine the existing pedestrian, cyclist and vehicular traffic volumes at the study area intersections. The traffic counts were completed on the following dates:

- Carling Avenue/Woodroffe Avenue West
- Carling Avenue/Ancaster Avenue
- Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue
- Carling Avenue/Carlingwood Shopping Centre
- Carling Avenue/Iroquois Road
- Woodroffe Avenue East/Carlingwood Shopping Centre (signalized)

January 12, 2016 July 22, 2003 March 30, 2017 June 17, 2015 May 10, 2017 June 17, 2015 Weekday traffic counts coordinated by Novatech were completed on the following day:

Woodroffe Avenue East/Flower Avenue March 6, 2018

Based on the most recent data, Carling Avenue has an annual average daily traffic (AADT) of 28,963 vehicles/day. Woodroffe Avenue East/Fairlawn Avenue has an AADT of 15,902 vehicles/day.

Traffic counts at the unsignalized Woodroffe Avenue East/Carlingwood Shopping Centre were coordinated by Parsons for the weekday PM and Saturday peak hours, as part of the development application for a proposed Canadian Tire store, which would replace the former Sears department store space. Weekday PM peak hour volumes have been taken from the Canadian Tire TIA, prepared by Parsons in May 2019. AM peak hour volumes entering and exiting the access have been estimated by prorating the observed PM peak hour volumes, based on shopping centre trip generation rates shown in the *ITE Trip Generation Manual*. From these rates, the AM peak hour volumes are approximately 25% of the PM peak hour volumes.

Existing weekday traffic volumes for the study area are shown in Figure 4.

4.1.6.2 Existing Saturday Volumes

Saturday traffic counts at select intersections were completed by the City of Ottawa on the following dates:

•	Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue	April 29, 2017
•	Carling Avenue/Carlingwood Shopping Centre	June 16, 2012

• Woodroffe Avenue East/Carlingwood Shopping Centre (signalized) February 1, 2014

Volumes at the unsignalized intersection of Woodroffe Avenue East/Carlingwood Shopping Centre are based on the volumes shown in the Canadian Tire TIA, prepared by Parsons in May 2019. This development is discussed further in Section 4.2.

Existing Saturday traffic volumes, for the intersections within the study area with available data, are shown in **Figure 5**.

All traffic counts are included in **Appendix C**.

4.1.7 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department for the study area intersections. Copies of the collision summary reports are included in **Appendix D**. No collision data was available for the unsignalized access to Carlingwood Shopping Centre on Woodroffe Avenue East, approximately 125m north of Carling Avenue.

The collision data has been evaluated to determine if there are any identifiable collision patterns. The number of collisions at each intersection from January 1, 2012 to December 31, 2016 is summarized in **Table 1**.



Figure 4: Existing Weekday Peak Traffic Volumes



Figure 5: Existing Saturday Peak Traffic Volumes

Table 1: Reported Collisions

Intersection or Road Segment	Number of Reported Collisions
Carling Avenue/Woodroffe Avenue West	37
Carling Avenue/Ancaster Avenue	0
Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue	49
Carling Avenue/Carlingwood Shopping Centre	30
Carling Avenue/Iroquois Road	17
Woodroffe Avenue East/Carlingwood Shopping Centre (signalized)	11
Woodroffe Avenue East between Carling Avenue and Carlingwood Shopping Centre	15
Woodroffe Avenue East/Flower Avenue	13

Carling Avenue/Woodroffe Avenue West

A total of 37 collisions were reported at this intersection over the last five years, of which there were 19 rear-end impacts, five turning movement impacts, six sideswipe impacts, two angle impacts, and five single-vehicle/other impacts. Nine of the collisions caused injuries, but none caused fatalities.

Of the 19 rear-end impacts, nine occurred at the northbound approach (eight through vehicle and one right turn incidents), seven occurred at the eastbound approach (six through vehicle and one right turn incidents), and three occurred at the westbound approach (one left turn and two through vehicle incidents). Seven of the 19 collisions occurred in poor weather conditions.

Of the six sideswipe impacts, one occurred at the northbound approach, two occurred at the eastbound approach, and three occurred at the westbound approach. Two of the six collisions occurred in poor weather conditions.

Of the five single-vehicle/other impacts, three involved pedestrian or cyclists. In one of these cases, a pedestrian was struck at the eastbound approach by a through-moving OC Transpo bus.

Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue

A total of 49 collisions were reported at this intersection over the last five years, of which there were 14 rear-end impacts, 15 turning movement impacts, 12 sideswipe impacts, six angle impacts, and two single-vehicle/other impacts. Thirteen of the collisions caused injuries, but none caused fatalities.

Of the 14 rear-end impacts, four occurred at the southbound approach (one left turn and three through vehicle incidents), seven occurred at the eastbound approach (three left turn and four through vehicle incidents), and three occurred at the westbound approach (three through vehicle incidents). Four of the 14 impacts occurred in poor weather conditions.

Of the 15 turning movement impacts, two involved left turns at the northbound approach, six involved left turns at the southbound approach, five involved left turns at the eastbound approach, and two involved left turns at the westbound approach. Six of the 15 impacts occurred in poor weather conditions.

Of the 12 sideswipe impacts, four occurred at each of the southbound, eastbound, and westbound approaches. Three of the 12 impacts occurred in poor weather conditions.

Of the six angle impacts, one involved a northbound vehicle and an eastbound vehicle, three involved a northbound vehicle and a westbound vehicle, one involved a southbound vehicle and an eastbound vehicle, and one involved a southbound vehicle and a westbound vehicle. Three of the six impacts occurred in poor weather conditions.

Carling Avenue/Carlingwood Shopping Centre

A total of 30 collisions were reported at this intersection over the last five years, of which there were 20 turning movement impacts, one sideswipe impact, seven angle impacts, and two single-vehicle/other impacts. Three of the collisions caused injuries, along with one fatality.

Of the 20 turning movement impacts, 18 involved left turns at the eastbound approach (into the shopping centre), and two involved left turns at the westbound approach. Three of the 20 collisions occurred in poor weather conditions.

Of the seven angle impacts, one involved a northbound vehicle and an eastbound vehicle, two involved a northbound vehicle and a westbound vehicle, and four involved a southbound vehicle and a westbound vehicle. Two of the seven collisions occurred in poor weather conditions.

Of the two single-vehicle impacts, both involved a pedestrian and a southbound OC Transpo bus in dry conditions. The collision involving a right-turning bus onto Carling Avenue resulted in no injuries. The collision involving a left-turning bus from the northbound approach resulted in the death of an 87-year-old pedestrian walking toward the shopping centre. Zebra-striped crosswalks have since been implemented at the west and east approaches crossing Carling Avenue.

Carling Avenue/Iroquois Road

A total of 17 collisions were reported at this intersection over the last five years, of which there were two rear-end impacts, six turning movement impacts, one sideswipe impact, seven angle impacts, and one single-vehicle/other impact. Five of the collisions caused injuries, but none caused fatalities.

Of the six turning movement impacts, two involved left turns at the southbound approach and four involved left turns at the eastbound approach. One of the six collisions occurred in poor weather conditions.

Of the seven angle impacts, one involved a northbound vehicle and an eastbound vehicle, two involved a northbound vehicle and a westbound vehicle, one involved a southbound vehicle and an eastbound vehicle and three involved a southbound vehicle and a westbound vehicle. None of the seven collisions occurred in poor weather conditions.

Woodroffe Avenue East/Carlingwood Shopping Centre (signalized)

A total of 11 collisions were reported at this intersection over the last five years, of which there were six rear-end impacts, four turning movement impacts, and one single-vehicle/other impacts. Three of the collisions caused injuries, but none caused fatalities.

Of the six rear-end impacts, two occurred at the northbound approach (two through vehicle incidents) and four occurred at the southbound approach (one left turn and three through vehicle incidents). Four of the six collisions occurred in poor weather conditions.

Woodroffe Avenue East between Carling Avenue and Carlingwood Shopping Centre

A total of 15 collisions were reported along this segment over the last five years, of which there were five rear-end impacts, one turning movement impact, one sideswipe impact, and eight angle impacts. One collision caused injuries, and none caused fatalities.

Of the eight angle impacts, one involved a northbound vehicle and a westbound vehicle, and seven involved a southbound vehicle and an eastbound vehicle. One of these impacts occurred in poor weather conditions.

Woodroffe Avenue East/Flower Avenue

A total of 13 collisions were reported at this intersection over the last five years, of which there were five rear-end impacts, two turning movement impacts, one sideswipe impact, three angle impacts, and two single-vehicle/other impacts. Five of the collisions caused injuries, but none caused fatalities.

4.1.8 Site Observations

Observations of Woodroffe Avenue East between Carling Avenue and Flower Avenue were conducted on Monday, May 7, 2018 during the PM peak hour. The purpose of the site visit was to observe the performance of the unsignalized intersection at Woodroffe Avenue East/Flower Avenue and the unsignalized access to the subject site approximately 45m north of Carling Avenue. A summary of the observations is provided below.

Woodroffe Avenue East/Flower Avenue

During a 20-minute period just before the PM peak hour, 14 pedestrians crossed Flower Avenue using the crosswalk at the west approach, and six pedestrians illegally crossed Woodroffe Avenue East to head towards the Carlingwood Shopping Centre. While some jaywalkers crossed Woodroffe Avenue East during an appropriately large gap in traffic, others crossed as if a crosswalk had been implemented.

Limited delay was experienced by eastbound drivers on Flower Avenue, especially for drivers wishing to turn right onto Woodroffe Avenue East.

Full-Movement Access on Woodroffe Avenue East

During the PM peak hour, approximately 30 vehicles entered or exited the subject site using the full movement access on Woodroffe Avenue East. In all cases except for one, southbound drivers on Woodroffe Avenue East were required to courteously allow drivers to enter or exit the subject site. The access would become blocked when the southbound queue on Woodroffe Avenue East consisted of approximately eight cars or more.

The longest southbound queue at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue occurred for the southbound right turn movement, and extended from Carling Avenue to Saville Row (approximately 350m). These queue lengths are primary attributable to the lengths of queues for the westbound left turn movement at Carling Avenue/Woodroffe Avenue West, which frequently extends beyond Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue. This movement is the most direct way for traffic to reach Highway 417 from the study area. Often, the southbound right turn at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue cannot be performed because the vehicle at the front of the queue wishes to join the queue for the westbound left turn at Carling Avenue/Woodroffe Avenue West.

4.2 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any roadway projects within the study area in its Affordable Road Network. The Affordable Rapid Transit and Transit Priority (RTTP) Network identifies Carling Avenue as a Transit Priority Corridor with Continuous Lanes. An existing traffic lane in each direction will be reallocated to become an exclusive bus lane between Lincoln Fields station and the Carling O-Train station. The RTTP 2031 Network Concept identifies LRT with at-grade crossings for Carling Avenue between Lincoln Fields station and the Carling O-Train station. The RTTP 2031 Network Concept identifies URT with at-grade crossings for Carling Avenue between Lincoln Fields station and the Carling O-Train station, and identifies Woodroffe Avenue East north of Carling Avenue as a Transit Priority Corridor with Isolated Measures. The 2013 Ottawa Cycling Plan identifies the implementation of a shared use lane along Flower Avenue, as part of the Westboro Neighbourhood Bikeway. The shared use lane is listed as a Phase 1 project.

A Transportation Brief was completed by Novatech in May 2013 and subsequently amended in December 2013 for a commercial development at 2148 Carling Avenue (southeast corner of Carling Avenue/Carlingwood Shopping Centre). This development was not completed prior to the traffic count conducted at Carling Avenue/Carlingwood Shopping Centre in June 2015, and has been accounted for in the forecasting and analysis sections of this TIA.

A Transportation Impact Assessment was completed by Parsons in May 2019 for a new Canadian Tire store replacing the former Sears store at 2165 Carling Avenue (western end of the Carlingwood Shopping Centre), with a buildout year of 2020. The proposed development will connect to Carling Avenue and Woodroffe Avenue East via the existing accesses. The unsignalized access to the shopping centre on Woodroffe Avenue East will be converted to a RIRO access, and will shift approximately 25m to the south. Traffic generated by the proposed Canadian Tire has been accounted for in the forecasting and analysis sections of this TIA.

4.3 Study Area and Time Periods

The study area for this report will include Carling Avenue, the west and east sections of Woodroffe Avenue, Fairlawn Avenue, Ancaster Avenue, Flower Avenue, Iroquois Road, and the signalized accesses to the Carlingwood Shopping Centre along Carling Avenue and Woodroffe Avenue East. The study area includes the signalized intersections at Carling Avenue/Woodroffe Avenue West, Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue, Carling Avenue/Carlingwood Shopping Centre, Carling Avenue/Iroquois Road, and Woodroffe Avenue East/Carlingwood Shopping Centre, as well as the unsignalized intersections at Carling Avenue/Ancaster Avenue, Woodroffe Avenue East/Carlingwood Shopping Centre, and Woodroffe Avenue East/Flower Avenue.

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The proposed redevelopment is expected to be completed with full occupancy by the year 2022. Therefore, this TIA will perform analysis for the weekday AM and PM peak hours in the buildout year 2022 and the horizon year 2027. A rationale for excluding the Saturday peak hour from further analysis is outlined in Section 5.1.1.

4.4 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the TIA guidelines. The applicable exemptions for this site are shown in **Table 2**.

Module	Element	Exemption Criteria	Exemption Status
Design Review	Component		
4.1	<i>4.1.2</i> Circulation and Access	 Only required for site plans 	Not Exempt
Design	<i>4.1.3</i> New Street Networks	 Only required for plans of subdivision 	Exempt
4.2	<i>4.2.1</i> Parking Supply	Only required for site plans	Not Exempt
Parking	<i>4.2.2</i> Spillover Parking	 Only required for site plans where parking supply is 15% below unconstrained demand 	Exempt
Network Impact	t Component		
4.5 Transportation Demand Management	All elements	 Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time 	Not Exempt
4.6 Neighbourhood Traffic Management	<i>4.6.1</i> Adjacent Neighbourhoods	 Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds 	Not Exempt
4.8 Network Concept	All elements	 Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning 	Exempt

Table 2: TIA Exemptions

The Transportation Demand Management module is not required for the commercial land use based on the criteria presented in **Table 2**. A review of this module for the residential land use will be performed as part of the Site Plan Control application, as the final owner of the property is not yet known and the proponent cannot agree to implement any TDM measures on a future owner's behalf. Compared to the maximum development allowed by the existing zoning, the proposed redevelopment does not generate more than 200 additional person trips during any peak hour (thereby exempting the Network Concept module). Further rationale of this exemption is included in Section 5.1.1.

Based on the foregoing, the following modules will be included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design
- Module 4.6: Neighbourhood Traffic Management
- Module 4.7: Transit
- Module 4.9: Intersection Design

5.0 FORECASTING

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation

Currently, the subject site is occupied by a variety of businesses, which are arranged similarly to a strip mall. While some of the land uses have representative trip generation rates in the *ITE Trip Generation Manual, 9th Edition*, any internally captured trips are not accounted for by using the individual rates. Based on the layout of the subject site and the need to account for possible internally captured tips, the Specialty Retail land use has been selected to estimate the number of trips generated by the existing development. The total gross floor area has been approximated using aerial photography.

The proposed redevelopment will include 290 residential units, along with 11,553 ft² GFA of ground floor commercial space. Amenity space for residents of the building is also included on the ground floor, but is not anticipated to generate any external trips.

Trips generated by the proposed commercial space have been estimated using the same trip generation rates as described above, from the *ITE Trip Generation Manual*, 9th Edition. Trips generated by the proposed residential units in the AM and PM peak hours have been estimated using the recommended rates from the *TRANS Trip Generation Manual*, prepared in 2009 by McCormick Rankin Corporation. The trip generation rates, taken from Table 3.18 of the report, correspond to High-Rise Condominiums (3+ Floors) in the Urban Area (inside the greenbelt). The directional split between inbound and outbound trips are based on the blended splits presented in Table 3.17 of the report. As there are no rates for Saturday in the TRANS report, the *ITE Trip Generation Manual* has been used to determine a ratio of Saturday trips to PM trips, per a discussion with City staff. This ratio has then been applied to the PM rate identified in the *TRANS Trip Generation Manual*.

The estimated number of trips generated by the proposed residences are shown in **Table 3**. The corresponding number of person trips generated by the proposed residences, which are based on the modal shares presented in Table 3.13 of the TRANS report, are shown in **Table 4**.

Land Use	TRANS	Units	AM I	Peak ('	VPH)	PM I	Peak (\	VPH)	Sat F	Peak (\	/PH)
	Rates		IN	OUT	тот	IN	OUT	тот	IN	OUT	тот
Proposed Redevelopment											
High-Rise	AM: 0.38	290	31	80	111	58	12	100	45	50	104
Condominium	PM: 0.34	units	51	00		50	72	100	-13	59	104

Table 3: Proposed Residential Trip Generation

Table 4: Proposed Residential Person Trip Generation

Land Lleo	TRANS	Unite	AM Peak (PPH)			PM F	Peak (I	PPH)	Sat Peak (PPH)		
Lanu USe	Auto Share	Units	IN	OUT	тот	IN	OUT	тот	IN	OUT	тот
Proposed Redevelopment											
High-Rise AM: 37% 290 84 216 200 145 105 250 112 148 260											
Condominium	PM: 40%	units	04	210	300	145	105	230	112	140	200

The estimated number of trips generated by the existing and proposed commercial land uses are shown in **Table 5**. An ITE trip to person trip factor of 1.28 has been applied, consistent with the 2017 TIA Guidelines.

Land Use	ITE Code	GFA	AM Peak (PPH)			PM Peak (PPH)			Sat Peak (PPH)		
			IN	OUT	тот	IN	OUT	тот	IN	OUT	тот
Existing Development											
Specialty Retail	826	23,880 ft ²	10	7	17	37	46	83	62	62	124
Proposed Redevelopment											
Specialty Retail	826	11,553 ft ²	6	4	10	18	22	40	30	30	60

Table 5: Existing and Proposed Commercial Person Trip Generation

1. For Specialty Retail – The trip generation rate for the AM peak hour has been estimated by taking the ratio of the AM and PM peak hour rates for the Shopping Center land use, and multiplying this ratio by the Specialty Retail PM peak hour rate

 For Specialty Retail – The trip generation rate for the Saturday peak hour has been estimated by taking the ratio of the Saturday total rates for the Shopping Center and Specialty Retail land uses, and multiplying this ratio by the Shopping Center Saturday peak hour rate

Subtracting the trips generated by the existing development, the proposed redevelopment is projected to generate an additional 293 person trips during the AM peak hour, 207 person trips during the PM peak hour, and 196 person trips during the Saturday peak hour.

From the City's *Zoning By-Law*, the purpose of the Arterial Mainstreet Zone is to 'accommodate a broad range of uses including retail, service commercial, offices, residential and institutional uses in mixed-use buildings or side by side in separate buildings in areas designated Arterial Mainstreet in the Official Plan.' To justify exemption of the Network Concept module as outlined in Section 4.4, it must be demonstrated that the proposed redevelopment generates less than 200 person trips in excess of the highest traffic volume that could be generated by the established zoning.

To illustrate this, a concept of the largest possible development that complies with the established zoning has been included in **Figure 6**. A development consisting of ground floor retail with upper floors of general office space has been assumed as the highest trip generator, with approximately 50,000 ft² of retail space and 290,000 ft² of general office space. For consistency with the existing and proposed retail spaces, the Specialty Retail and General Office land use rates have been used, from the *ITE Trip Generation Manual*.

A comparison of the proposed redevelopment and the maximum development as allowed by the established zoning is shown in **Table 6**.



Figure 6: As of Right Maximum Development

Land Use	ITE Code	Units/ GFA	AM Peak (PPH)			PM Peak (PPH)			Sat Peak (PPH)		
	0000		IN	OUT	тот	IN	OUT	тот	IN	OUT	тот
Proposed Redevelopment											
High-Rise Condominium	-	290 units	84	216	300	145	105	250	112	148	260
Specialty Retail	826	11,553 ft ²	6	4	10	18	22	40	30	30	60
		Total	90	220	310	163	127	290	142	178	320
Maximum Development											
Specialty Retail	826	50,000 ft ²	27	16	43	76	97	173	130	130	260
General Office Building ⁽¹⁾	710	290,000 ft ²	505	69	574	88	428	516	0	0	0
		Total	532	85	617	164	525	689	130	130	260
1. Office weeking	Difference -442 135 -307 -1 -398 -399 12 48 60										

Table 6: Proposed and Maximum Development Trip Generation

1. Office use is assumed to generate no trips during the Saturday peak hour

Compared to the maximum development, the proposed redevelopment is anticipated to generate 307 person trips less during the AM peak hour, 399 person trips less during the PM peak hour, and 60 person trips more during the Saturday peak hour. As the proposed redevelopment does not generate more than 200 person trips compared to the maximum development in any peak hour, review of the Network Concept module is not required.

The modal shares for the proposed redevelopment are anticipated to be consistent with the modal shares outlined in the 2011 TRANS O-D Survey Report, specific to the Ottawa West region. The modal share values applied to the existing businesses and proposed commercial space are based on all observed trips within the Ottawa West district during the peak hours. The modal share values applied to the proposed residences are based on all trips from/within the Ottawa West district in the AM peak hour, and to/within the Ottawa West district in the PM peak hour.

A full breakdown of the projected net increase in person trips by modal share are shown in **Table 7**.

Traval Mada	Modal	1	AM Peak		F	PM Peal	ĸ	Sat Peak			
Travel Mode	Share	IN	OUT	тот	IN	OUT	тот	IN	OUT	тот	
Existing Develop	oment										
Existing Per	10	7	17	37	46	83	62	62	124		
Auto Driver	30%	3	2	5	11	14	25	19	19	38	
Auto Passenger	15%	1	1	2	6	7	13	9	9	18	
Transit	5%	1	0	1	2	2	4	3	3	6	
Non-Auto	50%	5	4	9	18	23	41	31	31	62	
Auto Drive	3	2	5	11	14	25	19	19	38		
Auto Passenge	1	1	2	6	7	13	9	9	18		
Trans	1	0	1	2	2	4	3	3	6		
Non-Auto (Total)		5	4	9	18	23	41	31	31	62	
Proposed Redevelopment											
Residential Per	son Trips	84	216	300	145	105	260	112	148	260	
Auto Driver	45%	38	97	135	65	47	112	50	67	117	
Auto Passenger	15%	12	33	45	22	16	38	17	22	39	
Transit	20%	17	43	60	29	21	50	22	30	52	
Non-Auto	20%	17	43	60	29	21	50	22	30	52	
Commercial Person Trips		6	4	10	18	22	40	30	30	60	
Auto Driver	30%	2	1	3	6	7	13	9	9	18	
Auto Passenger	15%	1	1	2	3	3	6	5	5	10	
Transit	5%	0	0	0	0	1	2	1	1	2	
Non-Auto	50%	3	2	5	9	11	20	15	15	30	
Auto Driver (Total)		40	98	138	71	54	125	59	76	135	
Auto Passenge	13	34	47	25	19	44	22	27	49		
Trans	17	43	60	29	22	51	23	31	54		
Non-Aut	20	45	65	38	32	70	37	45	82		
Auto Driver (Difference)		37	96	133	60	40	100	40	57	97	
Auto Pass. (Difference)		12	33	45	19	12	31	13	18	31	
Transit (Difference)		16	43	59	27	20	47	20	28	48	
Non-Auto (Difference)		15	41	56	20	9	29	6	14	20	

Table 7: Person Trips by Modal Share

Based on the previous table, the proposed redevelopment is projected to generate an additional 133 vehicle trips during the AM peak hour, 100 vehicle trips during the PM peak hour, and 97 vehicle trips during the Saturday peak hour.

As noted in Section 4.3, the analysis in this TIA does not consider the Saturday peak hour, as the AM and PM peak hours are anticipated to represent the 'worst case' combination of existing road
traffic and projected site traffic when considering the entire study area. A comparison of the existing weekday and Saturday peak volumes for intersections where Saturday traffic counts were available is presented in **Table 8**. Street totals for the major and minor streets are included in parentheses.

Intersection	AM Peak	PM Peak	Sat Peak
	(VPH)	(VPH)	(VPH)
Carling Avenue/	3,381	3,712	3,862
Woodroffe Avenue East/Fairlawn Avenue	(2,340 + 1,041)	(2,397 + 1,315)	(2,472 + 1,390)
Carling Avenue/	2,116	2,062	1,732
Carlingwood Shopping Centre	(2,021 + 95)	(1,842 + 220)	(1,328 + 404)
Woodroffe Avenue East/	1,419	1,861	1,702
Carlingwood Shopping Centre (signalized)	(1,389 + 30)	(1,684 + 177)	(1,465 + 237)

Table 8: Existing Inte	ersection Volumes at	Select Intersections
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As shown in the previous table, the existing Saturday peak hour traffic volumes are comparable to or less than the weekday AM and PM peak hour volumes. The intersection volumes at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue are highest during the Saturday peak hour by approximately 4%. The intersection volumes at the other two intersections listed above are highest during a weekday peak hour. Considering that the site-generated traffic is expected to be lower during the Saturday peak hour, it is anticipated that analysis of the Saturday peak hour will not result in any new or significantly different findings than analysis of the weekday peak hours. Weekday analysis will be carried forward for the remainder of the report.

A percentage of the trips generated by the proposed redevelopment are anticipated to be internally captured (for example, residents of the building making a trip to any of the businesses on the ground floor). It is likely that the number of trips of this nature will only make up a small proportion of the overall site-generated trip volume, and as such, no deduction has been made to account for internally-captured trips. All trips generated by the proposed land uses are assumed to have an origin or destination beyond the subject site. This simplifying assumption also allows for a more conservative analysis.

The commercial land use is expected to generate two types of external peak hour trips: primary and pass-by trips. Primary trips are made for the specific purpose of visiting the site, while pass-by trips are made as intermediate stops on the way to another destination. Peak hour pass-by trips have been estimated based on a pass-by rate of 34%, which is the average rate identified in the *ITE Trip Generation Handbook* for the Shopping Centre land use. The pass-by trips generated by the commercial development are part of the observed background traffic and do not constitute new trips on the adjacent road network. The primary and pass-by trip generation for the commercial land use is summarized in **Table 9**.

Trin Type	AM Peak			PM Peak			
пр туре	IN	OUT	тот	IN	OUT	ТОТ	
Commercial Vehicle Trips	2	1	3	6	7	13	
Pass-by	0	0	0	2	2	4	
Primary	2	1	3	4	5	9	

Table 9: Primary and Pass-by Trips

5.1.2 Trip Distribution

The assumed distribution of trips generated by the existing development and proposed redevelopment has been derived from existing traffic patterns within the study area. Trips generated by the existing and proposed commercial land uses are assumed to have a different distribution than the proposed residences. While the commercial land uses are anticipated to draw local patrons from all compass directions, a higher percentage of residents are anticipated to travel to/from the east as part of their commute. A further discussion of both distributions is included below.

Trips generated by the existing and proposed commercial land uses are anticipated to draw a higher percentage of local patrons from the areas proximately north, south, east, and west of the site. Based on the off-peak traffic counts in the study area, the traffic is highest east of the subject site, but the disparity is not as great when compared to the AM and PM peak hour counts. The trip distribution for the commercial land uses is described as follows:

- 20% to/from the north via Woodroffe Avenue East
- 20% to/from the south via Woodroffe Avenue West
- 5% to/from the south via Fairlawn Avenue
- 30% to/from the east via Carling Avenue
- 25% to/from the west via Carling Avenue

Trips generated by the proposed residences are anticipated to follow the traffic patterns associated with the typical commute (leaving for work during the AM peak hour, and returning from work during the PM peak hour). The trip distribution for the proposed residences is described as follows:

- 20% to/from the north via Woodroffe Avenue East
- 20% to/from the south via Woodroffe Avenue West and Fairlawn Avenue
- 40% to/from the east via Carling Avenue
- 20% to/from the west via Carling Avenue

5.1.3 Trip Assignment

Due to the restrictions to certain turning movements and access movements (such as the proposed right-in/left-out access along Ancaster Avenue and the proposed right-in/right-out access along Woodroffe Avenue East), the trip assignment at the accesses will be different based on arrival and departure. Trips generated by the existing development will be assigned to the accesses as follows:

Existing - Carling Avenue Right-In/Right-Out Access

- All trips arriving from the east via Carling Avenue;
- All trips departing to the west via Carling Avenue and south via Woodroffe Avenue West.

Existing - Woodroffe Avenue East Full-Movement Access

- All trips arriving and departing to the north via Woodroffe Avenue East;
- All trips arriving and departing to the south via Fairlawn Avenue;
- All trips departing to the east via Carling Avenue;
- All trips arriving from the west via Carling Avenue and south via Woodroffe Avenue West.

All commercial trips are anticipated to access the surface parking spaces adjacent to the driveway on Ancaster Avenue. Due to restrictions on certain turning movements (such as restrictions on

inbound and outbound left turns at Carling Avenue/Ancaster Avenue), trips generated by the proposed redevelopment will be assigned to the proposed accesses as follows:

Proposed - Ancaster Avenue Right-In/Left-Out Access

- All commercial trips to/from all directions;
- All residential trips arriving from the south via Fairlawn Avenue;
- All residential trips arriving from the east via Carling Avenue;
- All residential trips departing to the north via Carling Avenue toward Woodland Avenue or the Sir John A. Macdonald Parkway;
- All residential trips departing to the south via Woodroffe Avenue West;
- All residential trips departing to the west via Carling Avenue.

Proposed - Woodroffe Avenue East Right-In/Right-Out Access

- All residential trips arriving from the north via Woodroffe Avenue East;
- All residential trips arriving from the west via Woodroffe Avenue East from Lawn Avenue/ Flower Avenue or the Sir John A. Macdonald Parkway;
- All residential trips departing to the east via Carling Avenue.

Pass-by trips generated by the proposed redevelopment have been distributed to the access on Ancaster Avenue, as the majority of existing traffic and proposed site-generated traffic enters the study area on Carling Avenue. Trips generated by the existing development are shown in **Figure 7**. Trips generated by the proposed redevelopment are shown in **Figure 8**.

5.2 Background Traffic

5.2.1 General Background Growth Rate

A rate of background growth has been established through a review of the City of Ottawa's Strategic Long Range Model, comparing snapshots of 2011 and 2031 AM peak volumes. The snapshots suggest a growth rate of -0.5% per annum along Carling Avenue, and growth rates between -1.0% and +0.5% on all other roadways within the study area. In the interest of maintaining a conservative analysis, a 1% growth rate has been assumed for Woodroffe Avenue West and East. To reflect traffic connecting between Woodroffe Avenue and East, this 1% growth has also been applied to the westbound left turn movement at Carling Avenue/Woodroffe Avenue West and the eastbound left turn movement at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue. A 0% growth rate has been applied to all other roadways within the study area.

5.2.2 Other Area Development

In the interest of maintaining a conservative analysis, the projected traffic volumes generated by the development at 2148 Carling Avenue and the proposed Canadian Tire at 2165 Carling Avenue has been added to the 2022 and 2027 background traffic at all relevant intersections within the study area. Relevant excerpts of Novatech's study for 2148 Carling Avenue and Parson's study for 2165 Carling Avenue are included in **Appendix E**. Any left turns into and out of the unsignalized mall access to Woodroffe Avenue East have been reassigned to the signalized access.

Background volumes for the 2022 buildout year and 2027 horizon year are shown in **Figure 9** and **10**, respectively. Total traffic volumes for 2022 and 2027, which subtract the traffic generated by the current development, are shown in **Figures 11** and **12**, respectively.









Figure 9: 2022 Background Traffic



Figure 10: 2027 Background Traffic



Figure 11: 2022 Total Traffic



Figure 12: 2027 Total Traffic



6.0 ANALYSIS

6.1 Development Design

Pedestrian facilities will be provided between the building entrances and the parking lot. Additionally, pedestrian facilities will connect the building to the existing sidewalks along Carling Avenue and Woodroffe Avenue East, and sidewalks along the frontage that are not 1.8m concrete will be upgraded to City standards. Sidewalks will be depressed and continuous across the Woodroffe Avenue East access, in accordance with City standards. There are no existing or proposed sidewalks along Ancaster Avenue.

The nearest bus stops to the subject site are reviewed in Section 4.1.5 and shown in **Figure 3**. All stops are within a walking distance of approximately 300m from all entrances to the proposed redevelopment.

Bicycle parking for the proposed development will be in accordance with the minimum requirement of the City's *Zoning By-Law* (ZBL), as described in Section 6.2. Bicycle storage rooms are proposed at the northwest and southwest corners of the northern building, adjacent to the proposed garbage room. A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* will be conducted during the Site Plan Control application.

Vehicles for garbage collection and deliveries will enter the site via Ancaster Avenue. Garbage rooms are proposed at the western end of each building. The fire route for the proposed redevelopment is curbside along Carling Avenue and Woodroffe Avenue East.

The proposed underground parking will be provided in a single garage, which can be accessed from both Ancaster Avenue and Woodroffe Avenue East.

6.2 Parking

The subject site is located in Area B of Schedule 1 and Area Y of Schedule 1A of the ZBL. Minimum vehicular and bicycle parking rates for the proposed redevelopment are identified in the ZBL, and are summarized in **Table 10**.

Land Use	Rate	Units/GFA	Required
Minimum Vehicle Pa	rking		
Apartment Building,	0.50 per dwelling unit after the first 12 units;	200 unito	167
Mid-High Rise).10 per dwelling unit after the first 12 for visitors		107
Retail Store	1.25 per 100 m ² GFA	1,161 m ²	15
		Minimum	182
		Provided	229
Minimum Bicycle Par	rking		
Apartment Building,	0 E0 por dwolling upit	200 unito	145
Mid-High Rise	0.50 per dweining unit	290 units	140
Retail Store	1.0 per 250 m ² GFA	1,161 m ²	5
		Minimum	150

Table 10: Parking Requirement Per Zoning By-Law

Based on the previous table, the vehicular parking provided meets the minimum requirements of the ZBL. A review of the proposed bicycle parking will be conducted during the Site Plan Control application.

6.3 Boundary Streets

This section provides a review of the boundary streets using complete streets principles. The *Multi-Modal Level of Service* (MMLOS) guidelines produced by IBI Group in October 2015 were used to evaluate the levels of service for the boundary roadways for each mode of transportation. Schedule B of the City of Ottawa's Official Plan identifies Carling Avenue as an Arterial Main Street within the entire study area, while Woodroffe Avenue East and Ancaster Avenue are identified as being within the General Urban Area. Targets for PLOS, BLOS, TLOS, TKLOS, and Auto LOS for the boundary roadways adhere to those outlined in Exhibit 22 of the MMLOS guidelines. The boundary streets review evaluates the MMLOS for all boundary roadways based on existing conditions.

6.3.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of the boundary roadways. Exhibit 22 of the MMLOS guidelines suggest a target PLOS C for Arterial Main Streets (Carling Avenue) and all road classes within the General Urban Area (Woodroffe Avenue East and Ancaster Avenue). The results of the segment PLOS analysis are summarized in Table 11.

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic	Presence of On-Street Parking Dereting		Segment PLOS
Couling Aver		volume	Parking		
Carling Aven	iue (north sid	e)		1	
1.8m	0m	> 3000 vpd	No	70 km/h	F
Carling Aven	nue (south sid	de)			
1.8m	0m	> 3000 vpd	No	70 km/h	F
Woodroffe A	venue East (e	east side)			
1.5m	0m	< 3000 vpd	No	60 km/h	F
Woodroffe A	venue East (v	west side)			
1.8m	0m	> 3000 vpd	No	60 km/h	F
Ancaster Av	enue (east sid	de)			
No sid	ewalk	< 3000 vpd	N/A	30 km/h	С
Ancaster Av	enue (west si	de)			
No sid	ewalk	< 3000 vpd	N/A	30 km/h	С
1 Operating	speed of Carling A	venue and Woodroffe Avenu	e East taken as the noste	d speed limit plus 10 k	rm/h

Table 11: PLOS Segment Analysis

2. Operating speed of Ancaster Avenue taken as 30 km/h, due to the road closure approximately 50m north of Carling Avenue

6.3.2 **Bicycle Level of Service (BLOS)**

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of the boundary roadways. Exhibit 22 of the MMLOS guidelines suggest a target BLOS C for Spine Cycling Routes on Arterial Main Streets (Carling Avenue) and arterial roads in the General Urban Area (Woodroffe Avenue East). Exhibit 22 of the MMLOS guidelines suggest a target BLOS D for local roads in the General Urban Area with no cycling route designation (Ancaster Avenue). The results of the segment BLOS analysis are summarized in Table 12.

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Centerline Markings	Operating Speed	Segment BLOS
Carling Ave	nue (Woodrof	fe Avenue We	est to Woodro	offe Avenue E	ast)	
Artorial	Spine	Mixed	6	Voc	70 km/b	F
Altenai	Route	Traffic	0	165		I
Woodroffe A	venue East (Carling Avenu	ue to Carlingv	vood Shoppir	ng Centre)	
Artorial	Spine	Mixed	4 to 5	Voc	60 km/b	E
Alterial	Route	Traffic	4 10 5	165		Г
Ancaster Avenue (Carling Avenue to Flower Avenue)						
	No	Mixed	2	No	20 km/b	Λ
Local	Designation	Traffic	2	INU	SU KIII/II	A

Table 12: BLOS Segment Analysis

6.3.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of the boundary roadways. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for Transit Priority Corridors with Isolated Measures on Arterial Main Streets (Carling Avenue). Woodroffe Avenue East serves transit, and has been evaluated for TLOS despite having no target. Ancaster Avenue has not been evaluated for TLOS. The results of the segment TLOS analysis are summarized in **Table 13**.

Table 13: TLOS Segment Analysis

	Level/Exposure t	Segment							
гаспиу туре	Congestion Friction Incid		Incident Potential	TLOS					
Carling Avenue (Woodroffe	Carling Avenue (Woodroffe Avenue West to Woodroffe Avenue East)								
Mixed Traffic – Limited Parking/Driveway Friction	Yes	Low	Medium	D					
Woodroffe Avenue East (Carling Avenue to Carlingwood Shopping Centre)									
Mixed Traffic – Limited Parking/Driveway Friction	Yes	Low	Medium	D					

6.3.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of the boundary roadways. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for truck routes along an Arterial Main Street (Carling Avenue) and arterial roads in the General Urban Area (Woodroffe Avenue East). Ancaster Avenue has not been evaluated for TkLOS. The results of the segment TkLOS analysis are summarized in **Table 14**.

Table 14: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	Segment TkLOS				
Carling Avenue (Woodroffe Avenue West to Woodroffe Avenue East)						
3.3m to 3.5m	3	С				
Woodroffe Avenue East (Carlingwood Shopping Centre to Carling Avenue)						
3.5m to 3.7m	2	А				

6.3.5 Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggest a target Auto LOS D for Arterial Main Streets (Carling Avenue) and all roadways within the General Urban Area (Woodroffe Avenue East, Ancaster Avenue). The typical lane capacity along the study area roadways are based on the City's guidelines for the TRANS Long-Range Transportation Model. The lane capacity along the boundary streets has been estimated based on roadway classification and general characteristics (i.e. suburban with limited access, urban with on-street parking, etc.). The results of the Auto LOS analysis are summarized in **Table 15**.

	Directional	Traffic \	/olumes	V/C Ratio and LOS					
Direction	Capacity	AM Dook	DM Dook	AM F	Peak	PM F	Peak		
	Capacity	AW Feak	FINI Feak	V/C	LOS	V/C	LOS		
Carling Avenue (Woodroffe Avenue West to Woodroffe Avenue East)									
Eastbound	3000 vph	1940	959	0.65	В	0.32	А		
Westbound	3000 vph	816	1987	0.27	А	0.66	В		
Woodroffe Ave	enue East (Carling	g Avenue to	Carlingwoo	d Shoppi	ng Centro	e)			
Northbound	1600 vph	735	851	0.46	А	0.53	А		
Southbound	1600 vph	778	964	0.49	А	0.60	А		
Ancaster Avenue (Carling Avenue to Flower Avenue)									
Northbound	400 vph	6	8	0.02	А	0.02	А		
Southbound	400 vph	2	5	0.01	А	0.01	А		

Table 15: Auto LOS Segment Analysis

6.3.6 Segment MMLOS Summary

A summary of the results of the segment MMLOS analysis for the boundary roadways are provided in **Table 16**. The results of the segment MMLOS analysis can be summarized as follows:

- Ancaster Avenue meets the target pedestrian level of service (PLOS), while Carling Avenue and Woodroffe Avenue East do not;
- Ancaster Avenue meets the target bicycle level of service (BLOS), while Carling Avenue and Woodroffe Avenue East do not;
- Carling Avenue meets the target transit level of service (TLOS);
- Carling Avenue and Woodroffe Avenue East meet the target truck level of service (TkLOS);
- All roadways meet the target vehicular level of service (Auto LOS).

The current ROW along Carling Avenue is 31m within the study area, with a ROW protection of 44.5m. A future road widening is anticipated to be taken as part of this application. The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous transit lanes in its Affordable Network. While these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services as well, as discussed further below.

The pedestrian level of service of Carling Avenue is currently failing. This is attributable to two main features: an operating speed of 70 km/h and average daily curb lane traffic volumes far greater than 3000 vehicles/day. With a reduction of the operating speed to 60 km/h, the best PLOS possible for this segment is the target PLOS C, which can be achieved by implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m.

The pedestrian level of service of Woodroffe Avenue East is currently failing. The PLOS could be improved to the target PLOS C by implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m. However, the ROW width is insufficient to accommodate these widths.

The road closure on Ancaster Avenue approximately 50m north of Carling Avenue, which effectively creates two cul-de-sacs, is anticipated to calm traffic such that the operating speed is reduced to approximately 30 km/h. As shown in **Table 11**, Exhibit 4 of the MMLOS guidelines indicates that Ancaster Avenue achieves the target PLOS C with no sidewalks.

Table 16: Segment MMLOS Summary

	Segment	Carling Avenue	Woodroffe Avenue East	Ancaster Avenue
	Sidewalk Width	1.8m	1.5m	0m
lestrian	Boulevard Width	0m	0m	0m
	Average Daily Curb Lane Traffic Volume	> 3000 vpd	> 3000 vpd	< 3000 vpd
	On-Street Parking	No	No	N/A
ed	Operating Speed	70 km/h	60 km/h	30 km/h
e.	Level of Service	F	F	С
	Target	С	С	С
	Road Classification	Arterial	Arterial	Local
	Bike Route Classification	Spine Route	Spine Route	None
ų	Type of Bikeway	Mixed Traffic	Mixed Traffic	Mixed Traffic
yclis	Travel Lanes	6	4 to 5	2
	Centerline Markings	Yes	Yes	No
Ŭ	Operating Speed	70 km/h	60 km/h	30 km/h
	Level of Service	F	F	А
	Target	С	C	D
±	Facility Type	Mixed Traffic	Mixed Traffic	-
ISU	Friction/Congestion/Incident Potential	Limited	Limited	-
L ra	Level of Service	D	D	-
	Target	D	-	-
	Lane Width	3.3m to 3.5m	3.5m to 3.7m	-
PC PC	Travel Lanes (per direction)	3	2	-
L T	Level of Service	С	A	-
	Target	D	D	-
Ę	Level of Service	В	A	A
Au	Target	D	D	D

The bicycle level of service of Carling Avenue is currently failing. This is attributable to the operating speed of 70 km/h. The *Ontario Traffic Manual – Book 18* describes the desirable cycling facility for a roadway, given the roadway's average annual daily traffic (AADT) and operating speed. For roadways with an AADT of over 15,000 vehicles per day and an operating speed of 50 km/h or higher, the *Ontario Traffic Manual* states that 'a separated facility or an alternate road' should be considered. Per Exhibit 11 of the MMLOS guidelines, the implementation of a cycle track or other physically separated bikeway would improve the BLOS of this segment to a BLOS A. This could be considered as part of the City's RTTP Affordable Network or Network Concept projects for Carling Avenue.

The bicycle level of service of Woodroffe Avenue East is currently failing. This is attributable to the operating speed of 60 km/h. The *Ontario Traffic Manual – Book 18* describes the desirable cycling facility for a roadway, given the roadway's average annual daily traffic (AADT) and operating speed. For roadways with an AADT of over 15,000 vehicles per day and an operating speed of 50 km/h or higher, the *Ontario Traffic Manual* states that 'a separated facility or an alternate road' should be considered. Per Exhibit 11 of the MMLOS guidelines, the implementation of a cycle track or other physically separated bikeway would improve the BLOS of this segment to a BLOS A. However, lane reduction would be required to accommodate a separate cycling facility in this area, which is not feasible based on the current traffic volumes.

6.4 Access Design

The existing right-in/right-out access along Carling Avenue will be removed as part of the proposed redevelopment, and full-height curb and sidewalks will be reinstated as per City standards. The proposed redevelopment will be serviced by a right-in/right-out access along Woodroffe Avenue East and a right-in/left-out access along Ancaster Avenue.

Section 25 (c) of the City of Ottawa's *Private Approach By-Law* identifies a requirement for two-way accesses to have a width no greater than 9m, as measured at the street line. Section 107 (1)(a) of the *Zoning By-Law* identifies a minimum width requirement of 6.7m for a two-way driveway to a parking lot, and a minimum width of 6.0m for a two-way driveway to a parking garage. The conceptual access on Woodroffe Avenue East is approximately 6.0m, and the conceptual access on Ancaster Avenue is approximately 6.0m in width. The conceptual design of the accesses will be refined and reviewed as part of the Site Plan Control application.

Section 25 (I) of the *Private Approach By-Law* identifies a requirement to provide a minimum distance of 30m at the street line between the private approach and the nearest intersecting street line. The access along Woodroffe Avenue East is approximately 60m from the existing ROW of Carling Avenue, measured from the nearest edge of the access, and 55m from the 5m road widening shown on the concept plan. The proposed access along Ancaster Avenue is approximately 50m from the existing ROW of Carling Avenue, measured from the nearest edge of the access. Based on the spacings described, the minimum distance as outlined in the *Private Approach By-Law* are satisfied.

The Transportation Association of Canada (TAC) identifies a requirement to provide a minimum distance of 70m for arterials and 15m for local roadways, measuring between the private approach and the nearest intersecting street line. While it is acknowledged that the access on Woodroffe Avenue East does not meet this requirement, it is located as far from the intersection with Carling Avenue as possible.

Section 25 (o) of the *Private Approach By-Law* identifies a requirement to provide a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. The spacing between the nearest edge of the access along Woodroffe Avenue East and the property line is 3m. The spacing between the nearest edge of the proposed access along Ancaster Avenue and the property line is approximately 7m. The accesses therefore meet the requirement.

For the access on Woodroffe Avenue East, the clear throat length is approximately 9.5m. The potential concern, that queueing at the access could cause congestion on Woodroffe Avenue East, is significantly alleviated by providing only a RIRO access. By restricting left turns, the access will not cause northbound congestion, which could potentially cause queueing back to the intersection of Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue. It is recommended that the clear throat length requirement be waived, based on the above.

Based on the location of the proposed access along Ancaster Avenue, the road closure on Ancaster Avenue must be shifted slightly north. There is approximately 15m between the existing road closure and the closest driveway north of the closure. A functional design of a possible new road closure, which allows cyclists to pass through, is included in **Appendix F**.

A road modification approval (RMA) package for the proposed location of the road closure has been submitted concurrently with this TIA.

6.5 Neighbourhood Traffic Management

The anticipated impact of site-generated traffic to Woodland Avenue to the west has been included in this TIA, per discussions with the City. Based on the trip distribution and assignment assumptions outlined in Sections 5.1.2 and 5.1.3, it is anticipated that site-generated traffic departing to the north of the study area may do so by travelling through the Woodpark community. The first opportunity for traffic to turn north from Carling Avenue is onto Woodland Avenue, in order to access Richmond Road. To represent the 'worst case' scenario, all site-generated traffic destined to the north is assumed to travel through the intersection of Woodland Avenue/Byron Avenue. To assess the impact of site-generated traffic on Woodland Avenue, a traffic count at this intersection was coordinated by Novatech on October 23, 2019. Data from this count is included in **Appendix C**.

The traffic count data collected at Woodland Avenue/Byron Avenue indicates two-way traffic volumes of 21 vehicles during the AM peak hour and 28 vehicles during the PM peak hour on Woodland Avenue. Assuming all site-generated trips destined to the north travel through the Woodland Avenue/Byron Avenue intersection, the proposed redevelopment is anticipated to add approximately 20 vehicles during the AM peak hour and 10 vehicles during the PM peak hour, or one vehicle every three minutes. The new two-way total traffic volumes at Woodland Avenue/Byron Avenue would then equal approximately 41 vehicles during the AM peak hour and 38 vehicles during the PM peak hour.

The addition of site-generated traffic is not anticipated to change the function of Woodland Avenue as a local roadway. Further, this magnitude of volume is only 30% of the City's two-way peak hour volume threshold for considering a Neighbourhood Traffic Management (NTM) plan, which is 120 vehicles per hour for local roadways. Therefore, no NTM measures are recommended, as none are required.

6.6 Transit

The majority of transit trips generated by the subject site are anticipated to be generated specifically by the residential land use. As such, the trip distribution applied to residential vehicle trips has been applied to the distribution of transit trips as well, and is summarized as follows:

- 20% to/from the north via Route 16 from stop #4067
- 20% to/from the south via Route 87 from stop #6484
- 40% to/from the east via Route 85 from stop #4067
- 10% to/from the west via Route 16 from stop #6481
- 10% to/from the west via Route 85 from stop #6481

Applying these distribution percentages to the projected net transit trip volumes presented in **Table 7** yields a net increase at the following transit stops:

AM Peak Hour

- 36 passengers (27 boarding, 9 alighting) at stop #4067;
- 12 passengers (8 boarding, 4 alighting) at stop #6481;
- 11 passengers (8 boarding, 3 alighting) at stop #6484.

PM Peak Hour

- 28 passengers (12 boarding, 16 alighting) at stop #4067;
- 10 passengers (4 boarding, 6 alighting) at stop #6481;
- 9 passengers (4 boarding, 5 alighting) at stop #6484.

Based on the projected increase in transit trip volumes due to the proposed redevelopment, no capacity problems are anticipated on any of the adjacent bus routes, or at any of the adjacent bus stops. City staff have noted that a bus shelter is warranted at Stop #6481 adjacent to the subject site. The proponent will consider the provision of a bus shelter during the Site Plan Control application stage.

6.7 Intersection Design

6.7.1 Intersection MMLOS Analysis

This section provides a review of the study area intersections using complete streets principles. The MMLOS guidelines produced by IBI Group in October 2015 were used to evaluate the multi-modal levels of service for each intersection. As discussed in Section 6.3, the Arterial Main Street designation has been applied to Carling Avenue, with all other roadways using the General Urban Area designation, for the purposes of evaluating the MMLOS. The full intersection MMLOS analysis is included in **Appendix G**. A summary of the results is shown in **Table 17**.

Table 17: Intersection MMLOS Summa	ry
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Intersection		PLOS		BLOS		TLOS		TkLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	
Carling Avenue/	E	<u> </u>	E	C	-	П		Р		Р	
Woodroffe Avenue West	F	C	F	U U	E	D	D	D	U	D	
Carling Avenue/Woodroffe Avenue	-	C	-	C	-				E		
East/Fairlawn Avenue	F	C	F	C	F	D	C	D	E		
Carling Avenue/	E	6	E	6	Б	р			Λ		
Carlingwood Shopping Centre	F	C	F	C	Б	D		D	А	D	
Carling Avenue/	L	6	L	Р	Б	D			Δ		
Iroquois Road	F	C	F	D	D	D		D	A		
Woodroffe Avenue East/	L	C		C	D				Δ		
Carlingwood Shopping Centre		C	F	U U	D	-	D	D	A	D	
Woodroffe Avenue East/									Ц		
Carlingwood Shopping Centre ⁽¹⁾	-	-	-	-	-	-	-	-		D	
Carling Avenue/									Δ		
Ancaster Avenue ⁽¹⁾	-	-	-	-	-	-	-	-	A	D	
Woodroffe Avenue East/									C	П	
Flower Avenue ⁽¹⁾	-	-	-	-	-	-	-	-	C	U	

1. Unsignalized intersection, evaluated for Auto LOS only

Based on the results of the intersection MMLOS analysis:

- No intersections meet the pedestrian level of service (PLOS);
- No intersections meet the bicycle level of service (BLOS);
- Of intersections with targets, only Carling Avenue/Carlingwood Shopping Centre and Carling Avenue/Iroquois Road meet the transit level of service (TLOS);
- All intersections meet the truck level of service (TkLOS);
- Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue and the unsignalized Woodroffe Avenue East/Carlingwood Shopping Centre access do not meet the vehicular level of service (Auto LOS).

The following sections outline a further discussion for each intersection.

6.7.1.1 Carling Avenue/Woodroffe Avenue West

Carling Avenue/Woodroffe Avenue West does not meet the target PLOS C, BLOS C, or TLOS D.

All approaches have a divided cross-section with at least five lanes. Regardless of whether the median is at least 2.4m wide, there are limited opportunities to improve the current PLOS of each approach without reducing the number of travel lanes or restricting turning movements. The level of comfort can be increased by implementing zebra-striped crosswalks at each approach. All approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period). There is also limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

All approaches do not meet the target BLOS C, based on both the left and right turn characteristics. The south approach requires cyclists to cross one lane, while the vehicular operating speed is 60 km/h. The east approach has dual left turn lanes. The west approach has a right turn lane longer than 50m. Based on heavy peak hour volumes on Carling Avenue, the removal of the westbound dual left turn lanes would cause volumes to far exceed capacity. As this intersection is a T-

intersection, there is no space available to implement a two-stage left-turn bike box for cyclists coming from the east approach. Two-stage left-turn bike boxes can be implemented at the south and west approaches. A jug handle and crossbike for cyclists coming from the east approach could be implemented along with the installation of a bicycle traffic signal. Further analysis of this intersection with a jug handle implemented is presented in Section 6.6.2. The implementation of a higher order cycling facility (such as a cycle track, described in Section 6.3.6) would improve the BLOS of this intersection based on right turn characteristics.

The east and west approaches do not meet the target TLOS D. As discussed in Section 6.3.6, the City has identified transit improvements to Carling Avenue in the *2013 Transportation Master Plan* (TMP). The implementation of either at-grade LRT (Network Concept) or continuous bus lanes on Carling Avenue (Affordable Network) will improve the TLOS beyond the target TLOS D.

Carling Avenue/Woodroffe Avenue West does meet the target Auto LOS D; however, it should be noted that the 50th-percentile queue length for the westbound left turn movement exceeds the storage length of the dual turn lanes during the PM peak hour. This was identified in both the site observations presented in Section 4.1.8, and Synchro analysis of existing traffic.

The 50th-percentile queue length is associated with the maximum queue during a typical (or average) cycle, while the 95th-percentile queue length represents the maximum queue length in 95% of all cycles during the peak hour.

6.7.1.2 Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue

Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue does not meet the target PLOS C, BLOS C, TLOS D, or Auto LOS D.

All approaches have a divided cross-section with at least five lanes. There are limited opportunities to improve the current PLOS of each approach without reducing the number of travel lanes or restricting turning movements. The level of comfort can be increased by implementing zebra-striped crosswalks at each approach. All approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period). There is also limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

All approaches do not meet the target BLOS C, based on the left turn characteristics. Additionally, the north and east approaches do not meet the target based on right turn characteristics. Each approach requires cyclists to cross two or more lanes of traffic to perform a left turn. With respect to left turns, the target BLOS C can be achieved by implementing a two-stage left-turn bike box for all approaches. At the north and east approaches, the right turn lanes are longer than 50m. The implementation of a higher order cycling facility (such as a cycle track, described in Section 6.3.6) at these approaches will allow this intersection to achieve the target BLOS C. However, there is insufficient ROW width to accommodate a separated cycling facility on Woodroffe Avenue East. A ROW protection of 44.5m is identified for this section of Carling Avenue.

All approaches do not meet the target TLOS D. As previously discussed, the implementation of atgrade LRT or continuous bus lanes on Carling Avenue will improve the TLOS beyond the target TLOS D. In the RTTP 2031 Network Concept, Woodroffe Avenue East is designated as a Transit Priority Corridor with Isolated Measures, which may improve the TLOS for the north and south approaches. Short of reducing vehicular traffic overall or converting an existing travel lane to a bus lane, there is limited opportunity for the north and south approaches to improve to the target TLOS D.

The southbound left turn movement does not achieve the target Auto LOS D during the AM peak hour, and the southbound right turn movement does not achieve the target during the PM peak hour. To meet the target Auto LOS D, a reduction of approximately 20 vehicles in the AM peak hour and approximately 70 vehicles in the PM peak hour is required. The eastbound through movement during the AM peak hour and westbound through movement during the PM peak hour currently achieve the target Auto LOS D.

Additionally, the Synchro analysis identifies queueing that exceeds storage length for certain movements during the AM and PM peak hours. Based on 95th-percentile queue lengths, the southbound left turn and eastbound through movements exceed the available storage length during the AM peak hour, while the southbound right turn, eastbound left turn, and westbound through movements exceed the available storage length during the PM peak hour. Therefore, there is very limited opportunity in adjusting the signal timing to allow for more southbound green time without significantly impacting other movements.

The foregoing indicates that support of the pedestrian, cycling, and transit modes of travel is critical to the performance of Woodroffe Avenue East and West. The following measures are options to displace vehicular traffic within the study area:

- Increased use of non-auto modes of transportation;
- Alternative time of travel for drivers, to make use of off-peak capacity;
- Alternative routes for north-south travel.

6.7.1.3 Carling Avenue/Carlingwood Shopping Centre

Carling Avenue/Carlingwood Shopping Centre does not meet the target PLOS C or BLOS C.

The north, east, and west approaches have divided cross-sections with at least five lanes. There are limited opportunities to improve the current PLOS of each approach without reducing the number of travel lanes or restricting turning movements. As discussed in Section 4.1.7, zebra-striped crosswalks were implemented at the east and west approaches following the death of an elderly pedestrian. There is also limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

The north, east, and west approaches do not meet the target BLOS C, based on left turn characteristics. In each of these cases, the governing factor is that cyclists are required to cross two or more lanes to perform a left turn. The implementation of two-stage left-turn bike boxes at these approaches will improve the intersection beyond the target BLOS C.

6.7.1.4 Carling Avenue/Iroquois Road

Carling Avenue/Iroquois Road does not meet the target PLOS C or BLOS B.

There is limited opportunity in improving the delay score without incurring major delays for vehicles. The east and west approaches have divided cross-sections with median refuge and nine lanes. Regardless of the median refuges on the east and west approaches, there are limited opportunities to improve the current PLOS of each approach without reducing the number of travel lanes or restricting turning movements. The level of comfort can be increased by implementing zebra-striped crosswalks at each approach. The east and west approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period). There is also limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

The north, east, and west approaches do not meet the target BLOS B based on left turn characteristics, and the east and west approaches do not meet the target based on right turn characteristics. The implementation of two-stage left-turn bike boxes at each approach would improve the BLOS beyond the target BLOS B, based on left turns. Based on right turn characteristics, only the implementation of a higher order cycling facility (such as a cycle track) will allow the intersection to achieve the target BLOS B.

6.7.1.5 Woodroffe Avenue East/Carlingwood Shopping Centre (signalized)

The signalized intersection at Woodroffe Avenue East/Carlingwood Shopping Centre does not meet the target PLOS C or BLOS C.

Based on PETSI score, the north approach meets the target PLOS C. The south approach can achieve the target PLOS C with the implementation of zebra-striped crosswalks. The north and south approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period). Both the north and south approaches have implemented a leading pedestrian interval of five seconds. Despite the leading pedestrian interval, the delay score still equates to a PLOS E.

The east approach can meet the target PLOS C through the implementation of a curb extension or wider sidewalk at the south end of the east approach, such that the number of lanes crossed decreases from four to three. Constructing this curb extension with a smaller curb radius will also require drivers to perform the right turn more slowly, thereby increasing the pedestrians' level of comfort at this approach. As this is a private approach, any modification would have to be negotiated between the City and the landowner.

The north approach does not meet the target BLOS C based on left turn characteristics, and the south and east approaches do not meet the target based on right turn characteristics. This intersection is a T-intersection, meaning that there is no space available to implement a two-stage left-turn bike box for cyclists coming from the north approach. Two-stage left-turn bike boxes can be implemented at the south and east approaches. A jug handle and crossbike for cyclists coming from the north approach could be implemented, along with the installation of a bicycle traffic signal. Further analysis of this intersection with a jug handle implemented is presented in Section 6.6.2. Although the target BLOS C can be achieved by implementing a separated cycling facility, there is insufficient ROW width on Woodroffe Avenue East to accommodate it.

6.7.1.6 Woodroffe Avenue East/Carlingwood Shopping Centre (unsignalized)

The unsignalized intersection at Woodroffe Avenue East/Carlingwood Shopping Centre does not meet the target Auto LOS D. The delay for westbound left turns is approximately 37 seconds, which is only two seconds more than the acceptable LOS D. As westbound traffic has the option to turn left at the signalized access approximately 70m to the north, no mitigation is recommended.

6.7.2 Intersection Operations with Jug Handle Modifications

As described in Sections 6.6.1.1 and 6.6.1.5, jug handles and crossbikes could be considered by the City to improve the BLOS associated with the westbound left turn movement at Carling Avenue/ Woodroffe Avenue West and the northbound left turn movement at the signalized intersection of Woodroffe Avenue East/Carlingwood Shopping Centre. The implementation of jug handles for these left turn movements would require the installation of bicycle traffic signals. The impacts of this signal modification are described as follows.

Carling Avenue/Woodroffe Avenue West

To minimize the delays and queueing experienced by all traffic at the intersection of Carling Avenue/ Woodroffe Avenue West, it is recommended that a ten-second bicycle crossing phase take place at the beginning of the fully protected westbound left turn/northbound right turn phase. In order to maintain a 130-second cycle length, there is a required reduction in the amount of green time for westbound and eastbound through vehicles, which are not identified as the critical movements in the AM or PM peak hours.

A comparison of the intersection's performance with and without the bicycle crossing phase is shown in **Table 18**.

			PM I	Peak				
Movement	Movement Existing		Jug H	andle	Exis	ting	Jug Handle	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
NBL	0.78	С	0.78	С	0.81	D	0.81	D
NBR	0.85	D	0.85	D	0.55	А	0.55	А
EBT	0.78	С	0.78	С	0.55	А	0.55	А
WBL	0.80	С	0.80	С	0.86	D	0.86	D
WBT	0.14	А	0.14	А	0.45	А	0.46	А
Intersection Delay	38.9 sec	D	39.1 sec	D	33.0 sec	D	33.2 sec	D

Table 18: Carling Avenue/Woodroffe Avenue West - Bicycle Crossing

Based on the previous table, the intersection operations at Carling Avenue/Woodroffe Avenue West are marginally affected with the addition of a ten-second bicycle crossing phase, and all movements maintain the same level of service.

Implementation of a jug handle on the north side of Carling Avenue at Woodroffe Avenue West does not appear feasible based on the existing ROW, but can be explored as part of a future widening of Carling Avenue.

Woodroffe Avenue East/Carlingwood Shopping Centre (signalized)

To minimize the delays and queueing experienced by all traffic at the signalized intersection of Woodroffe Avenue East/Carlingwood Shopping Centre, it is recommended that a ten-second bicycle crossing phase take place before the westbound all-movement phase. Currently, a leading pedestrian interval of five seconds takes place before the westbound all-movement phase. The bicycle crossing phase would in effect extend this interval from five to ten seconds. To maintain a

consistent cycle length, there is a required reduction in the green time for the westbound allmovement phase, which is the least critical when accounting for the traffic volumes at each approach.

A comparison of the intersection's performance with and without the bicycle crossing phase is shown in **Table 19**.

		AM	Peak		PM Peak				
Movement Existing		ting	Jug Handle		Exis	ting	Jug Handle		
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	
NBT	0.26	А	0.26	А	0.33	А	0.34	А	
NBR	0.07	А	0.07	А	0.09	А	0.09	А	
SBT	0.29	А	0.29	А	0.45	А	0.46	А	
WBL	0.13	А	0.14	А	0.57	А	0.62	В	
WBR	0.06	А	0.07	А	0.24	А	0.25	А	
Intersection Delay	4.0 sec	А	4.8 sec	А	8.5 sec	А	9.5 sec	А	

Table 19: Woodroffe Avenue East/Carlingwood Shopping Centre – Bicycle Crossing

Based on the previous table, the intersection operations at Woodroffe Avenue East/Carlingwood Shopping Centre are marginally affected with the addition of a ten-second bicycle crossing phase. Only the westbound left turn movement during the PM peak hour is affected enough to experience a decrease in the level of service.

On the west side of Woodroffe Avenue East at the signalized access to Carlingwood Shopping Centre, it appears that it is feasible to implement a jug handle with a short bike lane leading into it based on the ROW of Woodroffe Avenue East. In order to implement this jug handle, existing vegetation and traffic signal poles may need to be removed or relocated.

6.7.3 2022 Background Intersection Operations

Intersection capacity analysis has been completed for the 2022 background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 20**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 21**.

Signal timing plans are included in Appendix H. Detailed reports are included in Appendix I.

Intersection		AM Peak		PM Peak					
Intersection	v/c	LOS	Mvmt	v/c	LOS	Mvmt			
Carling Avenue/ Woodroffe Avenue West	0.83	D	NBR	0.85	D	WBL			
Carling Avenue/ Woodroffe Avenue East/Fairlawn Avenue	0.91	Е	SBL	0.96	Е	SBR			
Carling Avenue/ Carlingwood Shopping Centre	0.39	А	EBT	0.56	А	SBL			
Carling Avenue/ Iroquois Road	0.43	А	EBT	0.54	А	SBL			

Table 20: 2022 Background – Intersection Operations

Interception		AM Peak		PM Peak			
Intersection	v/c	LOS	Mvmt	v/c	LOS	Mvmt	
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.28	А	SBT	0.68	В	WBL	
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	А	WBR	11 sec	В	WBR	
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	А	SBR	9 sec	А	SBR	
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	14 sec	В	EBL/ EBR	20 sec	С	EBL/ EBR	
Carling Avenue/ Site Access ⁽¹⁾	9 sec	А	SBR	9 sec	А	SBR	
Woodroffe Avenue East/ Site Access ⁽¹⁾	15 sec	В	EBR	17 sec	С	EBR	

1. Unsignalized intersection

Table 21: 2022 Background – Queues Over Capacity

				AM Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
Carling Ave/ Woodroffe Ave West	WBL	0.79	С	63	80	0.85	D	104	m104	
	SBL	0.91	E	42	52	0.58	А	28	37	
Carling Ave/ Woodroffe Ave East/ Eairlawn Ave	SBR	0.68	В	48	56	0.96	Е	127	#164	
	EBL	0.79	С	57	m74	0.71	С	56	#94	
i anawii Ave	EBT	0.71	С	51	#240	0.30	Α	34	74	

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity ~: approach is above capacity

Based on the previous tables, movements at all intersections within the study area except for Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue achieve the target Auto LOS D or better during the AM and PM peak hours.

During the AM peak hour, the 95th-percentile southbound left queue at Carling Avenue/Woodroffe Avenue/Fairlawn Avenue (52m) exceeds the storage length of the left turn lane (approximately 30m). This queue length also blocks any vehicles wishing to exit the site access on Woodroffe Avenue East (approximately 40m north of the stop bar).

During the AM peak hour, the 95th-percentile eastbound through queue at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue extends through the upstream intersection at Carling Avenue/Woodroffe Avenue West (approximately 160m apart). The 95th-percentile eastbound left queue at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue is metered by the upstream intersection, and exceeds the existing storage length of 65m.

During the PM peak hour, the 50th-percentile westbound left queue at Carling Avenue/Woodroffe Avenue West exceeds the storage length of the dual left turn lane (approximately 60m storage). The 50th-percentile and 95th-percentile queue lengths for the westbound left turn movement are virtually the same due to metering by the upstream intersection at Carling Avenue/Woodroffe Avenue East/ Fairlawn Avenue. However, site observations outlined in Section 4.1.8 indicate that queueing during the PM peak hour often extends to the upstream intersection (approximately 160m apart).

During the PM peak hour, the 95th-percentile southbound right queue at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue (164m) extends near the upstream signalized intersection at Woodroffe Avenue East/Carlingwood Shopping Centre (approximately 180m apart). Both the 50th- and 95th-percentile queues for this movement block the existing access on Woodroffe Avenue East. Site observations outlined in Section 4.1.8 indicate that the queue length for this movement may be underestimated by the Synchro analysis. As described above, the westbound left queue at Carling Avenue/Woodroffe Avenue West may extend to Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue, thereby blocking the southbound right turn movement.

During the PM peak hour, the 95th-percentile eastbound left queue at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue exceeds the storage length of the dual left turn lane (approximately 70m storage). Delays at the unsignalized Woodroffe Avenue East/Carlingwood Shopping Centre access are anticipated to improve, as the proposed Canadian Tire will convert the access to right-in/right-out.

6.7.4 2027 Background Intersection Operations

Intersection capacity analysis has been completed for the 2027 background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 22**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 23**. Signal timing plans are included in **Appendix H**. Detailed reports are included in **Appendix I**.

Intersection		AM Peak			PM Peak	
Intersection	v/c	LOS	Mvmt	v/c	LOS	Mvmt
Carling Avenue/	0.84	D	NBR	0.87	D	WBL
Woodroffe Avenue West						
Carling Avenue/	0.96	Е	SBL	0.97	Е	SBR
Woodroffe Avenue East/Fairlawn Avenue						
Carling Avenue/	0.39	А	FBT	0.56	А	SBI
Carlingwood Shopping Centre	0.00			0.00		ODE
Carling Avenue/	0 /3	Δ	EBT	0.54	Δ	SBI
Iroquois Road	0.45	7	LDI	0.54	~	SDL
Woodroffe Avenue East/	0.20	۸	орт	0.60	р	
Carlingwood Shopping Centre (signalized)	0.29	A	301	0.00	D	VVDL
Woodroffe Avenue East/	10 000	۸		11 000	D	
Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 Sec	A	VVDR	IT Sec	D	VVDR
Carling Avenue/	10	۸	000	0.000	۸	000
Ancaster Avenue ⁽¹⁾	TO Sec	A	SDK	9 Sec	A	SDK
Woodroffe Avenue East/	45	ſ	EBL/	04	0	EBL/
Flower Avenue ⁽¹⁾	15 Sec	В	EBR	21 sec	C	EBR
Carling Avenue/	0	۸	000	0	۸	000
Site Access ⁽¹⁾	9 sec	A	SBR	9 sec	A	SBK
Woodroffe Avenue East/	15 000	B	ERD	18 500	C	EBD
Site Access ⁽¹⁾	13 260	D	LDK	10 560	0	LDK

Table 22: 2027 Background – Intersection Operations

1. Unsignalized intersection

				AM Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
Carling Ave/ Woodroffe Ave West	WBL	0.79	С	66	84	0.87	D	110	m111	
	SBL	0.96	E	~45	#56	0.62	В	29	39	
Carling Ave/ Woodroffe Ave East/	SBR	0.70	В	53	62	0.97	E	139	#180	
	EBL	0.80	С	59	m77	0.69	В	60	#101	
T allia wit Ave	EBT	0.72	С	51	#240	0.30	А	37	73	

Table 23: 2027 Background – Queues Over Capacity

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity ~: approach is above capacity

Based on the previous tables, marginal changes in v/c ratios and queue lengths are anticipated as a result of background growth within the study area.

6.7.5 2022 Total Intersection Operations

Intersection capacity analysis has been completed for the 2022 total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 24**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 25**. Signal timing plans are included in **Appendix H**. Detailed reports are included in **Appendix I**.

Table 24: 2022 Total – Intersection Operations

Intersection		AM Peak		PM Peak			
InterSection	v/c	LOS	Mvmt	v/c	LOS	Mvmt	
Carling Avenue/ Woodroffe Avenue West	0.82	D	NBR	0.85	D	WBL	
Carling Avenue/ Woodroffe Avenue East/Fairlawn Avenue	1.08	F	SBL	0.97	E	SBR	
Carling Avenue/ Carlingwood Shopping Centre	0.40	А	EBT	0.56	А	SBL	
Carling Avenue/ Iroquois Road	0.44	А	EBT	0.54	А	SBL	
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.28	А	SBT	0.70	В	WBL	
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	А	WBR	11 sec	В	WBR	
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	А	SBR	9 sec	А	SBR	
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	В	EBL/ EBR	20 sec	С	EBL/ EBR	
Ancaster Avenue/ Site Access ⁽¹⁾	9 sec	А	WBL	9 sec	А	WBL	
Woodroffe Avenue East/ Site Access ⁽¹⁾	11 sec	В	EBR	11 sec	В	EBR	

1. Unsignalized intersection

				AM Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
Carling Ave/ Woodroffe Ave West	WBL	0.79	С	65	83	0.85	D	106	m106	
	SBL	1.08	F	~60	#72	0.64	В	31	41	
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBR	0.69	В	51	59	0.97	E	127	#164	
	EBL	0.79	С	57	m74	0.71	С	56	#93	
	EBT	0.71	С	51	#240	0.30	Α	33	72	

Table 25: 2022 Total – Queues Over Capacity

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity ~: approach is above capacity

The level of service at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue downgrades from LOS E to LOS F during the AM peak hour, due to an increase in traffic for the southbound left turn movement.

6.7.6 2027 Total Intersection Operations

Intersection capacity analysis has been completed for the 2027 total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 26**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 27**. Signal timing plans are included in **Appendix H**. Detailed reports are included in **Appendix I**.

Interception		AM Peak			PM Peak			
Intersection	v/c	LOS	Mvmt	v/c	LOS	Mvmt		
Carling Avenue/ Woodroffe Avenue West	0.83	D	NBR	0.87	D	WBL		
Carling Avenue/ Woodroffe Avenue East/Fairlawn Avenue	1.13	F	SBL	0.97	E	SBR		
Carling Avenue/ Carlingwood Shopping Centre	0.40	А	EBT	0.56	А	SBL		
Carling Avenue/ Iroquois Road	0.44	А	EBT	0.54	А	SBL		
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.29	А	SBT	0.68	В	WBL		
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	А	WBR	11 sec	В	WBR		
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	А	SBR	10 sec	А	SBR		
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	В	EBL/ EBR	22 sec	С	EBL/ EBR		
Ancaster Avenue/ Site Access ⁽¹⁾	9 sec	А	WBL	9 sec	А	WBL		
Woodroffe Avenue East/ Site Access ⁽¹⁾	11 sec	В	EBR	11 sec	В	EBR		

Table 26: 2027 Total – Intersection Operations

1. Unsignalized intersection

	•			AM Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
Carling Ave/ Woodroffe Ave West	WBL	0.80	С	68	87	0.87	D	111	m112	
	SBL	1.13	F	~66	#80	0.67	В	33	43	
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBR	0.71	С	57	66	0.97	E	139	#181	
	EBL	0.80	С	60	m77	0.68	В	60	#99	
	EBT	0.72	С	51	#240	0.30	A	36	72	

Table 27: 2027 Total – Queues Over Capacity

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity ~: approach is above capacity

Based on the previous tables, marginal increases in v/c ratios and queue lengths are anticipated as a result of background growth within the study area.

Within the study area, all traffic signals on Carling Avenue are coordinated with 130-second cycles. There is very limited opportunity in adjusting the signal timing to allow for more southbound green time without significantly impacting certain movements or other intersections. The southbound approach at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue can achieve the target Auto LOS D, with a reduction of approximately 50 southbound left turning vehicles in the AM peak hour, and a reduction of approximately 90 southbound right turning vehicles in the PM peak hour. When compared to the existing conditions, the results are comparable.

6.7.7 Woodroffe Avenue East/Flower Avenue Pedestrian Operations

The eight-hour traffic count for Woodroffe Avenue East/Flower Avenue was performed on Tuesday, March 6, 2018. A summary of the 184 total pedestrian crossings at each approach is as follows:

- Crossing Woodroffe Avenue East (north approach, no crosswalk): 86 pedestrians
- Crossing Woodroffe Avenue East (south approach, no crosswalk): 11 pedestrians
- Crossing Flower Avenue (west approach, standard crosswalk): 87 pedestrians

In total, 97 of the 184 pedestrians (53%) crossed Woodroffe Avenue East illegally. The nearest legal crossings to this intersection are located at Woodroffe Avenue East/Saville Row (approximately 60m north) and Woodroffe Avenue East/Carlingwood Shopping Centre (approximately 70m south). The 8-hour vehicular volume of traffic along Woodroffe Avenue East was approximately 9,591 vehicles on the day of the traffic count at Woodroffe Avenue East/Flower Avenue. The hierarchy of pedestrian crossing treatment systems, along with the associated guidelines required for review, is presented in **Figure 13**.



Figure 13: Hierarchy of Controlled Crossing Treatment Systems

Taken from Ontario Traffic Manual – Book 15 (June 2014), page 23

A review of the Ontario Traffic Manual – Book 12, Justification 6 was performed to determine if a traffic control device is warranted, based on both pedestrian volume and delay. The pedestrian volume criterion plots 8-hour vehicular volume of the main road against the adjusted 8-hour pedestrian volume crossing the main road, where pedestrians who require assistance (such as students under 12 and elderly pedestrians) are counted as double. For an 8-hour vehicular volume of 9,591 vehicles along Woodroffe Avenue East, a minimum adjusted pedestrian volume of approximately 245 pedestrians crossing Woodroffe Avenue East is required. Thus, the warrant for a traffic control device is not met.

A review of the Ontario Traffic Manual – Book 15 was performed to determine if a pedestrian crossover (PXO) was warranted. Based on the criterion that there are traffic control devices within 200m, this intersection is not a candidate for a PXO. The desire line is clearly the connection from Flower Avenue to Carlingwood Shopping Centre. However, given that the signalized intersections at Woodroffe Avenue East/Carlingwood Shopping Centre and Woodroffe Avenue East/Saville Row are only approximately 130m apart, applying a PXO is not recommended.

A review of the Ontario Traffic Manual – Book 5 was performed to determine if an all-way stop control was warranted, based on combined vehicular and pedestrian volumes. The volumes on Flower Avenue are not high enough to warrant implementing all-way stop control. Therefore, no pedestrian crossing control treatments are recommended at the intersection of Woodroffe Avenue East/Flower Avenue.

7.0 CONCLUSION AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

• The net increase in trips generated by the proposed redevelopment is approximately 293 person trips in the AM peak hour and 207 person trips in the PM peak hour, which includes an increase of approximately 133 vehicle trips in the AM peak hour and 100 vehicle trips in the PM peak hour.

Development Design and Parking

- Pedestrian facilities will be provided between the building entrances and the parking lot. Additionally, pedestrian facilities will connect the building to the existing sidewalks along Carling Avenue and Woodroffe Avenue East, and sidewalks along the frontage that are not 1.8m concrete will be upgraded to City standards. Sidewalks will be depressed and continuous across the Woodroffe Avenue East access, in accordance with City standards. There are no existing or proposed sidewalks along Ancaster Avenue.
- The nearest transit stops are within a walking distance of approximately 300m from all entrances to the proposed redevelopment.
- The proposed redevelopment allocates ground-floor storage areas devoted to bicycle parking.
- Garbage collection and deliveries will occur within the subject site. Garbage rooms are proposed at the western end of each building. The fire route is curbside along Carling Avenue and Woodroffe Avenue East.
- The proposed underground parking will be provided in a single garage, which can be accessed from both Ancaster Avenue and Woodroffe Avenue East.
- Approximately 229 vehicle parking spaces are proposed for the subject site, meeting the requirements of the ZBL. Bicycle parking will be provided in accordance with the minimum requirement of the ZBL as part of the Site Plan Control application.

Boundary Streets

- The results of the segment MMLOS analysis can be summarized as follows:
 - Ancaster Avenue meets the target pedestrian level of service (PLOS), while Carling Avenue and Woodroffe Avenue East do not;
 - Ancaster Avenue meets the target bicycle level of service (BLOS), while Carling Avenue and Woodroffe Avenue East do not;
 - Carling Avenue meets the target transit level of service (TLOS);
 - Carling Avenue and Woodroffe Avenue East meet the truck level of service (TkLOS);
 - All roadways meet the target vehicular level of service (Auto LOS).
- The Rapid Transit and Transit Priority Network identifies Carling Avenue as having at-grade LRT in its Network Concept and continuous transit lanes in its Affordable Network. While

these improvements to the transit network are being implemented, there may be opportunities to improve the pedestrian and bicycle levels of services on Carling Avenue as well.

- The PLOS of Woodroffe Avenue East can be improved to the target PLOS C by implementing sidewalks with a minimum width of 2.0m on the east side, and implementing sidewalks with a minimum width of 2.0m and a minimum sidewalk boulevard width of 2.0m on the west side. However, there is insufficient ROW width to accommodate these sidewalk and boulevard widths.
- The Ancaster Avenue road closure approximately 50m north of Carling Avenue is anticipated to calm traffic such that the operating speed is reduced to approximately 30 km/h. The PLOS of Ancaster Avenue achieves the target PLOS C despite having no sidewalks due to the reduction in the operating speed to approximately 30 km/h.
- The BLOS of Woodroffe Avenue East can be improved to a BLOS A by implementing a cycle track or other physically separated bikeway. The Ontario Traffic Manual Book 18 identifies separated bicycle facilities as most appropriate for Woodroffe Avenue East, given the high operating speed and daily traffic volumes. However, lane reductions would be required to accommodate a separate cycling facility in this area, which is not feasible based on the current traffic volumes.

Access Design

- The proposed redevelopment will be serviced by a right-in/right-out access along Woodroffe Avenue East (approximately 60m north of the existing ROW of Carling Avenue) and a rightin/left-out access along Ancaster Avenue (approximately 50m north of the existing ROW of Carling Avenue).
- Section 25 (c) of the *Private Approach By-Law* identifies a maximum width requirement of 9m for two-way accesses. This requirement is met by both proposed accesses.
- Section 107 (1)(a) of the Zoning By-Law identifies a minimum width requirement of 6.7m for a two-way driveway to a parking lot, and 6.0m for a two-way driveway to a parking garage. These requirements are met by the proposed Woodroffe Avenue East access. The conceptual design of the accesses will be refined and reviewed as part of the Site Plan Control application.
- Section 25 (I) of the *Private Approach By-Law* identifies a minimum distance requirement of 30m between the private approach and the nearest intersecting street line. This requirement is met by both proposed accesses.
- TAC identifies a minimum distance requirement of 70m for arterials and 15m for local roadways, measuring between the private approach and the nearest intersecting street line. While it is acknowledged that the access of Woodroffe Avenue East does not meet this requirement, it is located as far from the intersection with Carling Avenue as possible.
- Section 25 (o) of the *Private Approach By-Law* identifies a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. This requirement is met by the access along Woodroffe Avenue East and the access along Ancaster Avenue.

- The clear throat length is approximately 9.5m, however queueing concerns will be significantly alleviated by restricting inbound and outbound left turns at this access, as it will not cause northbound queuing back to Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue. It is requested that this requirement be waived, based on the above.
- Based on the location of the proposed access on Ancaster Avenue, the road closure on Ancaster Avenue must be shifted north. A functional design is included in this report.

Neighbourhood Traffic Management

With the addition of site-generated traffic to Woodland Avenue/Byron Avenue, the two-way
traffic volume on Woodland Avenue is projected to be approximately 41 vehicles during the
AM peak hour and 38 vehicles during the PM peak hour. This equates to 30% of the City's
threshold for considering Neighbourhood Traffic Management measures. Therefore, no NTM
measures are recommended, as none are required.

<u>Transit</u>

- The additional transit trips generated by the proposed redevelopment are not anticipated to have a significant impact on the operations of OC Transpo routes 16, 85, and 87.
- City staff have noted that a bus shelter is warranted at Stop #6481 adjacent to the subject site. The proponent will consider the provision of a bus shelter during the Site Plan Control application stage.

Intersection Design

- Based on the results of the intersection MMLOS analysis:
 - No intersections meet the pedestrian level of service (PLOS);
 - No intersections meet the bicycle level of service (BLOS);
 - Of intersections with targets, only Carling Avenue/Carlingwood Shopping Centre and Carling Avenue/Iroquois Road meet the transit level of service (TLOS);
 - All intersections meet the truck level of service (TkLOS);
 - Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue and the unsignalized Woodroffe Avenue East/Carlingwood Shopping Centre access do not meet the vehicular level of service (Auto LOS).
- Pedestrian Level of Service:
 - No crosswalks crossing Carling Avenue, Woodroffe Avenue West, or Woodroffe Avenue East/Fairlawn Avenue can achieve the target PLOS C without significantly reducing the number of lanes and restricting turning movements. These approaches all meet the City's warrant for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period), and could be considered where they have not already been implemented.
 - The south approach of Woodroffe Avenue East/Carlingwood Shopping Centre can meet the target PLOS C by implementing zebra-striped crosswalks. This approach meets the City's warrant for zebra-striped crosswalks. The east approach can meet the target PLOS C by implementing either a curb extension or wider sidewalks, such that the number of lanes crossed decreases from four to three. As this is a private

approach, any modification would have to be negotiated between the City and the landowner.

- Bicycle Level of Service:
 - The BLOS of Carling Avenue/Woodroffe Avenue West can meet the target BLOS C by implementing a cycle track or other physically separated bikeway. Two-stage left turn bike boxes could be implemented at the south and west approaches. A jug handle and crossbike could be implemented at the east approach. The effect of implementing a ten-second crossbike phase is anticipated to have a marginal effect on the performance of the intersection.
 - The BLOS of Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue can meet the target BLOS C by implementing two-stage left-turn bike boxes and higher order cycling facilities for all approaches. However, there is insufficient ROW width on Woodroffe Avenue East to accommodate a separated bike facility.
 - The BLOS of Carling Avenue/Carlingwood Shopping Centre can meet the target BLOS C by implementing two-stage left-turn bike boxes at all approaches.
 - The BLOS of Carling Avenue/Iroquois Road can meet the target BLOS C by implementing higher order cycling facilities, and two-stage left-turn bike boxes for all approaches.
 - The BLOS of Woodroffe Avenue East/Carlingwood Shopping Centre can meet the target BLOS C by implementing a cycle track or other physically separated bikeway. Two-stage left turn bike boxes could be implemented at the south and east approaches. A jug handle and crossbike could be implemented at the north approach. The effect of implementing a ten-second crossbike phase is anticipated to have a marginal effect on the performance of the intersection. There is insufficient ROW width on Woodroffe Avenue East to accommodate a separated bike facility.
- Transit Level of Service:
 - The TLOS of the east and west approaches at Carling Avenue/Woodroffe Avenue West and Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue can surpass the target TLOS D by implementing continuous bus lanes or at-grade LRT (with continuous bus lanes identified in the RTTP 2031 Affordable Network and at-grade LRT identified in the 2031 Network Concept). While the RTTP 2031 Network Concept also identifies Woodroffe Avenue East as a Transit Priority Corridor with Isolated Measures, there are limited opportunities to improve the TLOS at the north and south approaches of the Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue intersection.
- Vehicular Level of Service:
 - The Auto LOS of Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue does not currently meet the target Auto LOS D. To meet the target Auto LOS D, a reduction of approximately 20 vehicles in the AM peak hour and approximately 70 vehicles in the PM peak hour is required.

- In existing and future traffic conditions, queueing issues were identified for the following movements:
 - Carling Avenue/Woodroffe Avenue West
 Westbound left turn (PM peak)
 - o Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue
 - Southbound left turn (AM peak)
 - Southbound right turn (PM peak)
 - Eastbound left turn (AM and PM peaks)
 - Eastbound through (AM peak)
 - Westbound through (PM peak)
- Under the background traffic conditions, there is anticipated traffic growth on Woodroffe Avenues West and East. All intersections are anticipated to operate at approximately the same level of service, with Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue failing to meet the target Auto LOS D.
- Under the total traffic conditions, Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue is anticipated to downgrade to an Auto LOS F during the AM peak hour in 2022. All other intersections are anticipated to operate at approximately the same level of service.
- To meet the target Auto LOS D at Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue in 2027 total traffic conditions (considered the worst case in this analysis), a reduction of approximately 50 vehicles in the AM peak hour and approximately 90 vehicles in the PM peak hour is required. This is comparable to the findings of the existing conditions analysis.
- A review of the Ontario Traffic Manual Books 5, 12, and 15 identify that an eastbound/ westbound pedestrian crossing treatment at Woodroffe Avenue East/Flower Avenue is not warranted.
- In conclusion, the roadway modification to accommodate the proposed redevelopment is limited to the relocation of the Ancaster Avenue road closure to the north of the proposed site access.

NOVATECH

Prepared by:

Hudia

Joshua Audia, B.Sc. E.I.T., Transportation/Traffic

Reviewed by:



Jennifer Luong, P.Eng. Senior Project Manager, Transportation/Traffic

APPENDIX A

Concept Plan


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	N
ZONING Zoning By-Law 2008-250	AM10
SITE AREA	5,816.14 sq. m (62,604) sq. ft.
BUILDING HEIGHT - VARIES	15 M, 20 M, 30 M
PROJECT STATISTICS BUILDING HEIGHT SOUTH BLDG. 4:	STOREY - 14.0 M
PROJECT INFORMATION ZONING Zoning By-Law 2008-230 AM10 SITE AREA 58/84 90, 90, 10 BULDING HEIGHT - VARIES 15.84, 20.4, 30.4, 30.4 PROJECT STATISTICS BULDING HEIGHT - VARIES 45 008, 97 - 16, 00.4 BULDING HEIGHT SOUTH BLOG, 2 5106, 97 - 16, 00.4 MANNTY AREA 67 008, 97 - 16, 00.4 MANNTY AREA 01 PER UNIT 1, 70 09, 00.4 GROUND FLOOR 2 1, 106, 11 99, 11 1, 37 199, 02, 11 MARITY AREA 01 PER UNIT 2, 200, 29, 01, 13, 17 199, 02, 11 MARITY AREA 1, 27 199, 02, 11, 27 199, 02, 11, 27 199, 02, 11, 27 199, 02, 11, 27 199, 02, 11, 27 199, 02, 11, 27 199, 02, 11, 27 199, 03, 11, 27 199, 04, 11, 11, 11, 11, 11, 11, 11, 11, 11, 1	
GROSS BUILDING - AREAS (4 STOR	EV BLDG (
CITY OF OTTAWAS DEFINITION)	<u>N/A</u>
GROUND FLOOR	749.8 sq. m. (8.071) sq. ft.
2nd to 3nd FLOOR 2 x 1,465,1 sq. m. 2 x (15,770) sq. ft.	2,930.2 sq. m. (31,540) sq. ft
4th FLOOR	1,317.8 sq. m.
TOTAL AREA	4,997.8 sq. m
	(03,/90) sq. it
GROSS BUILDING - AREAS (23 STOP (CITY OF OTTAWAS DEFINITION)	REY BLDG.)
PARKING LEVELS (2 LEVELS U/G)	N/A 778.3 sq. m.
GROUND PLOOR 218543 mm	(8,378) sq. ft. 1,708.7 sq. m.
2nd & 3th FLOOR 2 x (9,196) sq. tt.	(18,392) sq. ft. 823.3 sq. m
4th FLOOR	(8,862) sq. ft. 10,210.4 on m
5th to 21st FLOOR 17 x (6,869) sq. ft. 22th FLOOR	(109,904) sq. ft. 421.7 sq. m.
MECHANICAL / AMENITY FLOOR	(4,539) sq. ft. N/A
TOTAL AREA	14,072.0 sq. m
	(101,110) 04.1
UNIT STATISFICS STUDIO UNIT	13
1 BEDROOM UNIT	135
2 BEDROOM UNIT	33 104
2 BEDROOM + DEN UNIT	5
COMMERCIAL RETAIL - 4 storey	250.6 sq. m.
COMMERCIAL RETAIL - 22 storey	(2,697) sq. ft. 778.3 sq. m. (8.378) sq. ft
TOTAL AREA	1,022.6 sq. m
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APPENDIX B

TIA Screening Form



Transportation Impact Assessment Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	485 Ancaster Avenue
Description of Location	The property is located at the NW corner of Carling Avenue and Woodroffe Avenue East
Land Use Classification	High-rise Residential with Ground Floor Commercial
Development Size (units)	290 units
Development Size (m ²)	1,073 m ² or 11,553 ft ² commercial
Number of Accesses and Locations	The subject site has one proposed access on Ancaster Avenue and one access on Woodroffe Avenue East
Phase of Development	1
Buildout Year	2022

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m ²
Industrial	5,000 m ²
Fast-food restaurant or coffee shop	100 m ²
Destination retail	1,000 m ²
Gas station or convenience market	75 m ²

* If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

If the proposed development size is greater than the sizes identified above, <u>the Trip Generation</u> <u>Trigger is satisfied.</u>



Transportation Impact Assessment Screening Form

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	√	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	\checkmark	

*DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		\checkmark
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		~
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	~	
Is the proposed driveway within auxiliary lanes of an intersection?	\checkmark	
Does the proposed driveway make use of an existing median break that serves an existing site?		\checkmark
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	\checkmark	
Does the development include a drive-thru facility?		\checkmark

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	\checkmark	
Does the development satisfy the Location Trigger?	\checkmark	
Does the development satisfy the Safety Trigger?	\checkmark	

If none of the triggers are satisfied, <u>the TIA Study is complete</u>. If one or more of the triggers is satisfied, <u>the TIA Study must continue into the next stage</u> (Screening and Scoping).

APPENDIX C

Traffic Count Data



Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ WOODROFFE AVE W





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ WOODROFFE AVE W





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ CARLINGWOOD SC





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ CARLINGWOOD SC





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ IROQUOIS RD





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ IROQUOIS RD





Turning Movement Count - Full Study Peak Hour Diagram CARLINGWOOD SC @ WOODROFFE AVE





Turning Movement Count - Full Study Peak Hour Diagram CARLINGWOOD SC @ WOODROFFE AVE





Turning Movement Count - Full Study Peak Hour Diagram ANCASTER AVE @ CARLING AVE





Turning Movement Count - Full Study Peak Hour Diagram ANCASTER AVE @ CARLING AVE





Turning Movement Count

Summary, AM and PM Peak Hour

Prepared by: thetrafficspecialist@gmail.com

Summary: All Vehicles

Automobiles, Taxis, Light Trucks, Vans, SUV's,



Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E





Turning Movement Count - Full Study Peak Hour Diagram CARLING AVE @ CARLINGWOOD SC





Turning Movement Count - Full Study Peak Hour Diagram CARLINGWOOD SC @ WOODROFFE AVE





Figure 4: Existing Traffic Volumes



Note that Saturday traffic counts for the Carling/Woodroffe W, Carling/Iroquois, Woodroffe/Saville, and Woodroffe/Richmond intersections are unavailable at the time of this submission. Regardless, they are not considered necessary as current Saturday counts are provided for all the site access points and the weekday afternoon peak hour traffic volumes at the above-noted off-site intersections are higher than the Saturday volumes at these intersections.

The following Table 1 provides a summary of existing traffic operations at the study area intersections, based on the Synchro (V10) traffic analysis software. The signalized study area intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the 'critical movement(s)'. The study area intersections 'as a whole' were assessed based on a weighted v/c ratio. The Synchro model output of existing conditions is provided within Appendix C.





Turning Movement Count

Automobiles, Taxis, Light

APPENDIX D

Collision Records

OnTRAC Reporting System

CARLING AVE & CARLINGWOOD SC

FROM: 2012-01-01	TO: 2014-01-01
T KUNI. 2012-01-01	10.2014-01-01

Forme	Municipality: Ottawa	9			Traffic Co	ontrol: Traffic	c signal		Numb	er of Collisions: 8			
	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
1	2012-08-02	2 Thu	10:55	Clear	Daylight	Angle	P.D. only	V1 W V2 S	Dry Dry	Going ahead Going ahead	Automobile, station Unknown	Other motor vehicle Other motor vehicle	0
2	2012-12-21	I Fri	11:10	Snow	Daylight	Angle	P.D. only	V1 W V2 S	Packed snow Packed snow	Slowing or Turning left	Pick-up truck Automobile, station	Skidding/Sliding Other motor vehicle	0
3	2013-01-17	7 Thu	16:26	Clear	Daylight	Turning	P.D. only	V1 E V2 W	Dry Dry	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
4	2013-06-26	6 We	17:30	Clear	Daylight	Sideswipe	P.D. only	V1 W V2 W	Dry Dry	Turning right Turning right	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0
5	2013-10-10) Thu	15:40	Clear	Daylight	Angle	P.D. only	V1 E V2 N	Dry Dry	Going ahead Turning right	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
6	2013-11-12	2 Tue	16:52	Clear	Dusk	Turning	P.D. only	V1 E V2 W	Dry Unknown	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
7	2013-11-29	9 Fri	14:46	Clear	Daylight	Turning	P.D. only	V1 W V2 E	Dry Dry	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
8	2013-12-24	1 Tue	13:29	Clear	Daylight	Turning	P.D. only	V1 E V2 W	Wet Wet	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
CARL	ING AVE & FAIRL	AWN	I AVE										
Forme	Municipality: Ottawa	3			Traffic Co	ontrol: Traffic	c signal		Numb	er of Collisions: 23	5		
	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
9	2012-01-05	5 Thu	18:03	Clear	Dark	Rear end	P.D. only	V1 W V2 W	Wet Wet	Slowing or Slowing or	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0

P.D. only V1 S Loose snow V2 S Loose snow

Slowing or Stopped Passenger van

Automobile, station

Other motor vehicle

Other motor vehicle

(Note: Time of Day = "00:00" represents unknown collision time **Tuesday, February 20, 2018**

10

2012-02-24 Fri 16:05 Snow Daylight Rear end

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0

OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

11	2012-02-27 Mo 11:50 Snow	Daylight Turning	P.D. only	V1 W V2 E	Wet Wet	Turning left Going ahead	Pick-up truck Automobile, station	Other motor vehicle Other motor vehicle	0
12	2012-06-06 We 12:09 Clear	Daylight Rear end	Non-fatal	V1 E V2 E V3 E	Dry Dry Dry	Turning left Turning left Turning left	Automobile, station Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle Other motor vehicle	0
13	2012-06-16 Sat 12:00 Clear	Daylight Sideswipe	P.D. only	V1 E V2 E	Dry Dry	Changing lanes Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	
14	2012-06-18 Mo 10:04 Clear	Daylight Turning	P.D. only	V1 W V2 W	Dry Dry	Turning left Turning left	Truck and trailer Automobile, station	Other motor vehicle Other motor vehicle	0
15	2012-08-25 Sat 11:30 Clear	Daylight Rear end	P.D. only	V1 E V2 E	Dry Dry	Turning left	Pick-up truck	Other motor vehicle	0
16	2012-11-07 We 13:55 Clear	Daylight Angle	Non-fatal	V1 W V2 N	Dry Dry Dry	Going ahead Going ahead	Passenger van Automobile, station	Other motor vehicle Other motor vehicle	0
17	2013-02-08 Fri 10:30 Snow	Daylight Sideswipe	P.D. only	V1 W V2 W V3 S	Loose snow Loose snow Loose snow	Changing lanes Slowing or Turning left	Pick-up truck Pick-up truck Automobile, station	Other motor vehicle Other motor vehicle Other motor vehicle	0
18	2013-02-14 Thu 15:40 Clear	Daylight Sideswipe	P.D. only	V1 E	Dry Dry	Turning left	Passenger van	Other motor vehicle	0
19	2013-04-23 Tue 11:56 Clear	Daylight Rear end	Non-fatal	V2 L V1 S V2 S	Dry Dry	Going ahead	Automobile, station	Other motor vehicle Other motor vehicle	0
20	2013-06-08 Sat 12:21 Clear	Daylight Turning	P.D. only	V1 S V2 S	Dry Dry	Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
21	2013-06-10 Mo 10:00 Clear	Daylight Rear end	P.D. only	V1 S V2 S	Dry Dry	Slowing or Stopped	Pick-up truck Passenger van	Other motor vehicle Other motor vehicle	0
22	2013-06-11 Tue 06:27 Rain	Daylight Turning	P.D. only	V1 S V2 N	Wet Wet	Turning left Going ahead	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0
23	2013-06-28 Fri 19:35 Rain	Daylight Rear end	P.D. only	V1 W	Wet	Slowing or	Automobile, station	Other motor vehicle	0
24	2013-07-29 Mo 19:39 Clear	Daylight Angle	P.D. only	V1 W V2 N	Wet Wet	Going ahead Going ahead	Pick-up truck Automobile, station	Other motor vehicle Other motor vehicle	0

(Note: Time of Day = "00:00" represents unknown collision time **Tuesday, February 20, 2018**

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OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

25	2013-08-02 Fri	14:12 Rain	Daylight Angle	Non-fatal	V1 E V2 S	Wet Wet	Going ahead Going ahead	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0
26	2013-09-08 Sun	19:42 Clear	Dusk Sideswipe	P.D. only	V1 S V2 S	Dry Dry	Going ahead Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
27	2013-09-19 Thu	22:43 Clear	Dark Turning	Non-fatal	V1 S V2 N	Dry Dry	Turning left Going ahead	Automobile, station Bicycle	Cyclist Other motor vehicle	0
28	2013-09-25 We	09:38 Clear	Daylight Turning	Non-fatal	V1 S V2 N	Dry Dry	Turning left Going ahead	Automobile, station Bicycle	Cyclist Other motor vehicle	0
29	2013-10-19 Sat	18:23 Rain	Dark Turning	P.D. only	V1 N V2 N	Wet Wet	Going ahead Turning left	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0
30	2013-10-30 We	15:37 Clear	Daylight Sideswipe	Non-fatal	V1 S V2 S	Dry Dry	Turning right Turning right	Automobile, station Truck and trailer	Other motor vehicle Other motor vehicle	0
31	2013-11-28 Thu	14:40 Clear	Daylight Sideswipe	P.D. only	V1 W V2 W	Wet Wet	Changing lanes Going ahead	Pick-up truck Passenger van	Other motor vehicle Other motor vehicle	0

CARLING AVE & IROQUOIS RD

Former Munici	pality: Ottawa	1			Traffic Co	ntrol: Traffic :	signal			Numl	ber of Collisions: 7			
	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DII	ĸ	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
32	2012-01-04	We	10:58	Clear	Daylight	Angle	P.D. only	V1 V2	E N	Dry Dry	Going ahead Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
33	2012-03-31	Sat	15:28	Clear	Daylight	Angle	P.D. only	V1 V2	W N	Dry Dry	Turning right Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
34	2012-04-11	We	17:16	Clear	Daylight	Angle	P.D. only	V1 V2	W S	Dry Dry	Going ahead Turning right	Passenger van Automobile, station	Other motor vehicle Other motor vehicle	0
35	2012-06-08	3 Fri	20:08	Clear	Daylight	Angle	P.D. only	V1 V2	W S	Dry Dry	Going ahead Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
36	2012-12-17	′ Mo	09:00	Rain	Daylight	Single vehicle	P.D. only	V1	W	Wet	Turning right	Delivery van	Other Fixed Objects	0

(Note: Time of Day = "00:00" represents unknown collision time **Tuesday, February 20, 2018**

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OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

37	2013-03-15 Fri 12:00 Snow	Daylight Sideswipe	P.D. only	V1 E V2 E	Loose snow Loose snow	Merging Going ahead	Unknown Pick-up truck	Other motor vehicle Other motor vehicle	0
38	2013-07-10 We 15:29 Clear	Daylight Turning	Non-fatal	V1 E V2 W	Dry Dry	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	1

CARLING AVE & WOODROFFE AVE W

Former Municipality: Ottawa			Traffic Control: Traffic signal					Numb	er of Collisions: 9					
	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR		SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
39	2013-01-19	Sat	09:45	Snow	Daylight	Rear end	P.D. only	V1 V2	N N	Loose snow	Slowing or Stopped	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0
40	2013-01-24	Thu	08:34	Clear	Daylight	Sideswipe	P.D. only	V1 V2	W	lce lce	Turning left Turning left	Pick-up truck Truck - closed	Other motor vehicle Other motor vehicle	0
41	2013-02-14	Thu	10:56	Clear	Daylight	Single vehicle	Non-fatal	V1	N	Dry	Turning left	Automobile, station	Pedestrian	1
42	2013-05-06	Мо	08:10	Clear	Daylight	Rear end	Non-fatal	V1 V2	E E	Dry Dry	Going ahead Stopped	Automobile, station Passenger van	Other motor vehicle Other motor vehicle	0
43	2013-05-14	Tue	17:46	Clear	Daylight	Sideswipe	Non	V1 V2	W W	Dry Dry	Turning left Turning left	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0
44	2013-06-26	We	13:00	Clear	Daylight	Rear end	P.D. only	V1 V2	N N	Dry Dry	Turning right Turning right	Truck - dump Automobile, station	Other motor vehicle Other motor vehicle	0
45	2013-09-25	We	14:44	Clear	Daylight	Turning	P.D. only	V1 V2	N S	Dry Dry	Turning left Going ahead	Automobile, station Bicycle	Cyclist Other motor vehicle	0
46	2013-10-06	Sun	17:44	Clear	Dusk	Turning	P.D. only	V1 V2	E W	Wet Wet	Going ahead Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
47	2013-12-27	Fri	10:24	Clear	Daylight	Rear end	P.D. only	V1 V2	E E	Wet Wet	Going ahead Stopped	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0

(Note: Time of Day = "00:00" represents unknown collision time **Tuesday, February 20, 2018**

OnTRAC Reporting System

CARLINGWOOD SC & WOODROFFE AVE

	CARLINGWO		1000	JROF	FE AVE									
	Former Municipa	ality: Ottawa				Traffic Co	ontrol: Traffic s	signal		Numb	er of Collisions: 8			
		DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
	1	2012-02-24	Fri	14:20	Clear	Daylight	Angle	P.D. only	V1 N V2 V	I Packed snow V Packed snow	Going ahead Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
2	2	2012-04-10	Tue	20:47	Clear	Dark	Rear end	P.D. only	V1 S V2 S	Wet Wet	Slowing or Stopped	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
	3	2012-06-05	Tue	21:11	Clear	Dusk	Single vehicle	Non-fatal	V1 S	Wet	Going ahead	Motorcycle	Skidding/Sliding	0
	4	2012-06-19	Tue	07:55	Rain	Daylight	Rear end	P.D. only	V1 S V2 S	Wet Wet	Slowing or Stopped	Automobile, station Automobile, station	Skidding/Sliding Other motor vehicle	0
;	5	2013-02-03	Sun	14:30	Snow	Daylight	Rear end	P.D. only	V1 S V2 S	Wet Wet	Slowing or Stopped	Automobile, station Automobile, station	Skidding/Sliding Other motor vehicle	0
(6	2013-04-16	Tue	17:50	Clear	Daylight	Turning	P.D. only	V1 S V2 N	5 Dry I Dry	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
	7	2013-04-27	Sat	14:05	Clear	Daylight	Rear end	P.D. only	V1 N V2 N	l Dry I Dry	Slowing or Stopped	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
ł	8	2013-09-21	Sat	14:22	Rain	Daylight	Turning	Non-fatal	V1 S V2 N	Wet Wet	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0

FLOWER AVE & WOODROFFE AVE

Former Municipality: Ottawa			Traffic Co	ontrol: Stop s	ign		Num	ber of Collisions: 4			
	DATE DA	Y TIME ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
9	2012-07-04 We	e 16:45 Clear	Daylight	Angle	P.D. only	V1 E V2 S	Dry Dry	Turning left Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
10	2012-08-31 Fri	10:52 Rain	Daylight	t Turning	P.D. only	V1 S V2 S	Wet Wet	Turning right Going ahead	Automobile, station Truck - open	Other motor vehicle Other motor vehicle	0
11	2012-12-24 Mo	17:10 Clear	Dark	Angle	Non-fatal	V1 E V2 S	Wet Ice	Slowing or Going ahead	Automobile, station Passenger van	Other motor vehicle Other motor vehicle	0

(Note: Time of Day = "00:00" represents unknown collision time Tuesday, February 20, 2018

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OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

12	2013-10-18 Fri 09:09	09 Rain Da	aylight Rear end	Non-fatal	V1 N V2 N V3 N	Wet Wet Wet	Going ahead Slowing or Stopped	Automobile, station Pick-up truck Automobile, station	Other motor vehicle Other motor vehicle Other motor vehicle	0
						WOL	Otopped	Automobile, Station		



City Operations - Transportation Services Collision Details Report - Public Version

From: January 1, 2014 To: December 31, 2016

Location: CARLI	NG AVE @ CA	ARLINGWOOD SC								
Traffic Control: Tra	ffic signal					Total Collisions: 22				
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped	
2014-Jan-02, Thu,17:20	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle		
					West	Going ahead	Automobile, station wagon	Other motor vehicle		
2014-Mar-29, Sat,15:34	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle		
					West	Going ahead	Passenger van	Other motor vehicle		
2014-May-22, Thu,17:20	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle		
					West	Going ahead	Pick-up truck	Other motor vehicle		
2014-May-29, Thu,17:15	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle		
					West	Going ahead	Pick-up truck	Other motor vehicle		
2014-Nov-13, Thu,16:57	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle		
					East	Turning left	Pick-up truck	Other motor vehicle		
					South	Stopped	Automobile, station wagon	Other motor vehicle		

2014-May-22, Thu,00:00	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Dec-13, Sat,21:53	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile,	Other motor
					North	Going ahead	Pick-up truck	Other motor vehicle
2014-Dec-11, Thu,18:01	Clear	Turning movement	P.D. only	Slush	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2016-Jan-11, Mon,10:00	Clear	SMV other	Fatal injury	Dry	South	Turning left	Municipal transit bus	Pedestrian 1
2015-Sep-24, Thu,19:30	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2015-Mar-25, Wed,14:45	Clear	SMV other	P.D. only	Dry	South	Turning right	Municipal transit bus	Pedestrian
2016-Oct-19, Wed,17:50	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jun-09, Thu,17:47	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle

2016-Jun-10, Fri,17:13	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2015-Nov-20, Fri,18:14	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile,	Other motor
					West	Going ahead	Pick-up truck	Other motor vehicle
2015-Oct-09, Fri,10:57	Rain	Angle	P.D. only	Wet	West	Slowing or stopping	J Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-29. Fri.12:20	Drifting Snow	Turning movement	P.D. only	Packed	East	Turnina left	Automobile.	Other motor
			<u>.</u>	snow			station wagon	vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016 Jup 08 Wod 17:11	Clear	Turning movement		Dny	Fact	Turping loft	Automobilo	Other motor
2010-Jun-00, Wea, 17.11	Clear	running movement	F.D. Only	Diy	Edsi		station wagon	vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2016-Jul-18, Mon,10:25	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-May-25, Wed,16:54	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle

2016-May-29, Sun,14:55	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Passenger van	Other motor vehicle
2016-Nov-14 Mon 11:51	Clear	Turning movement	Non-fatal injury	Dry	Fast	Turning left	Automobile	Other motor
2010 100 14, 1001, 11.01	oloui	running movement	Non latar injury	Diy	Lust		station wagon	vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E

Traffic Control: Tra	ffic signal			Total Collisions: 26					
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2014-Jan-31, Fri,13:05	Clear	Turning movement	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Feb-03, Mon,16:30	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	g Pick-up truck	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2014-May-31, Sat,15:48	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Motorcycle	Skidding/sliding	
2014-Jun-09, Mon,12:28	Clear	Turning movement	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Jun-20 Fri 20:36	Clear	Rear end	P.D. only	Drv	South	Turning left	Automobile	Other motor	
2011 0011 20, 111,20.00	oloui		1.2.0.1.9	219	Couli	i anning ioit	station wagon	vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	

2014-Jul-22, Tue,16:25	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2014-Oct-11, Sat,11:50	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2014-Oct-28, Tue,18:00	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Dec-08, Mon,13:36	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2014-Oct-24, Fri,15:58	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2014-Sep-03, Wed,16:02	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jan-20, Tue,16:30	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2015-Mar-24, Tue,12:06	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
------------------------	-------	-----------	------------------	------------	-------	---------------------	------------------------------	------------------------
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-04, Mon,19:00	Rain	SMV other	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Curb
2015-May-03, Sun,10:50	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Jan-07, Wed,06:43	Snow	Other	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Curb
					East	Turning left	Automobile, station wagon	Other motor vehicle
2015-Jun-09, Tue,08:54	Rain	Angle	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-31, Sun,16:43	Clear	Rear end	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2015-Mar-27, Fri,16:46	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Unknown	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-27, Wed,13:44	Clear	Sideswipe	Non-fatal injury	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Oct-28, Wed,20:31	Rain	Sideswipe	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Oct-17, Sat,13:00	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2016-Apr-22, Fri,17:18	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle
					West	Slowing or stopping	g Pick-up truck	Other motor vehicle
2016-Apr-28, Thu,17:00	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jul-07, Thu,07:20	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Dec-17, Sat,16:43	Snow	Turning movement	P.D. only	Slush	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle

Location: CARLING AVE @ IROQUOIS RD

Traffic Control: Traffic signal

Total Collisions: 10

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2014-Apr-15, Tue,12:30	Snow	Angle	Non-fatal injury	Wet	West	Going ahead	Pick-up truck	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Mar-26, Wed,21:15	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Sep-08, Mon,08:50	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2016-May-05, Thu,17:15	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	2
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Oct-31, Mon,10:13	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Sep-08, Tue,14:35	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jun-21, Tue,16:00	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	

					East	Going ahead	Pick-up truck	Other motor vehicle
2016-Nov-16, Wed,16:11	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2016-Dec-14, Wed,10:40	Clear	Rear end	P.D. only	Dry	South	Unknown	Automobile, station wagon	Other motor vehicle
					South	Unknown	Truck - closed	Other motor vehicle
2016-Dec-04, Sun,13:50	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CARLING AVE @ WOODROFFE AVE W

Traffic Control: Tra	iffic signal			Total Collisions: 28					
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2014-Jun-01, Sun,12:50	Clear	Rear end	P.D. only	Dry	West	Unknown	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jan-31, Sat,10:20	Clear	Rear end	P.D. only	Wet	North	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Apr-02, Thu,15:15	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	
					North	Stopped	Pick-up truck	Other motor vehicle	

2015-Jan-02, Fri,05:47	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Curb	
2015-May-28, Thu,18:14	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Aug-30, Sun,10:44	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Municipal transit bus	Pedestrian	1
2015-Jul-23, Thu,08:50	Clear	Angle	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Apr-09, Thu,08:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2015-Jun-03, Wed,16:34	Clear	Turning movement	Non-fatal injury	Dry	South	Turning right	Pick-up truck	Cyclist	
					South	Going ahead	Bicycle	Other motor vehicle	
2015-Sep-18, Fri,12:19	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Feb-19, Fri,09:09	Clear	Rear end	P.D. only	Slush	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Oct-24, Mon,07:56	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jun-08, Wed,08:36	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Municipal transit bus	Other motor vehicle
2015-Oct-24, Sat,14:39	Clear	Rear end	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2015-Nov-17, Tue,18:46	Clear	Rear end	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2016-Jan-14, Thu,19:03	Clear	Rear end	Non-fatal injury	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Nov-20, Fri,19:00	Rain	Rear end	P.D. only	Wet	East	Turning right	Pick-up truck	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle

2016-Mar-14, Mon,15:15	Rain	Rear end	P.D. only	Wet	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2016-Sep-09, Fri,16:27	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Mar-27, Sun,13:29	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-May-17, Tue,15:51	Clear	Rear end	P.D. only	Dry	North	Unknown	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Sep-26, Mon,19:28	Clear	Rear end	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2016-Oct-03, Mon,23:44	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Dec-03, Sat,13:07	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

2016-Dec-18, Sun,10:45	Snow	Turning movement	P.D. only	Loose snow	East	Making "U" turn	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2016-Sep-15, Thu,17:51	Clear	Turning movement	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Nov-23, Wed,06:45	Clear	SMV other	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Curb
2016-Nov-25, Fri,14:01	Clear	Sideswipe	P.D. only	Slush	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle



City Operations - Transportation Services Collision Details Report - Public Version

From: January 1, 2014 To: December 31, 2016

Location: CARLIN	NGWOOD SC	@ WOODROFFI	EAVE							
Traffic Control: Trat	ffic signal				Total Collisions: 3					
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped	
2014-Feb-12, Wed,14:26	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle		
					North	Stopped	Automobile, station wagon	Other motor vehicle		
2015-Nov-19, Thu,16:55	Rain	Rear end	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle		
					South	Turning left	Automobile, station wagon	Other motor vehicle		
2016-Jan-04, Mon,10:55	Clear	Angle	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle		
					West	Turning left	Pick-up truck	Other motor vehicle		

Location: FLOW	ER AVE @ WO	DODROFFE AVE	<u> </u>					
Traffic Control: Sto	p sign					Total	Collisions: 9	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Vehicle type	First Event	No. Ped
2014-Jan-07, Tue,11:19	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping Automobile, station wagon	Other motor vehicle	
					East	Turning right Automobile, station wagon	Other motor vehicle	
2014-Feb-11, Tue,12:30	Clear	SMV other	Non-fatal injury	Dry	East	Turning right Automobile, station wagon	Pedestrian	1

2014-Aug-29, Fri,16:59 Clear Rear end Non-fatal injury Dry North Going ahead Automobile, Other motor	
station wagon vehicle North Stopped Pick-up truck Other motor	
vehicle	
2015-Jan-22, Thu,12:01 Clear Turning movement Non-fatal injury Slush North Turning left Automobile, Other motor station wagon vehicle	
South Going ahead Automobile, Other motor station wagon vehicle	
East Stopped Passenger van Other motor vehicle	
2015-Jan-22, Thu,11:42 Clear Sideswipe P.D. only Dry North Changing lanes Automobile, Other motor station wagon vehicle	
North Going ahead Automobile, Other motor station wagon vehicle	
2015-Sep-11, Fri,07:58 Clear Angle P.D. only Dry East Turning left Automobile, Other motor station wagon vehicle	
South Going ahead Pick-up truck Other motor vehicle	
2015-Oct-28, Wed, 15:40 Rain Rear end P.D. only Wet North Slowing or stopping Pick-up truck Other motor vehicle	
North Stopped Pick-up truck Other motor vehicle	
2015-Oct-10, Sat,14:54 Clear Rear end P.D. only Dry North Going ahead Pick-up truck Other motor vehicle	
North Stopped Automobile, Other motor station wagon vehicle	



City Operations - Transportation Services Collision Details Report - Public Version

From: January 1, 2012 To: December 31, 2016

Location: WOOD	ROFFE AVE b	otwn CARLINGWO	OD SC & CARLIN	NG AVE					
Traffic Control: No	control						Total Co	ollisions: 15	5
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-25, Tue,12:45	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Municipal transit bus	Other motor vehicle	
2014-Sep-13, Sat,14:45	Rain	Angle	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2014-Oct-29, Wed,17:24	Clear	Angle	P.D. only	Wet	East	Turning left	Pick-up truck	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jan-22, Thu,14:04	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Sep-24, Thu,13:58	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-24, Thu,14:12	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	

					South	Turning left	Pick-up truck	Other motor vehicle
2016-Dec-02, Fri,17:37	Clear	Angle	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Feb-15, Fri,16:13	Clear	Rear end	Non-fatal injury	Dry	South	Slowing or stopping	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2013-Jul-18, Thu,15:51	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Aug-02, Fri,14:31	Clear	Angle	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Oct-21, Mon,20:23	Clear	Rear end	P.D. only	Wet	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2013-Nov-29, Fri,18:30	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2012-Feb-13, Mon,12:21	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle

					North	Stopped	Automobile, station wagon	Other motor vehicle
2012-Nov-22, Thu,13:27	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2012-Dec-06, Thu,15:15	Clear	Angle	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					West	Going ahead	Truck and trailer	Other motor vehicle

APPENDIX E

Other Area Developments



3.1.2 Trip Distribution and Assignment

Based on the existing traffic volume counts and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes is as follows:

- 30% to/from the east: •
- 30% to/from the south; •
- 20% to/from the west; and •
- 20% to/from the north. •

Based on the foregoing distributions, 'new' and 'pass-by' 2020 projected site-generated trips (Table 7) were assigned to the study area, which are illustrated as Figure 6.



PM Peak Hour Volumes SAT Peak Hour Volumes

хx (yy)

Figure 6: 'New' and 'Pass-by' Site-Generated Traffic

ò(o) 🔒

Fairlawn



Noodroffe

Carling

ò(o) 🚽

Iroquois

APPENDIX F

Functional Design of Ancaster Road Closure



					SCALE	DESIGN	FOR REVIEW ONLY
						JA	
					1.500	CHECKED	
					1:500	JLL	
						DRAWN	
				ji		CHECKED	
Ī	2.	CONCEPT PLAN REVISED	AUG 08/19	JA	1:500 0 5 10 15 20	.IA	
	1.	FOR PRELIMINARY REVIEW	NOV 21/18	JA		APPROVED	
	No.	REVISION	DATE	BY		JLL	



NO	ΓES:
1192	CONTRACTOR AND A STREET AND A MARK STREET

0	EXISTING STORM SEWER
•	EXISTING SANITARY SEWE
	EXISTING WATERMAIN
—н — н — н — н — н — н — н — н — н	EXISTING HYDRO
	EXISTING BELL
	EXISTING GAS
	EXISTING TRAFFIC PLANT

LANA1.DWG-841mi

APPENDIX G

Intersection MMLOS

Intersection MMLOS Analysis

Exhibit 5 of the Addendum to the MMLOS guidelines has been used to evaluate the existing PLOS at all intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for Arterial Main Streets and all roadways within the General Urban Area. The results of the intersection PLOS are shown in **Table 1** through **Table 5**.

Exhibit 12 of the MMLOS guidelines has been used to evaluate the existing BLOS at all intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target BLOS B for Local Routes in the General Urban Area (Iroquois Road, Flower Avenue), a target BLOS C for Spine Routes in the General Urban Area (Woodroffe Avenue West/East, Fairlawn Avenue), a target BLOS C for Spine Routes along Arterial Main Streets (Carling Avenue), and a target BLOS D for roadways with no bike classification in the General Urban Area (Carlingwood Shopping Centre, Ancaster Avenue). The results of the intersection BLOS analysis are summarized in **Table 6**.

Exhibit 16 of the MMLOS guidelines has been used to evaluate the existing TLOS at relevant intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for Transit Priority Corridors with Isolated Measures along Arterial Main Streets (Carling Avenue). No other roadways within the study area have a transit priority designation. Regardless, Woodroffe Avenue East, Fairlawn Avenue, and Carlingwood Shopping Centre at Carling Avenue have still been evaluated for TLOS, as these roadways do provide transit service within the study area. The results of the intersection TLOS analysis are summarized in **Table 7**.

Exhibit 21 of the MMLOS guidelines has been used to evaluate the existing TkLOS at relevant intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for Truck Routes along Arterial Main Streets (Carling Avenue), and Truck Routes along arterial roadways in the General Urban Area (Woodroffe Avenue West/East). The results of the intersection TkLOS analysis are summarized in **Table 8**.

Exhibit 22 of the MMLOS guidelines suggests a target Auto LOS D for Arterial Main Streets and all roadways within the General Urban Area. Detailed Synchro reports are included in **Appendix I**. The results of the intersection Auto LOS analysis are summarized in **Table 9**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths are summarized in **Table 10**.

A summary of the results of the existing signalized intersection MMLOS analysis is provided in **Table 11**.

Table 1: PLOS Intersection Analysis – Carling Avenue/Woodroffe Avenue West

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITION	S							
Median > 2.4m in Width	N/A	0	No	70	Yes	45	Yes	45
Lanes Crossed (3.5m Lane Width)	N/A	0	5	12	7	45	7	45
SIGNAL PHASING AND TIMING								
Left Turn Conflict	N/A	0	Protected	0	No Left Turn/Prohibited	0	Permissive	-8
Right Turn Conflict	N/A	0	Permissive or Yield	-5	Perm + Prot	-5	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	N/A	0	N/A	0
Leading Pedestrian Interval	N/A	0	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	N/A	0	> 15m to 25m	-8	> 5m to 10m	-5	N/A	0
Parallel Right Turn Channel	N/A	0	Conventional without Receiving	0	No Right Turn Channel	-4	N/A	0
Perpendicular Radius	N/A	0	N/A	0	N/A	0	> 15m to 25m	-8
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	Conventional without Receiving	0
CROSSING TREATMENT								
Treatment	N/A	0	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	-		47		22		20
	LOS	-		D		F		F
	·		DELAY SCORE					
Cycle Length		-		130		130		130
Pedestrian Walk Time		-		19.3		9.2		9.2
	DELAY SCORE	-		47.1		56.1		56.1
	LOS	-		E		E		E
	OVERALL	-		Е		F		F

Table 2: PLOS Intersection Analysis – Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE	-				
CROSSING DISTANCE CONDITION	IS							
Median > 2.4m in Width	No	E E	No	20	Yes	0	Yes	15
Lanes Crossed (3.5m Lane Width)	6	55	7	39	10 +	0	9	15
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Protected	0	Protected	0	Perm + Prot	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Perm + Prot	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 10m to 15m	-6	> 10m to 15m	-6
Parallel Right Turn Channel	Conventional without Receiving	0	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	> 15m to 25m	-8	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	Conventional without Receiving	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	30		10		-40		-20
	LOS	E		F		F		F
			DELAY SCOR	E				
Cycle Length		130		130		130		130
Pedestrian Walk Time		13.9		21.6		23.1		37.1
	DELAY SCORE	51.8		45.2		44.0		33.2
	LOS	Е		E		E		D
	OVERALL	Е		F	•	F		F

Table 3: PLOS Intersection Analysis – Carling Avenue/Carlingwood Shopping Centre

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORI	E				
CROSSING DISTANCE CONDITIONS	S							
Median > 2.4m in Width	No	22	No	20	No	10	No	10
Lanes Crossed (3.5m Lane Width)	8	23	7	39	10 +	-10	10 +	-10
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Perm + Prot	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5						
Right Turn on Red	RTOR Allowed	-3						
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	> 15m to 25m	-8	> 5m to 10m	-5	> 15m to 25m	-8
Parallel Right Turn Channel	No Right Turn Channel	-4						
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Zebra Stripe	-4	Zebra Stripe	-4
	PETSI SCORE	-12		2		-41		-44
	LOS	F		F		F		F
			DELAY SCOR	E				
Cycle Length		130		130		130		130
Pedestrian Walk Time		29.8		47.8		28.1		28.1
	DELAY SCORE	38.6		26.0		39.9		39.9
	LOS	D		С		D		D
	OVERALL	F		F		F		F

Table 4: PLOS Intersection Analysis – Carling Avenue/Iroquois Road

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS	S							
Median > 2.4m in Width	No	00	No	00	Yes	0	Yes	0
Lanes Crossed (3.5m Lane Width)	4	00	4	00	10 +	0	10 +	0
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Perm + Prot	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5						
Right Turn on Red	RTOR Allowed	-3	N/A	0	N/A	0	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 5m to 10m	-5	> 10m to 15m	-6
Parallel Right Turn Channel	Conventional without Receiving	0	Conventional without Receiving	0	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	> 15m to 25m	-8	> 15m to 25m	-8
Perpendicular Right Turn Channel	N/A	0	N/A	0	Conventional without Receiving	0	Conventional without Receiving	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	55		58		-39		-40
	LOS	D		D		F		F
			DELAY SCORE					
Cycle Length		130		130		130		130
Pedestrian Walk Time		53.8		67.8		25.7		25.7
	DELAY SCORE	22.3		14.9		41.8		41.8
	LOS	С		В		Е		E
	OVERALL	D		D		F		F

Table 5: PLOS Intersection Analysis – Woodroffe Avenue East/Carlingwood Shopping Centre

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITION	S							
Median > 2.4m in Width	No	00	No	70	No	70	N/A	0
Lanes Crossed (3.5m Lane Width)	4	00	5	12	5	12	N/A	U
SIGNAL PHASING AND TIMING								
Left Turn Conflict	No Left Turn/Prohibited	0	Permissive	-8	Permissive	-8	N/A	0
Right Turn Conflict	Permissive or Yield	-5	No Right Turn/Prohibited	0	Permissive or Yield	-5	N/A	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	RTOR Allowed	-3	N/A	0
Leading Pedestrian Interval	Yes	0	Yes	0	No	-2	N/A	0
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	No Right Turn	0	> 5m to 10m	-5	N/A	0
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn	0	No Right Turn Channel	-4	N/A	0
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	N/A	0
	PETSI SCORE	66		54		38		-
	LOS	С		D		E		-
			DELAY SCOR	E				
Cycle Length		95		95		85		-
Pedestrian Walk Time		7.3		7.3		30.0		-
	DELAY SCORE	40.5		40.5		17.8		-
	LOS	Е		E		В		-
	OVERALL	Е		E		E		-

Table 6: BLOS Intersection Analysis

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS									
Carling Avenue/W	oodroffe Avenue	West											
South Approach	Mixed Troffie	Right Turn Lane Characteristics	Right turn lane > 50m	F									
South Approach		Left Turn Accommodation	1 lane crossed; <u>></u> 60 km/h	F									
Fast Approach	Mixed Troffic	Right Turn Lane Characteristics	No right turn	-									
East Approach		Left Turn Accommodation	Dual left turn lanes	F									
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F									
		Left Turn Accommodation	No left turn	-									
Carling Avenue/W	Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue												
North Approach	Mixed Troffic	Right Turn Lane Characteristics	Right turn lane > 50m	F									
		Left Turn Accommodation	2 lanes crossed; <u>></u> 50 km/h	F									
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А									
		Left Turn Accommodation	2 lanes crossed; <u>></u> 50 km/h	F									
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F									
		Left Turn Accommodation	4 lanes crossed; ≥ 50 km/h	F									
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A									
		Left Turn Accommodation	Dual left turn lanes	F									
Carling Avenue/Ca	arlingwood Shop	ping Centre											
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А									
		Left Turn Accommodation	2 lanes crossed; <u><</u> 40 km/h	D									
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А									
		Left Turn Accommodation	No lanes crossed; <u><</u> 50 km/h	В									
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A									
		Left Turn Accommodation	4 lanes crossed; <u>></u> 50 km/h	F									
West Annroach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A									
West Appleading		Left Turn Accommodation	3 lanes crossed; <u>></u> 50 km/h	F									

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Carling Avenue/Irc	oquois Road			
North Approach	Mixed Troffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
North Approach		Left Turn Accommodation	1 lane crossed; 50 km/h	D
South Approach	Mixed Troffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
South Approach		Left Turn Accommodation	No lanes crossed; <u><</u> 50 km/h	В
	Mixed Troffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
East Approach	Mixed Traffic	Left Turn Accommodation	4 lanes crossed; <u>></u> 50 km/h	F
West Approach	Mixed Troffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
west Approach	Mixed Traffic	Left Turn Accommodation	3 lanes crossed; <u>></u> 50 km/h	F
Woodroffe Avenue	East/Carlingwo	od Shopping Centre		
North Approach	Mixed Troffie	Right Turn Lane Characteristics	No right turn	-
Nonn Approach	Mixed frame	Left Turn Accommodation	1 lane crossed; 60 km/h	F
South Approach	Mixed Troffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
South Approach		Left Turn Accommodation	No left turn	-
		Right Turn Lane	Right turn lane < 50m;	D
East Approach	Mixed Traffic	Characteristics	I urning speed < 25 km/h	_
		Accommodation	No lanes crossed; <u><</u> 50 km/h	В

Approach	Delay ⁽¹⁾	TLOS								
Carling Avenue/Woodro	fe Avenue West									
South	-	-								
East	40 sec	E								
West	35 sec	E								
Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue										
North	50 sec	F								
South	50 sec	F								
East	35 sec	E								
West	40 sec	E								
Carling Avenue/Carlingwood Shopping Centre										
North	10 sec ⁽²⁾	В								
South	-	-								
East	5 sec	В								
West	5 sec	В								
Carling Avenue/Iroquois	Road									
North	-	-								
South	-	-								
East	15 sec	В								
West	5 sec	В								
Woodroffe Avenue East/	Carlingwood Shopping Ce	entre								
North	5 sec	В								
South	5 sec	В								
East	-	-								

Table 7: TLOS Intersection Analysis

1. Delay based on outputs from Synchro analysis 2. Approach has a dedicated bus lane (high level TSP), and has been assigned a delay of 10 seconds

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	LOS						
Carling Avenue/	Woodroffe Avenue West								
South	< 10m	3	D						
East	-	-	-						
West	> 15m	2	А						
Carling Avenue/	Woodroffe Avenue East/I	Fairlawn Avenue							
North	10m to 15m	3	В						
South	> 15m	3	А						
East	> 15m	2	А						
West	> 15m	1	С						
Carling Avenue/Carlingwood Shopping Centre									
North	10m to 15m	4	В						
South	< 10m	3	D						
East	10m to 15m	2	В						
West	> 15m	1	С						
Carling Avenue/I	roquois Road								
North	10m to 15m	4	В						
South	< 10m	3	D						
East	> 15m	1	С						
West	> 15m	1	С						
Woodroffe Aven	ue East/Carlingwood Sho	opping Centre							
North	-	-	-						
South	< 10m	2	D						
East	10m to 15m	2	В						

Table 8: TkLOS Intersection Analysis

Interception	A	M Peak		P	M Peak	
Intersection	v/c	LOS	Mvmt	v/c	LOS	Mvmt
Carling Avenue/ Woodroffe Avenue West	0.85	D	NBR	0.86	D	WBL
Carling Avenue/ Woodroffe Avenue East/Fairlawn Avenue	0.98	Е	SBL	0.96	Е	SBR
Carling Avenue/ Carlingwood Shopping Centre	0.44	А	EBT	0.32	А	WBT/ NBT
Carling Avenue/ Iroquois Road	0.50	А	EBT	0.58	А	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.29	А	SBT	0.57	А	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	26 sec	D	WBL	37 sec	E	WBL
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	А	SBR	10 sec	А	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	В	EBL/ EBR	21 sec	С	EBL/ EBR
Carling Avenue/ Site Access ⁽¹⁾	9 sec	А	SBR	10 sec	А	SBR
Woodroffe Avenue East/ Site Access ⁽¹⁾	17 sec	С	EBL/ EBR	19 sec	С	EBL/ EBR

Table 9: Auto LOS Intersection Analysis – Existing

1. Unsignalized intersection

Table 10: Existing Queues Over Capacity

				AM Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
Carling Ave/ Woodroffe Ave West	WBL	0.80	С	67	86	0.86	D	107	m107	
	SBL	0.98	E	~48	#60	0.63	В	30	39	
Carling Ave/	SBR	0.73	С	62	71	0.96	E	127	#225	
Woodroffe Ave East/ Fairlawn Ave	EBL	0.81	D	60	m78	0.71	С	57	#92	
	EBT	0.80	D	55	#283	0.32	Α	40	77	
	WBT	0.18	Α	14	14	0.84	D	121	#147	

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity

~: approach is above capacity

Table 11: Signalized Intersection MMLOS Summary

	Intersection	Ca Woodr	rling Avenu offe Avenu	ue/ e West	Woodroff	Carling e Avenue E	Avenue/ ast/Fairlaw	n Avenue	Car	Carling lingwood S	Avenue/ hopping Ce	entre		Carling Iroquo	Avenue/ is Road		Woodr Carlingwo	offe Avenu ood Shoppi	e East/ ng Centre
		SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST
	Island Refuge	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No
	Lanes	5	7	7	6	7	10	9	8	7	10	10	4	4	10	10	4	5	5
	Conflicting Left Turns	Protected	No Left Turn	Permitted	Protected	Protected	Perm + Prot	Permitted	Perm + Prot	Permitted	Permitted	Permitted	Perm + Prot	Permitted	Permitted	Permitted	No Left Turn	Permitted	Permitted
	Conflicting Right Turns	Permitted/ Yield	Perm + Prot	No Right Turn	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Perm + Prot	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	Permitted/ Yield	No Right Turn	Permitted/ Yield
	Right Turn on Red	RTOR Allowed	-	-	RTOR Allowed	RTOR Allowed	-	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	-	-	-	-	RTOR Allowed	RTOR Allowed
	Pedestrian Leading Interval	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No
u	Parallel Radius	15m to 25m	5m to 10m	-	15m to 25m	15m to 25m	10m to 15m	10m to 15m	10m to 15m	15m to 25m	5m to 10m	15m to 25m	15m to 25m	15m to 25m	5m to 10m	10m to 15m	10m to 15m	-	5m to 10m
estria	Parallel Channel	Conv w/o Receiving	No Channel	-	Conv w/o Receiving	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	Conv w/o Receiving	Conv w/o Receiving	No Channel	No Channel	No Channel	-	No Channel
Pede	Perpendicular Radius	-	-	15m to 25m	-	-	15m to 25m	-	-	-	-	-	-	-	15m to 25m	15m to 25m	-	-	-
	Perpendicular Channel	-	-	Conv w/o Receiving	-	-	Conv w/o Receiving	-	-	-	-	-	-	-	Conv w/o Receiving	Conv w/o Receiving	-	-	-
	Crosswalk Type	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Zebra Stripe	Zebra Stripe	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	PETSI Score	47	22	20	30	10	-40	-20	-12	2	-41	-44	55	58	-39	-40	66	54	38
	Delay Score	47.1	56.1	56.1	51.8	45.2	44.0	33.2	38.6	26.0	39.9	39.9	22.3	14.9	41.8	41.8	40.5	40.5	17.8
		D	F	F	E	F	F	F	F	F	F	F	D	D	F	F	Ш	E	E
	Level of Service		F			F	=				=				F			E	
	Target		С			(C			(C				С			С	
		Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed
	Туре ог вікемаў	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic	Traffic
	Turning Speed	Slow	-	Fast	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Fast	Slow	-	Slow	Slow
	Right Turn Storage	> 50m	-	> 50m	> 50m	-	> 50m	-	-	-	-	-	-	-	> 50m	-	-	> 50m	< 50m
	Dual Right Turn Lanes	NO	-	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	-	NO	NO
list	Bike Box	No	No	NO	No	No	No	No	No	No	No	No	No	No	No	No	- No	No	No
yc	Lanes Crossed (Left Turns)	1	2	-	2	2	4	2	2	0	4	3	1	0	4	3	1	-	0
ပ	Dual Left Turn Lanes	No	Yes	-	No	No	No	Yes	No	No	No	No	No	No	No	No	No	-	No
	Approach Speed	60 km/h	70 km/h	70 km/h	60 km/h	60 km/h	70 km/h	70 km/h	40 km/h	40 km/h	70 km/h	70 km/h	50 km/h	50 km/h	70 km/h	70 km/h	60 km/h	60 km/h	40 km/h
	Level of Service	F	F	F	F	F	F	F	D	В	F	F	D	В	F	F	F	F	D
	Target		F C			f (- ?				-				F R			F C	
	Average Signal Delay	-	40 sec	35 sec	50 sec	50 sec	35 sec	40 sec	10 sec	-	5 sec	5 sec	-	-	15 sec	5 sec	5 sec	5 sec	-
sit		_	F	F	F	F	F	F	B	_	R	B	_	_	R	B	B	B	_
ran	Level of Service		E			· ·	=			[3				B			B	
F	Target		D))				D			-	
	Turning Radius	< 10m	-	> 15m	10m-15m	> 15m	> 15m	> 15m	10m-15m	< 10m	10m-15m	> 15m	10m-15m	< 10m	> 15m	> 15m	-	< 10m	10m-15m
×	Receiving Lanes	3	-	2	3	3	2	1	4	3	2	1	4	3	1	1	-	2	2
ruc	Level of Service	D	-	А	В	А	A	С	В	D	В	С	В	D	С	С	-	D	В
⊢			D			(5				5				D			D	
	Target		D												D			D	
lto	Level of Service		D			E					4				Ą			A	
A	Target		D				$\overline{)}$				$\overline{)}$							D	

APPENDIX H

Signal Timing Plans

	City of Ottawa, Transportation Services Department									
		Traffic Signal Opera	ations Unit							
Intersection:	Main:	Carling	Side:	Woodroffe South						
Controller:	MS-320	0	TSD:	5213						
Author:	Spence	r Willows	Date:	20-Apr-2018						

Existing Timing Plans[†]

	Plan					Ped Minimum Time					
	AM Peak	Off Peak	PM Peak	Night	Weekend	Walk	DW	A+R			
	1	2	3	4	5						
Cycle	130	110	130	100	105						
Offset	112	18	27	Х	51						
EB Thru	55	40	40	40	38	11	15	3.7+2.0			
WB Thru	86	69	89	56	66	-	-	3.7+2.0			
NB Thru	44	41	41	44	39	7	26	3.3+2.5			
WB Left (fp)	31	29	49	16	28	-	-	3.7+2.3			
NB Right	31	29	49	16	28	-	-	3.7+2.3			

Phasing Sequence[‡]

Plan: All



Notes:

For all plans except Plan 4, there is a minimum recall of 10s green for the NB movment.
 There is a transit signal priority measure for the EW thru that extends the green time by 10 seconds for Plans 1 and 2, and 5 seconds for Plan 3.

Schedule

Weekday			Saturda	ıy		Sund
Time	Plan		Time	Plan		Tim
0:15	4	-	0:15	4	_	0:1
6:30	1	_	7:00	2		8:0
9:30	2	_	9:10	5		23:
15:00	3	_	18:30	2		
18:30	2	_	23:30	4		
23:30	4	_				

Sunday	
Time	Plan
0:15	4
8:00	2
23:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

Pedestrian signal

City of Ottawa, Transportation Services Department Traffic Signal Operations Unit

Intersection:	Main:	Carling	Side:	Woodroffe/Fairlawn		
Controller:	MS-3200)	TSD:	5283		
Author:	Spencer	Willows	Date:	23-Apr-2018		

Existing Timing Plans[†]

	Plan				Ped Minimum Time					
	AM Peak	Off Peak	PM Peak	Night	Weekend	Walk	DW	A+R		
	1	2	3	4	5					
Cycle	130	110	130	100	105					
Offset	128	16	0	х	13					
EB Thru	53.7	37	51.7	42	37	7	24	3.7+2.4		
WB Thru	44	37	47	42	37	7	24	3.7+2.4		
SB Left	14	11	14		12	-	-	3.3+3.0		
NB Thru	41	42	43	46	41	23	11	3.3+3.6		
SB Thru	55	53	57	46	53	23	11	3.3+3.6		
EB Left (fp)	31	20	26	12	15	-	-	3.7+2.6		
WB Left (fp)	21.3	20	21.3	12	15	-	-	3.7+2.6		
SB Right	31	20	26	12	15	-	-	3.7+2.6		

Phasing Sequence[‡]



4) The WB left turn has a maximum green time of 15 seconds.

Schedule

Weekday		Saturda	y	Sunday	
Time	Plan	Time	Plan	Time	Plan
0:15	4	0:15	4	0:15	4
6:30	1	7:00	2	8:00	2
9:30	2	9:10	5	23:30	4
15:00	3	18:30	2		
18:30	2	23:30	4		
23:30	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

Pedestrian signal

City of Ottawa, Transportation Services Department

Traffic Sig	nal Operations	Unit
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Intersection:	Main: Carling	Side:	Carlingwood SC/Fairlawn Plaza
Controller:	MS-3200	TSD:	5690
Author:	Spencer Willows	Date:	23-Apr-2018

Existing Timing Plans[†]

	Plan						Ped Mi	nimum T	ime
	AM Peak	Off Peak	PM Peak	Night	Weekend	Evening	Walk	DW	A+R
	1	2	3	4	5	12			
Cycle	130	110	130	100	105	100			
Offset	128	6	100	х	11	Х			
EB Thru	82	62	82	44	61	44	7	28	3.7+2.5
WB Thru	65	48	64	44	46	44	7	28	3.7+2.5
NB Thru	48	48	48	44	44	44	24	13	3.3+3.6
SB Thru	48	48	48	44	44	44	24	13	3.3+3.6
EB Left	17	14	18	12	15	12	-	-	3.7+2.9

1) The EB Left movement has a maximum green time of 15 seconds. Notes:

Phasing Sequence[‡]

Plan: All



Schedule

Weekday						
Time	Plan					
0:15	4					
6:30	1					
9:30	2					
15:00	3					
18:30	2					
20:00	12					
23:30	4					

Saturday						
Time	Plan					
0:15	4					
7:00	2					
9:10	5					
18:30	2					
23:30	4					

Su	Sunday					
T	ime	Plan				
0	:15	4				
8	:00	2				
23	3:30	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄····· Pedestrian signal

Cost is \$56.50 (\$50 + HST)

	City of Ott	awa, Transportatio	n Services Departme	nt	
		Traffic Signal Ope	erations Unit		
tion [.]	Main:	Carling	Side	Iroquois	

Intersection:	Main:	Carling	Side:	Iroquois	
Controller:	MS-3200		TSD:	5276	
Author:	Spencer \	Willows	Date:	23-Apr-2018	

Existing Timing Plans[†]

	Plan					Ped Min	imum T	ime
	AM Peak	Off Peak	PM Peak	Night	Weekend	Walk	DW	A+R
	1	2	3	4	5			
Cycle	130	110	130	100	105			
Offset	6	107	95	х	17			
EB Thru	86	66	86	39	63	10	12	3.7+2.5
WB Thru	72	50	74	39	51	10	12	3.7+2.5
NB Thru	44	44	44	49	42	24	11	3.3+4.0
SB Thru	44	44	44	49	42	24	11	3.3+4.0
EB Left	14	16	12	12	12	-	-	3.7+3.3

Phasing Sequence[‡]

Plan: All



<u>Notes:</u> 1)

1) There is a transit priority measure for the EW thru movement that extends the green time by 20 seconds for Plan 1, 3, and 5, and by 17 seconds for Plan 2.

Schedule

Time Plan
0:15 4
6:30 1
9:30 2
15:00 3
18:30 2
23:30 4

Saturday Time Plan 0:15 4 7:00 2 9:10 5 18:30 2 23:30 4

Sunday					
Time	Plan				
0:15	4				
8:00	2				
23:30	4				
23:30	4				

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

Pedestrian signal

Cost is \$56.50 (\$50 + HST)

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection:	Main:	Woodroffe	Side:	255m N of Carling/Carlingwood SC		
Controller:	ller: ATC-3		TSD:	5882		
Author:	Spencer Willows		Date:	23-Apr-2018		

Existing Timing Plans[†]

	Plan				Ped Minimum Time			
	AM Peak	Off Peak	PM Peak	Night	Weekend	Walk	DW	A+R
	1	2	3	4	5			
Cycle	85	75	95	70	80			
Offset	10	5	45	Х	0			
NB Thru	54	44	64	39	49	11	18	3.3+2.7
SB Thru	54	44	64	39	49	11	18	3.3+2.7
WB Thru	31	31	31	31	31	7	18	3.3+2.4

1) The east-west advanced walk time is included in the split shown in the timing plan table. Notes:

Phasing Sequence[‡]

Plan: All



Schedule

-

Weekday		Saturda	ıy		Sunday
Time	Plan	Time	Plan		Time
0:15	4	0:15	4	_	0:15
6:30	1	7:00	2		8:00
9:30	2	9:10	5		23:30
15:00	3	18:30	2		
18:30	2	23:30	4		
23:30	4				

Plan 4 2 4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

Pedestrian signal **∢**......

Cost is \$56.50 (\$50 + HST)

APPENDIX I

Synchro Analysis
	-	\rightarrow	-	+	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	** 1		**	**	*	#
Traffic Volume (voh)	1338	182	499	291	223	457
Future Volume (vph)	1338	182	499	291	223	457
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lanes		120.0	0.0		0.0	0.0
Tapar Langth (m)		1	75		7.5	1
	0.01	0.01	7.5	0.05	1.0	1 00
Lane Ulli. Facior	0.91	0.91	0.97	0.95	1.00	1.00
Let Dike Lactol	1.00		1.00		0.99	0.98
FIL Fit Droto stord	0.982		0.050		0.050	0.850
Fit Protected		•	0.950		0.950	
Satd. Flow (prot)	4/13	0	3190	3288	1660	1485
FIt Permitted			0.950		0.950	
Satd. Flow (perm)	4713	0	3180	3288	1639	1449
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22					4
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		13	13		11	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	4%	3%	.3%
Adi, Flow (vph)	1487	202	554	323	248	508
Shared Lane Traffic (%)		202	007	520	270	000
Lane Group Flow (vph)	1680	0	55/	303	2/18	508
Enter Blocked Intersection	No	No	.No	JZJ No	240 No	No
Lano Alignment		Diabt	10	INU Lot	INU Loft	Diabt
	Len	Right	Len	Len	Len	Right
line offeret(m)	1.2			9.9	3.0	
	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
I wo way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	1		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (c)	0.0		0.0	0.0	0.0	0.0
Detector 1 Oucus (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Detector Phase	2		1	6	8	1
Switch Phase	-			v	J	

	-	\mathbf{r}	-	+	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0
Total Solit (s)	55.0		31.0	86.0	44 0	31.0
Total Split (%)	42.3%		23.8%	66.2%	33.8%	23.8%
Maximum Green (s)	40 3		25.0	80.270	38.2	25.0
Yellow Time (s)	-3.5		20.0	37	30.Z	20.0
All Ped Time (s)	2.0		23	2.0	2.5	23
Lost Timo Adjust (s)	2.0		2.5	2.0	2.5	2.5
Total Lost Time (a)	0.0		6.0	0.0 5.7	0.0 5 0	6.0
	0.7		0.0	5.7	5.0	0.0
Lead Lag Optimize?	Lag		Leau			Leau
Lead-Lag Optimize?	2.0		2.0	2.0	2.0	2.0
Venicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Kecall Mode	C-Max		None	C-Max	Min	None
Walk Time (s)	11.0			11.0	7.0	
Flash Dont Walk (s)	15.0			15.0	26.0	
Pedestrian Calls (#/hr)	7			7	6	
Act Effct Green (s)	59.3		28.4	93.7	24.8	53.0
Actuated g/C Ratio	0.46		0.22	0.72	0.19	0.41
v/c Ratio	0.78		0.80	0.14	0.78	0.85
Control Delay	34.1		55.1	6.1	66.7	44.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	34.1		55.1	6.1	66.7	44.4
LOS	C		E	A	E	D
Approach Delay	34.1			37.1	51.7	
Approach LOS	C			D	D	
Queue Length 50th (m)	122.0		67.3	9.0	56.2	94 9
Queue Length 95th (m)	#167.7		85.6	24.7	77.3	117.3
Internal Link Dict (m)	π107.7 214 7		00.0	11 5	210.1	117.0
Turn Poy Longth (m)	214.7			41.5	210.1	
Page Capacity (uph)	2161		707	2260	107	606
Star vation Con Deducto	2101		101	2309	407	000
Starvation Cap Reductin	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.78		0.78	0.14	0.51	0.84
Intersection Summary						
Area Type:	Other					
Cycle Length: 130						
Actuated Cycle Length: 130						
Offset: 112 (86%), Reference	ed to phase 2:E	BT and 6	WBT. Sta	rt of Greer	1	
Natural Cycle: 105			,			
Control Type: Actuated-Coor	rdinated					
Maximum v/c Ratio: 0.85						
Intersection Signal Delay: 38	3.9			In	tersection	
Intersection Canacity Litilizat	ion 78.6%					EGO. D EService F
Analysis Deriod (min) 15						
# Q5th perceptile volume a	voode canaait		nav ha lan	aar		
Oueue shown is maximur	m after two over	y, queue i	nay be ion	iyei.		
		U J.				
Splits and Phases: 3: Woo	odroffe W & Car	ling				



5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	88	≜1 ⊾		×	***	1	*	≜1 ⊾		*	*	1
Traffic Volume (vph)	439	1455	45	10	301	90	11	206	46	194	81	503
Future Volume (vph)	/30	1/55	/5	10	301	90	11	200	46	10/	81	503
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storago Longth (m)	0.0	1000	0.0	35.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Length (III)	0.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Laries	20.0		U	20.0		I	7 5		0	100.0		I
	20.0	0.05	0.05	30.0	0.04	4 00	1.0	0.05	0.05	100.0	4 00	4 00
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.97	0.99	0.99		0.99		0.98
Frt	0.050	0.996		0.050		0.850	0.050	0.973		0.050		0.850
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3252	3335	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Flt Permitted	0.950			0.950			0.699			0.362		
Satd. Flow (perm)	3192	3335	0	1550	4467	1349	1227	3242	0	625	1748	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				191		20				215
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		43.3			162.2			169.9			54.4	
Travel Time (s)		2.6			9.7			12.2			3.9	
Confl. Peds. (#/hr)	14		13	13		14	5		18	18		5
Confl. Bikes (#/hr)						1			2			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	488	1617	50	11	334	100	12	229	51	216	90	559
Shared Lane Traffic (%)												
Lane Group Flow (vph)	488	1667	0	11	334	100	12	280	0	216	90	559
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8	•		10.8	•		3.6	, i i i i i i i i i i i i i i i i i i i		3.9	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Fx	CI+Fx		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Fx	CI+Ex
Detector 1 Channel	0 . – <i>N</i>	0/		01 	0 . 1 /	0 . – <i>n</i>	0 . – <i>N</i>	0 . – <i>n</i>		0 . 1 /	e . _ /(0. 2/
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	9.0		0.0	9.0	0.0	0.0	9.0		0.0	9.0 9.4	0.0
Detector 2 Size(m)		0.4			0.4			0.4			0.4	
Detector 2 Type		CI+Ev			CI+Ev			CI+Ev			CI+Ev	
Detector 2 Channel		OFLA			OFLA							
Detector 2 Extend (c)		0.0			0.0			0.0			0.0	
	Drot	0.0		Drot	0.0	Dorm	Dorm	0.0		nmint	0.0	DM LOV
Protected Phases		N/A			NA C	reilli	reilli	NA 0		pin+pi 7	NA A	pili+0V
Protected Phases	3	2		I	0	6	0	0		1	4	⊃ ⊿
Permilieu Filases	E	0		4	G	0	0	0		4	4	4
Delector Fliase	5	2		1	0	0	0	0		1	4	5

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

	•
Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL	BT SBR
Switch Phase	
Minimum Initial (s) 5.0 10.0 5.0 10.0 10.0 10.0 10.0 5.0).0 5.0
Minimum Solit (c) 113 371 113 371 371 40.9 40.9 113	19 113
Total Split (s) 310 537 21.3 44.0 44.0 41.0 41.0 14.0	50 310
Total Split (%) 23.8% 41.3% 16.4% 33.8% 33.8% 31.5% 31.5% 10.8% 4	3% 23.8%
Maximum Green (s) 24 7 4 7 6 15 0 37 9 37 9 34 1 34 1 7 7	31 247
	33 37
All-Red Time (s) 26 24 26 24 26 24 36 36 30	36 26
$\int dr t dr $	10 00
Total Lost Time (s) 63 61 63 61 63 61 61 69 69 63	$\frac{10}{10}$ 6.3
lead lag lead lag lead lag lead lag lag lag lead	Lead
Lead an Ontimize?	Loud
Vehicle Extension (s) 30 30 30 30 30 30 30 30	30 30
Recall Mode None C-Max None C-Max C-Max Min Min None	lin None
Walk Time (s) 7.0 7.0 7.0 7.0 23.0 23.0	
Viale fine (s) 7.0 7.0 20.0 20.0 20.0 20.0 20.0 20.0 2	1.0
	0
$\int \frac{1}{1} \int $	9
Actuated $q(C \text{ Botion}) = 0.10, 0.62, 0.05, 0.10, 0.11, 0.14, 0.14, 0.26$	25 0.44
Actuated gro Ratio 0.19 0.00 0.04 0.41 0.44 0.14 0.14 0.20	20 0.44
Vic Ratil Control Dolary 71.0 15 5 75 4 10.1 10 0.13 0.07 0.30 0.90	ZI 0.73
Control Delay 71.9 15.5 75.4 19.1 1.0 44.1 52.1 100.2	19.0
Queue Delay 0.0 <th< td=""><td>J.U U.U</td></th<>	J.U U.U
Total Delay 71.9 15.5 75.4 19.1 1.0 44.1 52.1 100.2	.5 19.8
LUS E B E B A D D F	
Approach Delay 26.3 16.5 51.7	1.7
Approach LUS C B D	
Queue Length 50th (m) 60.3 55.3 2.8 13.7 0.0 2.6 31.3 ~47.5	.4 62.3
Queue Length 95th (m) m77.7 #283.4 9.2 12.0 0.2 6.9 37.7 #59.7	5.1 71.3
Internal Link Dist (m) 19.3 138.2 145.9).4
Turn Bay Length (m) 35.0 Dear Ownerski (right) 044 0000 470 4050 674 004 005 000	40 700
Base Capacity (vpn) 641 2093 179 1852 671 321 865 220	46 783
	0 0
Spillback Cap Reductin 0 0 0 0 0 0 0 0	0 0
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0	0 0
Reduced V/c Ratio 0.76 0.80 0.06 0.18 0.15 0.04 0.32 0.98	14 0.71
Intersection Summary	
Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 128 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 31.8 Intersection LOS: C	
Intersection Capacity Utilization 98.2% ICU Level of Service F	
Analysis Period (min) 15	
 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.	
Splits and Phases: 5: Fairlawn/Woodroffe E & Carling	



12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	X	##1		× 1	tttts.			4		X	۴.	
Traffic Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Future Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0.0
Taper Length (m)	6.0			7.5		Ŭ	7.5		•	7.5		
Lane Util Factor	1 00	0.91	0.91	1 00	0.86	0.86	1 00	1 00	1 00	1 00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	1.00	1 00	0.00	1.00	0.99	1.00	0.99	0.98	1.00
Frt	1.00	0.998		1.00	0.996			0.930		0.00	0.860	
Elt Protected	0 950	0.000		0 950	0.000			0.987		0.950	0.000	
Satd Flow (prot)	1676	4806	0	1676	6044	0	0	1573	0	1221	1109	0
Elt Permitted	0 4 1 9	4000	U	0 130	0044	0	0	0.915	U	0 737	1105	0
Satd Flow (perm)	738	1806	0	229	6044	0	0	1/156	0	Q/1	1100	0
Right Turn on Red	100	-000	Ves	225	0077	Ves	U	1-00	Ves	571	1105	Ves
Satd Flow (RTOR)		2	103		5	163		16	163		/3	103
Link Speed (k/b)		60			60			30			40	
Link Distance (m)		162.2			170.6			101 7			102.7	
		0.7			10.0			101.7			0.2	
Confl Dode (#/br)	1	9.7	5	5	10.2	1	5	12.2	7	7	9.2	5
Comil. Peds. (#/m)	4	0.00	0.00	0.00	0.00	4	0.00	0.00	0.00	0.00	0.00	0.00
	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy venicles (%)	Z%	Z%	2% 20	2%	Z%	Z%	4%	4%	4%	40%	0%	40%
Adj. Flow (vpn)	13	1009	20	29	480	14	Ö	1	10	29	3	43
Shared Lane Traffic (%)	40	4700	0	00	404	•	0	24	0	00	40	0
Lane Group Flow (Vpn)	13	1709	U	29	494	U	0	31	U	29	40	U
Enter Blocked Intersection	NO	NO	NO D: Lu	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Lett	Len	Right	Leπ	Lett	Right	Leπ	Len	Right	Lett	Left	Right
Median Width(m)		9.9			10.8			1.0			3.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
I wo way Left Turn Lane	4.07	4.07	4.07	4 07	4.07	4 07	4 07	4.07	4.07	4 07	4.07	4 07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	•	15	25	•	15	25	•	15	25	•	15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	I hru		Left	I hru		Left	l hru		Left	Ihru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												

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12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0		65.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%		50.0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.4	75.8		58.8	58.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		3		3	3		4	4		4	4	
Act Effct Green (s)	104.2	105.8		100.7	100.7			15.7		15.7	15.7	
Actuated g/C Ratio	0.80	0.81		0.77	0.77			0.12		0.12	0.12	
v/c Ratio	0.02	0.44		0.16	0.11			0.16		0.26	0.27	
Control Delay	2.5	2.0		9.9	4.6			28.5		53.2	17.2	
Queue Delay	0.0	0.2		0.0	0.0			0.0		0.0	0.0	
Total Delay	2.5	2.2		9.9	4.6			28.5		53.2	17.2	
LOS	А	Α		А	А			С		D	В	
Approach Delay		2.2			4.9			28.5			31.1	
Approach LOS		A			A			С			С	
Queue Length 50th (m)	0.3	14.8		1.1	5.1			3.4		6.6	0.7	
Queue Length 95th (m)	m0.5	m19.8		4.4	10.4			9.7		12.4	9.2	
Internal Link Dist (m)		138.2			146.6			77.7			78.7	
Turn Bay Length (m)	110.0			65.0	1000							
Base Capacity (vph)	666	3912		1//	4682			4/1		297	380	
Starvation Cap Reductn	0	991		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.02	0.59		0.16	0.11			0.07		0.10	0.12	
Intersection Summary	Others											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Natural Cycle: 100	d to phase 2:	EBIL and t	SIVBIL, S	start of Gre	en							
Control Type: Actuated-Coord	dinated											
Intersection Signal Delay: 1.0				In	tersection	LOS: A						
Intersection Canacity Litilizati	on 55.6%					Service R						
Analysis Period (min) 15	01.00.070					Service D						
m Volume for 95th percentil	le queue is m	etered by u	nstream s	ional								
			potroumo	.griui.								
Splits and Phases: 12: Car	ling & Carling	wood SC										
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15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	N	##1		X	***	1		4		X	۴.	
Traffic Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Future Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0	1000	0.0	40.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0	1		1	0		0	1		0.0
Taper Length (m)	7.5		Ŭ	7.5		•	75		v	7.5		Ű
Lane Util Factor	1 00	0 91	0 91	1.00	0 91	1 00	1.00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	0.98	1.00	0.01	1.00	0.01	0.94	1.00	0.98	1.00	0.99	0.98	1.00
Frt	0.00	1.00		1.00		0.850		0.929		0.00	0.882	
Fit Protected	0 950			0.950		0.000		0.020		0.950	0.002	
Satd Flow (prot)	1676	4817	0	1629	4680	1457	0	1612	0	1660	1509	0
Elt Permitted	0.464	1017	U	0 111	4000	1407	0	0.988	U	0.802	1000	U
Satd Flow (perm)	802	/1817	٥	100	4680	136/	٥	1505	٥	138/	1500	٥
Right Turn on Red	002	4017	Ves	130	4000	Ves	U	1000	Ves	1304	1003	Ves
Satd Flow (PTOP)		1	163			05		18	163		30	163
Link Spood (k/b)		1			60	30		50			50	
Link Distance (m)		170.6			105.0			157.7			162.4	
		1/0.0			100.0			107.7			100.4	
Confl Dada (#/br)	15	10.2	10	10	11.1	15	10	11.4	10	10	11.0	10
Confl. Peas. (#/nr)	10		12	IZ		15	13		IZ 4	IZ		13
Confi. Bikes (#/nr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4	0.00	0.00	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy venicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vpn)	21	1831	6	8	413	6 <i>1</i>	3	27	33	83	8	30
Shared Lane Traffic (%)	04	1007	0	0	440	67	0	62	0	00	20	0
Lane Group Flow (vpn)	ZI	1037	U	Ö	413	0/	U	03	U	83 N	38	U
Enter Blocked Intersection	INO	INO	NO Dista	INO	INO	NO Dialat	INO	INO	NO Diadat	INO	INO	INO District
Lane Alignment	Lett	Lett	Right	Leπ	Lett	Right	Leπ	Left	Right	Lett	Lett	Right
Nedian Width(m)		10.8			1.2			1.0			3.0	
		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
Two way Leπ Turn Lane	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	0	15	25	0	15	25	0	15	25	0	15
Number of Detectors	1			1	Z		1	Z		1		
Detector Template	Left	Inru		Left	Inru	Right	Left	Inru		Left	I hru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	98.2	99.0		91.1	91.1	91.1		17.5		17.5	17.5	
Actuated g/C Ratio	0.76	0.76		0.70	0.70	0.70		0.13		0.13	0.13	
v/c Ratio	0.03	0.50		0.06	0.13	0.07		0.28		0.45	0.17	
Control Delay	1.5	1.9		13.6	8.6	1.4		37.1		56.8	19.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	1.5	1.9		13.6	8.6	1.4		37.1		56.8	19.4	
LOS	A	А		В	А	А		D		E	В	
Approach Delay		1.9			7.7			37.1			45.1	
Approach LOS		Α			A			D			D	
Queue Length 50th (m)	0.2	6.3		0.6	11.0	0.0		9.9		18.9	1.7	
Queue Length 95th (m)	m0.7	8.7		3.8	24.0	3.3		18.7		28.3	9.3	
Internal Link Dist (m)	(07.0	146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	652	3670		132	3278	983		463		390	447	
Starvation Cap Reductn	0	182		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	0.03	0.53		0.06	0.13	0.07		0.14		0.21	0.09	
Intersection Summary	01											
Area Type:	Other											
Cycle Length: 130	•											
Actuated Cycle Length: 130												
Offset: 0 (0%), Referenced	to phase 2:EBI	L and 6:W	BTL, Start	t of Green								
Natural Cycle: 85	and a stand											
Movimum v/o Datia: 0.50	bruinated											
Interpretion Signal Delaw C	0			1	torootion							
Intersection Signal Delay: 6	.0			lr Ir		LUS: A						
Analysis Poriod (min) 15	10011 02.4%			IC	O Level 0	Service E	•					

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

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

	<	•	†	1	×	↓		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		<u>.</u>		
Traffic Volume (vph)	21	9	643	72	16	658		
Future Volume (vph)	21	g	643	72	16	658		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Litil Factor	1 00	1 00	0.95	1 00	0.95	0.95		
Ped Rike Factor	0.00	0.08	0.33	0.05	0.35	1.00		
	0.99	0.50		0.55		1.00		
Elt Drotootod	0.050	0.000		0.000		0.000		
Setd Flow (prot)	1710	1520	2200	1/71	0	0.999		
Salu. Flow (plot)	0.050	1550	3200	1471	0	0 022		
Setd Flow (porm)	0.900	1504	2200	1401	0	2004		
Salu. Flow (perm)	1095	1504	3200	1401	U	3094		
Right Turn on Red		res 10		res				
Sato. Flow (RTOR)	40	10	50	80		50		
Link Speed (k/n)	40		50			50		
Link Distance (m)	107.1		/8.4			80.5		
	9.6		5.6	40	40	6.2		
Confl. Peds. (#/hr)	8	4		18	18			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	0%	0%	4%	4%	3%	3%		
Adj. Flow (vph)	23	10	714	80	18	731		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	23	10	714	80	0	749		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Fx			CI+Ex		
Detector 2 Channel			0 . 1 .			0. 2/		
Detector 2 Extend (s)			0.0			0.0		
	Perm	Perm	NΔ	Perm	Perm	NΔ		
Protected Phases			- IVA 2			6	7	
Permitted Phases	8	8	2	2	6	U	, 	
Detector Phase	Q	Q	2	2	6	6		
Switch Phase	0	0	2	2	U	U		
Minimum Initial (a)	ΕŌ	E 0	10.0	10.0	10.0	10.0	3.0	
Minimum Colit (s)	0.U	0.0 05.7	10.0	10.0	10.0	10.0	5.0	
wininfun Spiit (S)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC AM Peak Hour

	4	*	1	1	1	↓				
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7			
Total Split (s)	26.0	26.0	54.0	54.0	54.0	54.0	5.0			
Total Split (%)	30.6%	30.6%	63.5%	63.5%	63.5%	63.5%	6%			
Maximum Green (s)	20.3	20.3	48.0	48.0	48.0	48.0	3.0			
Vellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0			
All_Ped Time (s)	2.4	2.4	27	27	27	27	0.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0			
Total Lost Time (s)	5.7	5.7	6.0	6.0		6.0				
	0.7	5.7	0.0	0.0		0.0	Lood			
Leau/Lay	Lay	Lay					Leau			
	2.0	20	20	2.0	2.0	2.0	20			
	3.0	3.0	3.0	3.0 0 May	3.0	3.0	3.0			
	None	None	C-Max	C-IVIAX	C-IVIAX	C-Max	None			
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0				
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0				
Pedestrian Calls (#/hr)	4	4	9	9	9	9				
Act Effct Green (s)	9.0	9.0	71.2	71.2		71.2				
Actuated g/C Ratio	0.11	0.11	0.84	0.84		0.84				
v/c Ratio	0.13	0.06	0.26	0.07		0.29				
Control Delay	32.9	16.3	3.5	1.5		3.7				
Queue Delay	0.0	0.0	0.0	0.0		0.0				
Total Delay	32.9	16.3	3.5	1.5		3.7				
LOS	С	В	А	А		А				
Approach Delay	27.8		3.3			3.7				
Approach LOS	С		A			А				
Queue Length 50th (m)	3.3	0.0	11.5	0.0		12.4				
Queue Length 95th (m)	8.0	3.5	32.6	4.1		35.3				
Internal Link Dist (m)	83.1		54.4			62.5				
Turn Bay Length (m)			01.1			02.0				
Rase Canacity (ynh)	404	366	2754	1186		2591				
Starvation Can Reductn	0	0	0	0		2001				
Sidi Valion Cap Reductin	0	0	0	0		0				
Storage Can Peducth	0	0	0	0		0				
Storage Cap Reductin	0.06	0.02	0.26	0.07		0.20				
Reduced V/C Ralio	0.00	0.05	0.20	0.07		0.29				
Intersection Summary										
Area Type: 0	Other									
Cvcle Length: 85										
Actuated Cycle Length: 85										
Offset: 10 (12%), Referenced to	phase 2:NI	BT and 6:	SBTL, Star	t of Green						
Natural Cycle: 70	· P · · ·									
Control Type: Actuated-Coordin	nated									
Maximum v/c Ratio: 0.29	lutou									
Intersection Signal Delay: 4.0				In	tersection	LOS' A				
Intersection Canacity Utilization	53 9%					f Service A				
Analysis Period (min) 15	00.070									
Allalysis Feliou (min) 15										
Splits and Phases: 18: Wood	roffe E & Ca	arlingwood	ISC						 	
Ø2 (R)										
54.5										
							11	5		
🖡 🕈 🖉 6 (R)							7 Ø7	🔻 Ø8		

5 s

26 s

54 s

1: Woodroffe E & Access AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲			4412	≜ t≽	
Traffic Volume (vph)	1	1	2	735	778	1
Future Volume (vph)	1	1	2	735	778	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt	0.932					
Flt Protected	0.976					
Satd. Flow (prot)	1605	0	0	4771	3320	0
Flt Permitted	0.976					
Satd. Flow (perm)	1605	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.1	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	1	1	2	817	864	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	819	865	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 32.7%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1940	816	6	0	2
Future Volume (vph)	0	1940	816	6	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	5891	0	0	1557
Flt Permitted						
Satd. Flow (perm)	0	4771	5891	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	85.2		179.2	
Travel Time (s)		4.7	6.1		12.9	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adj. Flow (vph)	0	2156	907	7	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2156	914	0	0	2
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		2.7	2.7	Ū	0.0	Ŭ
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
	Other					
Control Type: Unsignalized	Other					
Control Type. Onsignalized	10.001					

Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 15

10: Woodroffe E & Flower AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			-a†	4 12	
Traffic Volume (vph)	25	78	20	608	576	12
Future Volume (vph)	25	78	20	608	576	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.898				0.997	
Flt Protected	0.988			0.998		
Satd. Flow (prot)	1581	0	0	3346	3279	0
Flt Permitted	0.988			0.998		
Satd. Flow (perm)	1581	0	0	3346	3279	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8	4	7			7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%
Adj. Flow (vph)	28	87	22	676	640	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	115	0	0	698	653	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	_
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 47.4%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ትር _ራ			1
Traffic Volume (vph)	0	1940	816	2	0	2
Future Volume (vph)	0	1940	816	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		85.2	43.3		49.1	
Travel Time (s)		6.1	3.1		3.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2156	907	2	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2156	909	0	0	2
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	•	0.0	•
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 33.0%			ICI	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	7	1	<u>ቀቀ</u> ሴ			- €t†
Traffic Volume (vph)	2	14	723	12	9	769
Future Volume (vph)	2	14	723	12	9	769
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt		0.850	0.998			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1676	1500	4808	0	0	3350
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1676	1500	4808	0	0	3350
Link Speed (k/h)	50		50			50
Link Distance (m)	105.5		70.1			78.4
Travel Time (s)	7.6		5.0			5.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	16	803	13	10	854
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	16	816	0	0	864
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 39.1%			IC	U Level of	Service A

Analysis Period (min) 15

	-	\rightarrow	1	+	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	** 1		**	**	*	#
Traffic Volume (voh)	483	340	758	957	255	393
Future Volume (vph)	483	340	758	957	255	393
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lanes		1_0.0	2		0.0	0.0
Taper Length (m)		1	75		75	
Lane I Itil Factor	<u> </u>	0.91	0.07	0 95	1.0	1.00
Ped Rike Factor	0.01	0.31	0.97	0.55	0.00	0.02
Frt	0.99		0.99		0.99	0.90
Elt Protected	0.000		0 950		0 050	0.000
Satd Flow (prot)	1150	٥	3050	3323	1602	1515
Elt Dormittod	4400	U	0.050	5555	0.050	1010
Fit Felliliteu	A A E O	0	0.900	3 353	1677	1400
Salu. Flow (perm)	4458	U	3220	3353	10/7	1480
Right Turn on Rea	400	res				res
Satd. Flow (RTOR)	133					62
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		14	14		8	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%
Adj. Flow (vph)	537	378	842	1063	283	437
Shared Lane Traffic (%)						
Lane Group Flow (vph)	915	0	842	1063	283	437
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2	Ŭ		10.8	3.6	U I
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane	0.0			0.0	0.0	
Headway Factor	1 07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	1.07	15	25	1.07	25	15
Number of Detectors	2	10	1	2	20	1
Number of Delectors	∠ Thru		ا taft	∠ Thru	ا ft	Right
Leading Detector (m)	10.0		20	10.0	20	2.0
Trailing Detector (m)	10.0		2.0	10.0	2.0	2.0
Detector 1 Decition (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases	_			Ŭ,	J	8
Detector Phase	2		1	6	8	1
Switch Phase	2		1	0	0	1
Switch Flidse						

Lane Group EBT EBR WBL WBT NBL NBR Minimum Initial (s) 10.0 5.0 10.0 10.0 5.0 Minimum Split (s) 31.7 11.0 31.7 38.8 11.0 Total Split (s) 40.0 49.0 89.0 41.0 49.0 Total Split (%) 30.8% 37.7% 68.5% 31.5% 37.7% Maximum Green (s) 34.3 43.0 83.3 35.2 43.0 Vollow Time (c) 37 37 37 37 37 37
Minimum Initial (s) 10.0 5.0 10.0 10.0 5.0 Minimum Split (s) 31.7 11.0 31.7 38.8 11.0 Total Split (s) 40.0 49.0 89.0 41.0 49.0 Total Split (%) 30.8% 37.7% 68.5% 31.5% 37.7% Maximum Green (s) 34.3 43.0 83.3 35.2 43.0 Values Time (s) 37 37 37 37 37 37
Minimum Split (s) 31.7 11.0 31.7 38.8 11.0 Total Split (s) 40.0 49.0 89.0 41.0 49.0 Total Split (%) 30.8% 37.7% 68.5% 31.5% 37.7% Maximum Green (s) 34.3 43.0 83.3 35.2 43.0
Total Split (s) 40.0 49.0 89.0 41.0 49.0 Total Split (%) 30.8% 37.7% 68.5% 31.5% 37.7% Maximum Green (s) 34.3 43.0 83.3 35.2 43.0 Vallow Time (c) 37 37 37 37 37
Total Split (%) 30.8% 37.7% 68.5% 31.5% 37.7% Maximum Green (s) 34.3 43.0 83.3 35.2 43.0 Vallow Time (c) 37 37 37 37 37 37
Maximum Green (s) 34.3 43.0 83.3 35.2 43.0 Vallow Time (s) 3.7 <td< td=""></td<>
Vollow Time (c) 27 27 27 27 23 27
All-Red Time (s) 20 23 20 25 23
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0
Total Lost Time (s) 57 60 57 58 60
Lead an Ontimize?
Vahiala Evitansian (s) 30 30 30 30 30
Penall Mode C May None C May Min None
Viaik IIIIe (5) II.0 II.0
Flash Durit Walk (5) 13.0 13.0 20.0 Dedectrian Calle (#/hr) 7 7 6
Fedebulan Gails (#/III) / / 0 Act Effet Croop (a) /6.2 20.0 0.1.6 0.0 0.0
Aut Eliti Gleen (S) 40.0 39.2 91.0 20.9 00.0
Actualeu y/o Katio 0.30 0.30 0.70 0.21 0.51
V/U Kallu U.30 U.80 U.45 U.81 U.55
Control Delay 31.4 05.4 0.2 00.3 17.1 Output Delay 0.0 0.4 0.0 0.0
Queue Delay 0.0 0.1 0.0 0.0
10tal Delay 31.4 65.4 6.4 66.3 17.1
LOS C E A E B
Approach Delay 31.4 32.5 36.5
Approach LOS C D
Queue Length 50th (m) 54.4 106.9 30.7 64.1 51.3
Queue Length 95th (m) 76.8 m107.2 m39.9 86.4 59.6
Internal Link Dist (m) 214.7 41.5 218.1
Turn Bay Length (m)
Base Capacity (vph) 1674 1078 2361 458 836
Starvation Cap Reductn 0 0 421 0 0
Spillback Cap Reductn 0 0 0 0 0
Storage Cap Reductn 0 0 0 0 0
Reduced v/c Ratio 0.55 0.78 0.55 0.62 0.52
Intersection Summary
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 33.0 Intersection LOS: C
Intersection Capacity Utilization 76.3% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.
Splits and Phases: 3: Weadroffe W & Carling



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	55	A 12		X	***	1	X	A 1.		X	*	1
Traffic Volume (vph)	458	417	84	31	1260	153	72	240	39	136	171	657
Future Volume (vph)	458	417	84	31	1260	153	72	240	39	136	171	657
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	20.0		-	30.0			7.5		-	100.0		
Lane Util, Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98	0.00	0.95		0.95	0.99	0.99		0.97		0.97
Frt	0.00	0.975		0.00		0.850	0.00	0.979				0.850
Elt Protected	0.950			0.950			0.950	0.010		0.950		0.000
Satd Flow (prot)	3252	3204	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Elt Permitted	0.950	0201	Ŭ	0.950		1100	0.638	0201	•	0.366	1100	1000
Satd Flow (perm)	3221	3204	0	1583	4771	1407	1110	3251	0	625	1765	1455
Right Turn on Red	0221	0201	Yes	1000		Yes		0201	Yes	020	1100	Yes
Satd Flow (RTOR)		20	100			147		14	100			26
Link Speed (k/h)		60			60			50			50	20
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		+0.0 2 7			9.7			12.2			3 Q	
Confl Peds (#/br)	32	2.1	48	48	5.1	32	16	12.2	50	50	0.0	16
Confl Bikes (#/hr)	52		0	-0		2	10		50	50		10
Peak Hour Factor	0 00	0 00	0 0 0	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adi Flow (vph)	2 /0 500	2 /0 /63	2 /0	3/	1/00	170	2 /0	270	Z /0	2 /0	100	730
Shared Lane Traffic (%)	503	400	30	J 4	1400	170	00	201	40	101	130	750
Lane Group Flow (vph)	509	556	0	34	1400	170	80	310	0	151	190	730
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	1 veh	1 veh	1 veh
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			10.8			3.6			3.9	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		-	8		7	4	5
Permitted Phases	-					6	8	-		4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1	11.3	40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7	21.3	47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%	16.4%	36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6	15.0	40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4	2.6	2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1	6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Laq	Lag		Lead		Lead
Lead-Lag Optimize?		- 0		- 0	- 0	- 0	- 0				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0		24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20		20	20	20	20			20	
Act Effet Green (s)	28.5	70.9	8 1	45.6	45.6	22.6	22.6		37.2	36.6	65.7
Actuated g/C Ratio	0.22	0.55	0.06	0.35	0.35	0 17	0 17		0.29	0.28	0.51
v/c Ratio	0.71	0.32	0.33	0.84	0.29	0.41	0.54		0.63	0.38	0.96
Control Delay	51.8	26.3	88.0	33.7	6.3	51.5	48.7		47 1	38.2	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.8	26.3	88.0	33.7	6.3	51.5	48.7		47 1	38.2	51.3
	01.0 D	20.0 C		C.	Δ	01.0 D	ю.7 D		л.п П	D	01.0 D
Approach Delay	U	38.5		32.0	7	U	49.3		U	48.4	
Approach LOS		D		C.			D			D	
Queue Length 50th (m)	56.5	39.5	8.3	120.9	17.0	17 9	35.6		29.7	38.4	126.5
Queue Length 95th (m)	#92 3	77 1	16.8	#147 1	15.9	28.3	42.3		20.7	48.8	#225.4
Internal Link Dist (m)	#52.0	21.0	10.0	138.2	10.0	20.0	145.9		00.0	30.4	#220.4
Turn Bay Length (m)		21.0	35.0	100.2			140.0			00.4	
Base Capacity (vph)	712	1756	101	1673	588	308	912		2/1	680	758
Starvation Can Reducto	0	0	0	0/0	000	000	0		0	000	00
Spillback Can Reductn	0	0	0	0	0	0	0		0	0	0
Storage Can Reductin	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0 71	0.32	0.18	0.84	0.29	0.26	0.34		0.63	0.28	0.96
Intersection Summary	0.11	0.02	0.10	0.01	0.20	0.20	0.01		0.00	0.20	0.00
Area Type:	Other										
Cycle Length: 130	outor										
Actuated Cycle Length: 130											
Offset: 0 (0%) Referenced to	nhase 2.EBT	and 6.WB	T. Start of Green								
Natural Cycle: 115											
Control Type: Actuated-Coord	inated										
Maximum v/c Ratio: 0.96	inatoa										
Intersection Signal Delay: 39 !	5			ntersection							
Intersection Capacity Utilization	on 94.8%			CLLLevel	of Service F	:					
Analysis Period (min) 15	JII J I .070			OO LEVEL							
# 95th percentile volume ex	reeds canaci	v allelle n	nav he longer								
Queue shown is maximum	after two cyc	les.	lay be longer.								
Splits and Phases: 5: Fairla	wn/Woodroff	F & Carli	na								
			" "								
▼ Ø1	₩02 (R)				¥~2	04					
21.3 \$ 51	/ S				575						
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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	X	##1		X	tttts.			4		X	۴.	
Traffic Volume (vph)	27	540	32	122	1088	34	27	12	57	52	15	69
Future Volume (vph)	27	540	32	122	1088	34	27	12	57	52	15	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0	1000	0.0	65.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	110.0		0.0	1		0.0	0.0		0.0	0.0		0.0
Taper Length (m)	60		U	75		U	75		U	75		0
Lane Litil Eactor	1.00	0.01	0.01	1.0	0.86	0.86	1.00	1 00	1 00	1.0	1 00	1 00
Pod Piko Eastor	1.00	1.00	0.31	0.00	1.00	0.00	1.00	0.08	1.00	1.00	0.05	1.00
	1.00	0.002		0.99	0.005			0.90		1.00	0.95	
Fit Protoctod	0.050	0.992		0.050	0.995			0.920		0.050	0.077	
Fil Piolecieu	0.950	4070	0	0.950	0007	٥	0	0.900	0	0.950	1000	0
Sato. Flow (prot)	1044	4070	U	1093	6097	U	U	0000	U	1308	1392	0
	0.167	1070	0	0.399	0007	0	•	0.890	0	0.674	4000	0
Satd. Flow (perm)	289	4676	0	705	6097	0	0	1389	0	968	1392	0
Right Turn on Red		10	Yes		•	Yes		-0	Yes			Yes
Satd. Flow (RTOR)		12			6			59			77	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			121.3	
Travel Time (s)		9.7			10.2			12.2			10.9	
Confl. Peds. (#/hr)	4		12	12		4	43		3	3		43
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	30	600	36	136	1209	38	30	13	63	58	17	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	636	0	136	1247	0	0	106	0	58	94	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2	J -		10.8	J •		1.0	J -		3.6	<u> </u>
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane		0.0			0.0			0.0			0.0	
Headway Eactor	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.01	15	25	1.01	15	25	1.07	15	25	1.01	15
Number of Detectors	1	2	10	1	2	10	1	2	10	1	2	10
Detector Template	l eft	Thru		l eft	Thru		l eft	Thru		l eft	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Size(III)												
Detector 1 Opennel	CI+EX	CI+EX		CI+EX	CI+EX		CI+EX	CI+EX		CI+EX	CI+EX	
Detector I Channel	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	

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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Act Effct Green (s)	90.3	90.7		82.5	82.5			26.2		26.2	26.2	
Actuated g/C Ratio	0.69	0.70		0.63	0.63			0.20		0.20	0.20	
v/c Ratio	0.11	0.19		0.30	0.32			0.32		0.30	0.27	
Control Delay	7.3	6.5		8.1	6.0			20.6		43.6	12.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	7.3	6.5		8.1	6.0			20.6		43.6	12.6	
LOS	A	A		A	A			С		D	В	
Approach Delay		6.5			6.2			20.6			24.4	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	3.1	26.4		4.8	12.7			8.2		10.5	2.9	
Queue Length 95th (m)	m3.5	17.5		7.9	14.8			21.9		21.4	15.0	
Internal Link Dist (m)		138.2			146.6			77.7			97.3	
Turn Bay Length (m)	110.0	0005		65.0	0070			170		000	100	
Base Capacity (vph)	319	3265		447	3873			479		306	492	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductin	0	0		0	63			1		0	1	
Storage Cap Reductn	0	0		0 00	0 00			0		0	0	
Reduced V/c Ratio	0.09	0.19		0.30	0.33			0.22		0.19	0.19	
Intersection Summary	0.11											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 100 (77%), Reference Natural Cycle: 100	d to phase 2:	EBIL and 6	5:WBTL, SI	tart of Gre	en							
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.32												
Intersection Signal Delay: 8.2				In	tersection	LOS: A						
Intersection Capacity Utilization	on 79.1%			IC	CU Level of	Service D						
Analysis Period (min) 15												
m Volume for 95th percentil	e queue is m	etered by u	pstream sig	gnal.								

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	X	##1		X	***	1		4		X	۴.	
Traffic Volume (vph)	41	670	4	17	1449	107	13	20	10	117	23	60
Future Volume (vph)	41	670	4	17	1449	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0.0
Taper Length (m)	7.5		Ŭ	75		•	75		Ŭ	75		U
Lane Util Factor	1 00	0 91	0 91	1.00	0.91	1 00	1 00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	0.98	0.01	0.90	1.00	0.98	1.00	0.98	0.97	1.00
Frt		0 999		0.00		0.850		0.968		0.00	0.892	
Fit Protected	0 950	0.000		0.950		0.000		0.000		0.950	0.002	
Satd Flow (prot)	1676	4811	0	1693	4865	1515	0	1704	0	1693	1539	0
Elt Permitted	0 10/		U	0.356	-000	1010	U	0 000	U	0 726	1000	U
Satd Flow (perm)	18/	/1811	٥	622	1865	1362	٥	1544	٥	1271	1530	٥
Right Turn on Red	104	4011	Ves	022	4000	Ves	U	1044	Ves	1211	1000	Ves
Satd Flow (PTOP)		1	163			110		11	163		67	103
Link Spood (k/b)		1			60	113		50			50	
Link Distance (m)		170.6			105.0			157.7			162.4	
		1/0.0			100.0			107.7			100.4	
Confl Dada (#/br)	00	10.2	10	10	11.1	00	00	11.4	17	17	11.0	20
Confl. Peas. (#/nr)	28		19	19		28	28		17	17		28
Confi. Bikes (#/nf)	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy venicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vpn) Shared Lane Traffic (%)	46	744	4	19	1610	119	14	22	11	130	26	6 <i>1</i>
Lane Group Flow (vph)	46	748	0	19	1610	119	0	47	0	130	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Loft	L off	Right	Left	l off	Right	Loft	Loft	Right	l off	Loft	Right
Median Width(m)	Leit	10.8	rugin	Leit	7.2	Tugin	Leit	10	Tugitt	Leit	3.6	rugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		0.0 3.0			0.0 3.0			0.0 3.0			3.0	
		0.0			0.0			0.0			0.0	
Headway Eactor	1 07	1 07	1 07	1.07	1.07	1 07	1 07	1 07	1.07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07
Number of Detectors	25	2	IJ	25	2	1	25	2	10	20	2	IJ
Detector Template	ا ft	Thru		ا taft	Thru	Right	ا ft	Thru		ا ft	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		0.0	0.0	2.0	2.0	0.0		2.0	0.0	
Detector 1 Type												
Detector 1 Channel	CITEX			CITEX		CITEX	CITEX	CITEX				
Detector 1 Extend (a)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Decition(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(III)												
		CI+EX			CI+EX			CI+EX			CI+EX	
		<u>^</u>			0.0			0.0			• •	
Detector 2 Extend (s)		0.0		C	0.0	C	-	0.0		C	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6		_	8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	12.0	86.0		74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Total Split (%)	9.2%	66.2%		56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	5.0	79.8		67.8	67.8	67.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?				Ŭ	Ŭ	Ŭ						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		14		14	14	14	14	14		14	14	
Act Effct Green (s)	92.7	93.5		82.8	82.8	82.8		23.0		23.0	23.0	
Actuated g/C Ratio	0.71	0.72		0.64	0.64	0.64		0.18		0.18	0.18	
v/c Ratio	0.23	0.22		0.05	0.52	0.13		0.17		0.58	0.28	
Control Delay	11.0	4.8		14.2	15.9	3.0		33.6		57.1	16.2	
Queue Delav	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	11.0	4.8		14.2	15.9	3.0		33.6		57.1	16.2	
LOS	B	A		B	B	A		C		F	B	
Approach Delay	_	5.1		_	15.0			33.6		_	40.0	
Approach LOS		A			В			С			D	
Queue Length 50th (m)	1.6	9.6		1.5	67.8	0.0		7.6		29.6	5.4	
Queue Length 95th (m)	8.0	17.6		6.1	110.4	8.4		15.4		42.6	16.7	
Internal Link Dist (m)	0.0	146.6		•	161.0	•••		133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	202	3460		395	3097	910		443		358	482	
Starvation Cap Reducto	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	0.23	0.22		0.05	0.52	0.13		0.11		0.36	0.19	
Intersection Summary	0"											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length:	130											
Offset: 95 (73%), Refere	enced to phase 2:E	BTL and 6	:WBTL, St	art of Gree	en							
Natural Cycle: 85												
Control Type: Actuated-	Coordinated											
Maximum v/c Ratio: 0.5	8											
Intersection Signal Dela	y: 14.5			Ir	itersection	LOS: B						
Intersection Capacity U	tilization 70.2%			IC	CU Level o	f Service C)					
Analysis Period (min) 15	5											
Splits and Phases: 15	5: Iroquois & Carlin	g										



18: Woodroffe E & Carlingwood SC PM Peak Hour

	•	•	†	1	- \	↓ I		
Lane Group	- WBI	WBR	NBT	NBR	SBI	SBT	Ø7	
Lane Configurations	*	1		11011	ODL			
Traffic Volume (vph)	101	56	TT 744	83	16	NT 811		
Future Volume (vph)	121	56	744	83	40	Q11		
Ideal Flow (uppel)	121	1000	1900	1000	40	1000		
Ideal Flow (vpnpi)	1800	1000	1800	1000	1800	1800		
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98		0.95		1.00		
Frt		0.850		0.850				
Fit Protected	0.950				-	0.997		
Satd. Flow (prot)	1/10	1530	3353	1500	0	3310		
Flt Permitted	0.950					0.857		
Satd. Flow (perm)	1686	1497	3353	1424	0	2845		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		62		92				
Link Speed (k/h)	40		50			50		
Link Distance (m)	107.1		78.6			86.5		
Travel Time (s)	9.6		5.7			6.2		
Confl. Peds. (#/hr)	10	7		18	10			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%		
Adi Flow (vph)	134	62	827	92	51	901		
Shared Lane Traffic (%)	101	02	021	02	01	001		
Lane Group Flow (vph)	13/	62	827	92	0	952		
Enter Blocked Intersection	No	No	No	No	No	No		
Lano Alignment	Loft	Dight	Loff	Dight	Loft	Loft		
Lane Alignment	Leit	Right		Right	Leit			
	3.0		0.0			0.0		
	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
I wo way Left Turn Lane	4.07	4.07	4.07	4.07	4.07	4 07		
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)	0.0	0.0	9.4	0.0	0.0	9.4		
Detector 2 Size(m)			0.5			0.6		
Detector 2 Type			CI+Ev			CI+Ev		
Detector 2 Channel								
Detector 2 Extend (a)			0.0			0.0		
	Dawar	Derm	0.0	Derm	Dem	0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	7	
Protected Phases	•	^	2	•	~	6	1	
Permitted Phases	8	8	-	2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC PM Peak Hour

	•	*	1	1	1	↓		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0	5.0	
Total Split (%)	27.4%	27.4%	67.4%	67.4%	67.4%	67.4%	5%	
Maximum Green (s)	20.3	20.3	58.0	58.0	58.0	58.0	3.0	
Vellow Time (s)	20.0	20.0	33	33	33	3 3 3 3	2.0	
All-Red Time (s)	2.0	2.0	2.5	2.5	2.5	2.5	2.0	
Lost Time Adjust (s)	2.4	2.4	2.7	2.7	2.1	2.7	0.0	
Total Lost Time (s)	0.0 5.7	0.0 5.7	6.0	6.0		6.0		
	5.7	5.7	0.0	0.0		0.0	Lood	
Leau/Lay	Lay	Lay					Leau	
Vehicle Extension (a)	2.0	20	20	20	20	20	20	
Peacel Made	J.U None	J.U None	S.U C. May	C Max	C Max	S.U C. Max	J.U Nono	
	None	None	C-IVIAX			C-Max	None	
vvaik Time (s)	2.0	2.0	11.0	11.0	11.0	11.0		
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0		
Pedestrian Calls (#/hr)	5	5	5	5	5	5		
Act Effct Green (s)	13.3	13.3	70.0	70.0		70.0		
Actuated g/C Ratio	0.14	0.14	0.74	0.74		0.74		
v/c Ratio	0.57	0.24	0.33	0.09		0.45		
Control Delay	46.8	11.1	5.3	1.3		6.3		
Queue Delay	0.0	0.0	0.0	0.0		0.0		
Total Delay	46.8	11.1	5.3	1.3		6.3		
LOS	D	В	А	А		А		
Approach Delay	35.5		4.9			6.3		
Approach LOS	D		А			А		
Queue Length 50th (m)	21.6	0.0	20.8	0.0		27.1		
Queue Length 95th (m)	35.1	9.3	37.7	4.1		49.8		
Internal Link Dist (m)	83.1		54.6			62.5		
Turn Bay Length (m)								
Base Capacity (vph)	360	368	2472	1074		2097		
Starvation Cap Reductn	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0		0		
Storage Cap Reducto	0	0	0	0		0		
Reduced v/c Ratio	0.37	0 17	0.33	0.09		0.45		
	0.07	0.17	0.00	0.00		0.40		
Intersection Summary								
Area Type:	Other							
Cycle Length: 95								
Actuated Cycle Length: 95								
Offset: 45 (47%), Referenced to	o phase 2:N	BT and 6:S	SBTL, Star	t of Green				
Natural Cycle: 70								
Control Type: Actuated-Coordin	nated							
Maximum v/c Ratio: 0.57								
Intersection Signal Delay: 8.5				In	tersection	LOS: A		
Intersection Capacity Utilization	n 73.1%			IC	CU Level o	f Service D		
Analysis Period (min) 15								
Splits and Phases: 18: Wood	Iroffe E & Ca	arlingwood	SC					
Ø2 (R)								
64 s								
as (p)								
▼ 200 (K)								- <u>2</u> / = <u>2</u> 8

64 s

26 s

5 s

1: Woodroffe E & Access PM Peak Hour

	∕	\mathbf{r}	1	1	Ŧ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Υ Y			4412	A12≽	
Traffic Volume (vph)	5	8	10	851	964	4
Future Volume (vph)	5	8	10	851	964	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt	0.919				0.999	
Flt Protected	0.980			0.999		
Satd. Flow (prot)	1589	0	0	4766	3317	0
Flt Permitted	0.980			0.999		
Satd. Flow (perm)	1589	0	0	4766	3317	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.0	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	6	9	11	946	1071	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	957	1075	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 38.3%			IC	U Level of	Service A
Analysis Period (min) 15						

	٦	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts			1
Traffic Volume (vph)	0	961	1991	8	0	5
Future Volume (vph)	0	961	1991	8	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6065	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	4771	6065	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	83.7		179.2	
Travel Time (s)		4.7	6.0		12.9	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1068	2212	9	0	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1068	2221	0	0	6
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 40.6%			IC	U Level of	Service A
Analysis Period (min) 15						

10: Woodroffe E & Flower PM Peak Hour

	٦	\mathbf{r}	1	1	Ŧ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			-a†	4 16	
Traffic Volume (vph)	19	42	47	707	757	23
Future Volume (vph)	19	42	47	707	757	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	47	52	786	841	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	838	867	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Canacity Utilizat	tion 58.8%			IC	U level of	Service B

Analysis Period (min) 15

	≯	-	-	*	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	<u> </u>			1
Traffic Volume (vph)	0	961	1987	5	0	10
Future Volume (vph)	0	961	1987	5	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		83.7	45.0		49.1	
Travel Time (s)		6.0	3.2		3.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1068	2208	6	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1068	2214	0	0	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 50.6%			ICI	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC PM Peak Hour

	<	•	1	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻ	1	ተተ ኈ			-4†
Traffic Volume (vph)	8	59	805	46	36	928
Future Volume (vph)	8	59	805	46	36	928
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt		0.850	0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1676	1500	4779	0	0	3346
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1676	1500	4779	0	0	3346
Link Speed (k/h)	50		50			50
Link Distance (m)	106.6		70.0			78.6
Travel Time (s)	7.7		5.0			5.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	66	894	51	40	1031
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	66	945	0	0	1071
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	Ŭ	0.0	Ŭ		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 59.0%			IC	U Level of	Service B

Analysis Period (min) 15

	-	\mathbf{r}	-	+	1	1	
Lane Group	FBT	FBR	WBI	WBT	NBI	NBR	Ø5
Lane Configurations	# #1.		**	**	*	11011	~~
Traffic Volume (vph)	1338	182	499	291	223	457	
Future Volume (vph)	1338	182	499	201	223	457	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0	
Storage Lanes		120.0	0.0		0.0	0.0	
Tapor Longth (m)		1	7.5		7.5	1	
	0.01	0.01	0.07	0.05	1.0	1 00	
Pod Riko Eastor	1.00	0.91	1.00	0.35	0.00	0.08	
	0.082		1.00		0.99	0.90	
Elt Protoctod	0.902		0.050		0.050	0.000	
Fil Flolecleu	1710	٥	0.950	2000	1660	1/05	
Salu. Flow (plot)	4713	U	3190	JZ00	0.050	1400	
Fit Permitted	4740	0	0.950	2000	0.950	4440	
Sato. Flow (perm)	4713	U	3180	3288	1639	1449	
Right Turn on Red		res				Yes	
Sato. Flow (RTOR)	22					4	
LINK Speed (K/h)	60			60	50		
Link Distance (m)	238.7			65.5	242.1		
I ravel Time (s)	14.3			3.9	17.4		
Confl. Peds. (#/hr)		13	13		11	11	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%	
Adj. Flow (vph)	1487	202	554	323	248	508	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1689	0	554	323	248	508	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	7.2			9.9	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	3.0			3.0	3.0		
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (k/h)		15	25		25	15	
Number of Detectors	1		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
eading Detector (m)	10.0		2.0	10.0	2.0	2.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Size(m)	10.0		2.0	0.6	2.0	2.0	
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel	OFER			OI' LA	ONEX	OPER	
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (c)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(m)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Size (m)				J.4			
Detector 2 Size(III)							
Detector 2 Type				OI+EX			
				0.0			
Detector 2 Extend (s)	N 1 A			0.0	P (
	NA		Prot	NA	Prot	pm+ov	
Protected Phases	2		1	6	8	1	5
Permitted Phases						8	
Detector Phase	2		1	6	8	1	
Switch Phase							

	-	\mathbf{r}	-	+	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0	10.0
Total Split (s)	55.0		31.0	76.0	44.0	31.0	10.0
Total Split (%)	42.3%		23.8%	58.5%	33.8%	23.8%	8%
Maximum Green (s)	49.3		25.0	70.3	38.2	25.0	5.0
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7	2.0
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3	3.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0	
Lead/Lag	Lag		Lead	Lag		Lead	Lead
Lead-Lag Optimize?	Ŭ			Yes			Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Min	None	None
Walk Time (s)	11.0			11.0	7.0		5.0
Flash Dont Walk (s)	15.0			15.0	26.0		0.0
Pedestrian Calls (#/hr)	7			7	6		3
Act Effct Green (s)	59.3		28.4	91.6	24.8	53.0	
Actuated g/C Ratio	0.46		0.22	0.70	0.19	0.41	
v/c Ratio	0.78		0.80	0.14	0.78	0.85	
Control Delay	34.1		55.1	7.7	66.7	44.4	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	34.1		55.1	7.7	66.7	44.4	
LOS	С		Е	А	E	D	
Approach Delay	34.1			37.6	51.7		
Approach LOS	С			D	D		
Queue Length 50th (m)	122.0		67.3	9.0	56.2	94.9	
Queue Length 95th (m)	#167.7		85.6	31.6	77.3	117.3	
Internal Link Dist (m)	214.7			41.5	218.1		
Turn Bay Length (m)							
Base Capacity (vph)	2161		707	2316	487	606	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.78		0.78	0.14	0.51	0.84	
Intersection Summary							
Area Type:	Other						
Cycle Length: 130							
Actuated Cycle Length: 130							
Offset: 112 (86%), Reference	ed to phase 2:E	BT and 6	WBT, Sta	rt of Greer	l		
Natural Cycle: 105							
Control Type: Actuated-Cool	rdinated						
Maximum v/c Ratio: 0.85							
Intersection Signal Delay: 39	9.1			In	itersection	LOS: D	
Intersection Capacity Utilizat	tion 78.6%			IC	CU Level o	f Service D	
Analysis Period (min) 15							
# 95th percentile volume e	xceeds capacity	, queue r	nay be lon	ger.			
Queue shown is maximur	m after two cycle	es.					

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	እካ	A 12		X	***	1	X	A1		X	*	1
Traffic Volume (vph)	439	1455	45	10	301	90	11	206	46	194	81	503
Future Volume (vph)	439	1455	45	10	301	90	11	206	46	194	81	503
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	1000	0.0	35.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	20.0			30.0		•	75		•	100.0		
Lane Util Factor	0.97	0.95	0.95	1 00	0.91	1 00	1 00	0.95	0.95	1 00	1 00	1 00
Ped Bike Factor	0.98	1 00	0.00	1.00	0.01	0.97	0.99	0.99	0.00	0.99	1.00	0.98
Frt	0.00	0.996		1.00		0.850	0.00	0.973		0.00		0.850
Elt Protected	0 950	0.000		0 950		0.000	0 950	0.070		0 950		0.000
Satd Flow (prot)	3252	3335	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Elt Permitted	0 950	0000	U	0.950	1107	1001	0.699	0212	U	0 362	1710	1100
Satd Flow (perm)	3192	3335	0	1550	4467	1349	1227	3242	0	625	1748	1459
Right Turn on Red	0102	0000	Yes	1000	101	Yes	1221	0272	Yes	020	17-10	Yes
Satd Flow (RTOR)		3	100			100		20	100			215
Link Speed (k/h)		60			60	101		50			50	210
Link Distance (m)		/3.3			162.2			169.9			54.4	
Travel Time (s)		-0.0			0.7			100.0			30	
Confl Peds (#/br)	1/	2.0	13	13	5.1	1/	5	12.2	18	18	5.5	5
Confl. Pikos (#/hr)	14		IJ	10		14	J		2	10		J
Book Hour Easter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.90	0.90	0.90	1.90	10%	10%	0.90	0.90	0.90	20/	20/	20/
Adi Flow (vob)	Z /0	2 /0 1617	Z /0 50	10 /0	334	10 /0	2 /0 10	270	Z /0 51	216	3 /0	5.60
Auj. Flow (vpl) Shared Lane Traffic (%)	400	1017	50	11	554	100	12	229	51	210	90	009
Lano Group Flow (vph)	/00	1667	٥	11	334	100	10	280	٥	216	00	550
Enter Blocked Intersection	400 No	No	No	No	JJ4	No	1Z No	200	No	ZIU	90 No	009 No
Enter Blocked Intersection	INO Loff	INU	Diabt	INU	INU	N0 Diaht	INU	INU	Diaht	INU	INO	Diabt
Lane Alignment	Leit	Leil	Right	Leit	Leit	Right	Leit	Leit	Right	Leit	Leit	Right
link Offeet(m)		10.0			10.0			3.0			3.9	
Creeswelk Width(m)		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
Headway Faster	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	n	IJ	20	2	10	20 1	2	10	20	0	15
Number of Detectors	ا	Z		 0#	Z	Diaht	 0 ^{ff}	Z		l off	Z	Diabt
Leading Detector (m)	Leit	10.0		Leit	10.0	Right	Leit	10.0		Leit	10.0	Right
	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(III)												
Detector 1 Channel	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
		CI+EX			CI+EX			CI+EX			CI+EX	
Detector 2 Channel		~ ~			0.0			0.0			0.0	
Detector 2 Extend (S)		0.0		D. 1	0.0	D	Den	0.0			0.0	
	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		^	8		1	4	5
Permitted Phases		•			•	6	8	•		4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
Switch Phase			LDIX	1102		11011				002		0011
Minimum Initial (s)	50	10.0		50	10.0	10.0	10.0	10.0		50	10.0	50
Minimum Split (s)	11.3	37.1		11.3	37.1	37.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	31.0	53.7		21.3	44.0	44.0	41.0	40.0		14.0	55.0	31.0
Total Split (%)	23.8%	41.3%		16.4%	33.8%	33.8%	31.5%	31.5%		10.8%	42.3%	23.8%
Maximum Green (s)	20.070	47.6		15.0	37.9	37.9	34.1	34.1		77	48.1	20.0 /0
Yellow Time (s)	37	37		37	37	37	33	33		33	33	37
All-Red Time (s)	2.6	2.4		2.6	2.4	2.4	3.6	3.6		3.0	3.6	2.6
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)	63	6.1		6.3	6.0	6.0	6.9	6.0		63	6.9	6.3
Lead/Lag	l ead	l an		l ead	l an	l an	l an	l an		Lead	0.0	Lead
Lead-Lag Ontimize?	Loud	Lug		Louu	Lug	Lug	Lug	Lug		Louu		Louu
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	J.U Min	J.U Min		None	J.U Min	None
Walk Time (s)	NULLE	0-iviax 7 0		NULLE	7.0	7.0	23.0	23.0		NONE	23.0	NULLE
Flach Dopt Walk (c)		24.0			24.0	24.0	23.0	23.0			23.0	
Padastrian Calls (#/br)		24.0			24.0 7	24.0	0	11.0			0	
Act Effet Croop (a)	04.0	016		6 5	520	520	106	196		22 D	326	57 A
Actuated a/C Datia	24.Z	0.10		0.0	0.44	0.41	0.14	10.0		0.0C	3Z.0	0.44
Actualed g/C Ratio	0.19	0.03		0.05	0.41	0.41	0.14	0.14		0.20	0.20	0.44
V/C Rallo	71.0	15.5		0.14 75.4	0.10	0.15	0.07	0.00		100.90	0.21	10.0
	/1.9	10.0		75.4	19.1	1.0	44.1	0.0		100.2	37.5	19.0
Queue Delay	71.0	0.0		0.0	10.0	0.0	0.0	0.0		100.0	0.0	10.0
l otal Delay	71.9	15.5		/5.4	19.1	1.0	44.1	52.1		100.2	37.5	19.8
LUS Approach Delay	E	D 20 2		E	16 F	A	U	L 51 7		F	U 41 7	В
Approach LOC		28.3			0.01			51.7			41.7	
Approach LUS	00.0	55.0		0.0	40 7	0.0	0.0	D 24.0		47 5	U	<u> </u>
Queue Length 50th (m)	60.3	55.3		2.8	13.7	0.0	2.0	31.3		~47.5	17.4	62.3
Queue Length 95th (m)	m//./	#283.4		9.2	12.0	0.2	6.9	31.1		#59.7	25.1	/1.3
Internal Link Dist (m)		19.3		05.0	138.2			145.9			30.4	
Turn Bay Length (m)	044	0000		35.0	4050	074	004	005		000	0.40	700
Base Capacity (vpn)	641	2093		1/9	1852	6/1	321	865		220	646	/83
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	0.76	0.80		0.06	0.18	0.15	0.04	0.32		0.98	0.14	0.71
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%), Referenced	d to phase 2:	EBT and 6:	WBT, Star	t of Greer	1 I							
Natural Cycle: 135												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.98												
Intersection Signal Delay: 31.8	В			In	tersection	LOS: C						
Intersection Capacity Utilization	on 98.2%			IC	CU Level o	f Service F	:					
Analysis Period (min) 15												
 Volume exceeds capacity, queue is theoretically infinite. 												
Queue shown is maximum after two cycles.												
# 95th percentile volume ex	ceeds capaci	ty, queue n	nay be lon	ger.								
Queue shown is maximum	after two cyc	les.										
Volume for 95th percentile queue is metered by upstream signal.												
Splits and Phases: 5: Fairla	wn/Woodroff	e E & Carli	ng									

 Ø1
 Ø2 (R)

 21.3s
 53.7s

 Ø5
 Ø6 (R)

 Ø1
 Ø7

 Ø8

 31s
 44s

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	##1		×	tttts.			4		X	۴.	
Traffic Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Future Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0			7.5			7.5		•	7.5		
Lane Util, Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99		0.99	0.98	
Frt		0.998			0.996			0.930			0.860	
Flt Protected	0.950			0.950				0.987		0.950		
Satd, Flow (prot)	1676	4806	0	1676	6044	0	0	1573	0	1221	1109	0
Flt Permitted	0.419		-	0.130		-	-	0.915	-	0.737		-
Satd, Flow (perm)	738	4806	0	229	6044	0	0	1456	0	941	1109	0
Right Turn on Red			Yes			Yes	Ŭ		Yes	•		Yes
Satd, Flow (RTOR)		2			5			16			43	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			102.7	
Travel Time (s)		9.7			10.2			12.2			9.2	
Confl. Peds. (#/hr)	4	•	5	5		4	5		7	7	•	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	40%	0%	40%
Adi, Flow (vph)	13	1689	20	29	480	14	8	7	16	29	3	43
Shared Lane Traffic (%)			_•				Ť				Ť	
Lane Group Flow (vph)	13	1709	0	29	494	0	0	31	0	29	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.9	J -		10.8	J ·		1.0	J		3.6	J -
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												

J.Audia, Novatech

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR W	/BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0	1	0.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2	4	1.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0	6	5.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%	50.	0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.4	75.8	5	8.8	58.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0	1	0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead		L	ag	Lag							
Lead-Lag Optimize?				Ū	Ū							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	C-N	/lax	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0	2	8.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		3		3	3		4	4		4	4	
Act Effct Green (s)	104.2	105.8	10	0.7	100.7			15.7		15.7	15.7	
Actuated g/C Ratio	0.80	0.81	0	.77	0.77			0.12		0.12	0.12	
v/c Ratio	0.02	0.44	0	.16	0.11			0.16		0.26	0.27	
Control Delay	2.5	2.0	1	9.9	4.6			28.5		53.2	17.2	
Queue Delay	0.0	0.2		0.0	0.0			0.0		0.0	0.0	
Total Delay	2.5	2.2	1	9.9	4.6			28.5		53.2	17.2	
LOS	А	А		А	А			С		D	В	
Approach Delay		2.2			4.9			28.5			31.1	
Approach LOS		А			А			С			С	
Queue Length 50th (m)	0.3	14.8		1.1	5.1			3.4		6.6	0.7	
Queue Length 95th (m)	m0.5	m19.8		4.4	10.4			9.7		12.4	9.2	
Internal Link Dist (m)		138.2			146.6			77.7			78.7	
Turn Bay Length (m)	110.0		6	5.0								
Base Capacity (vph)	666	3912	1	177	4682			471		297	380	
Starvation Cap Reductn	0	991		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.02	0.59	0	.16	0.11			0.07		0.10	0.12	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%), Reference Natural Cycle: 100	d to phase 2:	EBTL and	6:WBTL, Start o	of Gre	en							
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 4.0				In	tersection l	LOS: A						
Intersection Capacity Utilization	on 55.6%			IC	U Level of	Service B						
Analysis Period (min) 15												
n Volume for 95th percentile queue is metered by upstream signal.												
Splits and Phases: 12: Car	ling & Carling	wood SC										20
							1					


15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<u>کر</u>	<u>ቀ</u> ትኄ		2	***	1		4		2	ĥ	
Traffic Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Future Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.94		0.98		0.99	0.98	
Frt						0.850		0.929			0.882	
Flt Protected	0.950			0.950				0.998		0.950		
Satd, Flow (prot)	1676	4817	0	1629	4680	1457	0	1612	0	1660	1509	0
Elt Permitted	0 464		•	0 111			•	0.988	· ·	0.802		
Satd Flow (perm)	802	4817	0	190	4680	1364	0	1595	0	1384	1509	0
Right Turn on Red	002	1017	Yes	100	1000	Yes	Ū	1000	Yes	1001	1000	Yes
Satd Flow (RTOR)		1	100			95		18	100		30	100
Link Speed (k/h)		60			60	00		50			50	
Link Distance (m)		170.6			185.0			157.7			163 /	
Travel Time (s)		10.0			100.0			11 /			11.8	
Confl Peds (#/br)	15	10.2	12	12	11.1	15	13	11.4	12	12	11.0	13
Confl. Pieds. (#/hr)	10		12	12		10	IJ		12	12		IJ
Book Hour Foster	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.90	0.90	0.90	0.90	0.90	0.90 E0/	0.90	0.90	0.90	0.90	0.90	0.90
Adi Flow (upb)	Z 70	Z 70	270	5%	112	5%	270	270	2%	3%	3%	370
Shared Lane Traffic (%)	21	1031	0	0	413	07	3	21	33	00	0	30
Lane Group Flow (vph)	21	1837	0	8	413	67	0	63	0	83	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			7.2			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	98.2	99.0		91.1	91.1	91.1		17.5		17.5	17.5	
Actuated g/C Ratio	0.76	0.76		0.70	0.70	0.70		0.13		0.13	0.13	
v/c Ratio	0.03	0.50		0.06	0.13	0.07		0.28		0.45	0.17	
Control Delay	1.5	1.9		13.6	8.6	1.4		37.1		56.8	19.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	1.5	1.9		13.6	8.6	1.4		37.1		56.8	19.4	
LOS	А	А		В	А	А		D		E	В	
Approach Delay		1.9			7.7			37.1			45.1	
Approach LOS		А			А			D			D	
Queue Length 50th (m)	0.2	6.3		0.6	11.0	0.0		9.9		18.9	1.7	
Queue Length 95th (m)	m0.7	8.7		3.8	24.0	3.3		18.7		28.3	9.3	
Internal Link Dist (m)		146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	652	3670		132	3278	983		463		390	447	
Starvation Cap Reductn	0	182		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	0.03	0.53		0.06	0.13	0.07		0.14		0.21	0.09	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 0 (0%), Referenced to	phase 2:EBT	"L and 6:W	BTL, Start	of Green								
Natural Cycle: 85												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.50												
Intersection Signal Delay: 6.0)			In	itersection	LOS: A						
Intersection Capacity Utilizati	ion 62.4%			IC	CU Level o	f Service E	}					
Analysis Period (min) 15												

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

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7		
Lane Configurations	×	1	**	1		∆† ≹			
Traffic Volume (vph)	21	9	643	72	16	658			
Future Volume (vph)	21	9	643	72	16	658			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Litil Factor	1 00	1 00	0.95	1 00	0.95	0.95			
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1 00			
Frt	0.00	0.50		0.55		1.00			
	0.950	0.000		0.000		0 000			
Sate Flow (prot)	1710	1530	3088	1/71	٥	2217			
Elt Permitted	0.950	1550	5200	1471	0	0 032			
Satd Flow (perm)	1687	1501	3288	1/01	٥	300/			
Pight Turn on Pod	1007	Voc	5200	Voc	0	5094			
Sata Elow (DTOD)		10		105					
Salu. Flow (RTOR)	40	10	E0	00		۶O			
Link Speed (k/l)	40		00 70 /			0C			
	107.1		10.4			C.00			
Carf Dada (#/br)	9.6	4	5.0	10	10	0.2			
Confl. Peds. (#/hr)	ð	4		18	18				
Confi. Bikes (#/nr)	0.00	0.00	0.00	3	0.00	0.00			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Venicles (%)	0%	0%	4%	4%	3%	3%			
Adj. Flow (vph)	23	10	/14	80	18	/31			
Shared Lane Traffic (%)		10				- 10			
Lane Group Flow (vph)	23	10	/14	80	0	/49			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Right	Left	Left			
Median Width(m)	3.6		0.0			0.0			
Link Offset(m)	0.0		0.0			0.0			
Crosswalk Width(m)	3.0		3.0			3.0			
Two way Left Turn Lane									
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07			
Turning Speed (k/h)	25	15		15	25				
Number of Detectors	1	1	2	1	1	2			
Detector Template	Left	Right	Thru	Right	Left	Thru			
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0			
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6			
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex	CI+Ex			
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(m)			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			
Detector 2 Type			CI+Ex			Cl+Ex			
Detector 2 Channel									
Detector 2 Extend (s)			0.0			0.0			
Turn Type	Perm	Perm	NA	Perm	Perm	NA			
Protected Phases			2			6	7		
Permitted Phases	8	8		2	6				
Detector Phase	8	8	2	2	6	6			
Switch Phase									
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	5.0		
Minimum Split (s)	21.0	21.0	35.0	35.0	35.0	35.0	10.0		

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18: Woodroffe E & Carlingwood SC AM Peak Hour

Lane Group WBL WBR NBT NBR SBL SBT Ø7 Total Split (s) 21.0 21.0 54.0 54.0 54.0 54.0 10.0 Total Split (%) 24.7% 24.7% 63.5% 63.5% 63.5% 63.5% 12% Maximum Green (s) 15.3 15.3 48.0 48.0 48.0 5.0 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 2.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 10.0 10.0 Total Lost Time (s) 5.7 5.7 6.0 6.0 6.0 6.0 Lead/Lag Lag Lag Lag Lag Lag Lag Lead Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Vehicle Extension (s) 13.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0<		1	•	†	1	1	Ŧ			
Total Split (s) 21.0 21.0 54.0 54.0 54.0 54.0 10.0 Total Split (%) 24.7% 24.7% 63.5% 63.5% 63.5% 63.5% 12% Maximum Green (s) 15.3 15.3 48.0 48.0 48.0 5.0 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 2.0 All-Red Time (s) 2.4 2.4 2.7 2.7 2.7 3.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 10.0 10.0 Total Lost Time (s) 5.7 5.7 6.0 6.0 6.0 6.0 Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Vehicle Extension (s) 2.0 2.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 18.0 18.0 18.0 0.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 <t< th=""><th>Lane Group</th><th>WBL</th><th>WBR</th><th>NBT</th><th>NBR</th><th>SBL</th><th>SBT</th><th>Ø7</th><th></th><th></th></t<>	Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7		
Total Spin (%) 24.7% 24.7% 63.5% 63.5% 63.5% 12% Maximum Green (s) 15.3 15.3 48.0 48.0 48.0 48.0 5.0 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 2.0 All-Red Time (s) 2.4 2.4 2.7 2.7 2.7 3.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.7 5.7 Lead/Lag Lag Lag Lag Lead Lead Lead Lag Uptimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None None C-Max C-Max C-Max None Walk Time (s) 13.0 13.0 18.0 18.0 18.0 0.0 0 Pedestrian Calls (#/hr) 4 4 9 9 9 3 Act Effct Green (s) 8.1 8.1 7.0.2 Actu	Total Split (s)	21.0	21.0	54.0	54.0	54.0	54.0	10.0		
Noticity (Y) 2.11.7.5 2.01.7.5 0.01.7.5 0.01.7.5 0.01.7.5 0.01.7.5 Maximum Green (s) 15.3 15.3 15.3 0.01.7.5 0.01.7.7 0.01.7.7 0.01.7.7 All-Red Time (s) 2.4 2.4 2.7 2.7 2.7 3.0 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.7 5.7 6.0 6.0 - - Lead/Lag Lag Lag Lag Lag Lead/Lag - Lead Lead/Lag Lost Time (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None None C-Max C-Max C-Max None Walk Time (s) 2.0 2.0 11.0 11.0 11.0 15.0 11.0 5.0 Flash Dont Walk (s) 13.0 18.0 18.0 18.0 0.0 0.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 9 3 3	Total Split (%)	24.7%	24.7%	63.5%	63.5%	63.5%	63.5%	12%		
Maximum (b) 10:0 <td>Maximum Green (s)</td> <td>15.3</td> <td>15.3</td> <td>48.0</td> <td>48.0</td> <td>48.0</td> <td>48.0</td> <td>50</td> <td></td> <td></td>	Maximum Green (s)	15.3	15.3	48.0	48.0	48.0	48.0	50		
Initial (s) 2.4 2.4 2.7 2.7 2.7 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.7 5.7 6.0 6.0 6.0 Lead/Lag Lag Lag Lag Lead Lead-Lag Optimize?	Yellow Time (s)	33	33	33	33	33	33	2.0		
Ain Year Mile (a) 2.4 2.4 2.1 2.1 2.1 2.1 2.1 3.0 Lost Time dijust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.7 5.7 6.0 6.0 6.0 Lead/Lag Lag Lag Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 Walk Time (s) 2.0 2.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#hr) 4 4 9 9 9 9 3 Act Effc Green (s) 8.1 8.1 70.2 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 0.83 V/c Ratio 0.14 0.07 0.26 0.07 0.29 0.0 Control Delay 35.2 18.1 4.3 1.9 4.5 1.0	All-Red Time (s)	2.0	2.0	27	2.5	27	2.5	3.0		
Lead Lead Lead/Lag Lag Lag Lead/Lag Lag Lag Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 Recall Mode None None C-Max C-Max C-Max None Walk Time (s) 2.0 2.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 3 Act Effet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 1.0 Total Delay 35.2 18.1 4.3 1.9	Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	5.0		
Itead/Lag Lag Lag Lag Lead Lead/Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 Wehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Wehicle Extension (s) 2.0 2.0 11.0 11.0 11.0 11.0 5.0 Walk Time (s) 2.0 2.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 9 3 Act Effet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 <td>Total Lost Time (s)</td> <td>0.0 5.7</td> <td>5.7</td> <td>6.0</td> <td>6.0</td> <td></td> <td>6.0</td> <td></td> <td></td> <td></td>	Total Lost Time (s)	0.0 5.7	5.7	6.0	6.0		6.0			
Lead Lag Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None None C-Max C-Max C-Max C-Max None Walk Time (s) 2.0 2.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 3 Act Efft Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach LOS <td< td=""><td></td><td>1.0</td><td>1.0</td><td>0.0</td><td>0.0</td><td></td><td>0.0</td><td>beal</td><td></td><td></td></td<>		1.0	1.0	0.0	0.0		0.0	beal		
Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None None C-Max C-Max C-Max None Walk Time (s) 2.0 2.0 11.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 3 Act Effet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 0.0 Control Delay 35.2 18.1 4.3 1.9 4.5 0.0 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 4.5 4.5 LOS D B A A A A <td>Lead Lag Optimize?</td> <td>Lay</td> <td>Lay</td> <td></td> <td></td> <td></td> <td></td> <td>Leau</td> <td></td> <td></td>	Lead Lag Optimize?	Lay	Lay					Leau		
Ventue Extension (s) 3.0 5.0 5.0 5.0 5.0 5.0 5.0 Recall Mode None None C-Max C-Max C-Max None Walk Time (s) 2.0 2.0 11.0 11.0 11.0 11.0 5.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 9 3 Act Effct Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A	Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Weak Time (s) 2.0 2.0 11.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 3 Act Leffet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 A Approach LOS C A A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Pecall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None		
Viak Hine (s) 2.0 2.0 11.0 11.0 11.0 11.0 5.0 Flash Dont Walk (s) 13.0 13.0 18.0 18.0 18.0 0.0 Pedestrian Calls (#/hr) 4 4 9 9 9 9 3 Act Effet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Walk Time (c)	2.0	2.0	11.0	11.0	11.0	11.0	5.0		
Pedestrian Calls (#/hr) 4 4 9 9 9 9 3 Act Effct Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Floch Dont Walk (a)	12.0	12.0	10.0	10.0	10.0	10.0	0.0		
Pedestrian Cans (#/III) 4 4 9 9 9 9 9 5 Act Effet Green (s) 8.1 8.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Padastrian Calls (#/hr)	13.0	13.0	10.0	10.0	10.0	10.0	0.0		
Act Electroneer (s) 6.1 70.2 70.2 70.2 Actuated g/C Ratio 0.10 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 LOS D B A A Approach Delay 30.0 4.0 4.5 Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Act Effet Creen (a)	4	4	70.0	70.0	9	70.0	3		
Actuated g/C Ratio 0.10 0.83 0.83 0.83 v/c Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Actuated a/C Datia	0.1	0.1	70.2	70.2		70.2			
Vic Ratio 0.14 0.07 0.26 0.07 0.29 Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 Approach LOS C A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Actuated g/C Ratio	0.10	0.10	0.83	0.83		0.83			
Control Delay 35.2 18.1 4.3 1.9 4.5 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	V/C Ratio	0.14	0.07	0.26	0.07		0.29			
Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A A Approach Delay 30.0 4.0 4.5 Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Control Delay	35.2	18.1	4.3	1.9		4.5			
Total Delay 35.2 18.1 4.3 1.9 4.5 LOS D B A A Approach Delay 30.0 4.0 4.5 Approach LOS C A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Queue Delay	0.0	0.0	0.0	0.0		0.0			
LOS D B A A A Approach Delay 30.0 4.0 4.5 Approach LOS C A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	l otal Delay	35.2	18.1	4.3	1.9		4.5			
Approach Delay 30.0 4.0 4.5 Approach LOS C A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	LOS	D	В	A	A		A			
Approach LOS C A A Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Approach Delay	30.0		4.0			4.5			
Queue Length 50th (m) 3.3 0.0 11.5 0.0 12.4	Approach LOS	С		A			A			
	Queue Length 50th (m)	3.3	0.0	11.5	0.0		12.4			
Queue Length 95th (m) 8.7 3.8 39.0 4.9 42.3	Queue Length 95th (m)	8.7	3.8	39.0	4.9		42.3			
Internal Link Dist (m) 83.1 54.4 62.5	Internal Link Dist (m)	83.1		54.4			62.5			
Turn Bay Length (m)	Turn Bay Length (m)									
Base Capacity (vph) 303 278 2715 1170 2554	Base Capacity (vph)	303	278	2715	1170		2554			
Starvation Cap Reductn 0 0 0 0 0 0	Starvation Cap Reductn	0	0	0	0		0			
Spillback Cap Reductn 0 0 0 0 0	Spillback Cap Reductn	0	0	0	0		0			
Storage Cap Reductn 0 0 0 0 0	Storage Cap Reductn	0	0	0	0		0			
Reduced v/c Ratio 0.08 0.04 0.26 0.07 0.29	Reduced v/c Ratio	0.08	0.04	0.26	0.07		0.29			
Intersection Summary	Intersection Summary									
Area Type: Other	Area Type: O	ther								
Cycle Length: 85	Cycle Length: 85									
Actuated Cycle Length: 85	Actuated Cycle Length: 85									
Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	Offset: 10 (12%), Referenced to	phase 2:N	BT and 6:	SBTL, Star	t of Green					
Natural Cycle: 70	Natural Cycle: 70									
Control Type: Actuated-Coordinated	Control Type: Actuated-Coordina	ited								
Maximum v/c Ratio: 0.29	Maximum v/c Ratio: 0.29									
Intersection Signal Delay: 4.8 Intersection LOS: A	Intersection Signal Delay: 4.8				In	tersection	LOS: A			
Intersection Capacity Utilization 53.9% ICU Level of Service A	Intersection Capacity Utilization 5	53.9%			IC	CU Level of	f Service A			
Analysis Period (min) 15	Analysis Period (min) 15									
Splits and Phases: 18: Woodroffe E & Carlingwood SC	Splits and Phases: 18: Woodro	offe E & Ca	arlingwood	SC						
Fø2 (R)	Ø2 (R)									
54 s	54 s									
₩ 06 (R)	Ø6 (R)							107	708	

10 s

54 s

1: Woodroffe E & Access AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4412	≜ 16	
Traffic Volume (vph)	1	1	2	735	778	1
Future Volume (vph)	1	1	2	735	778	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt	0.932					
Flt Protected	0.976					
Satd. Flow (prot)	1605	0	0	4771	3320	0
Flt Permitted	0.976					
Satd. Flow (perm)	1605	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.1	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	1	1	2	817	864	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	819	865	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 32.7%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1940	816	6	0	2
Future Volume (vph)	0	1940	816	6	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor		,				
Frt			0.999			0.865
Flt Protected						
Satd, Flow (prot)	0	4771	5891	0	0	1557
Flt Permitted	•					
Satd, Flow (perm)	0	4771	5891	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	85.2		179.2	
Travel Time (s)		4.7	6.1		12.9	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adi, Flow (vph)	0	2156	907	7	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2156	914	0	0	2
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Riaht
Median Width(m)		2.7	2.7	3	0.0	3
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane		0.0	0.0		0.0	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control	_0	Free	Free		Stop	
Intersection Summary					0.00	
	Other					
Area Type:	Other					
Control Type: Unsignalized	an 40.00/					C

Analysis Period (min) 15

10: Woodroffe E & Flower AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			-tî†	tβ	
Traffic Volume (vph)	25	78	20	608	576	12
Future Volume (vph)	25	78	20	608	576	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.898				0.997	
Flt Protected	0.988			0.998		
Satd. Flow (prot)	1581	0	0	3346	3279	0
Flt Permitted	0.988			0.998		
Satd. Flow (perm)	1581	0	0	3346	3279	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8	4	7			7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%
Adj. Flow (vph)	28	87	22	676	640	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	115	0	0	698	653	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 47.4%			IC	U Level of	Service A

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ትኄ			1
Traffic Volume (vph)	0	1940	816	2	0	2
Future Volume (vph)	0	1940	816	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		85.2	43.3		49.1	
Travel Time (s)		6.1	3.1		3.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2156	907	2	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2156	909	0	0	2
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	Ū	0.0	Ū
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 33.0%			IC	J Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	<u>۲</u>	1	<u>ተተ</u> ኑ			-41A
Traffic Volume (vph)	2	14	723	12	9	769
Future Volume (vph)	2	14	723	12	9	769
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt		0.850	0.998			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1676	1500	4808	0	0	3350
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1676	1500	4808	0	0	3350
Link Speed (k/h)	50		50			50
Link Distance (m)	105.5		70.1			78.4
Travel Time (s)	7.6		5.0			5.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	16	803	13	10	854
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	16	816	0	0	864
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	Ţ	0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 39.1%			IC	U Level of	Service A
Analysis Dariad (min) 15						

Analysis Period (min) 15

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Lane Group	FBT	FBR	WBI	WBT	NBI	NBR	Ø5
Lane Configurations	##1 5		**	**	8	1	
Traffic Volume (vph)	483	340	758	957	255	393	
Future Volume (vph)	483	340	758	957	255	393	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0	
Storage Lanes		1 1	2		1	1	
Taper Length (m)			75		75		
Lane Litil Eactor	0.01	0.91	0.07	0.95	1.00	1 00	
Pad Rika Factor	0.01	0.01	0.07	0.55	0.00	0.08	
Frt	0.00		0.55		0.55	0.50	
Elt Protected	0.000		0.050		0.050	0.000	
Satd Flow (prot)	1158	٥	3252	3353	1603	1515	
Elt Dormittod	4450	U	0.050	5555	0.050	1010	
Fit Fermitted	1150	٥	0.900	2252	1677	1/00	
Salu. Flow (perm)	4400	Vee	3220	<u> </u>	1077	1400 Voo	
	400	res				res	
Salu. FIOW (KTUK)	133			00	50	62	
Link Speed (k/n)	60			60	50		
LINK DISTANCE (M)	238.7			65.5	242.1		
Travel Time (s)	14.3			3.9	1/.4	^	
Conti. Peds. (#/hr)		14	14		8	6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Adj. Flow (vph)	537	378	842	1063	283	437	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	915	0	842	1063	283	437	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	7.2			10.8	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	3.0			3.0	3.0		
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (k/h)		15	25		25	15	
Number of Detectors	2		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0	
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	Cl+Ex	CI+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(m)	9.4		0.0	9.4	0.0	0.0	
Detector 2 Size(m)	0.6			0.6			
Detector 2 Type	CI+Fx			CI+Fx			
Detector 2 Channel							
Detector 2 Extend (c)	0.0			0.0			
	NIA		Prot	NA	Prot	nm+ov	
Protected Phases	- IVA 2		1	6	۲ IOL و	- pm+0V 1	5
Dermitted Dhases	۷		I	U	U	l Q	J
Detector Phases	0		- 1	6	0	0	
	2		I	O	Ó	I	
Switch Phase							

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		•	-	-		~	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0	10.0
Total Split (s)	40.0		49.0	79.0	41.0	49.0	10.0
Total Split (%)	30.8%		37.7%	60.8%	31.5%	37.7%	8%
Maximum Green (s)	34.3		43.0	73.3	35.2	43.0	5.0
Yellow Time (s)	37		37	37	3.3	37	2.0
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3	3.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		6.0	5.7	5.8	6.0	
l ead/l ag	Lag		Lead	Lag	0.0	Lead	l ead
Lead-Lag Optimize?	20.9		2000	Yes			Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Min	None	None
Walk Time (s)	11.0			11.0	7.0		5.0
Flash Dont Walk (s)	15.0			15.0	26.0		0.0
Pedestrian Calls (#/hr)	7			7	_0.0		3
Act Effct Green (s)	46.3		39.2	89.6	26.9	66.0	v
Actuated g/C Ratio	0.36		0.30	0.69	0.21	0.51	
v/c Ratio	0.55		0.86	0.46	0.81	0.55	
Control Delay	31.4		65.4	7.0	66.3	17.1	
Queue Delay	0.0		0.0	0.2	0.0	0.0	
Total Delay	31.4		65.4	7.2	66.3	17.1	
LOS	С		F	A	F	В	
Approach Delay	31.4			32.9	36.5	_	
Approach LOS	C			C	D		
Queue Length 50th (m)	54.4		106.9	30.7	64.1	51.3	
Queue Length 95th (m)	76.8		m107.2	m48.2	86.4	59.6	
Internal Link Dist (m)	214.7			41.5	218.1		
Turn Bay Length (m)							
Base Capacity (vph)	1674		1078	2310	458	836	
Starvation Cap Reductn	0		0	395	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.55		0.78	0.56	0.62	0.52	
Intersection Summany							
Area Type:	Other						
Cycle Length: 130	o anor						
Actuated Cycle Length: 130)						
Offset: 27 (21%) Reference	ed to phase 2.EB	T and 6.V	VBT Start	of Green			
Natural Cycle: 95			, otan				
Control Type: Actuated-Cor	ordinated						
Maximum v/c Ratio: 0.86							
Intersection Signal Delay: 3	3.2			In	tersection	LOSC	
Intersection Canacity Utiliza	ation 76.3%					f Service D	
Analysis Period (min) 15							
m Volume for 95th percer	ntile queue is met	ered by u	pstream s	ignal.			
				-			
Splits and Phases: 3: Wo	odroffe W & Car	ling					



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	88	≜ 1⊾		×	***	1	8	≜ 1⊾		*	*	1
Traffic Volume (vph)	458	417	84	31	1260	153	72	240	39	136	171	657
Future Volume (vph)	458	417	84	31	1260	153	72	240	39	136	171	657
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	1000	0.0	35.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	2		0.0	1		1	0.0		0.0	1		0.0
Taper Length (m)	20.0		0	30.0			75		U	100.0		
Lane Litil Factor	0.07	0.95	0.95	1 00	0.91	1.00	1.0	0.95	0.95	1 00.0	1 00	1 00
Pod Piko Eastor	0.97	0.95	0.35	0.05	0.31	0.05	0.00	0.95	0.55	0.07	1.00	0.07
	0.99	0.90		0.95		0.95	0.99	0.99		0.97		0.97
Fit Protoctod	0.050	0.975		0.050		0.000	0.050	0.919		0.050		0.000
Setd Elow (prot)	2050	2004	٥	1660	1771	1/05	1676	2051	٥	1676	1765	1500
Salu. Flow (plut)	3232 0.0E0	3204	U	0.050	4//1	1400	0.620	3231	U	0.266	1705	1500
	0.900	2004	0	0.950	4774	1407	0.030	2054	٥	0.300	1705	4455
Sato. Flow (perm)	3221	3204	U	1583	4//1	1407	1110	3201	U	020	1/05	1455
Right Turn on Red		00	res			res		4.4	res			res
Sato. Flow (RTOR)		20			00	147		14			50	26
Link Speed (k/n)		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
I ravel I ime (s)		2.7		10	9.7		10	12.2	-0	-0	3.9	10
Confl. Peds. (#/hr)	32		48	48		32	16		50	50		16
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	509	463	93	34	1400	170	80	267	43	151	190	730
Shared Lane Traffic (%)												
Lane Group Flow (vph)	509	556	0	34	1400	170	80	310	0	151	190	730
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	1 veh	1 veh	1 veh
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			10.8			3.6			3.9	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												-
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	94		0.0	9.4	0.0	0.0	94		0.0	9.4	0.0
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Fx			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	Drot			Prot		Perm	Perm			nm⊥nt		nm+ov
Protected Phases	FIUL	2		1	A/I			IN/A Q		ριπ+ρι 7		pin+0V
Pormitted Phases	3	2		I	0	C	0	0		1	4	0
Peteotor Dheas	F	0		4	6	0	Õ	0		4	4	4
Detector Phase	5	2		1	6	6	8	8		1	4	5

5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1		11.3	40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7		21.3	47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%		16.4%	36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6		15.0	40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4		2.6	2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1		6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?		Ŭ			Ţ	Ŭ	Ū	Ū				
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0			7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0			24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20			20	20	20	20			20	
Act Effct Green (s)	28.5	70.9		8.1	45.6	45.6	22.6	22.6		37.2	36.6	65.7
Actuated g/C Ratio	0.22	0.55		0.06	0.35	0.35	0.17	0.17		0.29	0.28	0.51
v/c Ratio	0.71	0.32		0.33	0.84	0.29	0.41	0.54		0.63	0.38	0.96
Control Delay	51.8	26.3		88.0	33.7	6.3	51.5	48.7		47.1	38.2	51.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.8	26.3		88.0	33.7	6.3	51.5	48.7		47.1	38.2	51.3
LOS	D	С		F	С	А	D	D		D	D	D
Approach Delay		38.5			32.0			49.3			48.4	
Approach LOS		D			С			D			D	
Queue Length 50th (m)	56.5	39.5		8.3	120.9	17.0	17.9	35.6		29.7	38.4	126.5
Queue Length 95th (m)	#92.3	77.1		16.8	#147.1	15.9	28.3	42.3		39.3	48.8	#225.4
Internal Link Dist (m)		21.0			138.2			145.9			30.4	
Turn Bay Length (m)				35.0								
Base Capacity (vph)	712	1756		191	1673	588	308	912		241	680	758
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	0.32		0.18	0.84	0.29	0.26	0.34		0.63	0.28	0.96
Intersection Summary	Others											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130			T 01	0								
Offset: 0 (0%), Referenced to	phase 2:EBT	and 6:WB	I, Start of	Green								
Natural Cycle: 115	aller a facial											
Maximum v/c Ratio: 0.96	dinated											
Intersection Signal Delay: 39	5			In	tersection	LOS: D						
Intersection Capacity Utilizati	on 94 8%					f Service F	:					
Analysis Period (min) 15	01101.070											
# 95th percentile volume ex	ceeds capaci	tv. queue n	nav be long	her								
Queue shown is maximum	n after two cvo	cles.		· · · ·								
Splits and Phases: 5: Fairl	awn/Woodroff	e E & Carli	ng			4						
🖌 Ø1 📃 🗕	Ø2 (R)					- I ¥™¢	04					



12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	ቆቶሴ		N	tttts.			4		5	۴.	
Traffic Volume (vph)	27	540	32	122	1088	34	27	12	57	52	15	69
Future Volume (vph)	27	540	32	122	1088	34	27	12	57	52	15	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0	1000	0.0	65.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0.0	1		0	0		0.0	1		0.0
Taper Length (m)	60		Ŭ	7.5		Ŭ	75		Ŭ	7.5		Ű
Lane Util Factor	1 00	0 91	0.91	1.00	0.86	0.86	1 00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1.00	0.01	0.99	1.00	0.00	1.00	0.98	1.00	1.00	0.95	1.00
Frt	1.00	0.992		0.00	0.995			0.00		1.00	0.30	
Fit Protected	0.950	0.002		0.950	0.000			0.020		0.950	0.011	
Satd Flow (prot)	1644	1676	٥	1693	6097	٥	٥	1556	0	1368	1302	0
Elt Permitted	0 167	1070	U	0 300	0057	0	0	0.890	U	0.67/	1002	U
Satd Flow (perm)	280	1676	٥	705	6007	٥	٥	1380	٥	830	1302	٥
Right Turn on Red	203	4070	Ves	105	0031	Ves	U	1003	Ves	300	1002	Ves
Satd Flow (PTOP)		12	163		6	163		50	103		77	163
Link Spood (k/b)		60			0			30			40	
Link Distance (m)		162.2			170.6			101.7			40	
		0.7			10.0			101.7			121.0	
Confl Dodo (#/br)	1	9.7	10	10	10.2	٨	10	12.2	2	2	10.9	10
Confil. Peas. (#/hr)	4		12	IZ		4	43		3	3		43
Confil. Bikes (#/nr)	0.00	0.00	0.00	0.00	0.00	2	0.00	0.00	0.00	0.00	0.00	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Venicles (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	30	600	36	136	1209	38	30	13	63	58	1/	11
Shared Lane Traffic (%)		000	•	100	1017	•	•	100	•	-0	0.4	•
Lane Group Flow (vpn)	30	636	0	136	1247	0	0	106	0	58	94	0
Enter Blocked Intersection	No	No	NO	No	No	NO	No	No	NO	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			10.8			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
I wo way Left I urn Lane												4.0-
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	

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12: Carling & Carlingwood SC PM Peak Hour

Lane Group EBL EBR WBL WBT WBR NBL NBT SBL SBT SBR Switch Phase		۶	-	\mathbf{F}	•	+	•	•	1	1	1	ţ	4
Switch Phase Switch Phase Minimum Initial (s) 5.0 10.0 10.0 10.0 10.0 10.0 Minimum Split (s) 11.6 41.2 41.2 41.2 43.9 43.9 43.9 Total Split (S) 13.80 63.1% 49.2% 38.9% 56.9% 36.9% 36.9% Total Split (S) 11.4 75.8 57.8 41.1<	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s) 5.0 10.0 10.0 10.0 10.0 10.0 10.0 Total Spit (s) 11.6 41.2 41.2 41.2 43.9 43.9 43.9 43.9 Total Spit (s) 13.8% 63.1% 49.2% 36.8% 36.9%	Switch Phase												
Minimum Split (s) 11.6 41.2 41.2 41.2 43.9 43.9 43.9 Total Split (%) 13.8% 63.1% 49.2% 36.9%	Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Teal Split (s) 18.0 82.0 64.0 46.0 48.0 48.0 48.0 48.0 Total Split (s) 13.8% 63.1% 49.2% 49.2% 36.9%	Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (%) 13.8% 63.1% 49.2% 36.9% 36.9% 56.9% Maximum Green (s) 11.4 75.8 57.8 77.8 41.1 41.1 41.1 Vellow Time (s) 3.7 3.7 3.7 3.3 3.3 3.3 3.3 Last Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 LeadLag Lag Lag <td< td=""><td>Total Split (s)</td><td>18.0</td><td>82.0</td><td></td><td>64.0</td><td>64.0</td><td></td><td>48.0</td><td>48.0</td><td></td><td>48.0</td><td>48.0</td><td></td></td<>	Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Maximum Green (s) 11.4 75.8 57.8 41.1 41.1 41.1 41.1 Yellow Time (s) 3.7 3.7 3.7 3.3 3.3 3.3 3.3 AlR-Pad Time (s) 0.0	Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Yellow Time (s) 3.7 3.7 3.7 3.3 3.3 3.3 3.3 All-Red Time (s) 2.9 2.5 2.5 2.5 3.6 3.6 3.6 3.6 Lead Lag	Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
All-Red Time (s) 2.9 2.5 2.5 2.5 3.6 3.6 3.6 3.6 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Ital Lost Time (s) 6.6 6.2 6.2 6.2 6.9 6.9 6.9 Lead-Lag Optimize? Vehicle Extension (s) 3.0 <td< td=""><td>Yellow Time (s)</td><td>3.7</td><td>3.7</td><td></td><td>3.7</td><td>3.7</td><td></td><td>3.3</td><td>3.3</td><td></td><td>3.3</td><td>3.3</td><td></td></td<>	Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Total Lost Time (s) 6.6 6.2 6.2 6.9 6.9 6.9 6.9 Lead/Lag Lag Lag Lag Lag Lad Lag Lad Vehicle Extension (s) 3.0	Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
LeadLag Lag Lag Lag Lag Lag Lag Lag Lag Lag-Lad-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Lead/Lag	Lead			Lag	Lag							
Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None C-Max C-Max None None <th< td=""><td>Lead-Lag Optimize?</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Lead-Lag Optimize?												
Recall Mode None C-Max C-Max None	Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Walk Time (s) 7.0 7.0 7.0 7.0 24.0 24.0 24.0 Flash Dont Walk (s) 28.0 28.0 28.0 13.0 13.0 13.0 13.0 Flash Dont Walk (s) 6 6 6 20<	Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Flash Dont Walk (s) 28.0 28.0 28.0 13.0 13.0 13.0 13.0 Pedestrian Calls (#/hr) 6 6 6 20 20 20 20 Act Effet Green (s) 90.3 90.7 82.5 82.5 26.2 26.2 26.2 26.2 Actuated g/C Ratio 0.69 0.70 0.63 0.63 0.20 0.20 0.20 v/c Control Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach LOS A A C C Queue Length S0th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length S0th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length S0th (m) 3.1	Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr) 6 6 6 20 20 20 Act Effct Green (s) 90.3 90.7 82.5 82.5 26.2 26.3 12.6 <	Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Act EffG Green (s) 90.3 90.7 82.5 82.5 26.2 26.2 26.2 Actuated g/C Ratio 0.69 0.70 0.63 0.63 0.20 0.20 0.20 Ve Ratio 0.11 0.19 0.30 0.32 0.30 0.27 Control Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach LOS A A A C C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 139 3265 447 3873 479 306 492 Starwatin Cap Red	Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Actuated g/C Ratio 0.69 0.70 0.63 0.63 0.20 0.20 v/c Ratio 0.11 0.19 0.30 0.32 0.32 0.30 0.27 Control Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A A C C Queue Length 95th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) 13.1 26.4 4.8 12.7 8.2 10.5 11 15.0 Internal Link Dist (m) 13.0 26.5 447 387.3 479 306 492 Starvation Cap Reductn 0 0 0 0	Act Effct Green (s)	90.3	90.7		82.5	82.5			26.2		26.2	26.2	
w/c Ratio 0.11 0.19 0.30 0.32 0.32 0.32 0.30 0.27 Control Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A C C C Queue Length 95th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) 3.1 26.5 44.7 387.3 479 306 492 Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0	Actuated g/C Ratio	0.69	0.70		0.63	0.63			0.20		0.20	0.20	
Control Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 50th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Queue Length 50th (m) 138.2 146.6 77.7 97.3 7.3 Turm Bay Length (m) 110.0 65.0	v/c Ratio	0.11	0.19		0.30	0.32			0.32		0.30	0.27	
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 118.2 146.6 77.7 97.3 306 492 Starvation Cap Reductn 0	Control Delay	7.3	6.5		8.1	6.0			20.6		43.6	12.6	
Total Delay 7.3 6.5 8.1 6.0 20.6 43.6 12.6 LOS A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 1 1 0 1 Tum Bay Length (m) 110.0 65.0 8 2.9 2 3.6 492 3.1 2.0 0	Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
LOS A A A A C D B Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 97.3 Turn Bay Length (m) 110.0 65.0	Total Delay	7.3	6.5		8.1	6.0			20.6		43.6	12.6	
Approach Delay 6.5 6.2 20.6 24.4 Approach LOS A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 Tum Bay Length (m) 110.0 65.0 E E Base Capacity (vph) 319 3265 447 3873 479 306 492 Starvation Cap Reductn 0	LOS	А	А		А	А			С		D	В	
Approach LOS A A C C Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 97.3 Turn Bay Length (m) 110.0 65.0 97.3 Base Capacity (vph) 319 3265 447 3873 479 306 492 Starvation Cap Reductn 0	Approach Delay		6.5			6.2			20.6			24.4	
Queue Length 50th (m) 3.1 26.4 4.8 12.7 8.2 10.5 2.9 Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 Turn Bay Length (m) 110.0 65.0 5 5 5 7.9 14.8 21.9 21.4 15.0 Base Capacity (vph) 319 3265 447 3873 479 306 492 Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 10 10	Approach LOS		А			А			С			С	
Queue Length 95th (m) m3.5 17.5 7.9 14.8 21.9 21.4 15.0 Internal Link Dist (m) 138.2 146.6 77.7 97.3 Turn Bay Length (m) 110.0 65.0	Queue Length 50th (m)	3.1	26.4		4.8	12.7			8.2		10.5	2.9	
Internal Link Dist (m) 138.2 146.6 77.7 97.3 Turn Bay Length (m) 110.0 65.0 Base Capacity (vph) 319 3265 447 387.3 479 306 492 Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 63 1 0 1 Storage Cap Reductn 0 <t< td=""><td>Queue Length 95th (m)</td><td>m3.5</td><td>17.5</td><td></td><td>7.9</td><td>14.8</td><td></td><td></td><td>21.9</td><td></td><td>21.4</td><td>15.0</td><td></td></t<>	Queue Length 95th (m)	m3.5	17.5		7.9	14.8			21.9		21.4	15.0	
Turn Bay Length (m) 110.0 65.0 Base Capacity (vph) 319 3265 447 3873 479 306 492 Starvation Cap Reducth 0 0 0 0 0 0 0 Spillback Cap Reducth 0 0 0 0 0 0 0 Storage Cap Reducth 0 0 0 0 0 0 0 Storage Cap Reducth 0 0 0 0 0 0 0 Storage Cap Reducth 0 0 0 0 0 0 0 Reduced v/c Ratio 0.09 0.19 0.30 0.33 0.22 0.19 0.19 Intersection Summary Intersection Summary Intersection Summary Intersection Summary Intersection Cycle Length: 130 Intersection Cycle Length: 130 Intersection Cycle: 100 Inte	Internal Link Dist (m)		138.2			146.6			77.7			97.3	
Base Capacity (vph) 319 3265 447 3873 479 306 492 Starvation Cap Reductn 0	Turn Bay Length (m)	110.0			65.0								
Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0	Base Capacity (vph)	319	3265		447	3873			479		306	492	
Spillback Cap Reductn 0 0 63 1 0 1 Storage Cap Reductn 0	Starvation Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn 0	Spillback Cap Reductn	0	0		0	63			1		0	1	
Reduced v/c Ratio 0.09 0.19 0.30 0.33 0.22 0.19 0.19 Intersection Summary Area Type: Other O	Storage Cap Reductn	0	0		0	0			0		0	0	
Intersection Summary Area Type: Other Cycle Length: 130 Cycle Length: 130 Actuated Cycle Length: 130 Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15 Intersection Capacity Utilization 79.1%	Reduced v/c Ratio	0.09	0.19		0.30	0.33			0.22		0.19	0.19	
Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Intersection Summary												
Cycle Length: 130 Actuated Cycle Length: 130 Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Area Type:	Other											
Actuated Cycle Length: 130 Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Cycle Length: 130												
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Actuated Cycle Length: 130												
Natural Cycle: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Offset: 100 (77%), Reference	d to phase 2:	EBTL and 6	S:WBTL, S	tart of Gre	en							
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15 Intersection LOS: A	Natural Cycle: 100												
Maximum v/c Ratio: 0.32 Intersection Signal Delay: 8.2 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15 Intersection LOS: A	Control Type: Actuated-Coord	dinated											
Intersection Signal Delay: 8.2 Intersection LOS: A Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15 Intersection LOS: A	Maximum v/c Ratio: 0.32												
Intersection Capacity Utilization 79.1% ICU Level of Service D Analysis Period (min) 15	Intersection Signal Delay: 8.2				In	tersection	LOS: A						
Analysis Period (min) 15	Intersection Capacity Utilization	on 79.1%			IC	CU Level of	Service D						
	Analysis Period (min) 15												

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

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	ቀ ቶሴ		1	***	1		4		1	ĥ	
Traffic Volume (vph)	41	670	4	17	1449	107	13	20	10	117	23	60
Future Volume (vph)	41	670	4	17	1449	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util, Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		0.90		0.98		0.98	0.97	
Frt		0.999				0.850		0.968			0.892	
Flt Protected	0.950			0.950				0.985		0.950		
Satd, Flow (prot)	1676	4811	0	1693	4865	1515	0	1704	0	1693	1539	0
Flt Permitted	0.104		-	0.356			-	0.900	-	0.726		-
Satd Flow (perm)	184	4811	0	622	4865	1362	0	1544	0	1271	1539	0
Right Turn on Red	101	1011	Yes	022	1000	Yes	Ŭ	1011	Yes		1000	Yes
Satd, Flow (RTOR)		1				119		11			67	
Link Speed (k/h)		60			60	110		50			50	
Link Distance (m)		170.6			185.0			157.7			163.4	
Travel Time (s)		10.2			11 1			11.4			11.8	
Confl Peds (#/hr)	28	10.2	19	19	11.1	28	28	11.4	17	17	11.0	28
Confl Bikes (#/hr)	20		6	15		20	20		17	17		20
Peak Hour Factor	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0.00	0.50	0.00	1%	1%	1%
Adi Flow (vpb)	270	7//	2 /0	10	1610	110	1/	22	070	120	26	67
Shared Lane Traffic (%)	40	744	4	19	1010	119	14	22	11	130	20	07
Lane Group Flow (vph)	46	7/8	٥	10	1610	110	٥	17	٥	130	03	٥
Enter Blocked Intersection	40 No	No	No	No	No	No	No	47 No	No	No	95 No	No
Long Alignment	Loff	Loff	Diaht	Loff	Loft	Diaht	Loff	Loff	Diaht	Loff	Loft	Diaht
Lane Alignment Modion Width(m)	Leit	10 Q	Right	Leit	2 0	Right	Leit	1.0	Right	Leit	2.6	Right
Link Offect(m)		10.0			1.2			1.0			0.0	
Creaswalk Width(m)		0.0			0.0			2.0			0.0	
		3.0			3.0			3.0			3.0	
Headway Faster	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	n	IJ	20	C	10	20 1	0	10	20	n	10
Number of Delectors	ا	Z		ا	Z	l Dia há	ا	Z		ا	Z	
	Leit	10.0		Leit	10.0	Right	Leit	10.0		Leit	10.0	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.0		2.0	0.0	2.0	2.0				0.0	
Detector I Type	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		~ ~			~ ~			~ ~			~ ~	
Detector 2 Extend (s)		0.0		-	0.0	-	-	0.0		P	0.0	
	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		_	6	_	_	8			4	
Permitted Phases	2	-		6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

J.Audia, Novatech

Lane Group EBL EBT EBR WBL WBT WBT NBT NBT NBT SBL SBT SBR Switch Phase Minimum Initial (s) 5.0 10.0 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>ioung man</th> <th>no ougri</th> <th></th> <th>noutionio</th>										ioung man	no ougri		noutionio
Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Switch Phase		٭	-	$\mathbf{\hat{z}}$	4	+	*	1	1	۲	1	Ŧ	~
Switch Phase Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s) 5.0 10.0 1	Switch Phase												-
Minimum Split (s) 12.0 28.2 28.2 28.2 28.2 42.3 42.3 42.3 42.3 Total Split (s) 12.0 66.0 74.0 74.0 74.0 44.0 44.0 44.0 44.0 Total Split (s) 9.2% 66.2% 56.9% 56.9% 56.9% 53.6% 33.6% 33.8%	Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Trait Spit (s) Tite	Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Spitt (%) 9 22% 66 2% 56 9% 56 9% 53 38% 33 8%	Total Split (s)	12.0	86.0		74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Maximum Green (s) 50 79.8 67.8 67.8 67.8 36.7	Total Split (%)	9.2%	66.2%		56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Yellow Time (s) 3.7 3.7 3.7 3.7 3.3	Maximum Green (s)	5.0	79.8		67.8	67.8	67.8	36.7	36.7		36.7	36.7	
All-Red Time (s) 3.3 2.5 2.5 2.5 2.5 4.0 4.0 4.0 4.0 Lost Time Adjust (s) 0.0	Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Lead Time (s) 7.0 6.2 6.2 6.2 6.2 7.3 7.3 7.3 Lead Lag Optimize? Vehicle Extension (s) 3.0	All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Total Lost Time (s) 7.0 6.2 6.2 6.2 7.3 7.3 7.3 Lead-Lag Optimize? Vehicle Extension (s) 3.0	Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Lead-Lag Lag Lag <thlag< th=""> Lag <thlag< th=""> <thlag< <="" td=""><td>Total Lost Time (s)</td><td>7.0</td><td>6.2</td><td></td><td>6.2</td><td>6.2</td><td>6.2</td><td></td><td>7.3</td><td></td><td>7.3</td><td>7.3</td><td></td></thlag<></thlag<></thlag<>	Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead-Lag Optimize? 0 0 Vehicle Extension (s) 3.0 1.0 11.0	Lead/Lag	Lead			Lag	Lag	Lag						
Vehicle Extension (s) 3.0	Lead-Lag Optimize?				Ŭ	Ŭ	Ŭ						
Recall Mode None C-Max C-Max C-Max C-Max C-Max None None None None Walk Time (s) 10.0 10.0 10.0 10.0 24.	Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Walk Time (s) 10.0 10.0 10.0 10.0 24.0 24.0 24.0 Flash Dont Walk (s) 12.0 12.0 12.0 11.0 11.0 11.0 11.0 Predestrian Calls (#hr) 14	Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Flash Dont Walk (s) 12.0 12.0 12.0 12.0 11.0	Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Pedestrian Calls (#hr) 14 16 13 16 16 <	Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Act Effct Green (s) 92.7 93.5 82.8 82.8 82.8 23.0 23.0 23.0 Actuated g/C Ratio 0.71 0.72 0.64 0.64 0.64 0.18 0.18 0.18 Vic Ratio 0.23 0.22 0.05 0.52 0.13 0.17 0.58 0.28 Control Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 LOS B A B B A C E B Approach LOS A B C D	Pedestrian Calls (#/hr)		14		14	14	14	14	14		14	14	
Actuated g/C Ratio 0.71 0.72 0.64 0.64 0.64 0.18 0.18 0.18 vic Ratio 0.23 0.22 0.05 0.52 0.13 0.17 0.58 0.28 Control Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 LOS B A B B C E B Approach Delay 5.1 15.0 33.6 40.0 Approach LOS A B B C D D Queue Length S0th (m) 16.6 161.0 133.7 139.4 Cueue Length S0th (m) 125.0 40.0 B Sa 482 Sa	Act Effct Green (s)	92.7	93.5		82.8	82.8	82.8		23.0		23.0	23.0	
vic Ratio 0.23 0.22 0.05 0.52 0.13 0.17 0.58 0.28 Control Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 Queue Delay 0.0 0 0 0 0.0 0 <td>Actuated g/C Ratio</td> <td>0.71</td> <td>0.72</td> <td></td> <td>0.64</td> <td>0.64</td> <td>0.64</td> <td></td> <td>0.18</td> <td></td> <td>0.18</td> <td>0.18</td> <td></td>	Actuated g/C Ratio	0.71	0.72		0.64	0.64	0.64		0.18		0.18	0.18	
Control Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 Queue Delay 0.0 <td>v/c Ratio</td> <td>0.23</td> <td>0.22</td> <td></td> <td>0.05</td> <td>0.52</td> <td>0.13</td> <td></td> <td>0.17</td> <td></td> <td>0.58</td> <td>0.28</td> <td></td>	v/c Ratio	0.23	0.22		0.05	0.52	0.13		0.17		0.58	0.28	
Queue Delay 0.0 <th< td=""><td>Control Delay</td><td>11.0</td><td>4.8</td><td></td><td>14.2</td><td>15.9</td><td>3.0</td><td></td><td>33.6</td><td></td><td>57.1</td><td>16.2</td><td></td></th<>	Control Delay	11.0	4.8		14.2	15.9	3.0		33.6		57.1	16.2	
Total Delay 11.0 4.8 14.2 15.9 3.0 33.6 57.1 16.2 LOS B A B B A C E B Approach Delay 5.1 15.0 33.6 C D Approach LOS A B C D Queue Length 50th (m) 1.6 9.6 1.5 67.8 0.0 7.6 29.6 5.4 Queue Length 95th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 146.6 161.0 133.7 139.4 139.4 Um Bay Length (m) 125.0 40.0 133.7 139.4 139.4 Base Capacity (vph) 202 3460 395 3097 910 443 358 482 Starvation Cap Reductn 0	Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
LOS B A B B A C E B Approach Delay 5.1 15.0 33.6 40.0 Approach LOS A B C D Queue Length 50th (m) 1.6 9.6 1.5 67.8 0.0 7.6 29.6 5.4 Queue Length 55th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 125.0 40.0 133.7 139.4 139.4 Turn Bay Length (m) 125.0 40.0 133.7 139.4 139.4 Starvation Cap Reductn 0 </td <td>Total Delay</td> <td>11.0</td> <td>4.8</td> <td></td> <td>14.2</td> <td>15.9</td> <td>3.0</td> <td></td> <td>33.6</td> <td></td> <td>57.1</td> <td>16.2</td> <td></td>	Total Delay	11.0	4.8		14.2	15.9	3.0		33.6		57.1	16.2	
Approach Delay 5.1 15.0 33.6 40.0 Approach LOS A B C D Queue Length 50th (m) 1.6 9.6 1.5 67.8 0.0 7.6 29.6 5.4 Queue Length 95th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 146.6 161.0 133.7 139.4 139.4 Tum Bay Length (m) 125.0 40.0 33.6 482 35.8 482 Starvation Cap Reductn 0	LOS	В	А		В	В	А		С		E	В	
Approach LOS A B C D Queue Length 50th (m) 1.6 9.6 1.5 67.8 0.0 7.6 29.6 5.4 Queue Length 95th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 146.6 161.0 133.7 139.4 Turn Bay Length (m) 125.0 40.0 443 358 482 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0	Approach Delay		5.1			15.0			33.6			40.0	
Queue Length 50th (m) 1.6 9.6 1.5 67.8 0.0 7.6 29.6 5.4 Queue Length 95th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 146.6 161.0 133.7 139.4 139.4 Turn Bay Length (m) 125.0 40.0 Base Capacity (vph) 202 3460 395 3097 910 443 358 482 Starvation Cap Reductn 0 165 165	Approach LOS		А			В			С			D	
Queue Length 95th (m) 8.0 17.6 6.1 110.4 8.4 15.4 42.6 16.7 Internal Link Dist (m) 125.0 40.0 133.7 139.4 Base Capacity (vph) 202 3460 395 3097 910 443 358 482 Starvation Cap Reductn 0 10 10 10 10 10 10 10	Queue Length 50th (m)	1.6	9.6		1.5	67.8	0.0		7.6		29.6	5.4	
Internal Link Dist (m) 146.6 161.0 133.7 139.4 Turn Bay Length (m) 125.0 40.0	Queue Length 95th (m)	8.0	17.6		6.1	110.4	8.4		15.4		42.6	16.7	
Turn Bay Length (m) 125.0 40.0 Base Capacity (vph) 202 3460 395 3097 910 443 358 482 Starvation Cap Reductn 0	Internal Link Dist (m)		146.6			161.0			133.7			139.4	
Base Capacity (vph) 202 3460 395 3097 910 443 358 482 Starvation Cap Reductn 0	Turn Bay Length (m)	125.0			40.0								
Starvation Cap Reductn 0	Base Capacity (vph)	202	3460		395	3097	910		443		358	482	
Spillback Cap Reductn 0	Starvation Cap Reductn	0	0		0	0	0		0		0	0	
Storage Cap Reductin 0	Spillback Cap Reductn	0	0		0	0	0		0		0	0	
Reduced v/c Ratio 0.23 0.22 0.05 0.52 0.13 0.11 0.36 0.19 Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Colspan="4">Other Actuated Cycle Length: 130 Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Control Type: Actuated-Coordinated Control Type: Actuated-Coordinated </td <td>Storage Cap Reductn</td> <td>0</td> <td>0</td> <td></td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td>0</td> <td></td> <td>0</td> <td>0</td> <td></td>	Storage Cap Reductn	0	0		0	0	0		0		0	0	
Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection Capacity Utilization 70.2% Intersection Capacity Utilization 70.2% Splits and Phases: 15: Iroquois & Carling	Reduced v/c Ratio	0.23	0.22		0.05	0.52	0.13		0.11		0.36	0.19	
Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 85 Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection LOS: B Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases:	Intersection Summary												
Cycle Length: 130 Actuated Cycle Length: 130 Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Area Type:	Other											
Actuated Cycle Length: 130 Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Cycle Length: 130												
Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Actuated Cycle Length: 130												
Natural Cycle: 85 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Offset: 95 (73%), Referenced	d to phase 2:E	BTL and 6:	WBTL, St	art of Gree	en							
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Natural Cycle: 85												
Maximum v/c Ratio: 0.58 Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Control Type: Actuated-Coor	dinated											
Intersection Signal Delay: 14.5 Intersection LOS: B Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Maximum v/c Ratio: 0.58												
Intersection Capacity Utilization 70.2% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Intersection Signal Delay: 14	.5			Ir	tersection	LOS: B						
Analysis Period (min) 15 Splits and Phases: 15: Iroquois & Carling	Intersection Capacity Utilizat	ion 70.2%			IC	CU Level o	f Service C	;					
Splits and Phases: 15: Iroquois & Carling	Analysis Period (min) 15												
	Splits and Phases: 15: Iroo	quois & Carling	g										



18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	#	**	1			~ .	
Traffic Volume (vph)	121	56	744	83	46	811		
Future Volume (vph)	121	56	7//	83	40	811		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Litil Eactor	1 00	1.00	0.95	1 00	0.95	0.95		
Ped Rike Factor	0.08	0.07	0.35	0.05	0.35	1.00		
	0.90	0.97		0.95		1.00		
Fit Protocted	0.050	0.000		0.000		0.007		
Sata Elow (prot)	0.950	1520	2252	1500	0	2210		
Salu. Flow (plot)	0.050	1550	3303	1500	U	0 957		
Setd Flow (norm)	1679	1/02	2252	1404	0	0.007		
Bight Turp on Pod	1070	1492 Voo	3303	1424 Voo	U	2040		
Right Turn on Red		res		res				
Salu. Flow (RTOR)	40	02	50	92		E0		
Link Speed (k/n)	40		70.6			00		
	107.1		10.0			00.0 6.0		
Fraver Time (s)	9.0	7	5. <i>1</i>	10	10	0.2		
	10	1		10	10			
Confl. Bikes (#/nr)	0.00	0.00	0.00	3	0.00	0.00		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Heavy Venicles (%)	0%	0%	2%	2%	3%	3%		
Adj. Flow (vpn)	134	62	827	92	51	901		
Shared Lane Traffic (%)	10.1	00	007		<u>^</u>	050		
Lane Group Flow (vph)	134	62	827	92	0	952		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
I wo way Left Turn Lane	4.07	4.07	4.07	4.07	4.07	4.07		
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15	•	15	25			
Number of Detectors	1	1	2	1	1	2		
Detector lemplate	Left	Right	Ihru	Right	Left	l hru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)		_	0.0	_	_	0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	21.0	21.0	35.0	35.0	35.0	35.0	10.0	

J.Audia, Novatech

18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7			
Total Split (s)	21.0	21.0	64.0	64.0	64.0	64.0	10.0			
Total Split (%)	22.1%	22.1%	67.4%	67.4%	67.4%	67.4%	11%			
Maximum Green (s)	15.3	15.3	58.0	58.0	58.0	58.0	5.0			
Yellow Time (s)	33	33	33	33	33	33	2.0			
All-Red Time (s)	2.0	2.0	27	2.5	2.5	2.5	2.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	5.0			
Total Lost Time (s)	5.7	5.7	6.0	6.0		6.0				
	l an	l an	0.0	0.0		0.0	l ead			
Lead Lag Optimize?	Lay	Lay					Leau			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Pocall Mode	Nono	Nono	C Max	C Max	C Max	C Max	Nono			
	2.0	2.0	11.0	11.0	11.0	11.0	NONE 5.0			
Fleeb Dopt Wolk (c)	12.0	12.0	10.0	10.0	10.0	10.0	5.0			
Plash Done Walk (S)	13.0	13.0	10.0	10.0	10.0	10.0	0.0			
Act Effet Crean (a)	10.2	10.2	C 0.0	C 0	5	C 0	3			
Act Effect Green (S)	12.3	12.3	0 70	0 70		0 70				
Actuated g/C Ratio	0.13	0.13	0.73	0.73		0.73				
V/c Ratio	0.62	0.25	0.34	0.09		0.46				
Control Delay	51.2	12.2	6.0	1.7		7.2				
Queue Delay	0.0	0.0	0.0	0.0		0.0				
I otal Delay	51.2	12.2	6.0	1./		7.2				
LOS	D	В	A	A		A				
Approach Delay	38.9		5.6			7.2				
Approach LOS	D		A			Α				
Queue Length 50th (m)	21.6	0.0	20.8	0.0		27.1				
Queue Length 95th (m)	37.5	9.9	45.5	5.0		60.2				
Internal Link Dist (m)	83.1		54.6			62.5				
Turn Bay Length (m)										
Base Capacity (vph)	270	292	2435	1059		2066				
Starvation Cap Reductn	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0		0				
Reduced v/c Ratio	0.50	0.21	0.34	0.09		0.46				
Intersection Summary										
Area Type: O	ther									
Cycle Length: 95										
Actuated Cycle Length: 95										
Offset: 45 (47%), Referenced to	phase 2:N	BT and 6:	SBTL, Star	t of Green						
Natural Cycle: 70	1		,							
Control Type: Actuated-Coordina	ated									
Maximum v/c Ratio: 0.62										
Intersection Signal Delay: 9.5				In	tersection	LOS: A				
Intersection Capacity Utilization	72.2%			IC	CU Level of	f Service C				
Analysis Period (min) 15										
Splits and Phases: 18: Woodre	offe E & Ca	arlingwood	SC							
Ø2 (R)										
64 s										
Ø6 (R)								AL OT	Ø8	

64 s

10 s

21 s

1: Woodroffe E & Access PM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Υ.			₽₽₽	A12≽	
Traffic Volume (vph)	5	8	10	851	964	4
Future Volume (vph)	5	8	10	851	964	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt	0.919				0.999	
Flt Protected	0.980			0.999		
Satd. Flow (prot)	1589	0	0	4766	3317	0
Flt Permitted	0.980			0.999		
Satd. Flow (perm)	1589	0	0	4766	3317	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.0	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	6	9	11	946	1071	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	957	1075	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 38.3%			IC	U Level of	Service A
Analysis Period (min) 15						

	٦	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	961	1991	8	0	5
Future Volume (vph)	0	961	1991	8	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6065	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	4771	6065	0	0	1526
Link Speed (k/h)		50	50	-	50	
Link Distance (m)		65.5	83.7		179.2	
Travel Time (s)		4.7	6.0		12.9	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1068	2212	9	0	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1068	2221	0	0	6
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	Ū	0.0	Ū
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 40.6%			IC	U Level of	Service A
Analysis Period (min) 15						

10: Woodroffe E & Flower PM Peak Hour

	≯	\mathbf{F}	1	1	ŧ	∢_
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			-at≜	4 16	
Traffic Volume (vph)	19	42	47	707	757	23
Future Volume (vph)	19	42	47	707	757	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	47	52	786	841	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	838	867	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 58.8%			IC	U Level of	Service B

Analysis Period (min) 15

	٦	-	-	*	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ትጌ			1
Traffic Volume (vph)	0	961	1987	5	0	10
Future Volume (vph)	0	961	1987	5	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						0.865
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		83.7	45.0		49.1	
Travel Time (s)		6.0	3.2		3.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1068	2208	6	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1068	2214	0	0	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	•	0.0	•
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 50.6%			IC	U Level of	Service A
Analysis Period (min) 15						
,						

25: Woodroffe E & Carlingwood SC PM Peak Hour

	✓	•	1	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	7	1	<u>ቀቀ</u> ሴ			- €t†
Traffic Volume (vph)	8	59	805	46	36	928
Future Volume (vph)	8	59	805	46	36	928
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt		0.850	0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1676	1500	4779	0	0	3346
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1676	1500	4779	0	0	3346
Link Speed (k/h)	50		50			50
Link Distance (m)	106.6		70.0			78.6
Travel Time (s)	7.7		5.0			5.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	66	894	51	40	1031
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	66	945	0	0	1071
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 59.0%			IC	U Level of	Service E

Analysis Period (min) 15

	-	\rightarrow	-	-	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	** 1.		**	**	×	#
Traffic Volume (voh)	1338	182	519	291	232	476
Future Volume (vph)	1338	182	519	201	232	476
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lange		120.0	0.0		0.0	0.0
Tapor Longth (m)		I	7 5		75	
	0.01	0.04	7.5	0.05	1.0	1 00
Lane Ulli. Facior	0.91	0.91	0.97	0.95	1.00	1.00
Fed Bike Factor	1.00		1.00		0.99	0.98
	0.982		0.050		0.050	0.850
Fit Protected			0.950		0.950	
Satd. Flow (prot)	4713	0	3190	3288	1660	1485
FIt Permitted			0.950		0.950	
Satd. Flow (perm)	4713	0	3177	3288	1639	1449
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22					8
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		13	13		11	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	4%	4%	.3%	.3%
Adi Flow (vph)	1338	182	519	201	232	476
Shared Lane Traffic (%)	1000	102	515	231	202	-10
Long Croup Flow (upb)	1520	0	F10	201	222	176
Eater Discload Intersection	1520	U	519	291	232	4/0
	INO	Die bi	INO	INO L - 4	INO L aff	
	Lett	Right	Lett	Lett	Left	Right
iviedian vvidtn(m)	1.2			9.9	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	1		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	0.0	2.0	2.0
Detector 1 Type			2.0 Cl+Ev		2.0 CI+Ev	
Detector 1 Channel	OITEX		OFEX	OFEX		
	0.0		0.0			
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	. 1
Permitted Phases	-		·			8
Detector Phase	2		1	6	8	1
Switch Phase	2		I	U	U	1
Switch Flidse						

	-	\mathbf{r}	1	-	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0	
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0	
Total Split (s)	55.0		31.0	86.0	44.0	31.0	
Total Split (%)	42.3%		23.8%	66.2%	33.8%	23.8%	
Maximum Green (s)	49.3		25.0	80.3	38.2	25.0	
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7	
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0	
Lead/Lag	Lag		Lead			Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Recall Mode	C-Max		None	C-Max	Min	None	
Walk Time (s)	11.0			11.0	7.0		
Flash Dont Walk (s)	15.0			15.0	26.0		
Pedestrian Calls (#/hr)	7			7	6		
Act Effct Green (s)	62.0		26.7	94.6	23.9	50.3	
Actuated g/C Ratio	0.48		0.21	0.73	0.18	0.39	
v/c Ratio	0.67		0.79	0.12	0.76	0.83	
Control Delay	29.4		57.6	6.1	65.9	44.4	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	29.4		57.6	6.1	65.9	44.4	
LOS	С		E	А	E	D	
Approach Delay	29.4			39.1	51.5		
Approach LOS	С			D	D		
Queue Length 50th (m)	98.4		63.2	8.1	52.6	89.8	
Queue Length 95th (m)	135.7		80.0	23.4	72.3	105.8	
Internal Link Dist (m)	214.7			41.5	218.1		
Turn Bay Length (m)							
Base Capacity (vph)	2258		675	2393	487	582	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.67		0.77	0.12	0.48	0.82	
Intersection Summary							
Area Type:	Other						
Cycle Length: 130							
Actuated Cycle Length: 130							
Offset: 112 (86%), Reference Natural Cycle: 95	ed to phase 2:E	BT and 6:	WBT, Sta	rt of Greer	ו		
Control Type: Actuated-Coor	dinated						
Maximum v/c Ratio: 0.83	4				. e		
Intersection Signal Delay: 37	.1			In	tersection	LOS: D	
Intersection Capacity Utilizati Analysis Period (min) 15	ion 79.5%			IC	U Level o	f Service D	
Splits and Phases: 3: Woo	odroffe W & Car	ling					
√ Ø1		02 (R)					
31s	55 s						
Ø6 (R)							▲ √Ø8

44 s

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ			7	***	1	μ.	†1 2		7	•	1
Traffic Volume (vph)	457	1455	45	10	301	90	11	214	48	202	84	523
Future Volume (vph)	457	1455	45	10	301	90	11	214	48	202	84	523
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	20.0			30.0			7.5			100.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.97	0.99	0.99		0.99		0.98
Frt		0.995				0.850		0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd, Flow (prot)	3252	3332	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Elt Permitted	0.950		-	0.950			0.702		-	0.379		
Satd Flow (perm)	3190	3332	0	1549	4467	1349	1233	3242	0	654	1748	1459
Right Turn on Red	0100	0002	Yes	1010	1101	Yes	1200	02.12	Yes	001		Yes
Satd Flow (RTOR)		3	100			191		20	100			251
Link Speed (k/h)		60			60	101		50			50	201
Link Distance (m)		/33			162.2			160 0			54.4	
Travel Time (s)		26			9.7			12.2			30	
Confl Peds (#/br)	1/	2.0	13	13	5.1	1/	5	12.2	18	18	5.5	5
Confl Bikes (#/hr)	14		IJ	10		14	J		2	10		J
Poak Hour Easter	1 00	1.00	1.00	1.00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
	20/	20/	2%	1.00	1.00	1.00	2%	20/	20/	30/	20/	20/
Adi Flow (vph)	Z /0	2 /0 1/55	Z /0	10 /0	201	10 /0	Z /0	2 /0	Z /0	2/0	0/1	570
Auj. Flow (vpi) Sharad Lana Traffia (%)	407	1400	40	10	301	90	11	214	40	202	04	525
	157	1500	٥	10	201	00	11	060	٥	202	0.4	E00
Eater Blocked Interestion	407	1000	U	IU No	301	90	l I	202	U	202	04 Na	5Z5
Enter Blocked Intersection	INO	INO	N0 Dialat	INO	INO	INO Diacht	INO	INO	NO Dialat	INO	INO	IN0 Diabt
Lane Alignment	Len	Len	Right	Len	Len	Right	Len	Len	Right	Len	Len	Right
Median Width(m)		10.8			10.8			3.0			3.9	
		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
I wo way Left I urn Lane	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (K/h)	25	0	15	25	0	15	25	0	15	25	<u> </u>	15
Number of Detectors	1			1	Z		1	Z		1	Z	1
Detector Template	Lett	Inru		Len	Inru	Right	Lett	Inru		Lett	I nru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Ex	CI+Ex		CI+EX	CI+Ex	CI+EX	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6			8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

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5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	37.1		11.3	37.1	37.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	31.0	53.7		21.3	44.0	44.0	41.0	41.0		14.0	55.0	31.0
Total Split (%)	23.8%	41.3%		16.4%	33.8%	33.8%	31.5%	31.5%		10.8%	42.3%	23.8%
Maximum Green (s)	24.7	47.6		15.0	37.9	37.9	34.1	34.1		7.7	48.1	24.7
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	3.7
All-Red Time (s)	2.6	2.4		2.6	2.4	2.4	3.6	3.6		3.0	3.6	2.6
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)	6.3	6.1		6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0			7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0			24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	00.0	/		0.5	/	/	9	9		00.0	9	
Act Effct Green (s)	23.0	82.1		6.5	55.7	55.7	18.0	18.0		32.6	32.0	55.6
Actuated g/C Ratio	0.18	0.03		0.05	0.43	0.43	0.14	0.14		0.25	0.25	0.43
V/C Ratio	0.79	0./1		0.13	U. 10	0.13	0.00	0.00		0.91	0.20	0.00
	13.1	13.7		76.0	10.4	0.0	44.2	51.7		00.1	37.0	10.0
	0.0	12.7		76.0	10.0	0.0	44.2	0.0 51.7		0.0	27.6	16.0
	73.7 E	13.7 B		70.0	10.4 R	0.0	44.Z			03.1 E	ס. <i>ז</i> ר	10.0 B
Approach Delay	E.	27.7		E	15.0	A	U	51 /		Г	35.0	D
Approach LOS		21.1 C			10.0 B			л. т П			00.0 D	
Queue Length 50th (m)	56.5	50.5		2.5	12 1	0.0	24	29.2		42.2	16.3	47 7
Queue Length 95th (m)	m73.5	#240.2		8.2	11.0	0.0	6.5	35.3		52.2	23.8	55.8
Internal Link Dist (m)		19.3		0.2	138.2	0.2	0.0	145.9		02.2	30.4	00.0
Turn Bay Length (m)				35.0								
Base Capacity (vph)	626	2106		179	1913	686	323	865		223	646	791
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	0.73	0.71		0.06	0.16	0.13	0.03	0.30		0.91	0.13	0.66
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%), Referenced	I to phase 2:	EBT and 6:	WBT, Star	t of Greer	า							
Natural Cycle: 125												
Control Type: Actuated-Coordi	inated											
Maximum v/c Ratio: 0.91												
Intersection Signal Delay: 29.9				In	itersection	LOS: C						
Intersection Capacity Utilization	n 98.7%			IC	CU Level o	f Service F						
Analysis Period (min) 15												
# 95th percentile volume exc	eeds capaci	ty, queue n	nay be long	ger.								
Queue shown is maximum	after two cyc	les.										
m Volume for 95th percentile	e queue is m	etered by u	pstream si	gnal.								

Splits and Phases: 5: Fairlawn/Woodroffe E & Carling

√ Ø1	→ Ø2 (k)	♦ ©Ø4
21.3 s	53.7 s	55 s
₽ Ø2	●	Ø7 Ø8
31 s	44 s	14 s 41 s

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	ቀ ትር _ራ		2	tttts			4		1	ĥ	
Traffic Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Future Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99		0.99	0.98	
Frt		0.998			0.996			0.930			0.861	
Flt Protected	0.950			0.950				0.987		0.950		
Satd. Flow (prot)	1676	4806	0	1676	6043	0	0	1573	0	1221	1112	0
Flt Permitted	0.442			0.156				0.917		0.740		
Satd, Flow (perm)	778	4806	0	275	6043	0	0	1459	0	945	1112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd, Flow (RTOR)		2			6			14			39	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			102.7	
Travel Time (s)		9.7			10.2			12.2			9.2	
Confl. Peds. (#/hr)	4	•	5	5		4	5		7	7	•	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	40%	0%	40%
Adi Flow (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Shared Lane Traffic (%)				_•				Ū			Ŭ	
Lane Group Flow (vph)	12	1538	0	26	445	0	0	27	0	26	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	l eft	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.9			10.8			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane		0.0			0.0			0.0			0.0	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	9.4		0.0	9.4		0.0	9.4		0.0	9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Fx			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		^			<u>-</u> ^						^	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2	<u> </u>		6	Ū.		8	Ŭ		4		
Detector Phase	- 5	2		6	6		8	8		4	4	
Switch Phase		_						Ť				

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12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0		65.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%		50.0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.4	75.8		58.8	58.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead	0.2		Lag	Lag			0.0		0.0	0.0	
Lead-Lag Optimize?	Loud			Lug	Lug							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	NONE	7.0		7.0	7.0		2/ 0	24.0		24.0	2/ 0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Podestrian Calls (#/br)		20.0		20.0	20.0		15.0	15.0		10.0	15.0	
Act Effet Groop (c)	10/1 3	105.0		100.8	100.8		4	15.6		15.6	15.6	
Actuated a/C Datia	0.00	0.01		0.70	0.70			0.10		0.10	0.10	
	0.00	0.01		0.70	0.70			0.12		0.12	0.12	
V/C Rallo	0.02	0.59		0.12	0.09			0.14		0.23	0.20	
	2.0	Z.1		C.0	4.0			20.7		52.5	17.0	
Queue Delay	0.0	0.1		0.0	0.0			0.0		0.0	0.0	
	2.8	Ζ.Ζ		0.0 ^	4.0			20.7		52.3	I/.0	
LUS Annua alt Dalau	A	A		A	A			007		U	20 O	
Approach Delay		Ζ.Ζ			4.8			28.7			30.9	
Approach LOS	0.2	A		10	A					5.0	07	
Queue Length 50th (m)	0.3	14.3		1.0	4.5			2.9		5.9	0.7	
Queue Length 95th (m)	m0.5	18.8		3.9	9.5			9.0		11.4	8./	
Internal Link Dist (m)	110.0	138.2		05.0	140.0			11.1			/ð./	
Turn Bay Length (m)	110.0	0047		65.0	1000			170		000	070	
Base Capacity (vpn)	696	3917		213	4689			470		298	3/8	
Starvation Cap Reductin	0	998		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.02	0.53		0.12	0.09			0.06		0.09	0.11	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%), Referenced	d to phase 2:	EBTL and 6	WBTL, S	Start of Gre	en							
Natural Cycle: 100	1											
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.39												
Intersection Signal Delay: 4.0				In	tersection	LOS: A						
Intersection Capacity Utilizatio	on 55.6%			IC	CU Level of	Service B						
Analysis Period (min) 15												
m Volume for 95th percentile	e queue is m	etered by u	pstream s	ignal.								
				J								
Splits and Phases: 12: Carli	ing & Carling	wood SC					.					
402 (B)								34				



15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	N	##1		× 1	***	1		4		X	۴.	
Traffic Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Future Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0	1000	0.0	40.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	120.0		0.0	10.0		1	0.0		0.0	1		0.0
Taper Length (m)	75		U	75			75		U	75		0
Lane Litil Eactor	1.0	0.01	0.01	1.0	0.01	1.00	1.0	1.00	1 00	1.0	1 00	1 00
Ded Pike Factor	0.00	1.00	0.91	1.00	0.91	0.04	1.00	0.00	1.00	0.00	0.00	1.00
	0.90	1.00		1.00		0.94		0.90		0.99	0.90	
Fit Protocted	0.050			0.050		0.000		0.929		0.050	0.001	
Fil Fiolecieu	1676	1017	٥	1600	1000	1/57	٥	1610	٥	1660	1500	٥
Sato. Flow (prot)	10/0	4017	U	1629	4080	1457	U	1010	U	0.040	1508	0
Fit Permitted	0.465	4047	0	0.138	4000	4004	0	0.985	0	0.840	4500	0
Satd. Flow (perm)	837	4817	0	236	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes		07	Yes		07	Yes
Satd. Flow (RTOR)		1				95		27			27	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		170.6			185.0			157.7			163.4	
Travel Time (s)		10.2			11.1			11.4			11.8	
Confl. Peds. (#/hr)	15		12	12		15	13		12	12		13
Confl. Bikes (#/hr)			1			1			4			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1653	0	7	372	60	0	57	0	75	34	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8	Ū		7.2	Ū		1.0	Ū		3.6	Ŭ
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	l eft	Thru		l eft	Thru	Right	Left	Thru		l eft	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	
Detector 1 Type	CI+Ev	CI+Ev		CI+Ev	CI+Ev	CI+Ev	CI+Ev	CI+Ev		CI+Ev	CI+Ev	
Detector 1 Channel												
Detector 1 Extend (c)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Oucus (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delev (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		_	0.0	-	_	0.0		2	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	102.2	104.3		98.9	98.9	98.9		16.9		16.9	16.9	
Actuated g/C Ratio	0.79	0.80		0.76	0.76	0.76		0.13		0.13	0.13	
v/c Ratio	0.03	0.43		0.04	0.10	0.06		0.25		0.40	0.16	
Control Delay	1.5	1.4		12.1	7.3	1.0		29.6		55.3	19.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	1.5	1.4		12.1	7.3	1.0		29.6		55.3	19.7	
LOS	А	А		В	А	А		С		E	В	
Approach Delay		1.4			6.5			29.6			44.2	
Approach LOS		А			А			С			D	
Queue Length 50th (m)	0.2	5.7		0.3	5.9	0.0		6.6		17.1	1.5	
Queue Length 95th (m)	m0.7	7.9		3.3	21.7	2.1		15.2		25.8	8.8	
Internal Link Dist (m)		146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	703	3864		179	3560	1060		468		409	445	
Starvation Cap Reductn	0	311		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	0.03	0.47		0.04	0.10	0.06		0.12		0.18	0.08	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 0 (0%), Referenced t	to phase 2:EB1	L and 6:W	BTL, Starl	of Green								
Natural Cycle: 85												
Control Type: Actuated-Coo	rdinated											
Maximum v/c Ratio: 0.43												
Intersection Signal Delay: 5.	.2			Ir	itersection	LOS: A						
Intersection Capacity Utiliza	tion 62.4%			10	CU Level o	f Service F	3					

Analysis Period (min) 15 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	5	1	**	1		≜ 12		
Traffic Volume (vph)	23	9	669	72	25	685		
Future Volume (vph)	23	9	669	72	25	685		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98		0.95		1.00		
Frt		0.850		0.850				
Flt Protected	0.950					0.998		
Satd. Flow (prot)	1710	1530	3288	1471	0	3314		
Flt Permitted	0.950					0.919		
Satd. Flow (perm)	1693	1504	3288	1401	0	3050		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		9		72				
Link Speed (k/h)	40		50			50		
Link Distance (m)	107.1		78.4			86.5		
Travel Time (s)	9.6		5.6			6.2		
Confl. Peds. (#/hr)	8	4		18	18			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	0%	0%	4%	4%	3%	3%		
Adj. Flow (vph)	23	9	669	72	25	685		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	23	9	669	72	0	710		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			Cl+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC AM Peak Hour

	-	*	†	1	1	Ŧ			
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7		
Total Split (s)	26.0	26.0	54.0	54.0	54.0	54.0	5.0		
Total Split (%)	30.6%	30.6%	63.5%	63.5%	63.5%	63.5%	6%		
Maximum Green (s)	20.3	20.3	48.0	48.0	48.0	48.0	3.0		
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0		
All-Red Time (s)	2.4	2.4	2.7	2.7	2.7	2.7	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0		
Total Lost Time (s)	5.7	5.7	6.0	6.0		6.0			
	l an	1.0	0.0	0.0		0.0	l ead		
Lead Lag Optimize?	Lay	Lay					Leau		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Pocall Mode	Nono	Nono	C Max	C Max	C Max	C Max	J.0 Nono		
	2.0	2.0	0-IVIAX	11.0	0-IVIAX	0-IVIAX	NULLE		
Fleeb Dept Welk (c)	2.0	2.0	10.0	10.0	10.0	10.0			
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0			
Pedestrian Calls (#/nr)	4	4	74.0	74.0	9	74.0			
Act Effect Green (s)	9.0	9.0	71.2	/1.2		/1.2			
Actuated g/C Ratio	0.11	0.11	0.84	0.84		0.84			
v/c Ratio	0.13	0.05	0.24	0.06		0.28			
Control Delay	32.9	16.6	3.5	1.5		3.7			
Queue Delay	0.0	0.0	0.0	0.0		0.0			
Total Delay	32.9	16.6	3.5	1.5		3.7			
LOS	С	В	A	A		A			
Approach Delay	28.3		3.3			3.7			
Approach LOS	С		А			А			
Queue Length 50th (m)	3.3	0.0	10.5	0.0		11.6			
Queue Length 95th (m)	8.0	3.3	30.1	4.0		33.4			
Internal Link Dist (m)	83.1		54.4			62.5			
Turn Bay Length (m)									
Base Capacity (vph)	404	366	2754	1185		2555			
Starvation Cap Reductn	0	0	0	0		0			
Spillback Cap Reductn	0	0	0	0		0			
Storage Cap Reductn	0	0	0	0		0			
Reduced v/c Ratio	0.06	0.02	0.24	0.06		0.28			
Interpretion Summon									
	\thor								
Area Type.	linei								
Cycle Length: 85									
Actuated Cycle Length: 85	nhaaa QiNi	DT and G		t of Croon					
Unset: 10 (12%), Referenced to	phase 2:10	BT and 63	SBIL, Star	t of Green					
Natural Cycle: 70	. .								
Control Type: Actuated-Coordina	ated								
Maximum v/c Ratio: 0.28									
Intersection Signal Delay: 4.0	F1 00/			In	tersection	LOS: A			
Intersection Capacity Utilization	54.9%			IC	CU Level o	t Service A			
Analysis Period (min) 15									
Splits and Phases: 18: Woodr	offe E & Ca	arlingwood	ISC						
(a) (b)									
54 s									
N.							2.0	*	
🕨 🕈 🖉 Ø6 (R)							. ₹₽ ⊘7 '	🔨 Ø8	

54 s

26 s

5 s

1: Woodroffe E & Access AM Peak Hour

	٦	\mathbf{r}	1	†	Ŧ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			440	≜ 16	
Traffic Volume (vph)	0	0	0	765	810	0
Future Volume (vph)	0	0	0	765	810	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1765	0	0	4771	3320	0
Flt Permitted						
Satd. Flow (perm)	1765	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.1	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	0	765	810	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	765	810	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	Ū		0.0	0.0	Ū
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 27.0%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	WBŢ	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1940	816	6	0	2
Future Volume (vph)	0	1940	816	6	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	5891	0	0	1557
Flt Permitted						
Satd. Flow (perm)	0	4771	5891	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	85.2		179.2	
Travel Time (s)		4.7	6.1		12.9	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adj. Flow (vph)	0	1940	816	6	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1940	822	0	0	2
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		2.7	2.7	Ŭ	0.0	Ŭ
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
	10 00/			10		0

Intersection Capacity Utilization 42.9% Analysis Period (min) 15

ICU Level of Service A
10: Woodroffe E & Flower AM Peak Hour

	•	\mathbf{r}	1	†	Ŧ	-	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W.			-a†	≜t ≽		
Traffic Volume (vph)	25	78	20	633	599	12	
Future Volume (vph)	25	78	20	633	599	12	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Ped Bike Factor							
Frt	0.898				0.997		
Flt Protected	0.988			0.998			
Satd. Flow (prot)	1581	0	0	3346	3279	0	
Flt Permitted	0.988			0.998			
Satd. Flow (perm)	1581	0	0	3346	3279	0	
Link Speed (k/h)	50			50	50		
Link Distance (m)	133.7			86.5	82.4		
Travel Time (s)	9.6			6.2	5.9		
Confl. Peds. (#/hr)	8	4	7			7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%	
Adj. Flow (vph)	25	78	20	633	599	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	103	0	0	653	611	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			0.0	0.0		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	3.0			3.0	3.0		
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type:	Other						
Control Type: Unsignalized							
Intersection Capacity Utilizati	ion 48.1%			IC	U Level of	Service A	١
Analysis Period (min) 15							

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ትር _ራ			1
Traffic Volume (vph)	0	1940	822	0	0	0
Future Volume (vph)	0	1940	822	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1765
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1765
Link Speed (k/h)		50	50		50	
Link Distance (m)		85.2	43.3		49.1	
Travel Time (s)		6.1	3.1		3.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1940	822	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1940	822	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 33.0%			IC	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC AM Peak Hour

	✓	*	1	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u> ተተኑ</u>			^
Traffic Volume (vph)	0	14	753	12	0	810
Future Volume (vph)	0	14	753	12	0	810
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1526	4808	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4808	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	105.5		70.1			78.4
Travel Time (s)	7.6		5.0			5.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	14	753	12	0	810
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	14	765	0	0	810
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0	-	0.0	-		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 27.0%			IC	U Level of	Service A
Analysia Dariad (min) 15						

Analysis Period (min) 15

	-	\rightarrow	-	-	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ቆ ቆሴ		88	**	8	1
Traffic Volume (voh)	520	340	829	997	265	446
Future Volume (vph)	520	340	829	997	265	446
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lanes		1_0.0	2		0.0	0.0
Taner Length (m)			75		75	1
Lano I Itil Easter	0.01	0.01	0.07	0.05	1.0	1.00
Lane Ulli. Paciol Dod Diko Eastor	0.91	0.91	0.97	0.95	1.00	1.00
Fed Bike Factor	0.99		0.99		0.99	0.98
	0.941		0.050		0.050	0.850
Fit Protected			0.950		0.950	
Satd. Flow (prot)	4475	0	3252	3353	1693	1515
FIt Permitted			0.950		0.950	
Satd. Flow (perm)	4475	0	3218	3353	1677	1486
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	123					68
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		14	14	0.0	8	6
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	20/	2%	2%	2%	1%	1%
	Z /0	2/0	2 /0	2 /0	265	1/0
Auj. Flow (vpi) Sharod Lana Traffic (9/)	520	540	029	331	200	440
	000	0	000	007	005	140
Lane Group Flow (Vpn)	800	U	829 Ni	997	205	440
Enter Blocked Intersection	NO	NO Di lu	NO	NO	NO	NO
Lane Alignment	Lett	Right	Left	Lett	Left	Right
Median Width(m)	7.2			10.8	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Riaht
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Sizo(m)	0.0		2.0	0.0	0.0	0.0
Detector 1 Tuno						
Detector 1 Type	UI+EX		CI+EX	CI+EX	UI+EX	CI+EX
			~ ~	~ ~	~ ~	~ ~ ~
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases	L			v	J	8
Detector Phase	ŋ		1	6	Q	1
Switch Phase	۷		I	U	U	I
Switch Phase						

	-	\mathbf{r}	1	+	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0
Total Split (s)	40.0		49.0	89.0	41.0	49.0
Total Split (%)	30.8%		37.7%	68.5%	31.5%	37.7%
Maximum Green (s)	34.3		43.0	83.3	35.2	43.0
Yellow Time (s)	37		3.7	3.7	3.3	37
All-Red Time (s)	2.0		23	2.0	2.5	23
Lost Time Adjust (s)	0.0		2.5	2.0	2.0	2.0
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0
			0.0 Lead	5.7	5.0	0.0 heal
Lead Lag Optimize?	Lay		Leau			Leau
Vehicle Extension (c)	3.0		3.0	3.0	3.0	3.0
Pocall Mode	C May		Jone	C May		Nono
			None		IVIIN Z O	None
VValK Time (s)	11.0			11.0	7.0	
	15.0			15.0	26.0	
Pedestrian Calls (#/hr)	(00.0	/	6	01.0
Act Effect Green (s)	47.7		39.2	92.9	25.6	64.6
Actuated g/C Ratio	0.37		0.30	0.71	0.20	0.50
v/c Ratio	0.50		0.85	0.42	0.80	0.57
Control Delay	30.0		64.1	6.0	66.6	18.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.0		64.1	6.0	66.6	18.0
LOS	С		E	Α	E	В
Approach Delay	30.0			32.4	36.1	
Approach LOS	С			С	D	
Queue Length 50th (m)	49.3		104.5	28.3	60.1	53.9
Queue Length 95th (m)	71.7		m104.2	m39.2	81.7	60.6
Internal Link Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	1719		1083	2396	458	827
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.50		0.77	0 42	0.58	0.54
	0.50		0.11	0.72	0.00	0.0-
Intersection Summary						
Area Type:	Other					
Cycle Length: 130						
Actuated Cycle Length: 13	0					
Offset: 27 (21%), Reference	ed to phase 2:EB	T and 6:V	VBT, Start	of Green		
Natural Cycle: 95	·					
Control Type: Actuated-Co	ordinated					
Maximum v/c Ratio: 0.85						
Intersection Signal Delay:	32.6			In	tersection	1 OS: C
Intersection Capacity Utiliz	ation 78.9%			10		f Service D
Analysis Period (min) 15						
m Volume for 95th perce	ntile queue is met	tered by u	instream s	ional		
		lored by u	porodinio	ignui.		
		lina				



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	55	≜1 ⊾		X	***	1	N	≜1 ⊾		N	*	1
Traffic Volume (vph)	520	448	84	31	1293	153	75	250	41	142	178	734
Future Volume (vph)	520	448	84	31	1293	153	75	250	41	142	178	734
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	20.0		-	30.0			7.5		-	100.0		
Lane Util, Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98	0.00	0.95		0.95	0.99	0.99	0.00	0.97		0.97
Frt	0.00	0.976		0.00		0.850	0.00	0.979				0.850
Elt Protected	0.950			0.950			0.950			0.950		
Satd Flow (prot)	3252	3211	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Elt Permitted	0.950		•	0.950			0.645		· ·	0.384		
Satd Flow (perm)	3216	3211	0	1580	4771	1407	1122	3251	0	655	1765	1455
Right Turn on Red	0210	0211	Yes	1000		Yes		0201	Yes	000	1100	Yes
Satd Flow (RTOR)		18	100			143		14	100			26
Link Speed (k/h)		60			60	110		50			50	20
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		27			9.7			12.2			3.9	
Confl Peds (#/hr)	32	2.1	48	48	5.1	32	16	12.2	50	50	0.0	16
Confl Bikes (#/hr)	52			-0		2	10		50	50		10
Peak Hour Factor	1 00	1 00	1.00	1.00	1 00	1 00	1 00	1 00	1 00	1.00	1 00	1 00
	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adi Flow (vob)	2 /0 520	2 /0	2 /0	31	1203	153	2 /0 75	2.70	Z /0	1/2	2 /0 178	73/
Shared Lane Traffic (%)	520	440	04	JI	1290	100	15	200	41	142	170	734
Lane Group Flow (vph)	520	532	٥	31	1203	153	75	201	٥	1/12	178	73/
Enter Blocked Intersection	JZU No	No	No	No	No	No	No	Z91 No	No	142	1 yoh	1 voh
Lano Alignment	Loft	Loft	Dight	Loff	Loft	Dight	Loff	Loff	Dight	Loft	Loft	Dight
Modion Width(m)	Leit		Right	Leit	10.0	Кіўні	Leit	26	Right	Leit	2.0	Right
Link Offect(m)		10.0			10.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
		5.0			5.0			5.0			5.0	
Hoodway Easter	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1 07
Turning Speed (k/b)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	2	15	20	2	10	20	2	10	20	2	15
Number of Detectors	l off	Z		l off	Z	Diabt	l off	Z		l off	Z	Diaht
Looding Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Detector 1 Desition(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(iii)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	2.0
Detector 1 Size(III)												
Detector 1 Channel	CI+CX			CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+EX			CI+EX			CI+EX			CI+EX	
Detector 2 Channel		• •									0.0	
Detector 2 Extend (s)		0.0			0.0	D.	D	0.0			0.0	
	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6			8		7	4	5
Permitted Phases	_	-				6	8			4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

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5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1	11.3	40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7	21.3	47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%	16.4%	36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6	15.0	40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4	2.6	2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1	6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0		24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20		20	20	20	20			20	
Act Effct Green (s)	29.3	71.5	7.9	45.2	45.2	22.2	22.2		36.8	36.2	66.1
Actuated g/C Ratio	0.23	0.55	0.06	0.35	0.35	0.17	0.17		0.28	0.28	0.51
v/c Ratio	0.71	0.30	0.31	0.78	0.26	0.39	0.51		0.58	0.36	0.96
Control Delay	51.3	24.6	85.3	32.6	5.6	50.8	48.3		44.7	38.0	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.3	24.6	85.3	32.6	5.6	50.8	48.3		44.7	38.0	51.3
LOS	D	С	F	С	А	D	D		D	D	D
Approach Delay		37.8		30.9			48.8			48.1	
Approach LOS		D		С			D			D	
Queue Length 50th (m)	56.3	34.0	6.6	108.6	10.3	16.8	33.3		28.0	36.0	127.0
Queue Length 95th (m)	#94.3	73.7	15.4	126.7	14.1	26.9	39.8		37.3	45.9	#163.5
Internal Link Dist (m)		21.0		138.2			145.9			30.4	
Turn Bay Length (m)			35.0								
Base Capacity (vph)	731	1774	191	1660	582	311	912		245	680	762
Starvation Cap Reductn	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.71	0.30	0.16	0.78	0.26	0.24	0.32		0.58	0.26	0.96
Intersection Summary											
Area Type:	Other										
Cycle Length: 130											
Actuated Cycle Length: 130											
Offset: 0 (0%), Referenced to	phase 2:EBT	and 6:WB	T, Start of Green								
Control Type: Actuated Coord	lingtod										
Maximum v/c Ratio: 0.96	IIIIaleu										
Intersection Signal Delay: 30	n		1	ntersection							
Intersection Capacity Litilization	on 100 3%				f Service (2					
Analysis Period (min) 15	JIT 100.370					2					
# 95th percentile volume ex	coode canaci	tv. augua n	nav he longer								
Queue shown is maximum	after two cyc	les.	lay be longer.								
Splits and Dhasses E. E-	wp/Maadraff		20								
Spins and Filases. 5. Fallia		e ⊑ α ∪afili	iig		4						
♥ Ø1	Ø2 (R)				\$70	04					
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Ø5	Ø6 (F	ર)			-0	37	Ø8				

12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲. ۲	ቀ ትር ₆		1	tttts-			4		1	ĥ	
Traffic Volume (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Future Volume (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.98		1.00	0.95	
Frt		0.991			0.990			0.920			0.866	
Flt Protected	0.950			0.950				0.986		0.950		
Satd, Flow (prot)	1644	4670	0	1693	6062	0	0	1556	0	1368	1359	0
Flt Permitted	0.190			0.434				0.876		0.688		-
Satd, Flow (perm)	329	4670	0	765	6062	0	0	1368	0	988	1359	0
Right Turn on Red			Yes			Yes	-		Yes			Yes
Satd, Flow (RTOR)		14			16			57			123	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101 7			121.3	
Travel Time (s)		9.7			10.2			12.2			10.9	
Confl Peds (#/hr)	4	0.1	12	12	10.2	4	43	12.2	3	3	10.0	43
Confl Bikes (#/hr)	•		1			2	10		Ŭ	Ŭ		10
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	1.00
Adi Flow (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Shared Lane Traffic (%)	15	010	00	122	1007	00	21	12	01	100	10	120
Lane Group Flow (vph)	79	554	0	122	1147	0	0	96	0	100	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Leit	7.2	rugin	Leit	10.8	Tight	Leit	10	Tugin	Leit	3.6	rugin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
		0.0			0.0			5.0			0.0	
Headway Factor	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07
Number of Detectors	1	2	10	23	2	10	23	2	10	20	2	10
Detector Template	ا م	Thru		ا ftم ا	Thru		ا ft	Thru		اما	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Type	CI+Ev	CI+Ev		CI+Ev	CI+Ev		CI+Ev	CI+Ev		CI+Ev	CI+Ev	
Detector 1 Channel	0I+LX			OI+LX								
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Quoue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	0.0		0.0	0.0 Q.1		0.0	0.0		0.0	0.0	
Detector 2 Fosition(m)		9. 4 0.6			9. 4 0.6			9. 4 0.6			0.4 0.6	
Detector 2 Type												
Detector 2 Channel								OI+EX				
Detector 2 Channel		0.0			0.0			0.0			0.0	
	nm, nt	0.0		Dorm	0.0		Dorm	0.0		Dorm	0.0	
	pin+pt			Felli	INA C		reiiii	INA 0		reiiii	INA 4	
Protected Phases	5	2		0	0		0	ŏ		4	4	
Permitted Phases	2	0		0	^		ŏ	0		4	4	
Delector Phase	5	2		6	b		ð	ŏ		4	4	

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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Act Effct Green (s)	93.2	93.6		81.8	81.8			23.3		23.3	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63			0.18		0.18	0.18	
v/c Ratio	0.25	0.16		0.25	0.30			0.33		0.56	0.40	
Control Delay	10.7	5.3		7.5	5.8			21.0		58.0	11.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	10.7	5.3		7.5	5.8			21.0		58.0	11.8	
LOS	В	A		A	A			C		E	B	
Approach Delay		5.9			5.9			21.0			31.2	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	4.4	10.9		4.1	10.9			8.3		22.9	3.1	
Queue Length 95th (m)	m12.5	15.6		7.4	13.3			19.6		34.3	17.0	
Internal Link Dist (m)	110.0	138.2		05.0	146.6			//./			97.3	
Turn Bay Length (m)	110.0	2205		65.0	2004			474		240	F40	
Base Capacity (vph)	351	3365		481	3821			4/1		312	513	
Starvation Cap Reductin	0	0		0	0			0		0	0	
Spiliback Cap Reductin	0	0		0	0			0		0	0	
Storage Cap Reductn	0 00	0 16		0.25	0 20			0 20		0 22	0.07	
	0.23	0.16		0.25	0.30			0.20		0.32	0.27	
Intersection Summary	Othor											
Area Type. Cycle Length: 130	Other											
Actuated Cycle Length: 130												
Offset: 100 (77%) Reference	d to phase 2.	ERTL and P		tart of Gra	on							
Natural Cycle: 100	iu lo priase 2.1		J.VVDTL, C									
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 9.3	}			In	tersection	LOS: A						
Intersection Capacity Utilizati	on 85.5%			IC	CU Level of	Service E						
Analysis Period (min) 15												
m Volume for 95th percenti	le queue is m	etered by u	pstream s	ignal.								

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	×.	##1		×	***	1		4		X	۴.	
Traffic Volume (vph)	41	697	4	17	1474	107	13	20	10	117	23	60
Future Volume (vph)	41	697	4	17	1474	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0	1000	0.0	40.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	120.0		0.0	10.0		1	0.0		0.0	1		0.0
Taper Length (m)	75		U	75			75		U	75		U
Lano Litil Eactor	1.0	0.01	0.01	1.0	0.01	1.00	1.0	1 00	1 00	1.0	1 00	1 00
Ded Pike Fester	1.00	1.00	0.91	0.09	0.91	0.00	1.00	0.00	1.00	0.09	0.07	1.00
		0.00		0.90		0.90		0.90		0.90	0.97	
Fit Drotootod	0.050	0.999		0.050		0.000		0.909		0.050	0.092	
Fil Piolecied	0.950	4044	0	0.950	4005	4545	0	0.900	٥	0.950	1520	0
Sato. Flow (prot)	10/0	4011	U	1093	4000	1010	U	0.000	U	1093	1539	U
	0.127	4044	0	0.374	4005	4000	0	0.902	0	0.729	4500	0
Satd. Flow (perm)	224	4811	U	652	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red		4	Yes			Yes		40	Yes		00	Yes
Satd. Flow (RTOR)		1				107		10			60	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		170.6			185.0			157.7			163.4	
Travel Time (s)		10.2			11.1			11.4			11.8	
Confl. Peds. (#/hr)	28		19	19		28	28		17	17		28
Confl. Bikes (#/hr)			6									2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	41	697	4	17	1474	107	13	20	10	117	23	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	701	0	17	1474	107	0	43	0	117	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8	Ū		7.2	Ū		1.0	Ū		3.6	Ŭ
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	l eft	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	20	10.0		2.0	10.0	2.0	20	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	
Detector 1 Type												
Detector 1 Channel	0I+LX			OI+LX								
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		_	0.0	_	_	0.0		_	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	12.0	86.0		74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Total Split (%)	9.2%	66.2%		56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	5.0	79.8		67.8	67.8	67.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?				Ţ	Ū	Ū						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		14		14	14	14	14	14		14	14	
Act Effct Green (s)	93.4	94.2		83.5	83.5	83.5		22.3		22.3	22.3	
Actuated g/C Ratio	0.72	0.72		0.64	0.64	0.64		0.17		0.17	0.17	
v/c Ratio	0.18	0.20		0.04	0.47	0.12		0.16		0.54	0.27	
Control Delay	8.1	5.4		13.9	14.9	3.1		34.0		55.5	16.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	8.1	5.4		13.9	14.9	3.1		34.0		55.5	16.4	
LOS	А	А		В	В	А		С		E	В	
Approach Delay		5.5			14.1			34.0			39.3	
Approach LOS		А			В			С			D	
Queue Length 50th (m)	2.2	13.6		1.3	57.2	0.0		7.0		26.7	4.8	
Queue Length 95th (m)	5.7	19.3		5.7	97.6	8.1		14.6		38.7	15.8	
Internal Link Dist (m)		146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	229	3486		419	3125	913		444		360	477	
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	0.18	0.20		0.04	0.47	0.12		0.10		0.33	0.17	
Intersection Summary	0"											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 95 (73%), Referenced	to phase 2:E	BIL and 6:	WBIL, St	art of Gree	en							
Natural Cycle: 85	alia ata al											
Control Type: Actuated-Coord	dinated											
Interpretion Simpl Delay 42	0			1	torootion							
Intersection Signal Delay: 13	.9 op 70 00/			In In		LUS: B	\					
Analysis Deried (min) 45	01170.2%			IC	O Level 0	I Service C	,					
Analysis Peniod (min) 15												
Colite and Dhasas 15 Iros	waie 9 Carlin	~										



18: Woodroffe E & Carlingwood SC PM Peak Hour

	-	•	†	1	1	↓		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		_ ∆ ↑ ≜		
Traffic Volume (vph)	189	82	774	121	120	831		
Future Volume (vph)	189	82	774	121	120	831		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util Factor	1 00	1 00	0.95	1 00	0.95	0.95		
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1.00		
Frt	0.00	0.50		0.50		1.00		
Elt Protected	0 950	0.000		0.000		0 00/		
Satd Flow (prot)	1710	1530	3353	1500	0	3300		
Elt Permitted	0.950	1000	0000	1000	U	0.726		
Satd Flow (perm)	1686	1497	3353	1424	0	2409		
Right Turn on Red	1000	Yes	0000	Yes	U	2100		
Satd Flow (RTOR)		82		121				
Link Speed (k/b)	40	02	50	121		50		
Link Distance (m)	107 1		78.6			86.5		
Travel Time (s)	96		5.7			6.2		
Confl Peds (#/hr)	10	7	5.1	18	10	0.2		
Confl Bikes (#/hr)	10	,		3	10			
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00		
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%		
Adi Flow (vph)	189	82	774	121	120	831		
Shared Lane Traffic (%)	105	02	114	121	120	001		
Lane Group Flow (vph)	180	82	77/	121	0	951		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6	rugin	0.0	rugite	Lon	0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane	0.0		0.0			0.0		
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7			
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0	5.0			
Total Split (%)	27.4%	27.4%	67.4%	67.4%	67.4%	67.4%	5%			
Maximum Green (s)	20.3	20.3	58.0	58.0	58.0	58.0	3.0			
Yellow Time (s)	20.0	20.0	33	3 3	33	33	2.0			
All-Red Time (s)	2.0	2.0	2.5	2.5	2.0	2.5	2.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0			
Total Lost Time (s)	5.7	5.7	6.0	6.0		0.0 6.0				
	1.00	1.00	0.0	0.0		0.0	Lood			
Load Lag Optimizo2	Lay	Lay					Leau			
Vehicle Extension (c)	3.0	30	3.0	3.0	3.0	30	3.0			
Peopli Mede	J.U Nono	J.U Nono	C Mox	C Mox	C Mox	C Mox	J.U Nono			
	None	None					None			
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0				
	18.0	18.0	18.0	18.0	18.0	18.0				
Pedestrian Calls (#/hr)	5	5	5	5	5	5				
Act Effct Green (s)	15.8	15.8	67.5	67.5		67.5				
Actuated g/C Ratio	0.17	0.17	0.71	0.71		0.71				
v/c Ratio	0.68	0.26	0.32	0.12		0.56				
Control Delay	48.8	9.4	6.1	1.4		8.8				
Queue Delay	0.0	0.0	0.0	0.0		0.0				
Total Delay	48.8	9.4	6.1	1.4		8.8				
LOS	D	Α	А	А		А				
Approach Delay	36.9		5.5			8.8				
Approach LOS	D		А			А				
Queue Length 50th (m)	30.3	0.0	22.1	0.0		34.5				
Queue Length 95th (m)	46.9	10.4	37.1	5.0		60.2				
Internal Link Dist (m)	83.1		54.6			62.5				
Turn Bay Length (m)										
Base Capacity (vph)	365	388	2383	1046		1712				
Starvation Cap Reductn	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0		0				
Reduced v/c Ratio	0.52	0.21	0.32	0.12		0.56				
latere estima Orana est										
Intersection Summary										
Area Type: C	Other									
Cycle Length: 95										
Actuated Cycle Length: 95										
Offset: 45 (47%), Referenced to	phase 2:N	BI and 6:	SBIL, Star	t of Green						
Natural Cycle: 70										
Control Type: Actuated-Coordina	ated									
Maximum v/c Ratio: 0.68										
Intersection Signal Delay: 11.0				In	itersection	LOS: B				
Intersection Capacity Utilization	79.1%			IC	CU Level o	f Service D				
Analysis Period (min) 15										
Splits and Phases: 18: Woodroffe E & Carlingwood SC										
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ons.										
Ø6 (R)								A ₽07 √ Ø8		

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1: Woodroffe E & Access PM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			441	4 16	
Traffic Volume (vph)	0	0	0	929	1050	0
Future Volume (vph)	0	0	0	929	1050	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1765	0	0	4771	3320	0
Flt Permitted						
Satd. Flow (perm)	1765	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.0	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	0	929	1050	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	929	1050	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	•		0.0	0.0	-
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 34.0%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1035	2071	8	0	5
Future Volume (vph)	0	1035	2071	8	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6065	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	4771	6065	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	83.7		179.2	
Travel Time (s)		4.7	6.0		12.9	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1035	2071	8	0	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1035	2079	0	0	5
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	Ū	0.0	Ū
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 41.8%			IC	U Level of	Service A
Analysis Period (min) 15						

10: Woodroffe E & Flower PM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W.				A 12	
Traffic Volume (vph)	19	42	47	763	813	23
Future Volume (vph)	19	42	47	763	813	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	42	47	763	813	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	810	836	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	Ŭ		0.0	0.0	Ŭ
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 62.1%			IC	U Level of	Service B

Analysis Period (min) 15

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ቶሴ			1
Traffic Volume (vph)	0	1035	2079	0	0	0
Future Volume (vph)	0	1035	2079	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1765
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1765
Link Speed (k/h)		50	50		50	
Link Distance (m)		83.7	45.0		49.1	
Travel Time (s)		6.0	3.2		3.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1035	2079	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1035	2079	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 45.7%			IC	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u> </u>			^
Traffic Volume (vph)	0	89	823	82	0	1050
Future Volume (vph)	0	89	823	82	0	1050
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.986			
Flt Protected						
Satd. Flow (prot)	0	1526	4750	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4750	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	106.6		70.0			78.6
Travel Time (s)	7.7		5.0			5.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	89	823	82	0	1050
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	905	0	0	1050
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0	-	0.0	-		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 34.0%			IC	U Level of	Service A
Analysis Deried (min) 15						

Analysis Period (min) 15

	-	\rightarrow	1	+	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	##1 .	2011	**	**	*	1
Traffic Volume (vnh)	1338	182	546	291	244	500
Future Volume (vph)	1338	182	546	201	244	500
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	000
Storage Lanes		120.0	0.0		0.0	0.0
Tapor Longth (m)			7 5		7 5	I
	0.01	0.01	0.07	0.05	1.0	1 00
Lane Util. Factor	0.91	0.91	0.97	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	0.98
	0.982		0.0-0		0.0-0	0.850
Fit Protected			0.950		0.950	
Satd. Flow (prot)	4713	0	3190	3288	1660	1485
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4713	0	3177	3288	1639	1449
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22					8
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		13	13	0.0	11	11
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adi Flow (voh)	1228	182	5/6	201	2//	500
Shared Lane Traffic (%)	1000	102	0+0	231	244	500
Shared Lane Trailic (%)	1500	0	E A C	201	044	500
Lane Group Flow (vpn)	1520	U	540 No	291	Z44	500
Enter Blocked Intersection	INO	INO	INO	INO	INO	INO
Lane Alignment	Left	Right	Left	Lett	Left	Right
Median Width(m)	7.2			9.9	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	1		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		0.0	0.0	0.0	0.0
Detector 1 Tune						
Detector 1 Type	UI+EX		CI+EX	CI+EX	UI+EX	CI+EX
Detector 1 Channel	• •		~ ~	~ ~	~ ~	~ ~ ~
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases	2		1	U	0	R R
Detector Phase	0		1	6	0	- 0
Detector Pridse	2		I	Ø	ð	I
Switch Phase						

	-	\mathbf{F}	1	+	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0	
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0	
Total Split (s)	55.0		31.0	86.0	44.0	31.0	
Total Split (%)	42.3%		23.8%	66.2%	33.8%	23.8%	
Maximum Green (s)	49.3		25.0	80.3	38.2	25.0	
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7	
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0	
Lead/Lag	Lag		Lead			Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Recall Mode	C-Max		None	C-Max	Min	None	
Walk Time (s)	11.0			11.0	7.0		
Flash Dont Walk (s)	15.0			15.0	26.0		
Pedestrian Calls (#/hr)	7			7	6		
Act Effct Green (s)	59.9		28.0	93.9	24.6	52.4	
Actuated g/C Ratio	0.46		0.22	0.72	0.19	0.40	
v/c Ratio	0.70		0.79	0.12	0.78	0.84	
Control Delay	31.1		56.2	6.1	66.5	43.8	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	31.1		56.2	6.1	66.5	43.8	
LOS	С		Е	А	E	D	
Approach Delay	31.1			38.8	51.3		
Approach LOS	С			D	D		
Queue Length 50th (m)	102.4		66.2	8.2	55.4	93.1	
Queue Length 95th (m)	135.7		84.0	22.4	76.0	113.8	
Internal Link Dist (m)	214.7			41.5	218.1		
Turn Bay Length (m)							
Base Capacity (vph)	2184		700	2375	487	602	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.70		0.78	0.12	0.50	0.83	
Intersection Summary							
Area Type:	Other						
Cycle Length: 130	0						
Actuated Cycle Length: 130							
Offset: 112 (86%). Reference	d to phase 2:F	BT and 6	WBT. Sta	rt of Greer	1		
Natural Cycle: 95					•		
Control Type: Actuated-Coord	dinated						
Maximum v/c Ratio: 0.84	-						
Intersection Signal Delay: 38.	0			In	tersection	LOS: D	-
Intersection Capacity Utilization	on 80.8%			IC	CU Level o	f Service D)
Analysis Period (min) 15							
Splits and Phases: 3: Wood	droffe W & Car	ling					
An		32 (0)					
¥r©1 31s	55 s	02 (R)					
4	000						
Ø6 (R)							

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5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	≜1 5		Υ.	***	1	7	†1 2		7	•	1
Traffic Volume (vph)	480	1455	45	10	301	90	12	225	50	212	89	550
Future Volume (vph)	480	1455	45	10	301	90	12	225	50	212	89	550
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (m)	20.0			30.0			7.5			100.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.97	0.99	0.99		0.99		0.98
Frt		0.995				0.850		0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd, Flow (prot)	3252	3332	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Elt Permitted	0.950		-	0.950			0.699		-	0.367		
Satd Flow (perm)	3190	3332	0	1549	4467	1349	1227	3242	0	633	1748	1459
Right Turn on Red	0100	0002	Yes	1010	1101	Yes		02.12	Yes	000	1110	Yes
Satd Flow (RTOR)		3	100			191		20	100			251
Link Speed (k/h)		60			60	101		50			50	201
Link Distance (m)		/33			162.2			160 0			5/ /	
Travel Time (s)		26			9.7			12.2			30	
Confl Peds (#/br)	1/	2.0	13	13	5.1	1/	5	12.2	18	18	5.5	5
Confl Bikes (#/hr)	14		IJ	IJ		14	J		2	10		J
Pook Hour Easter	1 00	1.00	1.00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	1.00 20/	2%	2%	1.00	1.00	1.00	20/	20/	20/	30/	30/	20/
Adi Elow (vob)	Z /0	2 /0 1 / 5 5	Z /0	10 /0	201	10 /0	2 /0 10	2 /0	Z /0 50	0/0 010	0/0	5/0
Auj. Flow (vpl) Sharad Lana Traffia (%)	400	1400	40	10	301	90	12	220	50	212	09	550
Shared Lane Trailic (%)	100	1500	٥	10	201	00	10	075	٥	010	00	EE0
Eater Disclored Intersection	40U	1000	U	IU No	301	90	1Z Na	2/0	U		09	000
Enter Blocked Intersection	INO	INO	NO Dialat	INO	INO	INO Diacht	INO	INO	NO Dialat	INO	INO	IN0 Diaht
Lane Alignment	Len	Len	Right	Len	Len	Right	Len	Len	Right	Len	Len	Right
Median Width(m)		10.8			10.8			3.0			3.9	
		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
I wo way Left Turn Lane	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	0	15	25	0	15	25	0	15	25	0	15
Number of Detectors	1	Z		1	Z	D: 11	1	Z		1		1
Detector Template	Left	Inru		Left	Inru	Right	Lett	Inru		Lett	Inru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6			8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

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5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	FRI	FRT	FRR	WRI	WRT	WRR	NRI	NRT	NBR	SBI	SBT	SBR
Switch Phase		LDI	LDIX	WDL		WDI	NDL		NUN	ODL	001	ODIN
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	37.1		11.3	37.1	37.1	10.0	10.0		11.3	10.0	11.3
Total Split (s)	31.0	53.7		21.3	44.0	44.0	-10.5 /11.0	41.0		14.0	55.0	31.0
Total Split (%)	23.8%	41.3%		16.4%	33.8%	33.8%	31.5%	31.5%		10.8%	42.3%	23.8%
Maximum Green (s)	20.070	/76		15.0	37.0	37.0	3/1 1	3/1 1		77	/18 1	20.070
Vellow Time (s)	27.7	37		3.7	37.5	37.5	33	33		2.2	0.1 3 3	27.7
All-Red Time (s)	2.6	2.1		2.6	2.1	2.4	3.6	3.6		3.0	3.5	2.6
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)	6.3	6.0		6.3	6.0	6.0	6.9	6.9		6.3	6.9	6.3
	l ead	l an		l ead	l an	l an	l an	l an		Lead	0.5	l ead
Lead-Lag Ontimize?	Louu	Lug		Louu	Lug	Lug	Lug	Lug		Louu		Loud
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)	None	7.0		None	7.0	7.0	23.0	23.0		None	23.0	None
Flash Dont Walk (s)		24.0			24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		21.0			7	7	9	9			9	
Act Effet Green (s)	23.9	81 7		6.5	54.4	54.4	18.4	18.4		33.0	32.4	56.9
Actuated g/C Ratio	0.18	0.63		0.05	0 42	0 42	0 14	0 14		0.25	0.25	0 44
v/c Ratio	0.10	0.00		0.00	0.42	0.42	0.14	0.58		0.20	0.20	0.70
Control Delay	72.6	13.7		76.2	19.0	0.10	44.2	52.0		94.7	37.6	17.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	72.6	13.7		76.2	19.0	0.0	44.2	52.0		94.7	37.6	17.0
	72.0 F	B		F	B	Δ	D	0 <u>2.</u> 0		51.7 F	07.0 D	B
Approach Delay	-	28.0		-	16.4	7	D	51.6		•	38.5	
Approach LOS		C			В			D			D	
Queue Length 50th (m)	59.2	50.5		2.5	12.2	0.0	2.6	30.7		~45.4	17.2	52.9
Queue Length 95th (m)	m76.7	#240.0		8.2	11.0	0.2	6.9	37.0		#56.4	25.0	62.4
Internal Link Dist (m)		19.3		•	138.2	•		145.9			30.4	
Turn Bay Length (m)				35.0								
Base Capacity (vph)	638	2096		179	1868	675	321	865		221	646	799
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.75	0.72		0.06	0.16	0.13	0.04	0.32		0.96	0.14	0.69
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%) Referenced	to phase 2.	FBT and 6 [.]	WBT Sta	t of Greer	ı							
Natural Cycle: 125			1101, 014		•							
Control Type: Actuated-Coordi	inated											
Maximum v/c Ratio: 0.96												
Intersection Signal Delay: 31.1				In	tersection	LOS: C						
Intersection Capacity Utilizatio	n 99.4%			IC	CU Level o	f Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity,	queue is the	eoretically in	nfinite.									
Queue shown is maximum after two cycles.												
# 95th percentile volume exc	ceeds capaci	ty, queue n	nay be lon	ger.								
Queue shown is maximum	after two cvo	cles.	,	U ·								
m Volume for 95th percentile	e queue is m	etered by u	pstream s	ignal.								
Splits and Phases: 5: Fairlay	wn/Woodroff	e E & Carli	ng									

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<u> </u>	ተተ ኈ		<u> </u>	tttta-			4		<u>۲</u>	ĥ	
Traffic Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Future Volume (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0		-	7.5		-	7.5		-	7.5		
Lane Util, Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99		0.99	0.98	
Frt		0.998			0.996			0.930		0.00	0.861	
Elt Protected	0.950			0.950				0.987		0.950		
Satd, Flow (prot)	1676	4806	0	1676	6043	0	0	1573	0	1221	1112	0
Elt Permitted	0 442		· ·	0 156		•	•	0.917	•	0 740		Ū
Satd Flow (perm)	778	4806	0	275	6043	0	0	1459	0	945	1112	0
Right Turn on Red		1000	Yes	210	0010	Yes	Ŭ	1100	Yes	0.10		Yes
Satd Flow (RTOR)		2	100		6	100		14	100		39	100
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101 7			102.7	
Travel Time (s)		0.7			10.0			12.2			0.2	
Confl Peds (#/br)	Λ	J.1	5	5	10.2	Λ	5	12.2	7	7	J.Z	5
Pook Hour Footor	1 00	1.00	1 00	1 00	1.00	1 00	1 00	1.00	1 00	1 00	1.00	1 00
	1.00	1.00	20/	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adi Flow (upb)	2 % 10	270 1520	2 % 10	2%	Z 70	270 12	4 70	4 %	4 70	40%	0%	40%
Auj. Flow (vpl)	IZ	1520	10	20	432	13	Ι	0	14	20	3	39
Shared Lane Traffic (%)	10	1520	0	26	115	٥	0	07	0	26	10	0
Eater Disclored Interestion	IZ Na	1000	U	20	445	U	U	ZI	U	20	42	U
Enter Blocked Intersection	INO	INO	NO Dialat	INO	INO	INO Dialat	INO	INO	NO Dialat	INO	INO	INO Dialat
Lane Alignment	Lett	Len	Right	Leπ	Lett	Right	Left	Left	Right	Lett	Lett	Right
Median Width(m)		9.9			10.8			1.0			3.0	
		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
Two way Leπ Turn Lane	4.07	4.07	4 07	4 07	4.07	4 07	4 07	4.07	4 07	4 07	4 07	4 07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/n)	25	•	15	25	•	15	25	•	15	25	•	15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Inru		Left	Inru		Left	Inru		Left	Inru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												

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12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0		65.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%		50.0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.4	75.8		58.8	58.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	37	37		37	37		3.3	3.3		3.3	3.3	
All-Red Time (s)	29	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead	0.2		Lan	Lag			0.5		0.5	0.5	
Lead-Lag Optimize?	Loud			Lug	Lug							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
	NOTE	0-1VIAX		0-iviax 7 0	7.0		24.0	24.0		24.0	24.0	
Floch Dopt Walk (c)		7.0		7.0	20.0		24.0 12.0	24.0 12.0		24.0 12.0	24.0 12.0	
Padastrian Calls (#/hr)		20.0		20.0	20.0		13.0	13.0		13.0	13.0	
A st Effet Orean (a)	104.2	3 405 0		ۍ ۱۹۹۵ ک	ۍ ۱۹۹۹ ک		4	4		4	4	
Act Effect Green (S)	104.3	105.9		100.8	100.8			15.0		15.0	15.0	
Actuated g/C Ratio	0.80	0.81		0.78	0.78			0.12		0.12	0.12	
V/c Ratio	0.02	0.39		0.12	0.09			0.14		0.23	0.25	
Control Delay	2.8	2.1		8.5	4.6			28.7		52.3	17.6	
Queue Delay	0.0	0.1		0.0	0.0			0.0		0.0	0.0	
I otal Delay	2.8	2.3		8.5	4.6			28.7		52.3	17.6	
LOS	A	A		A	A			C		D	В	
Approach Delay		2.3			4.8			28.7			30.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.3	14.3		1.0	4.5			2.9		5.9	0.7	
Queue Length 95th (m)	m0.5	m19.4		3.9	9.5			9.0		11.4	8.7	
Internal Link Dist (m)		138.2			146.6			77.7			78.7	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	696	3917		213	4689			470		298	378	
Starvation Cap Reductn	0	1005		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.02	0.53		0.12	0.09			0.06		0.09	0.11	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 128 (98%), Referenced	d to phase 2:	EBTL and 6	S:WBTL, S	Start of Gre	en							
Natural Cycle: 100	1											
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.39												
Intersection Signal Delay: 4.1				In	tersection	LOS: A						
Intersection Capacity Utilization	n 55.6%			10	CU Level of	Service B						
Analysis Period (min) 15												
m Volume for 95th percentile	e queue is m	etered by u	pstream s	signal.								
	1			J								
Splits and Phases: 12: Carli	ing & Carling	wood SC					.					
402 (P)							1 🎝	74				



15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	N	##1		× 1	***	1		4		X	۴.	
Traffic Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Future Volume (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0	1000	0.0	40.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	120.0		0.0	10.0		1	0.0		0.0	1		0.0
Taper Length (m)	75		U	75			75		U	75		0
Lane Litil Eactor	1.0	0.01	0.01	1.0	0.01	1.00	1.0	1.00	1 00	1.0	1 00	1 00
Ded Pike Factor	0.00	1.00	0.91	1.00	0.91	0.04	1.00	0.00	1.00	0.00	0.00	1.00
	0.90	1.00		1.00		0.94		0.90		0.99	0.90	
Fit Protocted	0.050			0.050		0.000		0.929		0.050	0.001	
Fil Fiolecieu	1676	1017	٥	1600	1000	1/57	٥	1610	٥	1660	1500	٥
Sato. Flow (prot)	10/0	4017	U	1629	4080	1457	U	1010	U	0.040	1508	0
Fit Permitted	0.465	4047	0	0.138	4000	4004	0	0.985	0	0.840	4500	0
Satd. Flow (perm)	837	4817	0	236	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes		07	Yes		07	Yes
Satd. Flow (RTOR)		1				95		27			27	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		170.6			185.0			157.7			163.4	
Travel Time (s)		10.2			11.1			11.4			11.8	
Confl. Peds. (#/hr)	15		12	12		15	13		12	12		13
Confl. Bikes (#/hr)			1			1			4			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	19	1648	5	7	372	60	3	24	30	75	7	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1653	0	7	372	60	0	57	0	75	34	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8	Ū		7.2	Ū		1.0	Ū		3.6	Ŭ
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	l eft	Thru		l eft	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	
Detector 1 Type	CI+Ev	CI+Ev		CI+Ev	CI+Ev	CI+Ev	CI+Ev	CI+Ev		CI+Ev	CI+Ev	
Detector 1 Channel												
Detector 1 Extend (c)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Oucus (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delev (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		_	0.0	-	_	0.0		2	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	102.2	104.3		98.9	98.9	98.9		16.9		16.9	16.9	
Actuated g/C Ratio	0.79	0.80		0.76	0.76	0.76		0.13		0.13	0.13	
v/c Ratio	0.03	0.43		0.04	0.10	0.06		0.25		0.40	0.16	
Control Delay	1.5	1.4		12.1	7.3	1.0		29.6		55.3	19.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
l otal Delay	1.5	1.4		12.1	7.3	1.0		29.6		55.3	19.7	
LUS	A	A		В	A	A		00.0		E	B 44.0	
Approach Delay		1.4			0.5			29.6			44.2	
Approach LUS	0.0	A		0.2	A	0.0				47.4	U 1 5	
Queue Length 50th (m)	0.2	5.7		0.3	01.7	0.0		0.0		17.1	C.I	
Queue Length 95th (m)	mu. <i>1</i>	0.0		3.3	Z1.7	Z. I		10.2		25.8	0.0	
Internal LINK DISt (m)	105.0	140.0		40.0	101.0			133.7			139.4	
Page Canacity (uph)	702	2064		40.0	2560	1060		169		400	115	
Stanuation Con Boducto	703	211		1/9	3300	1000		400		409	445	
Starvation Cap Reductin	0	0		0	0	0		0		0	0	
Storage Can Reductin	0	0		0	0	0		0		0	0	
Reduced v/c Ratio	0 03	0.47		0.04	0 10	0 06		0 12		0 18	0 08	
	0.00	0.47		0.04	0.10	0.00		0.12		0.10	0.00	
	Othor											
Area Type. Cyclo Longth: 130	Other											
Actuated Cycle Length: 130												
Offect: 0 (0%) Referenced to	nhaco 2.EDT	l and 6·W	DTI Ctort	of Groop								
Natural Cyclo: 85	phase Z.EDI	L anu 0.W	DTL, Start	OI GIEEII								
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.13												
Intersection Signal Delay: 5.2				In	tersection							
Intersection Canacity Litilization	on 62.4%					f Service R						
Analysis Period (min) 15	011 UL. T /U						,					

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

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

	-	•	†	1	×	↓ I		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	5	1	**	1		≜1 ⊾		
Traffic Volume (vph)	23	9	703	72	25	720		
Future Volume (vph)	23	9	703	72	25	720		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util, Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1.00		
Ert	0.00	0.850		0.850		1.00		
Elt Protected	0 950	0.000		0.000		0 998		
Satd Flow (prot)	1710	1530	3288	1471	0	3314		
Elt Permitted	0.950	1000	0200		Ű	0.919		
Satd, Flow (perm)	1693	1504	3288	1401	0	3050		
Right Turn on Red		Yes	0200	Yes	Ū			
Satd Flow (RTOR)		9		72				
Link Speed (k/h)	40	Ű	50			50		
Link Distance (m)	107.1		78.4			86.5		
Travel Time (s)	9.6		5.6			6.2		
Confl Peds (#/br)	8	4	0.0	18	18	0.2		
Confl Bikes (#/hr)	Ŭ			3	10			
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1.00		
Heavy Vehicles (%)	0%	0%	4%	4%	3%	3%		
Adi Flow (vph)	23	9	703	72	25	720		
Shared Lane Traffic (%)	20	0	100	12	20	120		
Lane Group Flow (vph)	23	9	703	72	0	745		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane	0.0		0.0			0.0		
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC AM Peak Hour

	1	*	†	1	1	Ŧ					
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7				
Total Split (s)	26.0	26.0	54.0	54.0	54.0	54.0	5.0				
Total Split (%)	30.6%	30.6%	63.5%	63.5%	63.5%	63.5%	6%				
Maximum Green (s)	20.3	20.3	48.0	48.0	48.0	48.0	3.0				
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0				
All-Red Time (s)	2.4	2.4	2.7	2.7	2.7	2.7	0.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0				
Total Lost Time (s)	5.7	5.7	6.0	6.0		0.0 6.0					
	5.7 Log	1.00	0.0	0.0		0.0	Lood				
Lead Log Optimize?	Lay	Lay					Leau				
Vehicle Extension (a)	20	20	20	20	20	2.0	2.0				
	J.U Nore	J.U	0.U	3.U	S.U	3.0 C May	J.U				
	None	None	C-IVIAX			C-Max	None				
Waik Time (s)	2.0	2.0	11.0	11.0	11.0	11.0					
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0					
Pedestrian Calls (#/hr)	4	4	9	9	9	9					
Act Effet Green (s)	9.0	9.0	/1.2	/1.2		/1.2					
Actuated g/C Ratio	0.11	0.11	0.84	0.84		0.84					
v/c Ratio	0.13	0.05	0.26	0.06		0.29					
Control Delay	32.9	16.6	3.5	1.5		3.7					
Queue Delay	0.0	0.0	0.0	0.0		0.0					
Total Delay	32.9	16.6	3.5	1.5		3.7					
LOS	С	В	А	А		А					
Approach Delay	28.3		3.3			3.7					
Approach LOS	С		А			А					
Queue Length 50th (m)	3.3	0.0	11.2	0.0		12.4					
Queue Length 95th (m)	8.0	3.3	32.0	4.0		35.3					
Internal Link Dist (m)	83.1		54.4			62.5					
Turn Bay Length (m)											
Base Capacity (vph)	404	366	2754	1185		2555					
Starvation Cap Reductn	0	0	0	0		0					
Spillback Cap Reductn	0	0	0	0		0					
Storage Cap Reductn	0	0	0	0		0					
Reduced v/c Ratio	0.06	0.02	0.26	0.06		0.29					
	0.00	0.02	0.20	0.00		0.20					
Intersection Summary											
Area Type:	Other										
Cycle Length: 85											
Actuated Cycle Length: 85											
Offset: 10 (12%), Referenced to	o phase 2:N	BT and 6:	SBTL, Star	t of Green							
Natural Cycle: 70											
Control Type: Actuated-Coordin	nated										
Maximum v/c Ratio: 0.29											
Intersection Signal Delay: 4.0				In	itersection	LOS: A					
Intersection Capacity Utilization	n 55.9%			IC	CU Level o	f Service B					
Analysis Period (min) 15											
Splits and Phases: 18: Wood	Iroffe E & Ca	arlingwood	SC								
Ø2 (R)											
54 s											
No. 10							14	2			
▼ "Ø6 (R)							T Ø	🔻 Ø8			

54 s

26 s

5 s

1: Woodroffe E & Access AM Peak Hour

	٦	\mathbf{r}	1	1	Ŧ	-
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			441	41 6	
Traffic Volume (vph)	0	0	0	804	851	0
Future Volume (vph)	0	0	0	804	851	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1765	0	0	4771	3320	0
Flt Permitted						
Satd. Flow (perm)	1765	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.1	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	0	0	804	851	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	804	851	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	Ū		0.0	0.0	Ū
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 28.2%			IC	U Level of	Service A
Analysis Period (min) 15						

	٦	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1940	816	6	0	2
Future Volume (vph)	0	1940	816	6	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	5891	0	0	1557
Flt Permitted						
Satd. Flow (perm)	0	4771	5891	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	85.2		179.2	
Travel Time (s)		4.7	6.1		12.9	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adj. Flow (vph)	0	1940	816	6	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1940	822	0	0	2
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		2.7	2.7	Ŭ	0.0	Ŭ
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
	10 00/			10		0

Intersection Capacity Utilization 42.9% Analysis Period (min) 15

ICU Level of Service A

10: Woodroffe E & Flower AM Peak Hour

	∕	\rightarrow	1	1	Ŧ	-
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			-at≜	4 16	
Traffic Volume (vph)	25	78	20	665	630	12
Future Volume (vph)	25	78	20	665	630	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.898				0.997	
Flt Protected	0.988			0.999		
Satd. Flow (prot)	1581	0	0	3350	3279	0
Flt Permitted	0.988			0.999		
Satd. Flow (perm)	1581	0	0	3350	3279	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8	4	7			7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%
Adj. Flow (vph)	25	78	20	665	630	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	685	642	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 49.0%			IC	U Level of	Service A
Analysis Period (min) 15						

	≯	-	-	*	1	-
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ትር _ራ			1
Traffic Volume (vph)	0	1940	822	0	0	0
Future Volume (vph)	0	1940	822	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1765
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1765
Link Speed (k/h)		50	50		50	
Link Distance (m)		85.2	43.3		49.1	
Travel Time (s)		6.1	3.1		3.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1940	822	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1940	822	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 33.0%			IC	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u>ተተኑ</u>			^
Traffic Volume (vph)	0	14	792	12	0	851
Future Volume (vph)	0	14	792	12	0	851
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1526	4808	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4808	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	105.5		70.1			78.4
Travel Time (s)	7.6		5.0			5.6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	14	792	12	0	851
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	14	804	0	0	851
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 28.2%			IC	U Level of	Service A
Analysis Deried (min) 15						

Analysis Period (min) 15

	-	\rightarrow	-	-	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	##1		88	**	*	1
Traffic Volume (vph)	520	340	869	997	279	467
Future Volume (vph)	520	340	869	997	279	467
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lanes		1_0.0	2		0.0	0.0
Taper Length (m)		1	75		75	
Lano I Itil Easter	0.01	0.01	0.07	0.05	1.0	1.00
Lane Ulli. Faciul Dod Piko Foster	0.91	0.91	0.97	0.95	1.00	1.00
	0.99		0.99		0.99	0.90
Fil Fil Droto ato d	0.941		0.050		0.050	0.850
FIL PROTECTED	A 475	•	0.950	0050	0.950	4545
Sato. Flow (prot)	4475	0	3252	3353	1693	1515
Fit Permitted			0.950		0.950	
Satd. Flow (perm)	4475	0	3218	3353	1677	1486
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	123					68
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		14	14		8	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%
Adi, Flow (vph)	520	340	869	997	279	467
Shared Lane Traffic (%)	020	010	000	001	215	107
Lane Group Flow (vph)	860	Ω	860	007	270	/67
Enter Blocked Intersection	No	No	No	No	ZI J	+07
Liner Diockeu Milersection	INU Loft	Diaht	10	INU Lot	100	Diabł
	Leit	Right	Leit	10.0	Leit	Right
ivieuran width(m)	1.2			10.8	3.0	
	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	CI+Fx		CI+Ex	CI+Ex	CI+Ex	CI+Fx
Detector 1 Channel	01-27		OI LA		OI' EX	OI LA
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Oucus (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delev (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (S)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Detector Phase	2		1	6	8	1
Switch Phase				-	5	

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	-	\mathbf{F}	-	+	1	1			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR			
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0			
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0			
Total Split (s)	40.0		49.0	89.0	41.0	49.0			
Total Split (%)	30.8%		37.7%	68.5%	31.5%	37.7%			
Maximum Green (s)	34.3		43.0	83.3	35.2	43.0			
Yellow Time (s)	37		37	3.7	3.3	3.7			
All-Red Time (s)	2.0		23	2.0	2.5	23			
Lost Time Adjust (s)	0.0		2.0	2.0	2.0	0.0			
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0			
	n.c nel		0.0 heal	5.1	5.0	0.0 heal			
Lead-Lag Ontimize?	Lay		Leau			Leau			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	30			
	5.0 C May		Jone	C May		Jone			
			ivone		IVIIN	None			
VValK Time (S)	11.0			11.0	7.0				
Flash Dont Walk (S)	15.0			15.0	26.0				
Pedestrian Calls (#/hr)	((6	<u> </u>			
Act Effect Green (s)	45.9		40.0	91.9	26.6	66.4			
Actuated g/C Ratio	0.35		0.31	0.71	0.20	0.51			
v/c Ratio	0.52		0.87	0.42	0.81	0.58			
Control Delay	31.2		63.2	6.4	66.5	17.6			
Queue Delay	0.0		0.0	0.0	0.0	0.0			
Total Delay	31.2		63.2	6.4	66.5	17.6			
LOS	С		E	А	E	В			
Approach Delay	31.2			32.8	35.9				
Approach LOS	С			С	D				
Queue Length 50th (m)	50.8		109.8	29.0	63.2	55.4			
Queue Length 95th (m)	71.7		m110.9	m40.3	85.5	65.0			
Internal Link Dist (m)	214.7			41.5	218.1				
Turn Bay Length (m)									
Base Capacity (vph)	1658		1084	2370	458	838			
Starvation Can Reductn	0		0	0	0	0			
Snillback Can Reductn	0		0	0	0	0			
Storage Can Reducto	0		0	0	0	0			
Peduced v/c Patio	0.52		0.80	0.42	0.61	0.56			
	0.52		0.00	0.42	0.01	0.50			
Intersection Summary									
Area Type:	Other								
Cycle Length: 130									
Actuated Cycle Length: 130)								
Offset: 27 (21%), Reference	ed to phase 2:EB	T and 6:V	VBT, Start	of Green					
Natural Cycle: 95									
Control Type: Actuated-Coc	ordinated								
Maximum v/c Ratio: 0.87									
Intersection Signal Delay: 3	3.1			In	tersection	LOS: C			
Intersection Capacity Utiliza	ation 80.8%			IC	CU Level o	f Service D			
Analysis Period (min) 15									
m Volume for 95th percentile queue is metered by upstream signal.									
		.,		<u> </u>					
Splits and Phases: 3: Wo	odroffe W & Car	ling							



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	55	A 12		×	***	1	X	A1		X	*	1
Traffic Volume (vph)	544	448	84	31	1293	153	79	262	43	149	187	766
Future Volume (vph)	544	448	84	31	1293	153	79	262	43	149	187	766
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	1000	0.0	35.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	2		0.0	1		1	1		0.0	1		1
Taper Length (m)	20.0		Ŭ	30.0		•	7.5		v	100.0		•
Lane Litil Factor	0.97	0.95	0.95	1 00	0 91	1 00	1.00	0 95	0 95	1 00	1 00	1 00
Ped Bike Factor	0.07	0.00	0.55	0.05	0.51	0.05	0.00	0.00	0.55	0.07	1.00	0.07
Frt	0.55	0.30		0.55		0.55	0.55	0.55		0.51		0.57
Elt Protected	0 050	0.570		0.050		0.000	0.050	0.575		0 050		0.000
Satd Elow (prot)	3050	3011	٥	1660	1771	1/95	1676	3051	٥	1676	1765	1500
Elt Dermitted	0.050	JZTT	0	0.050	4//1	1405	0.640	5251	U	0 271	1705	1300
Fit Fermilled	0.900	2011	٥	1500	1771	1407	0.040	2051	٥	0.371	1765	1155
Salu. Flow (perifi)	3210	3211	Vaa	1000	4//1	1407 Vee	1113	3231	Vaa	000	1/00	1400
		10	res			140		1.4	res			res
Sato. Flow (RTOR)		10			00	143		14			50	20
		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
I ravel I ime (s)	00	2.7	10	10	9.7	00	10	12.2	-0	-0	3.9	10
Confl. Peds. (#/hr)	32		48	48		32	16		50	50		16
Confl. Bikes (#/hr)			1			2						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	544	448	84	31	1293	153	79	262	43	149	187	766
Shared Lane Traffic (%)												
Lane Group Flow (vph)	544	532	0	31	1293	153	79	305	0	149	187	766
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	1 veh	1 veh	1 veh
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			10.8			3.6			3.9	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	94		0.0	9.0	0.0	0.0	9.0		0.0	9.0	0.0
Detector 2 Size(m)		0.1			0.1			0.1			0.1	
Detector 2 Type		CI+Ev			CI+Ev			CI+Ev			CI+Ev	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	Drot			Prot		Perm	Perm			nm⊥nt		nm±ov
Protected Phases	FIUL				NA C		I' CIIII	NA 0		pini+pi	NA A	pili+0V
Protected Phases	5	2			0	C	0	0			4	
Permilled Phases	F	0		4	6	0	Õ	0		4	4	4
Detector Phase	5	2		1	6	6	8	ð		1	4	5

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5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR WE	BL WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase											
Minimum Initial (s)	5.0	10.0	5	.0 10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1	11	.3 40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7	21	.3 47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%	16.4	% 36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6	15	.0 40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7	3	.7 3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4	2	.6 2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1	6	.3 6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag	Lea	ad Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?		Ŭ		Ū	Ū	Ū	Ţ				
Vehicle Extension (s)	3.0	3.0	3	.0 3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	Nor	ne C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0		24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20		20	20	20	20			20	
Act Effct Green (s)	31.7	71.2	7	.9 42.5	42.5	22.5	22.5		37.1	36.5	68.8
Actuated g/C Ratio	0.24	0.55	0.0	0.33	0.33	0.17	0.17		0.29	0.28	0.53
v/c Ratio	0.69	0.30	0.3	0.83	0.28	0.41	0.53		0.62	0.38	0.97
Control Delay	49.4	25.6	85	.4 36.1	5.9	51.4	48.6		46.5	38.1	50.5
Queue Delay	0.0	0.0	0	.0 0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.4	25.6	85	.4 36.1	5.9	51.4	48.6		46.5	38.1	50.5
LOS	D	С		F D	А	D	D		D	D	D
Approach Delay		37.6		34.0			49.2			47.9	
Approach LOS		D		С			D			D	
Queue Length 50th (m)	60.0	37.4	6	.6 108.6	10.3	17.7	35.0		29.3	37.8	138.6
Queue Length 95th (m)	#101.2	73.3	15	.4 126.7	14.1	28.0	41.6		39.1	48.2	#179.9
Internal Link Dist (m)		21.0		138.2			145.9			30.4	
Turn Bay Length (m)			35	.0							
Base Capacity (vph)	792	1767	19	1561	556	309	912		242	680	792
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	0.69	0.30	0.1	6 0.83	0.28	0.26	0.33		0.62	0.28	0.97
Intersection Summary											
Area Type:	Other										
Cycle Length: 130											
Actuated Cycle Length: 130 Offset: 0 (0%), Referenced to	phase 2:EBT	and 6:WB	T, Start of Green								
Natural Cycle: 115	P 1 1										
Control Type: Actuated-Coord	dinated										
Iviaximum V/c Ratio: 0.97	0			latana atta							
Intersection Signal Delay: 40.	.2				1 LUS: D	$\hat{}$					
Intersection Capacity Utilizati	on 102.4%			ICU Level	of Service	G					
Analysis Period (min) 15		h									
Queue shown is maximum	n after two cyc	ty, queue n cles.	hay be longer.								
Splits and Phases: 5: Fairla	awn/Woodroff	e E & Carli	na								
1	(P)		×		4	04					
21.3 s 51.	7 s				57 s						
\$ 05		R)				07					
	47 -	~			14 -		40 -				

12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲. ۲	ቀ ትር ₆		1	tttts-			4		1	ĥ	
Traffic Volume (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Future Volume (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.98		1.00	0.95	
Frt		0.991			0.990			0.920			0.866	
Flt Protected	0.950			0.950				0.986		0.950		
Satd, Flow (prot)	1644	4670	0	1693	6062	0	0	1556	0	1368	1359	0
Flt Permitted	0.190			0.434				0.876		0.688		-
Satd, Flow (perm)	329	4670	0	765	6062	0	0	1368	0	988	1359	0
Right Turn on Red			Yes			Yes	-		Yes			Yes
Satd, Flow (RTOR)		14			16			57			123	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101 7			121.3	
Travel Time (s)		9.7			10.2			12.2			10.9	
Confl Peds (#/hr)	4	0.1	12	12	10.2	4	43	12.2	3	3	10.0	43
Confl Bikes (#/hr)	•		1			2	10		Ŭ	Ŭ		10
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	1.00
Adi Flow (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Shared Lane Traffic (%)	15	010	00	122	1007	00	21	12	01	100	10	120
Lane Group Flow (vph)	79	554	0	122	1147	0	0	96	0	100	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Leit	7.2	rugin	Leit	10.8	Tight	Leit	10	Tugin	Leit	3.6	rugin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
		0.0			0.0			5.0			0.0	
Headway Eactor	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07
Number of Detectors	1	2	10	23	2	10	23	2	10	20	2	10
Detector Template	ا م	Thru		ا ftم ا	Thru		ا ft	Thru		اما	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		2.0	0.0		2.0	0.0		2.0	0.0	
Detector 1 Type	CI+Ev	CI+Ev		CI+Ev	CI+Ev		CI+Ev	CI+Ev		CI+Ev	CI+Ev	
Detector 1 Channel	0I+LX			OI+LX								
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Quoue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	0.0		0.0	0.0 Q.1		0.0	0.0		0.0	0.0	
Detector 2 Fosition(m)		9. 4 0.6			9. 4 0.6			9. 4 0.6			0.4 0.6	
Detector 2 Type												
Detector 2 Channel								OI+EX				
Detector 2 Channel		0.0			0.0			0.0			0.0	
	nm, nt	0.0		Dorm	0.0		Dorm	0.0		Dorm	0.0	
	pin+pt			Felli	INA C		reiiii	INA 0		reiiii	INA 4	
Protected Phases	5	2		0	0		0	ŏ		4	4	
Permitted Phases	2	0		0	^		ŏ	0		4	4	
Delector Phase	5	2		6	b		ð	ŏ		4	4	

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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Act Effct Green (s)	93.2	93.6		81.8	81.8			23.3		23.3	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63			0.18		0.18	0.18	
v/c Ratio	0.25	0.16		0.25	0.30			0.33		0.56	0.40	
Control Delay	10.0	4.9		7.5	5.8			21.0		58.0	11.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	10.0	4.9		7.5	5.8			21.0		58.0	11.8	
LOS	А	А		А	А			С		E	В	
Approach Delay		5.5			5.9			21.0			31.2	
Approach LOS		А			А			С			С	
Queue Length 50th (m)	3.7	9.1		4.1	10.9			8.3		22.9	3.1	
Queue Length 95th (m)	m11.6	15.3		7.4	13.3			19.6		34.3	17.0	
Internal Link Dist (m)		138.2			146.6			77.7			97.3	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	351	3365		481	3821			471		312	513	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.23	0.16		0.25	0.30			0.20		0.32	0.27	
Intersection Summary	.											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 100 (77%), Reference	d to phase 2:	EBIL and 6	5:WBTL, S	start of Gre	en							
Natural Cycle: 100												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 9.1	05 501			In	tersection	LUS: A						
Intersection Capacity Utilization	DN 85.5%			IC	U Level of	Service E						
m Volume for 95th percentil	e queue is m	etered by u	pstream s	ignal.								

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	X	##1		×	***	1		4		X	۴.	
Traffic Volume (vph)	41	697	4	17	1474	107	13	20	10	117	23	60
Future Volume (vph)	41	697	4	17	1474	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0	1000	0.0	40.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0.0	10.0		1	0.0		0.0	1		0.0
Taper Length (m)	7.5		Ŭ	7.5		•	75		v	7.5		U
Lane Util Factor	1.00	0 91	0 91	1.00	0.91	1 00	1.00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	0.98	0.01	0.90	1.00	0.98	1.00	0.98	0.97	1.00
Frt		0 999		0.00		0.850		0.969		0.00	0.892	
Elt Protected	0 950	0.000		0.950		0.000		0.000		0.950	0.002	
Satd Flow (prot)	1676	/1811	٥	1603	1865	1515	٥	1706	0	1603	1530	0
Elt Permitted	0 127	1011	U	0.37/	7000	1010	U	0 002	U	0 720	1000	U
Satd Flow (perm)	22/	/811	٥	652	1865	1362	٥	15/0	٥	1276	1530	٥
Pight Turn on Red	224	4011	Vec	052	4000	Voc	U	1049	Voc	1270	1000	Vos
Satd Flow (PTOP)		1	163			107		10	163		60	163
Link Speed (k/b)		60			60	107		50			50	
Link Dietence (m)		170.6			195.0			157.7			162.4	
		1/0.0			0.001			1.101			103.4	
Carf Dada (#/br)	00	10.2	10	10	11.1	00	00	11.4	17	17	11.0	00
Confil. Peas. (#/nr)	28		19	19		28	28		17	17		28
Confl. Bikes (#/hr)	4 00	4.00	6	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	41	69 <i>1</i>	4	1/	14/4	107	13	20	10	11/	23	60
Shared Lane Traffic (%)												-
Lane Group Flow (vph)	41	701	0	17	1474	107	0	43	0	117	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			7.2			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			8		-	4	
Permitted Phases	2			6		6	8	-		4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Lane Group EBL EBT EB Switch Phase	• •	+	•	•	1	1	1	ţ	~
Switch Phase Minimum Initial (s) 5.0 10.0 Minimum Split (s) 12.0 28.2 Total Split (s) 12.0 86.0 Total Split (%) 9.2% 66.2% Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max C-Max	BR WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s) 5.0 10.0 Minimum Split (s) 12.0 28.2 Total Split (s) 12.0 86.0 Total Split (%) 9.2% 66.2% Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max C-Max									
Minimum Split (s) 12.0 28.2 Total Split (s) 12.0 86.0 Total Split (%) 9.2% 66.2% Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max C-Max	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Total Split (s) 12.0 86.0 Total Split (%) 9.2% 66.2% Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 Recall Mode None C-Max	28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (%) 9.2% 66.2% Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 Recall Mode None C-Max	74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Maximum Green (s) 5.0 79.8 Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max C-Max	56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Yellow Time (s) 3.7 3.7 All-Red Time (s) 3.3 2.5 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 7.0 6.2 Lead/Lag Lead Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max C-Max	67.8	67.8	67.8	36.7	36.7		36.7	36.7	
All-Red Time (s)3.32.5Lost Time Adjust (s)0.00.0Total Lost Time (s)7.06.2Lead/LagLeadLead-Lag Optimize?Vehicle Extension (s)3.0Recall ModeNoneC-Max	3.7	3.7	3.7	3.3	3.3		3.3	3.3	
Lost Time Adjust (s)0.00.0Total Lost Time (s)7.06.2Lead/LagLeadLead-Lag Optimize?Vehicle Extension (s)3.0Recall ModeNoneC-Max	2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Total Lost Time (s)7.06.2Lead/LagLeadLead-Lag Optimize?Vehicle Extension (s)3.03.0Recall ModeNoneC-Max	0.0	0.0	0.0		0.0		0.0	0.0	
Lead/Lag Lead Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 Recall Mode None	6.2	6.2	6.2		7.3		7.3	7.3	
Lead-Lag Optimize?Vehicle Extension (s)3.0Recall ModeNoneC-Max	Lag	Lag	Lag						
Vehicle Extension (s) 3.0 3.0 Recall Mode None C-Max	209	9	-~3						
Recall Mode None C-Max	30	30	3.0	30	30		30	3.0	
	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s) 10.0	10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s) 12.0	12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr) 14	14	14	14	14	14		14	14	
$\Delta \text{ct Effet Green (s)} \qquad \qquad$	83.5	83.5	83.5	17	22.3		22.3	22.3	
Actuated q/C Ratio 0.72 0.72	0.64	0.0	0.64		0.17		0.17	0 17	
v/c Ratio 0.12 0.12	0.04	0.04	0.04		0.17		0.17	0.17	
Control Delay 81 53	13.0	1/ 0	3.1		34.0		55 5	16.4	
	13.5	0.0	0.0		0.0		0.0	0.0	
Total Dalay 8.1 5.3	13.0	14.0	0.0		34.0		55.5	16.4	
	13.9	14.9 D	5.1		J4.0		55.5 E	10.4 D	
Approach Delay 55	D	1/1 1	A		34.0		E	30.3	
Approach LOS		14.1 D			J4.0			J9.J	
Approach 203 A	1 2	57 0	0.0		7.0		26.7	10	
Queue Length 35th (m) 2.2 13.0	5.7	07.6	0.0 Q 1		14.6		20.7	4.0	
Internal Link Diet (m) 5.0 19.1	5.7	97.0	0.1		14.0		30.1	120.4	
Turn Poy Longth (m) 125.0	40.0	101.0			155.7			139.4	
Page Canadity (unb) 220 2496	40.0	2125	012		444		260	177	
Staruction Con Doducto	419	3125	913		444		300	4//	
Starvation Cap Reductin 0 0	0	0	0		0		0	0	
Spillback Cap Reductin 0 0	0	0	0		0		0	0	
Storage Cap Reductin 0 0	0.04	0.47	0 10		0 10		0 22	0 17	
	0.04	0.47	0.12		0.10		0.55	0.17	
Intersection Summary									
Area Type: Other									
Cycle Length: 130									
Actuated Cycle Length: 130									
Offset: 95 (73%), Referenced to phase 2:EBTL and 6:WBTL	L, Start of Gre	en							
Natural Cycle: 85									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.54									
Intersection Signal Delay: 13.9									
Intersection Capacity Utilization 70.2%	Ir	ntersection	LOS: B						
Analysis Period (min) 15	 (ntersection CU Level o	LOS: B f Service ()					
Splits and Phases: 15: Iroquois & Carling	lı Id	ntersection CU Level o	LOS: B f Service ()					



18: Woodroffe E & Carlingwood SC PM Peak Hour

	-	•	†	1	1	Ŧ		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		<u>.</u>		
Traffic Volume (vph)	189	82	814	121	120	874		
Future Volume (vph)	189	82	814	121	120	874		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Litil Factor	1 00	1 00	0.95	1 00	0.95	0.95		
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1.00		
Frt	0.00	0.50		0.50		1.00		
Elt Protected	0.050	0.000		0.000		0 00/		
Satd Flow (prot)	1710	1530	3353	1500	٥	3300		
Elt Permitted	0.950	1550	5555	1500	U	0 722		
Satd Flow (porm)	1686	1/07	3353	1/2/	٥	2306		
Pight Turn on Pod	1000	Voc	3333	Voc	0	2330		
Setd Flow (PTOP)		00		101				
Link Spood (k/b)	40	02	50	121		50		
Link Speed (k/l)	40		00 79 G			00		
	107.1		70.0			60.0		
Carf Dada (#/br)	9.0	7	J./	10	10	0.2		
Confl. Peds. (#/hf)	10	1		10	10			
Confi. Bikes (#/nr)	4.00	4.00	4.00	3	4.00	4.00		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Venicles (%)	0%	0%	2%	2%	3%	3%		
Adj. Flow (vph)	189	82	814	121	120	874		
Shared Lane Traffic (%)	400							
Lane Group Flow (vph)	189	82	814	121	0	994		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

J.Audia, Novatech

18: Woodroffe E & Carlingwood SC PM Peak Hour

	-	•	†	1	1	Ŧ		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0	5.0	
Total Split (%)	27.4%	27.4%	67.4%	67.4%	67.4%	67.4%	5%	
Maximum Green (s)	20.3	20.3	58.0	58.0	58.0	58.0	3.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.4	2.4	27	27	27	2.7	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0	
Total Last Time (s)	5.7	5.7	6.0	6.0		6.0		
	J.a	lan	0.0	0.0		0.0	beel	
Ledu/Lay	Lay	Lay					Leau	
Leau-Lay Optimize :	3.0	3.0	3.0	3.0	3.0	3.0	3 0	
	S.U Nono	S.U Nono	C Mox	C Mox	C Mox	C Mox	J.U Nono	
	None	None					None	
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0		
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0		
Pedestrian Calls (#/hr)	5	5	5	5	5	5		
Act Effct Green (s)	15.8	15.8	67.5	67.5		67.5		
Actuated g/C Ratio	0.17	0.17	0.71	0.71		0.71		
v/c Ratio	0.68	0.26	0.34	0.12		0.58		
Control Delay	48.8	9.4	6.2	1.4		9.3		
Queue Delay	0.0	0.0	0.0	0.0		0.0		
Total Delay	48.8	9.4	6.2	1.4		9.3		
LOS	D	А	А	А		А		
Approach Delay	36.9		5.6			9.3		
Approach LOS	D		A			А		
Queue Length 50th (m)	30.3	0.0	23.6	0.0		37.3		
Queue Length 95th (m)	46.9	10.4	39.4	5.0		65.2		
Internal Link Dist (m)	83.1		54.6			62.5		
Turn Bay Length (m)								
Base Capacity (vph)	365	388	2383	1046		1702		
Starvation Cap Reductn	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0		0		
Reduced v/c Ratio	0.52	0.21	0.34	0.12		0.58		
	0.01	0 1	0.01	0.12		0.00		
Intersection Summary								
Area Type:	Other							
Cycle Length: 95								
Actuated Cycle Length: 95								
Offset: 45 (47%), Referenced to	o phase 2:N	BT and 6:8	SBTL, Star	t of Green				
Natural Cycle: 70								
Control Type: Actuated-Coordir	nated							
Maximum v/c Ratio: 0.68								
Intersection Signal Delay: 11.1				In	itersection	LOS: B		
Intersection Capacity Utilization	า 80.3%			IC	U Level of	f Service D		
Analysis Period (min) 15								
Splits and Phases: 18: Wood	droffe E & Ca	arlingwood	ISC					
1ø2 (R)								
64 s								
V 20 (K)								2/ = 20

64 s

26 s

1: Woodroffe E & Access PM Peak Hour

	٦	\mathbf{r}	1	1	Ŧ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			441	41 2	
Traffic Volume (vph)	0	0	0	974	1101	0
Future Volume (vph)	0	0	0	974	1101	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1765	0	0	4771	3320	0
Flt Permitted						
Satd. Flow (perm)	1765	0	0	4771	3320	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	70.0	
Travel Time (s)	3.9			1.1	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adi, Flow (vph)	0	0	0	974	1101	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	974	1101	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	J -		0.0	0.0	<u> </u>
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane	0.0			0.0	0.0	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
	ettep					
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 35.5%			IC	U Level of	Service A
Analysis Period (min) 15						

	≯	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1035	2071	8	0	5
Future Volume (vph)	0	1035	2071	8	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6065	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	4771	6065	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	83.7		179.2	
Travel Time (s)		4.7	6.0		12.9	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1035	2071	8	0	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1035	2079	0	0	5
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	5	0.0	Ū
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized	Culoi					
Intersection Canacity Utilizati	on 41.8%			IC	III evel of	Service A
Analysis Period (min) 15	011 11.070			10	0 2000 01	

10: Woodroffe E & Flower PM Peak Hour

	∕	\mathbf{F}	1	1	ŧ	-
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥				A 12	
Traffic Volume (vph)	19	42	47	800	853	23
Future Volume (vph)	19	42	47	800	853	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	42	47	800	853	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	847	876	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 64.3%			IC	U Level of	Service C

Analysis Period (min) 15

	≯	-	-	•	1	-
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		1111	ቀ ቶሴ			1
Traffic Volume (vph)	0	1035	2071	0	0	0
Future Volume (vph)	0	1035	2071	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	20.0				7.5	
Lane Util. Factor	1.00	0.86	0.91	0.91	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	6071	4818	0	0	1765
Flt Permitted						
Satd. Flow (perm)	0	6071	4818	0	0	1765
Link Speed (k/h)		50	50		50	
Link Distance (m)		83.7	45.0		49.1	
Travel Time (s)		6.0	3.2		3.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1035	2071	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1035	2071	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	•	0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 45.6%			ICI	U Level of	Service A
Analysis Period (min) 15						

25: Woodroffe E & Carlingwood SC PM Peak Hour

	✓	*	1	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u> ተተኑ</u>			^
Traffic Volume (vph)	0	89	868	82	0	1101
Future Volume (vph)	0	89	868	82	0	1101
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.987			
Flt Protected						
Satd. Flow (prot)	0	1526	4755	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4755	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	106.6		70.0			78.6
Travel Time (s)	7.7		5.0			5.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	89	868	82	0	1101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	950	0	0	1101
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 35.5%			IC	U Level of	Service A
Analysis Dariad (min) 15						

Analysis Period (min) 15

	-	\rightarrow	-	-	1	1
Lane Group	FBT	FBR	WBI	WBT	NBI	NBR
Lane Configurations	##1		**	**	×	1
Traffic Volume (vph)	1337	182	538	330	232	476
Future Volume (vph)	1337	182	538	330	232	476
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	0.0	0.0
Storage Lanes		1	2		1	1
Taper Length (m)		1	75		75	-
Lane I Itil Factor	0.01	0.01	0.07	0.05	1.00	1.00
Pad Rike Factor	1.00	0.91	1.00	0.90	0.00	0.00
Free Dire Faciul	0.00		1.00		0.99	0.90
Elt Drotooted	0.902		0.050		0.050	0.000
Fil Piolecied	1710	0	0.950	2000	0.950	1405
Sato. Flow (prot)	4713	U	3190	3288	1660	1485
		•	0.950	0000	0.950	
Satd. Flow (perm)	4713	0	3177	3288	1639	1449
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22					8
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		13	13		11	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adi, Flow (vph)	1337	182	538	330	232	476
Shared Lane Traffic (%)					_0_	
Lane Group Flow (vph)	1519	0	538	330	232	476
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alianment		Right				Right
Median Width(m)	7 0	Tagne	LEIL	0.0	26	Tight
Link Offeet(m)	1.2			9.9	0.0	
LINK UNSEL(M)	0.0			0.0	0.0	
	3.0			3.0	3.0	
I wo way Left Turn Lane	4 ^=	1.0-	4.0-	4.0-	4	
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	1		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	0.6	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (a)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 2 Pize(m)				9.4		
Detector 2 Size(III)						
Detector 2 Type				CI+EX		
Detector 2 Channel						
Detector 2 Extend (s)			_	0.0	_	
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Detector Phase	2		1	6	8	1
Switch Phase						

	-	\mathbf{r}	1	-	1	1		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR		
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0		
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0		
Total Split (s)	55.0		31.0	86.0	44.0	31.0		
Total Split (%)	42.3%		23.8%	66.2%	33.8%	23.8%		
Maximum Green (s)	49.3		25.0	80.3	38.2	25.0		
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7		
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3		
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0		
Lead/Lag	Lag		Lead			Lead		
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		
Recall Mode	C-Max		None	C-Max	Min	None		
Walk Time (s)	11.0			11.0	7.0			
Flash Dont Walk (s)	15.0			15.0	26.0			
Pedestrian Calls (#/hr)	7			7	6			
Act Effct Green (s)	61.0		27.6	94.6	23.9	51.3		
Actuated g/C Ratio	0.47		0.21	0.73	0.18	0.39		
v/c Ratio	0.68		0.79	0.14	0.76	0.82		
Control Delay	30.1		56.8	6.1	65.9	42.4		
Queue Delay	0.0		0.0	0.0	0.0	0.0		
Total Delay	30.1		56.8	6.1	65.9	42.4		
LOS	C		E	A	E	D		
Approach Delay	30.1			37.6	50.1			
Approach LOS	100.0		05.0	0.1	D	00.4		
Queue Length 50th (m)	100.0		05.Z	9.1	52.0	88.4		
Queue Length 95th (m)	135.7		82.7	20.2	12.3	105.8		
Turn Boy Longth (m)	214.7			41.0	210.1			
Rase Capacity (yph)	2224		603	2203	/87	501		
Starvation Can Reductn	0		000	2000	-07	0		
Spillback Can Reductn	0		0	0	0	0		
Storage Can Reductin	0		0	0	0	0		
Reduced v/c Ratio	0.68		0 78	0 14	0 48	0.81		
Intersection Summony	0.00		0.10	0.11	0.10	0.01		
	Other							
Cycle Length: 130	Outor							
Actuated Cycle Length: 13(0							
Offset: 112 (86%). Referen	ced to phase 2:F	BT and 6:V	VBT. Sta	rt of Greer	1			
Natural Cycle: 95			, 010					
Control Type: Actuated-Co	ordinated							
Maximum v/c Ratio: 0.82								
Intersection Signal Delay: 3	36.8			In	tersection	LOS: D		
Intersection Capacity Utiliza	ation 80.1%			IC	CU Level o	f Service D		
Analysis Period (min) 15								
Splits and Phases: 3: Wo	oodroffe W & Car	ling						
1 01	• ->	Ø2 (R)						
31s	55 s	02 (V)						
←	_						•	
Ø6 (R)	•						Y Ø8	

44 s

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ካካ	4 16		ň	***	1	۲,	41 2		ň	*	1
Traffic Volume (vph)	456	1455	45	10	316	90	19	214	48	240	84	524
Future Volume (vph)	456	1455	45	10	316	90	19	214	48	240	84	524
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	20.0			30.0			7.5			100.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.97	0.99	0.99		0.99		0.98
Frt		0.995				0.850		0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd, Flow (prot)	3252	3332	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Elt Permitted	0.950	0002	Ŭ	0.950	1101	1001	0 702	02.12	Ŭ	0.379		1100
Satd Flow (perm)	3191	3332	0	1549	4467	1349	1233	3242	0	654	1748	1459
Right Turn on Red	0101	0002	Yes	1010	1107	Yes	1200	0212	Yes	001	1110	Yes
Satd Flow (RTOR)		3	100			191		20	100			234
Link Speed (k/h)		60			60	101		50			50	201
Link Distance (m)		128.3			162.2			169.9			54.4	
Travel Time (s)		77			9.7			12.2			3 Q	
Confl Peds (#/hr)	14	1.1	13	13	5.1	14	5	12.2	18	18	0.0	5
Confl Bikes (#/hr)	17		10	10		1	5		2	10		5
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	2%	2%	2%	1.00	1.00	1.00	2%	2%	2%	3%	3%	3%
Adi, Elow (upb)	2 /0	2 /0	2 /0	10 /0	316	00	2 /0 10	2 /0	Z /0	2/0	3 /0 Q/I	524
Shared Lane Traffic (%)	400	1455	40	10	510	90	19	214	40	240	04	524
Lano Group Flow (vph)	156	1500	٥	10	316	00	10	262	٥	240	Q/	524
Enter Blocked Intersection	400 No	No	No	No	No	90 No	19 No	202	No	240 No	04 No	024 No
	INU Loff	INU Loff	Diaht	INU Loff	INU Loft	Diaht	INU Loff	INU	Diaht	INU	INU Loft	Diabt
Lane Alignment	Leit		Right	Leit		Right	Leit	Leit	Right	Leit	Leit	Right
link Offect(m)		10.0			10.0			0.0			0.0	
Crosswalk Width(m)		0.0			0.0			2.0			2.0	
		3.0			3.0			3.0			3.0	
Two way Leit Tum Lane	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (K/II)	20	n	10	20	0	10	20	0	10	20	n	10
Number of Detectors	 0 ^{ff}	Z		10#	Z	Diaht	 0#	Z		1	Z	Diaht
Detector Template	Leit	10.0		Leit	10.0	Right	Leit	10.0		Leit	10.0	Right
	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.0			0.0						0.0	2.0
Detector 1 Type	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0	_	_	0.0			0.0	
Iurn Iype	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	_		8		7	4	5
Permitted Phases					_	6	8			4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

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5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
Switch Phase			LDIX	1102						001		0011
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0		50	10.0	5.0
Minimum Split (s)	11 3	37.1		11.3	37.1	37.1	40.9	40.9		11 3	40.9	11 3
Total Split (s)	31.0	53.7		21.3	44.0	44.0	41.0	41.0		14.0	55.0	31.0
Total Split (%)	23.8%	41.3%		16.4%	33.8%	33.8%	31.5%	31.5%		10.8%	42.3%	23.8%
Maximum Green (s)	24.7	47.6		15.0	37.9	37.9	34.1	34.1		77	48.1	24.7
Yellow Time (s)	37	37		37	37	37	3.3	3.3		3.3	3.3	37
All-Red Time (s)	2.6	24		2.6	2.4	24	3.6	3.6		3.0	3.6	2.6
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)	6.3	6.0		6.3	6.1	6.0	6.9	6.9		6.3	6.9	6.3
Lead/Lag	l ead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	0.0	l ead
Lead-Lag Optimize?	Loud	Lag		Loud	Lag	Lag	Lag	Lag		Loud		Loud
Vehicle Extension (s)	30	30		3.0	3.0	30	30	30		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)	Nono	7.0		Nono	7.0	7.0	23.0	23.0		Nono	23.0	Nono
Flash Dont Walk (s)		24.0			24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		21.0			7	7	9	9			9	
Act Effct Green (s)	23.0	82.1		6.5	55.7	55.7	18.0	18.0		32.6	32.0	55.6
Actuated g/C Ratio	0.18	0.63		0.05	0.43	0.43	0.14	0.14		0.25	0.25	0.43
v/c Ratio	0.10	0.00		0.00	0.10	0.10	0.11	0.56		1.08	0.20	0.69
Control Delay	74 1	13.4		75.9	18.4	0.10	45.9	51.7		124.2	37.6	17.3
	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	74.1	13.4		75.9	18.4	0.8	45.9	51.7		124.2	37.6	17.3
	F	B		F	B	Δ	ПО.0	D		F	07.0 D	B
Approach Delay	-	27.6		-	16.0	7	U	51.3		•	49.6	U
Approach LOS		C			B			D			D	
Queue Length 50th (m)	56.9	50.7		2.5	12.8	0.0	4.1	29.2		~60.0	16.3	51.5
Queue Length 95th (m)	m73.8	#240.3		8.2	11.4	0.1	9.3	35.3		#71.7	23.8	59.0
Internal Link Dist (m)		104.3		0.2	138.2	0.1	0.0	145.9			30.4	00.0
Turn Bay Length (m)	75.0			35.0								
Base Capacity (vph)	626	2106		179	1914	687	323	865		223	646	782
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	0.73	0.71		0.06	0.17	0.13	0.06	0.30		1.08	0.13	0.67
Intersection Summary												
Area Type:	Other											
Cycle Length: 130	Outor											
Actuated Cycle Length: 130												
Offset: 128 (98%) Reference	d to phase 2 [.]	FBT and 6 [.]	WRT Star	t of Greer	า							
Natural Cycle: 125	a to phago 2.		111D1, Oldi		•							
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 1.08												
Intersection Signal Delay: 33	4			In	tersection	LOS: C						
Intersection Capacity Utilization	on 100.9%				CULevelo	f Service G	}					
Analysis Period (min) 15	011 100.070						•					
 Volume exceeds capacity 	, aueue is the	oretically ir	nfinite.									
Queue shown is maximum	after two cvo	cles.										
# 95th percentile volume ex	ceeds canaci	tv. queue n	nav be lon	aer.								
Queue shown is maximum	after two cvo	cles.										
m Volume for 95th percentil	e queue is m	etered by u	pstream s	ignal.								
Colite and Dhases E. E.	N/code-ff		20									
opins and mases: 5: Fairla	ανντι/ ννοοαγόπ	e ⊏ α ∪arii	ng									

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	N.	ቀ ቶሴ		×.	tttts.			4		N	î.	
Traffic Volume (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Future Volume (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0	1000	0.0	65.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	60			75			75		•	75		
Lane Util Factor	1 00	0 91	0 91	1.00	0.86	0.86	1 00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	1.00	1.00	0.00	1.00	0.99	1.00	0.99	0.98	1.00
Frt	1.00	0.998		1.00	0.996			0.930		0.00	0.861	
Elt Protected	0 950	0.000		0 950	0.000			0.000		0.950	0.001	
Satd Flow (prot)	1676	4806	0	1676	6044	0	0	1573	0	1221	1112	0
Elt Permitted	0/35	4000	U	0 150	0077	U	0	0.017	U	0.7/0	1112	U
Satd Flow (perm)	766	1806	٥	264	6044	٥	٥	1/50	٥	0.740	1112	٥
Right Turn on Red	100	4000	Ves	204	0044	Ves	U	1400	Ves	343	1112	Ves
Satd Flow (PTOP)		2	163		5	163		1/	103		30	103
Link Spood (k/b)		60			60			30			10	
Link Distance (m)		162.2			170.6			101 7			111.6	
		0.7			1/0.0			101.7			10.0	
Confl Dodo (#/br)	1	9.7	F	E	10.2	1	Б	12.2	7	7	10.0	F
Comil. Peas. (#/ni)	4	1 00	C 1 00	C 1 00	1.00	4	C 1 00	1 00	1 00	1 00	1 00	0 1 00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy venicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	40%	0%	40%
Adj. Flow (vpn)	12	1558	18	20	447	13	1	0	14	20	3	39
Shared Lane Traffic (%)	40	4570	0	00	100	0	0	07	0	00	40	0
Lane Group Flow (vph)	12	1576	0	26	460	0	0	27	0	26	42	0
Enter Blocked Intersection	NO	No	NO	NO	NO	NO	No	No	NO	NO	No	NO
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		9.9			10.8			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												

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12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0		65.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%		50.0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.4	75.8		58.8	58.8		41 1	41 1		41 1	41 1	
Yellow Time (s)	37	37		37	37		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.0	6.0			6.9		6.0	6.9	
Lead/Lag	Lead	0.2		Lag	l aα			0.0		0.0	0.0	
Lead-Lag Optimize?	Loud			Lug	Lug							
Vehicle Extension (s)	30	3.0		30	30		30	30		30	30	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	NONC	7.0		7.0	7.0		2/1.0	2/1 0		2/1.0	2/1 0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		20.0		20.0	20.0		10.0	10.0		10.0	10.0	
Act Effet Green (s)	10/1 3	105.0		100.8	100.8		т Т	15.6		15.6	15.6	
Actuated a/C Patio	0.80	0.81		0.78	0.78			0.12		0.12	0.12	
No Ratio	0.00	0.01		0.70	0.70			0.12		0.12	0.12	
Control Delay	3.0	0.40		8.7	1.10			28.7		52.3	17.6	
	0.0	2.3		0.7	4.5			20.7		0.0	17.0	
Total Dolay	3.0	2.4		0.0 8.7	0.0			28.7		52.3	17.6	
	J.U A	۷.4		0.7	4.0			20.7		JZ.J	17.0 D	
LUS Approach Dolov	A	2 F		A	A 4 7			207		U	20.0	
Approach LOS		2.5			4.7			20.7			30.9	
Approach 203	03	16.2		10	A 17			20		50	0.7	
Queue Length 50th (m)	0.5	10.Z		1.0	4.7			2.9		11 /	0.7	
Length 95th (III)	110.0	120.0		3.7	9.0			9.0		11.4	0.7	
Turn Day Longth (m)	110.0	130.2		GE O	140.0			11.1			07.0	
Page Capacity (upb)	607	2017		205	1600			170		200	270	
Staruction Can Boducto	007	005		205	4009			4/0		290	3/0	
Starvation Cap Reductin	0	995		0	0			0		0	0	
Spillback Cap Reductin	0	0		0	0			0		0	0	
Storage Cap Reductin	0 00	0 5 4		0 12	0 10			0 00		0 00	0 11	
	0.02	0.54		0.13	0.10			0.06		0.09	0.11	
	0.1											
Area Type: Cycle Length: 130	Other											
Actuated Cycle Length: 130												
Offset: 128 (98%) Referenced	to phase 2.	EBTL and P	WRTL S	tart of Gre	en							
Natural Cycle: 100	10 phase 2.1											
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.40												
Intersection Signal Delay: 1.2				In	tersection							
Intersection Capacity Litilization	56 3%					Service R						
Analysis Period (min) 15	100.070			i C		OCIVICE D						
m Volume for 05th percentile		atarad huw	netroom oi	ianal								
	queue is me	elered by U	psuedin Si	iynai.								
Splits and Phases: 12: Carlin	ng & Carling	wood SC					1.]
🗝 Ø2 (R) 🛛							+	0 4				



15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	ቀ ቶሴ		5	***	1		4		N	1.	
Traffic Volume (vph)	19	1686	5	7	387	60	3	24	30	75	7	27
Future Volume (vph)	19	1686	5	7	387	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0.0
Taper Length (m)	7.5			75		•	75		· ·	75		•
Lane Util Factor	1 00	0 91	0 91	1.00	0 91	1 00	1.00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	0.98	1 00	0.01	1.00	0.01	0.94	1.00	0.98	1.00	0.99	0.98	1.00
Frt	0.00	1.00		1.00		0.850		0.00		0.00	0.881	
Elt Protected	0 950			0.950		0.000		0.020		0.950	0.001	
Satd Flow (prot)	1676	/1817	٥	1629	4680	1/157	0	1610	0	1660	1508	0
Elt Permitted	0 / 78	1017	U	0 132	7000	1-57	U	0.085	U	0.840	1000	0
Satd Elow (porm)	925	/1017	٥	226	4680	1364	٥	1500	٥	1/50	1508	٥
Pight Turn on Pod	025	4017	Voc	220	4000	Voc	U	1090	Voc	1450	1000	Voc
Sata Elow (PTOP)		1	165			05		25	165		07	165
Salu. Flow (RTOR)		60			60	90		20			Z1 50	
Link Speed (k/n)		00			105.0			00			00	
		1/0.6			185.0			157.7			163.4	
I ravel I ime (s)	45	10.2	10	40	11.1	45	40	11.4	40	40	11.8	40
Confl. Peds. (#/hr)	15		12	12		15	13		12	12		13
Confl. Bikes (#/hr)			1			1			4			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	19	1686	5	7	387	60	3	24	30	75	7	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	1691	0	7	387	60	0	57	0	75	34	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			7.2			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Fx			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	pm+nt	NΔ		Perm	NA	Perm	Perm	NA		Perm	NΔ	
Protected Phases	5	2		1 01111	6			8		1 0111	1	
Permitted Phases	2	2		6	0	6	8	0		Λ	T	
Notactor Phase	5	2		6	6	6	Q	Q		- 4	1	
Delector Fliase	5	2		0	0	0	0	0		4	4	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	102.2	104.3		98.9	98.9	98.9		16.9		16.9	16.9	
Actuated g/C Ratio	0.79	0.80		0.76	0.76	0.76		0.13		0.13	0.13	
v/c Ratio	0.03	0.44		0.04	0.11	0.06		0.25		0.40	0.16	
Control Delay	1.5	1.5		12.3	7.3	1.0		31.1		55.3	19.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
l otal Delay	1.5	1.5		12.3	7.3	1.0		31.1		55.3	19.7	
LOS	A	A		В	A	A		C		E	B	
Approach Delay		1.5			6.6			31.1			44.2	
Approach LOS	0.0	A		0.0	A	0.0		7.0		47.4	D 4 F	
Queue Length 50th (m)	0.2	5.8		0.3	0.2	0.0		1.0		17.1	1.5	
Queue Length 95th (m)	mu. <i>1</i>	0.0		3.4	22.5	Z.1		10.0		25.8	0.0 120.4	
Internal Link Dist (m)	125.0	140.0		40.0	101.0			133.7			139.4	
Turn Bay Lengin (m)	125.0	2064		40.0	2560	1060		466		400	115	
Storyction Con Bodysto	094	0004 000		1/1	3300	1000		400		409	440	
Starvation Cap Reductin	0	203		0	0	0		0		0	0	
Spiliback Cap Reductin	0	0		0	0	0		0		0	0	
Reduced v/c Ratio	0.03	0 47		0 04	0 11	0 06		0 12		0 18	0 08	
	0.00	0.47		0.04	0.11	0.00		0.12		0.10	0.00	
	0.1											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130				(0)								
Offset: 0 (0%), Referenced to	o phase 2:EBT	L and 6:W	BTL, Start	of Green								
Natural Cycle: 85	alla at a d											
Maximum v/a Datia: 0.44	unated											
Interportion Signal Dolary 5.	0			1	toroatian							
Intersection Signal Delay: 5.	L			In		LUS: A						
Analysis Deried (min) 45	1011 03.2%			IC	JU Level 0	Service E						
Analysis Period (min) 15												

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

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

	<	•	†	1	×	↓ I		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		<u>.</u>	~ .	
Traffic Volume (vph)	23	g	669	72	25	700		
Future Volume (vph)	23	9	669	72	25	700		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Litil Eactor	1 00	1 00	0.05	1 00	0.05	0.95		
Ped Rike Factor	0.00	0.08	0.33	0.05	0.35	1.00		
	0.99	0.90		0.95		1.00		
Elt Drotootod	0.050	0.050		0.000		0 000		
Fit Fiblected	0.950	1520	2200	1471	0	0.990		
Salu. Flow (plot)	0.050	1550	3200	1471	U	0 0 20		
Setd Flow (porm)	1602	1504	2200	1401	0	2054		
Bight Turp on Pod	1095	1504 Voo	3200	1401 Voo	U	3004		
		res		70				
Salu. Flow (RTOR)	40	9	50	12		50		
Link Speed (k/n)	40		010			00 E		
	107.1		04.0			00.0		
Travel Time (s)	9.6		6.1	40	40	0.2		
Confl. Peds. (#/hr)	8	4		18	18			
Confl. Bikes (#/hr)	4.00	4.00	4.00	3	4.00	4.00		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	0%	0%	4%	4%	3%	3%		
Adj. Flow (vph)	23	9	669	72	25	700		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	23	9	669	72	0	725		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			CI+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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18: Woodroffe E & Carlingwood SC AM Peak Hour

	4	•	1	1	1	↓			
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7		
Total Split (s)	26.0	26.0	54.0	54.0	54.0	54.0	5.0		
Total Split (%)	30.6%	30.6%	63.5%	63.5%	63.5%	63.5%	6%		
Maximum Groon (s)	20.070	20.070	/18 0	18 0	/18 0	18 0	3.0		
Vellow Time (a)	20.0	20.3	40.0	40.0	40.0	40.0	3.0		
All Ded Time (s)	0.0	3.3	3.3 0.7	3.3	3.3	3.3	2.0		
All-Red Time (S)	2.4	2.4	2.1	2.1	Z.1	2.1	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0			
I otal Lost Time (s)	5.7	5./	6.0	6.0		6.0			
Lead/Lag	Lag	Lag					Lead		
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None		
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0			
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0			
Pedestrian Calls (#/hr)	4	4	9	9	9	9			
Act Effct Green (s)	9.0	9.0	71.2	71.2		71.2			
Actuated g/C Ratio	0.11	0.11	0.84	0.84		0.84			
v/c Ratio	0.13	0.05	0.24	0.06		0.28			
Control Delay	32.9	16.6	3.5	1.5		37			
	0.0	0.0	0.0	0.0		0.0			
Total Delay	32.9	16.6	3.5	1.5		3.7			
	02.0 C	10.0 R	0.0 A	Λ		Δ			
Approach Dolay	28.3	D	33	~		37			
Approach LOS	20.0		5.5			J.7 A			
	22	0.0	40 F	0.0		A 10.0			
Queue Length 50th (m)	3.3	0.0	10.5	0.0		12.0			
Queue Length 95th (m)	0.0	٥.٥	30.1	4.0		04.Z			
	83.1		60.6			62.5			
Turn Bay Length (m)	10.1	000	0754	4405		0550			
Base Capacity (vph)	404	366	2754	1185		2558			
Starvation Cap Reductn	0	0	0	0		0			
Spillback Cap Reductn	0	0	0	0		0			
Storage Cap Reductn	0	0	0	0		0			
Reduced v/c Ratio	0.06	0.02	0.24	0.06		0.28			
Intersection Summary									
Area Type: (Other								
Cycle Length: 85									
Actuated Cycle Length: 85									
Offset: 10 (12%), Referenced to	phase 2:N	BT and 6:	SBTL, Star	t of Green					
Natural Cycle: 70			,						
Control Type: Actuated-Coordin	ated								
Maximum v/c Ratio: 0.28									
Intersection Signal Delay: 4.0				In	tersection				
Intersection Canacity Utilization	55.4%					f Service R			
Analysis Period (min) 15	00.7/0								
Splits and Phases: 18: Wood	roffe E & Ca	arlingwood	SC						
		-							
F4 c									
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							1 Ann	V 08	

5s

26 s

54 s

1: Woodroffe E & Access AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		1		***	4 16	
Traffic Volume (vph)	0	39	0	765	811	15
Future Volume (vph)	0	39	0	765	811	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	0.95
Frt		0.865			0.997	
Flt Protected						
Satd. Flow (prot)	0	1526	0	4771	3310	0
Flt Permitted						
Satd. Flow (perm)	0	1526	0	4771	3310	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	63.9	
Travel Time (s)	3.9			1.1	4.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	39	0	765	811	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	39	0	765	826	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0	Ū		0.0	0.0	Ū
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	Other					
Intersection Canacity I Itilizati	on 34.2%			IC		Sonvico A
Analysis Period (min) 15	011 07.2 /0					

	٦	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.		-	1
Traffic Volume (vph)	0	1939	815	31	0	61
Future Volume (vph)	0	1939	815	31	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	5868	0	0	1557
Flt Permitted						
Satd. Flow (perm)	0	4771	5868	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	128.3		75.6	
Travel Time (s)		4.7	9.2		5.4	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adj. Flow (vph)	0	1939	815	31	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1939	846	0	0	61
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		2.7	2.7		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						

Intersection Capacity Utilization 42.9% Analysis Period (min) 15 ICU Level of Service A

10: Woodroffe E & Flower AM Peak Hour

	≯	\mathbf{F}	1	1	Ŧ	~
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W.			-at≜	4 16	
Traffic Volume (vph)	25	78	20	633	614	12
Future Volume (vph)	25	78	20	633	614	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.898				0.997	
Flt Protected	0.988			0.998		
Satd. Flow (prot)	1581	0	0	3346	3279	0
Flt Permitted	0.988			0.998		
Satd. Flow (perm)	1581	0	0	3346	3279	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8	4	7			7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%
Adj. Flow (vph)	25	78	20	633	614	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	653	626	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 48.1%			IC	U Level of	Service A
Analysis Period (min) 15						

	<	•	†	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	5			1		
Traffic Volume (vph)	59	0	0	25	0	0
Future Volume (vph)	59	0	0	25	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1676	0	0	1526	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1676	0	0	1526	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	42.8		75.6			4.6
Travel Time (s)	3.1		5.4			0.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	0	0	25	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	25	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	-	0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 6.8%			IC	U Level of	Service A
A						

Analysis Period (min) 15

25: Woodroffe E & Carlingwood SC AM Peak Hour

	<	•	1	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u>ተተ</u> ኑ			^
Traffic Volume (vph)	0	14	753	12	0	825
Future Volume (vph)	0	14	753	12	0	825
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1526	4808	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4808	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	104.8		63.9			84.6
Travel Time (s)	7.5		4.6			6.1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	14	753	12	0	825
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	14	765	0	0	825
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0	Ŭ	0.0	Ū		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 27.4%			IC	U Level of	Service A

Analysis Period (min) 15

	-	\rightarrow	1	+	1	1
Lane Group	FBT	FBR	WBI	WBT	NBI	NBR
Lane Configurations	# #1.		**	**	*	#
Traffic Volume (vnh)	517	340	837	1016	265	444
Future Volume (vph)	517	3/10	837	1016	205	111
Ideal Flow (vphpl)	1200	1200	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	1000	1000
Storage Length (III)		120.0	0.0		0.0	0.0
Storage Laries			2		7 5	1
Taper Length (m)	0.01	0.04	1.5	0.05	1.5	4 00
Lane Util. Factor	0.91	0.91	0.97	0.95	1.00	1.00
Ped Bike Factor	0.99		0.99		0.99	0.98
Frt	0.940					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4470	0	3252	3353	1693	1515
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4470	0	3218	3353	1677	1486
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	124					69
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl Peds (#/hr)	U.F.	14	14	0.0	8	6
Peak Hour Factor	1 00	1 00	1 00	1 00	1.00	1 00
Heavy Vehicles (%)	20/	20/	20/	20/	1.00	10/
Adi Flow (vob)	۲/۵ ۲/۲	2/0	2 /0 827	1016	265	1 /0
Auj. Flow (vpii)	517	340	037	1010	205	444
	057	0	0.07	4040	005	444
Lane Group Flow (vpn)	857	0	837	1016	265	444
Enter Blocked Intersection	No	No	NO	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			10.8	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		l eft	Thru	l eft	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	20
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(III)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(III)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases	۷.		I	U	0	۱ و
Detector Deces	2		4	G	0	0
Delector Phase	Z		T	б	ŏ	- T
Switch Phase						

	-	\mathbf{r}	-	-	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0
Total Split (s)	40.0		49.0	89.0	41.0	49.0
Total Split (%)	30.8%		37.7%	68.5%	31.5%	37.7%
Maximum Green (s)	34.3		43.0	83.3	35.2	43.0
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		6.0	5.7	5.8	6.0
Lead/Lag	l aq		Lead	0.1	0.0	Lead
Lead-Lag Optimize?	_~g		2000			2000
Vehicle Extension (s)	30		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Min	None
Walk Time (s)	11 0		110110	11.0	7 0	110110
Flash Dont Walk (s)	15.0			15.0	26.0	
Pedestrian Calls (#/hr)	7			7	20.0	
Act Effet Green (s)	/75		30 /	02 0	25.6	64.8
Actuated a/C Ratio	-1.5 Ω 37		0.30	0.71	0.20	0.50
v/c Ratio	0.57		0.50	0.71	0.20	0.50
Control Delay	30.0		64.0	6.1	66.6	17.7
	0.0		04.0	0.1	0.0	0.0
Total Delay	30.0		64.0	6.1	0.0	17.7
			04.0 E	Δ.1	0.0	- 17.7 R
Approach Dolay	30.0		L	30.3	36.0	D
Approach LOS	30.0			32.3	30.0 D	
Quoue Longth 50th (m)	40.1		105 5	20.8	60.1	53.0
Queue Length OEth (m)	49.1		m105.5	29.0 m40.4	00.1	50.0
Internal Link Dist (m)	71.3		11105.0	1140.4	01.7	59.9
	Z14./			41.0	210.1	
Turn Bay Length (m)	4744		1005	0200	450	000
Base Capacity (vpn)	1711		1085	2390	458	828
Starvation Cap Reductin	0		0	0	0	0
Spillback Cap Reductin	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.50		0.77	0.42	0.58	0.54
Intersection Summary						
Area Type:	Other					
Cycle Length: 130						
Actuated Cycle Length: 130						
Offset: 27 (21%), Referenced	to phase 2:EE	T and 6:	VBT, Start	of Green		
Natural Cycle: 95						
Control Type: Actuated-Coord	linated					
Maximum v/c Ratio: 0.85						
Intersection Signal Delay: 32.	5			In	tersection	LOS: C
Intersection Capacity Utilization	on 79.1%			IC	CU Level of	f Service D
Analysis Period (min) 15						
m Volume for 95th percentil	e queue is me	tered by u	ipstream s	ignal.		
Splits and Phases: 3: Wood	droffe W & Car	lina				



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	≜1 ⊾		X	***	1	N	A 1.		N	*	1
Traffic Volume (vph)	515	448	84	31	1317	153	89	249	41	157	177	734
Future Volume (vph)	515	448	84	31	1317	153	89	249	41	157	177	734
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	20.0		-	30.0			7.5		-	100.0		
Lane Util, Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98		0.95		0.95	0.99	0.99		0.97		0.97
Frt		0.976				0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd, Flow (prot)	3252	3211	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Elt Permitted	0.950		· ·	0.950			0.646	0101	· ·	0.385		
Satd, Flow (perm)	3217	3211	0	1580	4771	1407	1124	3251	0	656	1765	1455
Right Turn on Red	0211	0211	Yes	1000		Yes		0201	Yes	000	1100	Yes
Satd, Flow (RTOR)		18				141		14				26
Link Speed (k/h)		60			60	•••		50			50	20
Link Distance (m)		128.3			162.2			169.9			54 4	
Travel Time (s)		77			9.7			12.2			3.9	
Confl Peds (#/hr)	32	1.1	48	48	0.1	32	16	12.2	50	50	0.0	16
Confl Bikes (#/hr)	02		1	10		2	10		00	00		10
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adi Flow (vph)	515	448	84	31	1317	153	89	249	<u>2</u> 70 41	157	177	734
Shared Lane Traffic (%)	010	011	04	01	1017	100	00	240	71	107	177	104
Lane Group Flow (vph)	515	532	0	.31	1317	153	89	290	0	157	177	734
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	1 veh	1 veh	1 veh
Lane Alignment	l off	Left	Right	Left	l off	Right	l off	Loft	Right	l off		Right
Median Width(m)	Len	10.8	Tagin	Leit	10.8	Tight	Leit	36	Tugitt	Leit	20	rugin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
		0.0			0.0			0.0			0.0	
Headway Eactor	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07
Number of Detectors	1	2	10	1	2	1	1	2	10	1	2	1
Detector Template	l eft	Thru		l eft	Thru	Right	l eft	Thru		l eft	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	2.0
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel					OFEX		OFFEX	OFFER				
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	0.0 Q /I		0.0	0.0 Q /	0.0	0.0	0.0 Q /		0.0	0.0 Q /	0.0
Detector 2 Size(m)		0.4			0.4			0.4			0.4	
Detector 2 Type		CI+Ev			CI+Ev			CI+Ev				
Detector 2 Channel		OFLA			OFLA							
Detector 2 Extend (c)		0.0			0.0			0.0			0.0	
	Prot	0.0 ΝΔ		Prot	0.0 ΝΔ	Perm	Perm	0.0 ΝΔ		nm±nt	0.0 ΝΔ	nm+ov
Protected Phases	5	2		1	6	i eini	i enn	<u>م</u> رز و		ριπ+ρι 7	1	pm+00
Permitted Phases	J	2		1	0	6	8	0		Λ	4	J
Notactor Phase	5	2		1	6	6	Q	Q		7	1	4
Detector r nase	5	2			0	0	0	0		1	4	5

5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR WE	L WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase											
Minimum Initial (s)	5.0	10.0	5	.0 10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1	11	.3 40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7	21	.3 47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%	16.4	% 36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6	15	.0 40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7	3	.7 3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4	2	.6 2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1	6	.3 6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag	Lea	id Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3	.0 3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	No	ie C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0		24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20		20	20	20	20			20	
Act Effct Green (s)	29.1	71.5	7	.9 45.5	45.5	22.2	22.2		36.8	36.2	65.8
Actuated g/C Ratio	0.22	0.55	0.0	0.35	0.35	0.17	0.17		0.28	0.28	0.51
v/c Ratio	0.71	0.30	0.3	81 0.79	0.26	0.47	0.51		0.64	0.36	0.97
Control Delay	51.7	24.1	85	.5 32.8	5.6	53.8	48.2		48.0	37.9	52.0
Queue Delay	0.0	0.0	0	.0 0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	51.7	24.1	85	.5 32.8	5.6	53.8	48.2		48.0	37.9	52.0
LOS	D	С		F C	А	D	D		D	D	D
Approach Delay		37.7		31.1			49.5			49.1	
Approach LOS		D		С			D			D	
Queue Length 50th (m)	56.3	33.0	6	.7 111.2	10.4	20.2	33.2		31.3	35.8	127.0
Queue Length 95th (m)	#93.4	72.2	15	.7 129.8	14.3	31.3	39.6		40.9	45.7	#163.5
Internal Link Dist (m)		104.3		138.2			145.9			30.4	
Turn Bay Length (m)	75.0		35	.0							
Base Capacity (vph)	726	1775	1	1 1668	583	312	912		245	680	759
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	0.30	0.1	6 0.79	0.26	0.29	0.32		0.64	0.26	0.97
Intersection Summary	Other										
Area Type:	Other										
Astusted Cycle Length 120											
Actualed Cycle Length. 130		and GM/D	T. Chart of Croon								
Netural Cycles 115	Dilase Z.ED I		I, Start of Green								
Control Type: Actuated Coordi	notod										
Movimum v/o Potio: 0.07	naleu										
Intersection Signal Delay: 30.4				Intorcoctio							
Intersection Signal Delay, 59.4	n 100 90/				of Convice	C					
Analysis Pariod (min) 15	11 100.070			ICO Level		9					
# 95th percentile volume exc	oode canaci	hy auquia m	ay be longer								
Queue shown is maximum	after two cyc	les.	lay be longer.								
Splits and Phases: 5: Fairlay	wn/Woodroff	e F & Carli	na								
	wii/woodion		ng								
▼ Ø1	Ø2 (R)				•	Ø4					
21.3 s 51.7	S				57 s						
1 1 ar	+				- I 🍾	22	<t< td=""><td></td><td></td><td></td><td></td></t<>				
ک ھ	47 s	9			14 c	07	42 c				

12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	×	## 12		×	tttts.			Δ			1	
Traffic Volume (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Future Volume (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0	1000	0.0	65.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0.0	1		0.0	0.0		0.0	1		0.0
Taper Length (m)	60		Ū	7.5		Ŭ	7.5		v	7.5		U
Lane I Itil Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1.00	0.01	0.00	1.00	0.00	1.00	0.08	1.00	1.00	0.95	1.00
Ert	1.00	0 991		0.55	0 990			0.00		1.00	0.55	
Elt Protected	0 950	0.001		0.950	0.000			0.920		0.950	0.000	
Satd Flow (prot)	1644	/670	0	1603	6062	0	0	1556	0	1368	1350	0
Elt Permitted	0 18/	1070	U	0 / 28	0002	U	U	0.876	U	0.688	1000	0
Satd Flow (perm)	218	4670	٥	755	6062	٥	٥	1368	٥	0.000	1350	٥
Right Turn on Red	510	4070	Ves	155	0002	Ves	U	1500	Ves	300	1000	Ves
Satd Flow (PTOP)		13	163		15	163		57	163		123	163
Link Spood (k/b)		60			60			30			125	
Link Distance (m)		162.2			170.6			101 7			104.5	
		0.7			10.0			101.7			0.4	
Confl Dodo (#/br)	1	9.7	10	10	10.2	1	12	12.2	2	2	9.4	12
Confl. Peus. (#/III)	4		12	IZ		4	43		ა	ა		43
Confil. Bikes (#/nr)	1 00	1 00	1 00	1 00	1.00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy venicies (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (Vpn)	79	534	35	122	1091	80	21	12	5/	100	15	123
Shared Lane Traffic (%)	70	500	0	400	4474	0	0	00	0	400	400	0
Lane Group Flow (vpn)	79	569	U	122	T1/1	U	U	96	U	100	138	0
Enter Blocked Intersection	NO	NO	NO	NO	NO	NO D: L	NO	NO	NO	NO	NO	NO
Lane Alignment	Lett	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			10.8			1.0			3.6	
		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
I wo way Left Turn Lane												4.0-
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	- 2		1	- 2		1	- 2		1	- 2	
Detector Template	Left	Ihru		Left	Ihru		Left	Ihru		Left	Ihru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	

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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
Switch Phase				1122			HEE			002		0011
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Act Effct Green (s)	93.2	93.6		81.8	81.8			23.3		23.3	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63			0.18		0.18	0.18	
v/c Ratio	0.26	0.17		0.26	0.31			0.33		0.56	0.40	
Control Delay	10.8	5.4		7.6	5.8			21.0		58.0	11.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	10.8	5.4		7.6	5.8			21.0		58.0	11.8	
LOS	В	А		А	А			С		E	В	
Approach Delay		6.1			5.9			21.0			31.2	
Approach LOS		А			A			С			С	
Queue Length 50th (m)	4.4	11.4		4.1	11.1			8.3		22.9	3.1	
Queue Length 95th (m)	m11.7	16.5		7.3	13.6			19.6		34.3	17.0	
Internal Link Dist (m)		138.2			146.6			77.7			80.5	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	343	3365		475	3820			471		312	513	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.23	0.17		0.26	0.31			0.20		0.32	0.27	
Intersection Summary	0.11											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Natural Cycle: 100	ed to phase 2:	EBIL and 6	S:WBTL, St	art of Gre	en							
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 9.3	3			In	tersection I	LOS: A						
Intersection Capacity Utilizat	ion 85.5%			IC	CU Level of	Service E						
Analysis Period (min) 15												
m Volume for 95th percent	ile queue is m	etered by u	pstream sig	gnal.								

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	ቀ ቶሴ		5	***	1		4		N	î.	
Traffic Volume (vph)	41	712	4	17	1498	107	13	20	10	117	23	60
Future Volume (vph)	41	712	4	17	1498	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0.0
Taper Length (m)	7.5		Ŭ	75		•	75		v	75		Ŭ
Lane Util Factor	1 00	0 91	0 91	1.00	0 91	1 00	1.00	1 00	1 00	1 00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	0.98	0.01	0.90	1.00	0.98	1.00	0.98	0.97	1.00
Frt		0 999		0.00		0.850		0.969		0.00	0.892	
Elt Protected	0 950	0.000		0.950		0.000		0.985		0 950	0.002	
Satd Flow (prot)	1676	/1811	0	1603	1865	1515	0	1706	0	1603	1530	0
Elt Permitted	0 123	1011	U	0.368	-000	1010	U	0 002	U	0 720	1000	U
Satd Flow (parm)	0.125	/011	٥	642	1965	1360	٥	15/0	٥	1276	1530	٥
Pight Turn on Pod	217	4011	Voc	042	4005	Voc	U	1049	Voc	1270	1009	Voc
Setd Elow (PTOP)		1	165			107		10	165		60	165
Salu. Flow (RTOR)		60			60	107		10			60 50	
Link Speed (k/n)		00			105.0			00			100 4	
		1/0.6			185.0			157.7			163.4	
I ravel Time (s)	00	10.2	40	40	11.1	00	00	11.4	47	47	11.8	00
Confl. Peds. (#/hr)	28		19	19		28	28		1/	1/		28
Confl. Bikes (#/hr)			6									2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	41	712	4	17	1498	107	13	20	10	117	23	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	716	0	17	1498	107	0	43	0	117	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		10.8			7.2			1.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Fx			CI+Ex			CI+Ex			Cl+Fx	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	pm+nt	NΔ		Perm	NA	Perm	Perm	NA		Perm	NΔ	
Protected Phases	5	- 2		1 0111	6			8				
Permitted Phases	2	2		6	- 0	6	8	0		Λ	- T	
Notactor Phase	2	2		6	6	6	Q	Q		- 4	1	
Delector Fliase	5	2		0	0	0	0	0		4	4	

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Lane Group	FBI	FRT	FBR	WRI	WBT	WBR	NRI	NBT	NBR	SBI	SBT	SBR
Switch Phase			LDIK	TIDE .	1101	TIBI(NDL		HBR	OBL	001	
Minimum Initial (s)	50	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	12.0	86.0		74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Total Split (%)	9.2%	66.2%		56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	5.0	79.8		67.8	67.8	67.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	37	37		3.7	37	37	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	1.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	lead	0.2		l aq	l aq	Lag						
Lead-Lag Optimize?				9	9	-~9						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		14		14	14	14	14	14		14	14	
Act Effct Green (s)	93.4	94.2		83.5	83.5	83.5		22.3		22.3	22.3	
Actuated g/C Ratio	0.72	0.72		0.64	0.64	0.64		0.17		0.17	0.17	
v/c Ratio	0.18	0.21		0.04	0.48	0.12		0.16		0.54	0.27	
Control Delay	8.0	5.2		13.9	15.0	3.1		34.0		55.5	16.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	8.0	5.2		13.9	15.0	3.1		34.0		55.5	16.4	
LOS	A	A		В	В	A		С		E	В	
Approach Delay		5.3			14.2			34.0			39.3	
Approach LOS		А			В			С			D	
Queue Length 50th (m)	2.1	13.6		1.3	58.6	0.0		7.0		26.7	4.8	
Queue Length 95th (m)	5.1	18.7		5.7	100.0	8.1		14.6		38.7	15.8	
Internal Link Dist (m)		146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	225	3486		412	3125	913		444		360	477	
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	0.18	0.21		0.04	0.48	0.12		0.10		0.33	0.17	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130)											
Offset: 95 (73%), Reference	ed to phase 2:E	BTL and 6:	WBTL, St	tart of Gree	en							
Natural Cycle: 85												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.54												
Intersection Signal Delay: 1	3.9			lr	ntersection	LOS: B						
Intersection Capacity Utiliza Analysis Period (min) 15	ation 70.2%			IC	CU Level o	f Service C)					
Splits and Phases: 15. In	oquois & Carlin	0										
		3										



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18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBI	WBR	NBT	NBR	SBI	SBT	Ø7	
Lane Configurations	*	1	**	1		<u>_</u>		
Traffic Volume (vph)	189	82	771	121	120	857		
Future Volume (vph)	189	82	771	121	120	857		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util, Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1.00		
Frt		0.850		0.850				
Flt Protected	0.950					0.994		
Satd, Flow (prot)	1710	1530	3353	1500	0	3300		
Flt Permitted	0.950					0.730		
Satd. Flow (perm)	1686	1497	3353	1424	0	2422		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		82		121				
Link Speed (k/h)	40		50			50		
Link Distance (m)	107.1		81.6			86.5		
Travel Time (s)	9.6		5.9			6.2		
Confl. Peds. (#/hr)	10	7		18	10			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%		
Adj. Flow (vph)	189	82	771	121	120	857		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	189	82	771	121	0	977		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			Cl+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase								
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

J.Audia, Novatech
18: Woodroffe E & Carlingwood SC PM Peak Hour

	<	*	1	1	1	↓		
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0	5.0	
Total Split (%)	27.4%	27.4%	67.4%	67.4%	67.4%	67.4%	5%	
Maximum Green (s)	20.3	20.3	58.0	58.0	58.0	58.0	3.0	
Vellow Time (s)	20.0	20.0	30.0	30.0	30.0	33	2.0	
All Red Time (s)	2.0	2.0	2.5	2.5	0.0 2.7	2.5	2.0	
Lost Timo Adjust (s)	2.4	2.4	2.7	2.7	۷.۱	2.7	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		
	5.7	5.7	0.0	0.0		0.0	اممما	
	Lag	Lag					Lead	
Lead-Lag Optimize?	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Venicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0		
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0		
Pedestrian Calls (#/hr)	5	5	5	5	5	5		
Act Effct Green (s)	15.8	15.8	67.5	67.5		67.5		
Actuated g/C Ratio	0.17	0.17	0.71	0.71		0.71		
v/c Ratio	0.68	0.26	0.32	0.12		0.57		
Control Delay	48.8	9.4	6.1	1.4		9.0		
Queue Delay	0.0	0.0	0.0	0.0		0.0		
Total Delay	48.8	9.4	6.1	1.4		9.0		
LOS	D	А	А	А		А		
Approach Delay	36.9		5.5			9.0		
Approach LOS	D		А			А		
Queue Length 50th (m)	30.3	0.0	22.0	0.0		36.0		
Queue Length 95th (m)	46.9	10.4	37.0	5.0		62.7		
Internal Link Dist (m)	83.1		57.6			62.5		
Turn Bay Length (m)			0.10			02.0		
Base Canacity (vph)	365	388	2383	1046		1721		
Starvation Can Reductn	000	000	0	0		0		
Spillback Can Reductn	0	0	0	0		0		
Storage Can Reducto	0	0	0	0		0		
Peduced v/c Patio	0.52	0.21	0 32	0 12		0.57		
	0.52	0.21	0.52	0.12		0.57		
Intersection Summary								
Area Type:	Other							
Cycle Length: 95								
Actuated Cycle Length: 95								
Offset: 45 (47%), Referenced	to phase 2:N	BT and 6:	SBTL, Star	t of Green				
Natural Cycle: 70								
Control Type: Actuated-Coord	linated							
Maximum v/c Ratio: 0.68								
Intersection Signal Delay: 11.0	0			In	tersection	LOS: B		
Intersection Capacity Utilization	on 79.8%			IC	U Level of	f Service D)	
Analysis Period (min) 15								
Splits and Phases: 18: Woo	odroffe E & Ca	arlingwood	SC					
Ø2 (R)								
64 s								
ac (p)								
• • 26 (K)								

64 s

26 s

5 s

1: Woodroffe E & Access PM Peak Hour

Lane Group EBL EBR NBL NBT SBT SBR Lane Configurations r 1
Lane Configurations ř †
Traffic Volume (vph) 0 19 0 929 1052 26 Future Volume (vph) 0 19 0 929 1052 26 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800
Future Volume (vph) 0 19 0 929 1052 26 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800
Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800
Lane Util. Factor 1.00 1.00 1.00 0.91 0.95 0.95
Frt 0.865 0.996
Flt Protected
Satd. Flow (prot) 0 1526 0 4771 3307 0
Flt Permitted
Satd. Flow (perm) 0 1526 0 4771 3307 0
Link Speed (k/h) 50 50 50
Link Distance (m) 53.6 15.2 67.0
Travel Time (s) 3.9 1.1 4.8
Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00
Heavy Vehicles (%) 2% 2% 3% 3% 3% 3%
Adj. Flow (vph) 0 19 0 929 1052 26
Shared Lane Traffic (%)
Lane Group Flow (vph) 0 19 0 929 1078 0
Enter Blocked Intersection Yes Yes Yes Yes No No
Lane Alignment Left Right Left Left Right
Median Width(m) 0.0 0.0 0.0
Link Offset(m) 0.0 0.0 0.0
Crosswalk Width(m) 3.0 3.0 3.0
Two way Left Turn Lane
Headway Factor 1.07 1.07 1.07 1.07 1.07 1.07
Turning Speed (k/h) 25 15 25 15
Sign Control Stop Free Free
Intersection Summany
Area Tura: Other
Alea Type. Oulei
Control Type. Unsignalized
Analysis Period (min) 15

	٦	-	-	•	1	~
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1030	2063	53	0	40
Future Volume (vph)	0	1030	2063	53	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.996			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6046	0	0	1526
Flt Permitted	-			-	-	
Satd, Flow (perm)	0	4771	6046	0	0	1526
Link Speed (k/h)	•	50	50	-	50	
Link Distance (m)		65.5	128.3		77.6	
Travel Time (s)		4.7	9.2		5.6	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1030	2063	53	0	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1030	2116	0	0	40
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6	Ū	0.0	Ŭ
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 42.6%			IC	U Level of	Service A
Analysis Period (min) 15						

10: Woodroffe E & Flower PM Peak Hour

	∕	\mathbf{r}	1	1	Ŧ	<
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲			-a†	≜ t≽	
Traffic Volume (vph)	19	42	47	760	839	23
Future Volume (vph)	19	42	47	760	839	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	42	47	760	839	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	807	862	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 62.8%			IC	U Level of	Service B

	<	•	†	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	5			1		
Traffic Volume (vph)	35	0	0	45	0	0
Future Volume (vph)	35	0	0	45	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1676	0	0	1526	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1676	0	0	1526	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	48.2		77.6			6.2
Travel Time (s)	3.5		5.6			0.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	0	0	45	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	45	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 6.7%			IC	U Level of	Service A

25: Woodroffe E & Carlingwood SC PM Peak Hour

	<	•	†	1	1	Ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u> </u>			*
Traffic Volume (vph)	0	89	820	82	0	1076
Future Volume (vph)	0	89	820	82	0	1076
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.986			
Flt Protected						
Satd. Flow (prot)	0	1526	4750	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4750	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	105.2		67.0			81.6
Travel Time (s)	7.6		4.8			5.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	89	820	82	0	1076
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	902	0	0	1076
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0	Ŭ	0.0	Ŭ		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 34.7%			IC	U Level of	Service A
A 1 1 B 1 1 (1) 4 F						

	-	\mathbf{r}	1	+	1	1
Lane Group	FBT	FBR	WBI	WBT	NBI	NBR
Lane Configurations	# #1.		**	**	*	1
Traffic Volume (vnh)	1337	182	565	330	244	500
Future Volume (vph)	1337	182	565	330	244	500
Ideal Flow (vph)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	120.0	0.0	1000	1000	1000
Storage Length (III)		120.0	0.0		0.0	0.0
Joinage Lanes			7 .		75	1
Laper Length (m)	0.04	0.04	C. 1	0.05	1.0	4 00
	0.91	0.91	0.97	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	0.98
	0.982		0.0-0		0.0-0	0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4713	0	3190	3288	1660	1485
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4713	0	3177	3288	1639	1449
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	22					8
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.7			65.5	242.1	
Travel Time (s)	14.3			3.9	17.4	
Confl. Peds. (#/hr)		13	13	0.0	11	11
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	2%	2%	4%	4%	3%	3%
Adi Flow (vph)	1227	182	565	330	2//	500
Shared Lane Traffic (%)	1557	102	505	550	244	500
Lano Group Flow (vob)	1510	0	EGE	220	244	500
Lane Group Flow (vpn)	1019	U	000	330	Z44	500
	INO	INO Distat	INO	INO	INO	INO Dialat
	Lett	Right	Lett	Lett	Left	Right
Median Width(m)	1.2			9.9	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)		15	25		25	15
Number of Detectors	1		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	0.0	20	2.0
Detector 1 Type					2.0 CI+Ev	
Detector 1 Channel						
Detector 1 Channel	0.0		0.0	0.0		
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	. 1
Permitted Phases	-					8
Detector Phase	2		1	6	8	1
Switch Phase	2		I	U	U	1
Switch Flidse						

	-	\rightarrow	-	-	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0	
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0	
Total Split (s)	55.0		31.0	86.0	44.0	31.0	
Total Split (%)	42.3%		23.8%	66.2%	33.8%	23.8%	
Maximum Green (s)	49.3		25.0	80.3	38.2	25.0	
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7	
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0	
Lead/Lag	Lag		Lead			Lead	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Recall Mode	C-Max		None	C-Max	Min	None	
Walk Time (s)	11.0			11.0	7.0		
Flash Dont Walk (s)	15.0			15.0	26.0		
Pedestrian Calls (#/hr)	/		00.0	1	6		
Act Effet Green (s)	59.0		28.9	93.9	24.6	53.3	
Actuated g/C Ratio	0.45		0.22	0.72	0.19	0.41	
v/c Ratio	0.71		0.80	0.14	0.78	0.83	
Control Delay	31.8		55.0	6.1	00.5	41.9	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	31.0		55.0	0.1	00.5 F	41.9	
LUS Aurorach Dalay	21.0		E	A 27.2	50.0	U	
Approach LOS	31.0			37.3	50.0		
Approach LOS	104.1		60.1	0.4		01.2	
Queue Length 50th (m)	104.1		00.1	9.4	20.4 76.0	91.0	
Internal Link Dist (m)	133.7		00.9	20.0	70.0	113.0	
Turn Boy Longth (m)	214.7			41.0	210.1		
Base Capacity (yph)	2151		717	2375	/87	610	
Starvation Can Reduction	2131		0	2313	407	010	
Stallback Can Reductin	0		0	0	0	0	
Spillback Cap Reductin	0		0	0	0	0	
Peduced v/c Ratio	0.71		0 79	0 14	0.50	0.82	
	0.11		0.15	0.14	0.00	0.02	
Intersection Summary							
Area Type:	Other						
Cycle Length: 130							
Actuated Cycle Length: 130							
Offset: 112 (86%), Referenced	d to phase 2:E	BT and 6	:WBT, Sta	rt of Greer	۱		
Natural Cycle: 95							
Control Type: Actuated-Coord	linated						
Maximum v/c Ratio: 0.83	_						
Intersection Signal Delay: 37.7	7			In	itersection	LOS: D	
Intersection Capacity Utilization	on 81.4%			IC	CU Level o	f Service D	1
Analysis Period (min) 15							
Splits and Phases: 3: Wood	Iroffe W & Car	ling					
1 Ø1	🚽 🚽 🚽	Ø2 (R)					
31s	55 s						
(R)							

86 s

44 s

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	≜1 ⊾		×.	***	1	N	≜1 ⊾		×.	*	1
Traffic Volume (vph)	479	1455	45	10	316	90	20	225	50	250	89	551
Future Volume (vph)	479	1455	45	10	316	90	20	225	50	250	89	551
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	20.0			30.0			7.5			100.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		1.00		0.97	0.99	0.99		0.99		0.98
Frt		0.995				0.850		0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd, Flow (prot)	3252	3332	0	1555	4467	1391	1676	3242	0	1660	1748	1485
Elt Permitted	0.950		-	0.950			0.699		-	0.367		
Satd, Flow (perm)	3191	3332	0	1549	4467	1349	1227	3242	0	633	1748	1459
Right Turn on Red		0001	Yes			Yes			Yes			Yes
Satd, Flow (RTOR)		3				191		20				234
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		128.3			162.2			169.9			54 4	
Travel Time (s)		77			97			12.2			3.9	
Confl Peds (#/hr)	14	1.1	13	13	0.1	14	5	12.2	18	18	0.0	5
Confl Bikes (#/hr)			10	10		1	Ŭ		2	10		U
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Heavy Vehicles (%)	2%	2%	2%	10%	1.00	1.00	2%	2%	2%	3%	3%	3%
Adi Flow (vph)	479	1455	45	1070	316	90	20	225	50	250	89	551
Shared Lane Traffic (%)	515	1400	τu	10	010	50	20	220	00	200	00	001
Lane Group Flow (vph)	479	1500	0	10	316	90	20	275	0	250	89	551
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Loft	Loft	Pight	Loft	Loft	Pight	Loft	Loff	Pight	Loft	Loft	Pight
Median Width(m)	LGII	10.8	Taynt	LEIL	10.8	Ttight	LEIL	36	Ngn	Leit	20	Night
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		0.0 3.0			3.0			3.0			3.0	
		0.0			0.0			0.0			0.0	
Headway Eactor	1 07	1 07	1.07	1.07	1 07	1 07	1.07	1 07	1 07	1 07	1 07	1 07
Turning Speed (k/h)	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07	25	1.07	1.07
Number of Detectors	1	2	10	20	2	1	1	2	10	1	2	1
Detector Template	ا م	Thru		ا taft	Thru	Right	ا ftما	Thru		ا م	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	2.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.0		2.0	0.0	2.0	2.0	0.0		2.0	0.0	2.0
Detector 1 Type	CI+Ev	CI+Ev		CI+Ev	CI+Ev	CI+Ev	CI+Ev	CI+Ev		CI+Ev		CI+Ev
Detector 1 Channel				OFLX	OFLX	OFLX	OFLX	OFLA		OFLX		OITEX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0 Q /		0.0	0.0	0.0
Detector 2 Size(m)		9. 4 0.6			9. 4 0.6			9. 4 0.6			0.4 0.6	
Detector 2 Type												
Detector 2 Channel												
Detector 2 Unannel		0.0			0.0			0.0			0.0	
	Drot	0.0		Drot	0.0	Dorm	Dorm	0.0		nmint	0.0	nm i oli
	PIU	INA 0		7101	NA 6	reim	reim	INA o		pin+pt	NA 4	piii+0V
Protected Phases	5	2		1	6	0	0	ŏ		1	4	5
Permitted Phases	-	0		1	<u>^</u>	0	ŏ	0		4	4	4
Delector Phase	5	2		1	0	6	ŏ	ð		1	4	5

5: Fairlawn/Woodroffe E & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	37.1		11.3	37.1	37.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	31.0	53.7		21.3	44.0	44.0	41.0	41.0		14.0	55.0	31.0
Total Split (%)	23.8%	41.3%		16.4%	33.8%	33.8%	31.5%	31.5%		10.8%	42.3%	23.8%
Maximum Green (s)	24.7	47.6		15.0	37.9	37.9	34.1	34.1		7.7	48.1	24.7
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	3.7
All-Red Time (s)	2.6	2.4		2.6	2.4	2.4	3.6	3.6		3.0	3.6	2.6
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)	6.3	6.1		6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	0.0	Lead
Lead-Lag Optimize?	Loud	Lag		Loud	Lag	Lag	Lag	Lag		Loud		Loud
Vehicle Extension (s)	30	30		3.0	3.0	30	30	30		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)	Hono	7.0		Home	7.0	7.0	23.0	23.0		Home	23.0	110110
Flash Dont Walk (s)		24.0			24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		7			21.0	7	9	9			9	
Act Effct Green (s)	23.9	81 7		6.5	54.4	54.4	18.4	18.4		33.0	32 4	56.9
Actuated g/C Ratio	0.18	0.63		0.05	0 42	0 42	0.14	0.14		0.25	0.25	0 44
v/c Ratio	0.80	0.00		0.00	0.12	0.12	0.12	0.58		1 13	0.20	0.71
Control Delay	73.1	13.5		76.1	19.0	0.10	45.8	52.0		141 1	37.6	18.2
	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	73.1	13.5		76.1	19.0	0.0	45.8	52.0		141 1	37.6	18.2
	70.1	R		70.1	10.0 R	Δ	-0.0 D	02.0 D		F	07.0 D	10.2 R
Approach Delay	L	27.9		-	16.4	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	U	51.5		•	54.7	D
Approach LOS		C.			B			01.0 D			01.1 D	
Queue Length 50th (m)	59.5	50.6		26	12.8	0.0	43	30.7		~65.5	17.2	56.9
Queue Length 95th (m)	m76.9	#239.9		8.2	11.0	0.0	9.7	37.0		#79.6	25.0	65.6
Internal Link Dist (m)	111 0.0	104.3		0.2	138.2	0.1	0.1	145.9		110.0	30.4	00.0
Turn Bay Length (m)	75.0	104.0		35.0	100.2			140.0			00.4	
Base Capacity (vph)	637	2096		179	1870	675	321	865		221	646	790
Starvation Can Reductn	0	0		0	0	0/0	021	000		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Can Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.75	0.72		0.06	0.17	0.13	0.06	0.32		1.13	0.14	0.70
Intersection Summany		-			-					-	-	
	Other											
Cycle Length: 130	Other											
Actuated Cycle Length: 130												
Offset: 128 (98%) Reference	d to phase 2.	EBT and 6.	WRT Star	t of Green	h							
Natural Cycle: 125	u to phase 2.		WD1, Star		I							
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 1 13	linated											
Intersection Signal Delay: 35	2			In	tersection	1 OS · D						
Intersection Capacity Litilization	∠ on 101.6%					f Service (2					
Analysis Period (min) 15	511 101.076			IC.			,					
~ Volume exceeds canacity	auque is the	oretically in	ofinito									
	, queue is the		mmte.									
# 95th percentile volume ex	ceeds canaci	tv nueue n	nav he long	ner								
Queue shown is maximum	after two cvc	les										
m Volume for 95th percentil	e queue is m	etered by u	pstream si	gnal.								
Colito and Dhasses E. E.	wo/Maadaaff		20									
opins and mases. 5. Fairia	avvii/vv0001011	e 🗆 🛛 Odfil	ng									

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	X	##1		X	tttts.					X	۵.	
Traffic Volume (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Future Volume (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	6.0			7.5			7.5		· ·	7.5		
Lane Util Factor	1 00	0.91	0.91	1 00	0.86	0.86	1 00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1 00	0.01	1.00	1 00	0.00	1.00	0.99	1.00	0.99	0.98	1.00
Ert	1.00	0.998		1.00	0.996			0.930		0.00	0.861	
Elt Protected	0 950	0.000		0 950	0.000			0.987		0 950	0.001	
Satd Flow (prot)	1676	4806	0	1676	6044	0	0	1573	0	1221	1112	0
Elt Permitted	0 435	4000	U	0 150	0044	0	0	0.917	U	0 740	1112	U
Satd Flow (perm)	766	1806	0	264	6044	0	٥	1/50	0	0.140 Q/15	1112	0
Right Turn on Red	100	-000	Ves	204	0077	Ves	U	1-00	Ves	5-5	1112	Ves
Satd Flow (RTOR)		2	103		5	163		1/	163		30	103
Link Speed (k/b)		60			03			30			40	
Link Distance (m)		162.2			170.6			101 7			111.6	
		0.7			10.0			101.7			10.0	
Confl Pode (#/br)	1	9.7	5	5	10.2	1	5	12.2	7	7	10.0	5
Comil. Feus. (#/m)	4	1.00	1 00	1 00	1.00	4	1 00	1.00	1 00	1 00	1.00	1 00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adi Flaw (mab)	Z %	270 4550	Z 70	2%	Z %	Z 70	4%	4%	4%	40%	0%	40%
Adj. Flow (vpn)	IZ	1000	10	20	447	13	1	0	14	20	3	39
Shared Lane Traffic (%)	10	4570	0	00	400	0	0	07	0	00	40	0
Lane Group Flow (Vpn)	IZ	15/0	U	20	400	U	U	21	U	20	42	U
Enter Blocked Intersection	INO	INO	INO Dialet	INO	INO	INO Dialat	INO	INO	NO Dialat	INO	INO	INO Dialat
	Lett	Len	Right	Leπ	Lett	Right	Leπ	Left	Right	Lett	Left	Right
		9.9			10.8			1.0			3.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
		3.0			3.0			3.0			3.0	
I wo way Left Turn Lane	4.07	4.07	4.07	4 07	4.07	4.07	4.07	4 07	4 07	4 07	4.07	4 07
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	•	15	25	•	15	25	•	15	25	•	15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	I hru		Left	I hru		Left	l hru		Left	l hru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												

J.Audia, Novatech

Synchro 10 Report

12: Carling & Carlingwood SC AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	17.0	82.0		65.0	65.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.1%	63.1%		50.0%	50.0%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	10.17	75.8		58.8	58.8		41 1	41 1		41 1	41 1	
Yellow Time (s)	37	3.7		37	37		3.3	33		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.0		6.0	6.0	
	Lead	0.2		Lan	Lan			0.0		0.5	0.5	
Lead-Lag Ontimize?	Louu			Lug	Lug							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (c)	NONE	7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	24.0 13.0		13.0	24.0 13.0	
Podostrian Calls (#/br)		20.0		20.0	20.0		15.0	15.0		10.0	15.0	
Act Effet Croop (a)	104.2	105.0		100.9	100.9		4	4		15.6	15.6	
Actuated a/C Patia	104.5	0.91		0.70	0.79			0.10		0.10	0.10	
Actualed g/C Rallo	0.00	0.01		0.70	0.70			0.12		0.12	0.12	
V/C Rallo	0.02	0.40		0.13	0.10			0.14		0.23	0.20	
	J. I	2.4		0.7	4.0			20.1		52.5	17.0	
Queue Delay	0.0	0.1		0.0	0.0			0.0		0.0	0.0	
l otal Delay	3.1	2.5		8./	4.5			28.7		52.3	17.6	
LUS	A	A		A	A			007		D	B	
Approach Delay		2.5			4./			28.7			30.9	
Approach LOS	0.0	A		10	A					F 0		
Queue Length 50th (m)	0.3	10.0		1.0	4.7			2.9		5.9	0.7	
Queue Length 95th (m)	MU.6	m21.7		3.7	9.6			9.0		11.4	8./	
Internal Link Dist (m)	440.0	138.2		05.0	146.6			11.1			87.b	
Turn Bay Length (m)	110.0	0047		65.0	1000			170		000	070	
Base Capacity (vpn)	687	3917		205	4689			470		298	3/8	
Starvation Cap Reductn	0	1002		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.02	0.54		0.13	0.10			0.06		0.09	0.11	
Intersection Summary	0.11											
Area Type:	Other											
Astusted Cycle Length: 120												
Offset: 128 (98%) Referenced	to phase 2:1	EBTL and P	WRTI S	tart of Gre	on							
Natural Cycle: 100	10 pridoe 2.1											
Control Type: Actuated-Coordir	nated											
Maximum v/c Ratio: 0.40	aleu											
Intersection Signal Delay: 4.2				In	tersection							
Intersection Capacity Litilization	56 3%					Service R						
Analysis Period (min) 15	00.070					Dervice D						
m Volume for 95th percentile	Analysis Period (min) 15 m Volume for 95th percentile queue is metered by upstream signal.											
Splits and Phases: 12: Carlin	plits and Phases: 12: Carling & Carlingwood SC											
-402 (R)							- -	0 4				



15: Iroquois & Carling AM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	**1		N	***	1		4		N	۴.	
Traffic Volume (vph)	19	1686	5	7	387	60	3	24	30	75	7	27
Future Volume (vph)	19	1686	5	7	387	60	3	24	30	75	7	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (m)	7.5		-	7.5			7.5		-	7.5		-
Lane Util, Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00	0.0.1	1.00		0.94		0.98		0.99	0.98	
Frt	0.00	1.00		1.00		0.850		0.929		0.00	0.881	
Elt Protected	0.950			0.950				0.997		0.950		
Satd Flow (prot)	1676	4817	0	1629	4680	1457	0	1610	0	1660	1508	0
Elt Permitted	0 478	1011	Ŭ	0 132	1000	1101	Ŭ	0.985	v	0.840	1000	U
Satd Flow (perm)	825	4817	0	226	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red	020	1017	Yes		1000	Yes	Ū	1000	Yes	1100	1000	Yes
Satd Flow (RTOR)		1	100			95		25	100		27	100
Link Speed (k/h)		60			60	00		50			50	
Link Distance (m)		170.6			185.0			157.7			163 /	
Travel Time (s)		10.0			11 1			11 /			11.8	
Confl Peds (#/br)	15	10.2	12	12	11.1	15	13	11.4	12	12	11.0	13
Confl. Rikes (#/hr)	IJ		1	12		1	IJ		12	12		IJ
Pook Hour Footor	1.00	1.00	1 00	1.00	1 00	1 00	1.00	1 00	1 00	1 00	1 00	1 00
	20/	2%	2%	5%	F%	5%	2%	20/	20/	30/	20/	30/
Adi, Elow (vob)	2 /0	1696	Z /0 5	570	207	570	2 /0	2 /0	2 /0	J /0 75	J /0 7	J /0 07
Auj. Flow (vpli) Shared Lane Traffic (%)	19	1000	5	1	307	00	3	24	30	75	1	21
Lane Group Flow (uph)	10	1601	٥	7	387	60	٥	57	٥	75	3/	٥
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	J4 No	No
Long Alignment	INU Loft	Loff	Dicht	Loff	Loff	Diabt	INU Loff	Loff	Diabt	Loff	Loft	Diaht
Larie Alignment Modion Width(m)	Leit	10 Q	Right	Leit		Right	Leit	1.0	Right	Leit	2.6	Right
Link Offect(m)		10.0			1.2			1.0			0.0	
Crosswalk Width(m)		0.0			0.0 3.0			3.0			3.0	
		5.0			5.0			5.0			5.0	
Hoodway Easter	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1 07	1 07	1 07
Turning Speed (k/h)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	2	15	20	2	10	20	2	10	20	2	15
Number of Detectors	l off	Z		l off	Z	Diabt	l off	Z		l off	Z	
Loading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Detector 1 Decition(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(III)												
Detector 1 Channel	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX		
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (S)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(III)		0.0			0.0			0.0			0.6	
Detector 2 Type		CI+EX			UI+EX			UI+EX			CI+EX	
Detector 2 Unannel		0.0			0.0						• •	
Detector 2 Extend (S)		0.0		Demo	0.0	Derrer	Derm	0.0		Derma	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		^	6		^	8		_	4	
Permitted Phases	2	^		6	^	6	8	^		4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Synchro 10 Report

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	14.0	86.0		72.0	72.0	72.0	44.0	44.0		44.0	44.0	
Total Split (%)	10.8%	66.2%		55.4%	55.4%	55.4%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	7.0	79.8		65.8	65.8	65.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		8		8	8	8	7	7		7	7	
Act Effct Green (s)	102.2	104.3		98.9	98.9	98.9		16.9		16.9	16.9	
Actuated g/C Ratio	0.79	0.80		0.76	0.76	0.76		0.13		0.13	0.13	
v/c Ratio	0.03	0.44		0.04	0.11	0.06		0.25		0.40	0.16	
Control Delay	1.5	1.5		12.3	7.3	1.0		31.1		55.3	19.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	1.5	1.5		12.3	7.3	1.0		31.1		55.3	19.7	
LOS	A	A		В	A	A		C		E	B	
Approach Delay		1.5			6.6			31.1			44.2	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.2	5.9		0.3	6.2	0.0		7.0		1/.1	1.5	
Queue Length 95th (m)	m0.7	8.1		3.4	22.5	2.1		15.6		25.8	8.8	
Internal Link Dist (m)	405.0	146.6		40.0	161.0			133.7			139.4	
Turn Bay Length (m)	125.0	0004		40.0	0500	4000		100		400		
Base Capacity (vph)	694	3864		1/1	3560	1060		466		409	445	
Starvation Cap Reductn	0	283		0	0	0		0		0	0	
Spillback Cap Reducth	0	0		0	0	0		0		0	0	
Storage Cap Reductn	0	0		0	0	0		0		0	0	
Reduced V/C Ratio	0.03	0.47		0.04	0.11	0.06		0.12		0.18	0.08	
Intersection Summary	• ::											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 0 (0%), Referenced to	o phase 2:EBT	L and 6:W	BTL, Start	of Green								
Natural Cycle: 85												
Control Type: Actuated-Coor	rdinated											
Maximum v/c Ratio: 0.44	•											
Intersection Signal Delay: 5.2	2 00.001			In	itersection	LUS: A						
Intersection Capacity Utilizat	ion 63.2%			IC	U Level o	r Service E	5					
Analysis Period (min) 15												

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

Splits and Phases: 15: Iroquois & Carling



18: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		≜1 ⊾	, . .	
Traffic Volume (vph)	23	9	703	72	25	735		
Future Volume (vph)	23	9	703	72	25	735		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98		0.95		1.00		
Frt		0.850		0.850				
Flt Protected	0.950					0.998		
Satd, Flow (prot)	1710	1530	3288	1471	0	3314		
Flt Permitted	0.950					0.919		
Satd. Flow (perm)	1693	1504	3288	1401	0	3051		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		9		72				
Link Speed (k/h)	40		50			50		
Link Distance (m)	107.1		84.6			86.5		
Travel Time (s)	9.6		6.1			6.2		
Confl. Peds. (#/hr)	8	4		18	18			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	0%	0%	4%	4%	3%	3%		
Adj. Flow (vph)	23	9	703	72	25	735		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	23	9	703	72	0	760		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex	CI+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			Cl+Ex		
Detector 2 Channel								
Detector 2 Extend (s)	-	_	0.0	_	_	0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8	_	2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase	-							
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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Synchro 10 Report

18: Woodroffe E & Carlingwood SC AM Peak Hour

	1	*	1	1	1	Ŧ			
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7		
Total Split (s)	26.0	26.0	54 0	54.0	54.0	54 0	5.0		
Total Split (%)	30.6%	30.6%	63.5%	63.5%	63.5%	63.5%	6%		
Maximum Green (s)	20.3	20.3	48.0	48.0	48.0	48.0	3.0		
Yellow Time (s)	20.0	20.0	33	33	33	33	2.0		
All-Red Time (s)	2.4	2.4	2.7	2.7	2.7	2.7	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	2.1	0.0	0.0		
Total Lost Time (s)	5.7	5.7	6.0	6.0		6.0			
	1.0	1.0	0.0	0.0		0.0	l ood		
Lead/Lag Optimize?	Lay	Lay					Leau		
Vehicle Extension (s)	3.0	30	3.0	3.0	3.0	30	3.0		
People Mode	J.U Nono	J.U Nono	C Mox	C Mox	C Mox	C Mox	J.U Nono		
	None	None					None		
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0			
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0			
Pedestrian Calls (#/hr)	4	4	9	9	9	9			
Act Effct Green (s)	9.0	9.0	/1.2	/1.2		/1.2			
Actuated g/C Ratio	0.11	0.11	0.84	0.84		0.84			
v/c Ratio	0.13	0.05	0.26	0.06		0.30			
Control Delay	32.9	16.6	3.5	1.5		3.8			
Queue Delay	0.0	0.0	0.0	0.0		0.0			
Total Delay	32.9	16.6	3.5	1.5		3.8			
LOS	С	В	А	А		А			
Approach Delay	28.3		3.3			3.8			
Approach LOS	С		А			А			
Queue Length 50th (m)	3.3	0.0	11.2	0.0		12.7			
Queue Length 95th (m)	8.0	3.3	32.0	4.0		36.3			
Internal Link Dist (m)	83.1		60.6			62.5			
Turn Bay Length (m)									
Base Capacity (vph)	404	366	2754	1185		2556			
Starvation Cap Reductn	0	0	0	0		0			
Spillback Cap Reductn	0	0	0	0		0			
Storage Cap Reductn	0	0	0	0		0			
Reduced v/c Ratio	0.06	0.02	0.26	0.06		0.30			
Intersection Summary									
Area Type:	Other								
Cycle Length: 85									
Actuated Cycle Length: 85									
Offset: 10 (12%), Referenced to	o phase 2:N	BT and 6:	SBTL, Star	t of Green					
Natural Cycle: 70									
Control Type: Actuated-Coordin	nated								
Maximum v/c Ratio: 0.30									
Intersection Signal Delay: 4.0				In	itersection	LOS: A			
Intersection Capacity Utilization	n 56.4%			IC	CU Level o	f Service B			
Analysis Period (min) 15									
Splits and Phases: 18: Wood	droffe E & Ca	arlingwood	SC						
(a)		-							
54 s									
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▼ "Ø6 (R)							7 60	Y ▼ Ø8	

5 s

26 s

54 s

1: Woodroffe E & Access AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		1		***	4 12	
Traffic Volume (vph)	0	39	0	804	852	15
Future Volume (vph)	0	39	0	804	852	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	0.95
Frt		0.865			0.997	
Flt Protected						
Satd. Flow (prot)	0	1526	0	4771	3310	0
Flt Permitted						
Satd. Flow (perm)	0	1526	0	4771	3310	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	63.9	
Travel Time (s)	3.9			1.1	4.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	39	0	804	852	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	39	0	804	867	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0	Ū		0.0	0.0	•
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summarv						
Area Type:	Other					
Control Type: Unsignalized	0 0 0 0					
Intersection Capacity Utilizati	on 35.4%			IC	Ulevelof	Service A
Analysis Period (min) 15						

	٦	-	-	*	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.		-	1
Traffic Volume (vph)	0	1939	815	31	0	61
Future Volume (vph)	0	1939	815	31	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	5868	0	0	1557
Flt Permitted						
Satd. Flow (perm)	0	4771	5868	0	0	1557
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	128.3		75.6	
Travel Time (s)		4.7	9.2		5.4	
Confl. Peds. (#/hr)				10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	5%	5%	0%	0%
Adj. Flow (vph)	0	1939	815	31	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1939	846	0	0	61
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		2.7	2.7		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						

Intersection Capacity Utilization 42.9%

ICU Level of Service A

10: Woodroffe E & Flower AM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	M.			-a†	4 16	
Traffic Volume (vph)	25	78	20	665	645	12
Future Volume (vph)	25	78	20	665	645	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.898				0.997	
Flt Protected	0.988			0.999		
Satd. Flow (prot)	1581	0	0	3350	3279	0
Flt Permitted	0.988			0.999		
Satd. Flow (perm)	1581	0	0	3350	3279	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	133.7			86.5	82.4	
Travel Time (s)	9.6			6.2	5.9	
Confl. Peds. (#/hr)	8	4	7			7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	2%	2%	4%	4%
Adj. Flow (vph)	25	78	20	665	645	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	685	657	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 49.0%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	5			1		
Traffic Volume (vph)	59	0	0	25	0	0
Future Volume (vph)	59	0	0	25	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1676	0	0	1526	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1676	0	0	1526	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	42.8		75.6			4.6
Travel Time (s)	3.1		5.4			0.3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	0	0	25	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	25	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	-	0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 6.8%			IC	U Level of	Service A
A						

25: Woodroffe E & Carlingwood SC AM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u>ተተ</u> ኑ			^
Traffic Volume (vph)	0	14	792	12	0	866
Future Volume (vph)	0	14	792	12	0	866
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1526	4808	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4808	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	104.8		63.9			84.6
Travel Time (s)	7.5		4.6			6.1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	14	792	12	0	866
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	14	804	0	0	866
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 28.6%			IC	U Level of	Service A

Lane Group EBT EBR WBL WBT NBL NBR Lane Configurations ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↑↑↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ ↓↑ <td< th=""></td<>
Lane Configurations Lane Mat Mat Mat Traffic Volume (vph) 517 340 877 1016 279 465 Future Volume (vph) 517 340 877 1016 279 465 Ideal Flow (vphpl) 517 340 877 1016 279 465 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Storage Length (m) 120.0 0.0 0.0 0.0 0.0 Storage Lanes 1 2 1 1 Taper Length (m) 7.5 7.5 1.00 1.00 Ped Bike Factor 0.99 0.99 0.99 0.98 Frt 0.940 0.850 0.950 0.850 Flt Protected 0.950 0.950 0.850 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Std. Flow (perm) 4470 0 3218 3353 1677 1486
Traffic Volume (vph) 517 340 877 1016 279 465 Future Volume (vph) 517 340 877 1016 279 465 Ideal Flow (vph) 517 340 877 1016 279 465 Ideal Flow (vph) 1800 1800 1800 1800 1800 1800 Storage Length (m) 120.0 0.0 0.0 0.0 0.0 Storage Lanes 1 2 1 1 Taper Length (m) 7.5 7.5 1.00 1.00 Ped Bike Factor 0.91 0.97 0.95 1.00 1.00 Ped Bike Factor 0.990 0.99 0.98 5.0 5.0 5.0 Fit 0.940 0.950 0.950 0.950 0.850 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0
Future Volume (vph) 517 340 877 1016 279 465 Ideal Flow (vphpl) 1800 150 150 151 16 16 17 1486 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 10
Ideal Flow (vphpl) 1800 1600 100
Item (w) 1000
Storage Lenger (m) 120.0 0.0 0.0 0.0 Storage Lanes 1 2 1 1 Taper Length (m) 7.5 7.5 7.5 Lane Util. Factor 0.91 0.97 0.95 1.00 1.00 Ped Bike Factor 0.99 0.99 0.99 0.99 0.98 Frt 0.940 0.950 0.950 0.850 Flt Protected 0.950 0.950 0.950 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Flt Permitted 0.950 0.950 0.950 0.950 0.950 0.950
Taper Length (m) 7.5 7.5 Lane Util. Factor 0.91 0.91 0.97 0.95 1.00 1.00 Ped Bike Factor 0.99 0.99 0.99 0.99 0.98 Frt 0.940 0.950 0.950 0.850 Flt Protected 0.950 0.950 1515 Std. Flow (prot) 4470 0 3252 3353 1693 1515 Std. Flow (perm) 4470 0 3218 3353 1677 1486
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Lane Out. Factor 0.91 0.91 0.97 0.95 1.00 1.00 Ped Bike Factor 0.99 0.99 0.99 0.99 0.98 Frt 0.940 0.950 0.850 Fit Protected 0.950 0.950 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Fit Permitted 0.950 0.950 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Ped Bike Factor 0.99 0.99 0.99 0.98 Frt 0.940 0.850 0.850 Fit Protected 0.950 0.950 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Fit Permitted 0.950 0.950 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
rit 0.940 0.850 Fit Protected 0.950 0.950 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Fit Permitted 0.950 0.950 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Fit Protected 0.950 0.950 Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Flt Permitted 0.950 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Satd. Flow (prot) 4470 0 3252 3353 1693 1515 Flt Permitted 0.950 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Fit Permitted 0.950 0.950 Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Satd. Flow (perm) 4470 0 3218 3353 1677 1486
Right Turn on Red Yes Yes
Satd. Flow (RTOR) 124 69
Link Speed (k/h) 60 60 50
Link Distance (m) 238.7 65.5 242.1
Travel Time (s) 14.3 3.9 17.4
Confl. Peds. (#/hr) 14 14 8 6
Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00
Heavy Vehicles (%) 2% 2% 2% 2% 1% 1%
Adi Flow (vnh) 517 340 877 1016 270 465
Ruj. 1 low (vp1) 517 540 677 1016 275 405 Shared Lane Traffic (%)
Silare Lane Franc (7)
Late Gloup Flow (vpr) 057 0 077 1010 279 405
Line Diouxed Intersection INO INO INO INO INO INO INO INO
Lane Alignment Left Right Left Left Right
iviedian vvidtn(m) 7.2 10.8 3.6
Link Offset(m) 0.0 0.0
Crosswalk Width(m) 3.0 3.0 3.0
Two way Left Turn Lane
Headway Factor 1.07 1.07 1.07 1.07 1.07 1.07
Turning Speed (k/h) 15 25 25 15
Number of Detectors 2 1 2 1 1
Detector Template Thru Left Thru Left Right
Leading Detector (m) 10.0 2.0 10.0 2.0 2.0
Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0
Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0
Detector 1 Size(m) 0.6 20 0.6 20 20
Detector 1 Type CI+Ey CI+Ey CI+Ey CI+Ey CI+Ey
Detector 1 Channel
Detector 1 Overe (c) 0.0 0.0 0.0 0.0 0.0 0.0
Detector i Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0
Detector 2 Position(m) 9.4 9.4
Detector 2 Size(m) 0.6 0.6
Detector 2 Type CI+Ex CI+Ex
Detector 2 Channel
Detector 2 Extend (s) 0.0 0.0
Turn Type NA Prot NA Prot pm+ov
Protected Phases 2 1 6 8 1
Permitted Phases 8
Detector Phase 2 1 6 8 1

	-	\rightarrow	-	-	1	1
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0		5.0	10.0	10.0	5.0
Minimum Split (s)	31.7		11.0	31.7	38.8	11.0
Total Split (s)	40.0		49.0	89.0	41.0	49.0
Total Split (%)	30.8%		37.7%	68.5%	31.5%	37.7%
Maximum Green (s)	34.3		43.0	83.3	35.2	43.0
Yellow Time (s)	3.7		3.7	3.7	3.3	3.7
All-Red Time (s)	2.0		2.3	2.0	2.5	2.3
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7		6.0	5.7	5.8	6.0
Lead/Lag	Lag		Lead	0.1	0.0	Lead
Lead-Lag Optimize?	-~9					
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	Min	None
Walk Time (s)	11 0		110110	11.0	7.0	110110
Flash Dont Walk (s)	15.0			15.0	26.0	
Pedestrian Calls (#/hr)	7			7	6	
Act Effct Green (s)	45.6		40.3	91 9	26.6	66.7
Actuated g/C Ratio	0.35		0.31	0.71	0.20	0.51
v/c Ratio	0.00		0.87	0.43	0.20	0.58
Control Delay	31 3		63.1	6.5	66.5	17 3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.3		63.1	6.5	66.5	17.3
	01.0 C		00.1 F	Δ	00.0 F	17.5 R
Approach Delay	31 3		L	327	35.7	D
Approach LOS	01.0 C			02.1 C	00.7 D	
Queue Length 50th (m)	50.7		110 0	30.4	63.2	54.6
Queue Length 95th (m)	71.3		m112.3	m/1 /	85.5	64.4
Internal Link Dist (m)	214.7		11112.5	/1.5	218.1	04.4
Turn Boy Longth (m)	214.7			41.0	210.1	
Page Capacity (vph)	1640		1005	0070	150	020
Stanuation Can Baduath	1049		1005	2370	400	039
Starvation Cap Reductin	0		0	0	0	0
Spillback Cap Reductin	0		0	0	0	0
Storage Cap Reductin	0		0	0	0	0
Reduced V/c Ratio	0.52		0.81	0.43	0.61	0.55
Intersection Summary						
Area Type:	Other					
Cycle Length: 130						
Actuated Cycle Length: 130						
Offset: 27 (21%), Referenced	to phase 2:EE	BT and 6:	NBT, Start	of Green		
Natural Cycle: 95						
Control Type: Actuated-Coord	linated					
Maximum v/c Ratio: 0.87						
Intersection Signal Delay: 33.	0			In	tersection	LOS: C
Intersection Capacity Utilization	on 81.0%			IC	CU Level of	f Service D
Analysis Period (min) 15						
m Volume for 95th percentil	e queue is me	tered by ι	upstream s	ignal.		
Splits and Phases: 3: Wood	droffe W & Car	lina				



5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	55	≜1 ⊾		X	***	1	3	41		N	*	1
Traffic Volume (vph)	539	448	84	31	1317	153	93	261	43	142	178	768
Future Volume (vph)	539	448	84	31	1317	153	93	261	43	142	178	768
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	35.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	20.0		-	30.0			7.5		-	100.0		-
Lane Util, Factor	0.97	0.95	0.95	1.00	0.91	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99	0.98	0.00	0.95		0.95	0.99	0.99	0.00	0.97		0.97
Frt	0.00	0.976		0.00		0.850	0.00	0.979				0.850
Elt Protected	0.950	0.01.0		0.950			0.950	0.010		0.950		0.000
Satd Flow (prot)	3252	3211	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Elt Permitted	0.950	0211	Ŭ	0.950		1100	0.645	0201	Ŭ	0.372	1100	1000
Satd Flow (perm)	3217	3211	0	1580	4771	1407	1122	3251	0	635	1765	1455
Right Turn on Red	0211	0211	Yes	1000		Yes	1122	0201	Yes	000	1700	Yes
Satd Flow (RTOR)		18	100			141		14	100			26
Link Speed (k/h)		60			60			50			50	20
Link Distance (m)		128.3			162.2			169.9			54.4	
Travel Time (s)		77			9.7			12.2			3 Q	
Confl Peds (#/hr)	32	1.1	48	48	5.1	32	16	12.2	50	50	0.0	16
Confl Bikes (#/hr)	52		+0 1	-0		2	10		50	50		10
Peak Hour Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adi Elow (uph)	Z /0	2 /0	2 /0	31	1317	153	2 /0	2 /0	Z /0	1/0	2 /0 179	769
Shared Lane Traffic (%)	009	440	04	51	1317	100	90	201	40	142	170	700
Lano Group Flow (vph)	530	530	٥	21	1317	153	03	304	٥	1/2	179	769
Enter Blocked Intersection	No	No	No	No	No	No	95 No	JU4	No	142	1 yoh	1 voh
Long Alignment	INU Loff	INU	Diabt	INU Loff	INU Loff	Diabt	INU	INU Loff	Diabt	l ven	l ven	Dicht
Lane Alignment Modion Width(m)	Leit		Right	Leit	10.0	Right	Leit	26	Right	Leit	2.0	Right
Link Offect(m)		10.0			10.0			0.0			0.0	
Crosswalk Width(m)		3.0			0.0			0.0			3.0	
		5.0			5.0			5.0			5.0	
Hoodway Easter	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	n	10	20	2	10	20 1	2	10	20	C	10
Number of Detectors	 0 ^{ff}	Z		 0#	Z	Diaht	 0 ^{ff}	Z		l off	Z	Diabt
Leading Detector (m)	Leit	10.0		Leit	10.0	Right	Leit	10.0		Leit	10.0	Right
Trailing Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(III)						2.0						2.0
Detector 1 Type	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX
Detector I Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		~ ~										
Detector 2 Extend (s)	- ·	0.0		P .	0.0	P	2	0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6			8		7	4	5
Permitted Phases						6	8			4		4
Detector Phase	5	2		1	6	6	8	8		7	4	5

5: Fairlawn/Woodroffe E & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0		5.0	10.0	5.0
Minimum Split (s)	11.3	40.1	11.3	40.1	40.1	40.9	40.9		11.3	40.9	11.3
Total Split (s)	26.0	51.7	21.3	47.0	47.0	43.0	43.0		14.0	57.0	26.0
Total Split (%)	20.0%	39.8%	16.4%	36.2%	36.2%	33.1%	33.1%		10.8%	43.8%	20.0%
Maximum Green (s)	19.7	45.6	15.0	40.9	40.9	36.1	36.1		7.7	50.1	19.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.7	3.3	3.7
All-Red Time (s)	2.6	2.4	2.6	2.4	2.4	3.6	3.6		2.6	3.6	2.6
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)	6.3	6.1	6.3	6.1	6.1	6.9	6.9		6.3	6.9	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	Min	Min		None	Min	None
Walk Time (s)		7.0		7.0	7.0	23.0	23.0			23.0	
Flash Dont Walk (s)		24.0		24.0	24.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		20		20	20	20	20			20	
Act Effct Green (s)	31.6	71.2	7.9	42.6	42.6	22.5	22.5		37.1	36.5	68.7
Actuated g/C Ratio	0.24	0.55	0.06	0.33	0.33	0.17	0.17		0.29	0.28	0.53
v/c Ratio	0.68	0.30	0.31	0.84	0.28	0.48	0.53		0.58	0.36	0.97
Control Delay	49.5	25.1	85.5	36.7	6.0	54.2	48.6		44.9	37.7	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.5	25.1	85.5	36.7	6.0	54.2	48.6		44.9	37.7	51.5
LOS	D	C	F	D	A	D	D		D	D	D
Approach Delay	_	37.4	•	34.5		_	49.9		_	48.4	_
Approach LOS		D		С			D			D	
Queue Length 50th (m)	60.0	36.3	6.7	111.2	10.4	21.1	34.9		27.9	35.8	139.3
Queue Length 95th (m)	#99.3	72.2	15.7	129.8	14.3	32.2	41.6		37.3	45.9	#180.9
Internal Link Dist (m)		104.3		138.2		•=	145.9		0.10	30.4	
Turn Bay Length (m)	75.0		35.0								
Base Capacity (vph)	790	1767	191	1565	556	311	912		243	680	791
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	0.30	0.16	0.84	0.28	0.30	0.33		0.58	0.26	0.97
Intersection Summary											
Area Type: 0	Other										
Cycle Length: 130											
Actuated Cycle Length: 130											
Offset: 0 (0%), Referenced to pl Natural Cycle: 115	hase 2:EBT	and 6:WB	T, Start of Green								
Control Type: Actuated-Coordin	ated										
Maximum v/c Ratio: 0.97											
Intersection Signal Delay: 40.5			h	ntersection							
Intersection Capacity Utilization	103 1%				f Service (}					
Analysis Period (min) 15	100.170					,					
# 95th percentile volume exce	eds canaci	tv aueue m	av he longer								
Queue shown is maximum a	fter two cyc	les.	lay be longer.								
Solits and Phases: 5: Fairlaw	n/Woodroff	e F & Carli	na								
			<u>'ש</u>								
▼ Ø1 21.3s	102 (R) s				▼ 2	04					
4	4 ≜				1						
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12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	×	## 12		×	tttts.			Δ			1	
Traffic Volume (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Future Volume (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	110.0	1000	0.0	65.0	1000	0.0	0.0	1000	0.0	0.0	1000	0.0
Storage Lanes	1		0.0	1		0.0	0.0		0.0	1		0.0
Taper Length (m)	60		Ū	7.5		Ŭ	7.5		v	7.5		U
Lane I Itil Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1 00	1 00	1.00	1 00	1 00
Ped Bike Factor	1.00	1.00	0.01	0.00	1.00	0.00	1.00	0.08	1.00	1.00	0.95	1.00
Ert	1.00	0 991		0.55	0 990			0.00		1.00	0.55	
Elt Protected	0 950	0.001		0.950	0.000			0.920		0.950	0.000	
Satd Flow (prot)	1644	/670	0	1603	6062	0	0	1556	0	1368	1350	0
Elt Permitted	0 18/	1070	U	0 / 28	0002	U	U	0.876	U	0.688	1000	0
Satd Flow (perm)	218	4670	٥	755	6062	٥	٥	1368	٥	0.000	1350	٥
Right Turn on Red	510	4070	Ves	155	0002	Ves	U	1500	Ves	300	1000	Ves
Satd Flow (PTOP)		13	163		15	163		57	163		123	163
Link Spood (k/b)		60			60			30			125	
Link Distance (m)		162.2			170.6			101 7			104.5	
		0.7			10.0			101.7			0.4	
Confl Dodo (#/br)	1	9.7	10	10	10.2	1	12	12.2	2	2	9.4	12
Confl. Peus. (#/III)	4		12	IZ		4	43		ა	ა		43
Confil. Bikes (#/nr)	1 00	1 00	1 00	1 00	1.00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy venicies (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (Vpn)	79	534	35	122	1091	80	21	12	5/	100	15	123
Shared Lane Traffic (%)	70	500	0	400	4474	0	0	00	0	400	400	0
Lane Group Flow (vpn)	79	569	U	122	T1/1	U	U	96	U	100	138	0
Enter Blocked Intersection	NO	NO	NO	NO	NO	NO D: L	NO	NO	NO	NO	NO	NO
Lane Alignment	Lett	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			10.8			1.0			3.6	
		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
I wo way Left Turn Lane												4.0-
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25	<u>,</u>	15	25		15
Number of Detectors	1	- 2		1	- 2		1	- 2		1	- 2	
Detector Template	Left	Ihru		Left	Ihru		Left	Ihru		Left	Ihru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	

12: Carling & Carlingwood SC PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.6	41.2		41.2	41.2		43.9	43.9		43.9	43.9	
Total Split (s)	18.0	82.0		64.0	64.0		48.0	48.0		48.0	48.0	
Total Split (%)	13.8%	63.1%		49.2%	49.2%		36.9%	36.9%		36.9%	36.9%	
Maximum Green (s)	11.4	75.8		57.8	57.8		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.5		2.5	2.5		3.6	3.6		3.6	3.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2			6.9		6.9	6.9	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		28.0		28.0	28.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		6		6	6		20	20		20	20	
Act Effct Green (s)	93.2	93.6		81.8	81.8			23.3		23.3	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63			0.18		0.18	0.18	
v/c Ratio	0.26	0.17		0.26	0.31			0.33		0.56	0.40	
Control Delay	10.6	5.1		7.6	5.8			21.0		58.0	11.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	10.6	5.1		7.6	5.8			21.0		58.0	11.8	
LOS	В	A		A	A			C		E	B	
Approach Delay		5.8			5.9			21.0			31.2	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	3.9	10.0		4.1	11.1			8.3		22.9	3.1	
Queue Length 95th (m)	m12.8	16.8		7.3	13.6			19.6		34.3	17.0	
Internal Link Dist (m)	110.0	138.2		05.0	146.6			//./			80.5	
Turn Bay Length (m)	110.0	0005		65.0	0000			474		040	540	
Base Capacity (vpn)	343	3365		475	3820			4/1		312	513	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spiliback Cap Reductin	0	0		0	0			0		0	0	
Storage Cap Reductin	0.02	0 17		0.26	0.21			0 20		0 22	0.07	
Reduced V/C Ralio	0.23	0.17		0.20	0.51			0.20		0.32	0.27	
Intersection Summary	Other											
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Natural Cycle: 100	ed to phase 2:	EBIL and b	SWBIL, S	start of Gre	een							
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 9.2	2			In	tersection I	LOS: A						
Intersection Capacity Utilizati	ion 85.5%			IC	CU Level of	Service E						
Analysis Period (min) 15												
m Volume for 95th percent	ile queue is m	etered by u	pstream s	ignal.								

Splits and Phases: 12: Carling & Carlingwood SC



15: Iroquois & Carling PM Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ቀ ቶሴ		5	***	1		4		N	î.	
Traffic Volume (vph)	41	712	4	17	1498	107	13	20	10	117	23	60
Future Volume (vph)	41	712	4	17	1498	107	13	20	10	117	23	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	125.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (m)	7.5		-	7.5			7.5		-	7.5		-
Lane Util, Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.0.1	0.98		0.90		0.98		0.98	0.97	
Frt		0.999		0.00		0.850		0.969		0.00	0.892	
Elt Protected	0.950			0.950				0.985		0.950	0.001	
Satd Flow (prot)	1676	4811	0	1693	4865	1515	0	1706	0	1693	1539	0
Elt Permitted	0 123	1011	Ŭ	0.368	1000	1010	Ŭ	0.902	v	0 729	1000	U
Satd Flow (perm)	217	4811	0	642	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red	211	1011	Yes	012	1000	Yes	Ū	1010	Yes	1210	1000	Yes
Satd Flow (RTOR)		1	100			107		10	100		60	100
Link Speed (k/h)		60			60	107		50			50	
Link Distance (m)		170.6			185.0			157.7			163 /	
Travel Time (s)		10.0			11 1			11 /			11.8	
Confl Peds (#/br)	28	10.2	10	10	11.1	28	28	11.7	17	17	11.0	28
Confl. Rikes (#/hr)	20		6	13		20	20		17	17		20
Pook Hour Easter	1.00	1 00	1 00	1.00	1 00	1.00	1.00	1 00	1 00	1 00	1 00	1 00
	20/	20/	2%	1.00	1.00	1.00	0%	0%	0%	1.00	1.00	1.00
Adi Elow (vob)	Z /0	Z /0 710	2 /0	170	1/0	107	13	20	10	1/0	1 /0	60
Shared Lane Traffic (%)	41	112	4	17	1490	107	IJ	20	10	117	23	00
Lane Group Flow (vph)	/1	716	0	17	1/108	107	0	/13	0	117	83	0
Enter Blocked Intersection	No	No	No	No	1430 No	No	No	40 No	No	No	No	No
Lano Alignment	Loft	Loft	Dight	Loff	Loft	Dight	Loft	Loff	Dight	Loft	Loft	Dight
Modian Width(m)	Leit		Right	Leit	7.0	Кіўні	Leit	1.0	Right	Leit	2.6	Right
Link Offect(m)		0.0			1.2			1.0			0.0	
Crosswalk Width(m)		0.0 3.0			0.0 3.0			3.0			3.0	
		5.0			5.0			5.0			5.0	
Hoodway Easter	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1 07	1 07	1 07
Turning Speed (k/h)	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Number of Detectors	20	2	15	20	2	10	20	2	10	20	2	15
Number of Detectors	l off	Thru		Loff	Z	Diaht	Loft	Z		Loft	Thru	
Loading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	2.0	0.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Detector 1 Desition(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Type												
Detector 1 Channel				CITEX								
Detector 1 Extend (a)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delev (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Decition(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(III)												
Detector 2 Type		CI+EX			CI+EX			CI+EX			CI+EX	
Detector 2 Unannel		~ ~			0.0						• •	
Detector 2 Extend (S)		0.0		Demo	0.0	Derrer	Derm	0.0		Derma	0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		^	6		^	8		_	4	
Permitted Phases	2	^		6	^	6	8	^		4		
Detector Phase	5	2		6	6	6	8	8		4	4	

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Synchro 10 Report

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l ane Group	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	28.2		28.2	28.2	28.2	42.3	42.3		42.3	42.3	
Total Split (s)	12.0	86.0		74.0	74.0	74.0	44.0	44.0		44.0	44.0	
Total Split (%)	9.2%	66.2%		56.9%	56.9%	56.9%	33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	5.0	79.8		67.8	67.8	67.8	36.7	36.7		36.7	36.7	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	3.3	2.5		2.5	2.5	2.5	4.0	4.0		4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	7.0	6.2		6.2	6.2	6.2		7.3		7.3	7.3	
Lead/Lag	Lead	•		Lag	Lag	Lag						
Lead-Lag Optimize?				_ ∽9	9	9						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)		10.0		10.0	10.0	10.0	24.0	24.0		24.0	24.0	
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		14		14	14	14	14	14		14	14	
Act Effct Green (s)	93.4	94.2		83.5	83.5	83.5		22.3		22.3	22.3	
Actuated g/C Ratio	0.72	0.72		0.64	0.64	0.64		0.17		0.17	0.17	
v/c Ratio	0.18	0.21		0.04	0.48	0.12		0.16		0.54	0.27	
Control Delay	8.0	5.2		13.9	15.0	3.1		34.0		55.5	16.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	8.0	5.2		13.9	15.0	31		34.0		55.5	16.4	
LOS	A	Δ		B	B	Α		C		F	B	
Approach Delay	7.	5.4		5	14.2	7.		34.0		-	39.3	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	2.1	13.7		1.3	58.6	0.0		7.0		26.7	4.8	
Queue Length 95th (m)	5.1	18.8		5.7	100.0	8.1		14.6		38.7	15.8	
Internal Link Dist (m)	0	146.6		•	161.0	••••		133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	225	3486		412	3125	913		444		360	477	
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	0.18	0.21		0.04	0.48	0.12		0.10		0.33	0.17	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 95 (73%), Reference	ed to phase 2:E	BTL and 6:	WBTL, St	art of Gree	en							
Natural Cycle: 85												
Control Type: Actuated-Coc	ordinated											
Maximum v/c Ratio: 0.54												
Intersection Signal Delay: 1	3.9			Ir	tersection	LOS: B						
Intersection Capacity Utiliza	tion 70.2%			IC	CU Level o	f Service C	;					
Analysis Period (min) 15												
Splits and Phases: 15: Irc	oquois & Carlin	g										
A												



18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Lane Configurations	*	1	**	1		<u>_</u>		
Traffic Volume (vph)	189	82	811	121	120	900		
Future Volume (vph)	189	82	811	121	120	900		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		
Lane Util, Factor	1.00	1.00	0.95	1.00	0.95	0.95		
Ped Bike Factor	0.99	0.98	0.00	0.95	0.00	1.00		
Frt		0.850		0.850				
Flt Protected	0.950					0.994		
Satd. Flow (prot)	1710	1530	3353	1500	0	3300		
Flt Permitted	0.950					0.726		
Satd. Flow (perm)	1686	1497	3353	1424	0	2409		
Right Turn on Red		Yes		Yes				
Satd. Flow (RTOR)		82		121				
Link Speed (k/h)	40		50			50		
Link Distance (m)	107.1		81.6			86.5		
Travel Time (s)	9.6		5.9			6.2		
Confl. Peds. (#/hr)	10	7		18	10			
Confl. Bikes (#/hr)				3				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%		
Adj. Flow (vph)	189	82	811	121	120	900		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	189	82	811	121	0	1020		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Right	Left	Left		
Median Width(m)	3.6		0.0			0.0		
Link Offset(m)	0.0		0.0			0.0		
Crosswalk Width(m)	3.0		3.0			3.0		
Two way Left Turn Lane								
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07		
Turning Speed (k/h)	25	15		15	25			
Number of Detectors	1	1	2	1	1	2		
Detector Template	Left	Right	Thru	Right	Left	Thru		
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4		
Detector 2 Size(m)			0.6			0.6		
Detector 2 Type			CI+Ex			Cl+Ex		
Detector 2 Channel								
Detector 2 Extend (s)			0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases			2			6	7	
Permitted Phases	8	8		2	6			
Detector Phase	8	8	2	2	6	6		
Switch Phase		_						
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	3.0	
Minimum Split (s)	25.7	25.7	35.0	35.0	35.0	35.0	5.0	

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Synchro 10 Report

18: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7	
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0	5.0	
Total Split (%)	27.4%	27.4%	67.4%	67.4%	67.4%	67.4%	5%	
Maximum Green (s)	20.3	20.3	58.0	58.0	58.0	58.0	3.0	
Vellow Time (s)	20.0	20.0	30.0	30.0	30.0	33	2.0	
All Pod Time (s)	2.0	0.0 0.4	0.0	0.0	0.0 0.7	0.0 0.7	2.0	
Lost Timo Adjust (s)	2.4	2.4	2.7	2.7	۷.۱	2.7	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		
	5.7	5.7	0.0	0.0		0.0	امعما	
Lead/Lag	Lag	Lag					Lead	
Lead-Lag Optimize?	0.0	0.0	• •	• •	0.0	0.0	0.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	2.0	2.0	11.0	11.0	11.0	11.0		
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	18.0	18.0		
Pedestrian Calls (#/hr)	5	5	5	5	5	5		
Act Effct Green (s)	15.8	15.8	67.5	67.5		67.5		
Actuated g/C Ratio	0.17	0.17	0.71	0.71		0.71		
v/c Ratio	0.68	0.26	0.34	0.12		0.60		
Control Delay	48.8	9.4	6.2	1.4		9.4		
Queue Delay	0.0	0.0	0.0	0.0		0.0		
Total Delay	48.8	9.4	6.2	1.4		9.4		
LOS	D	A	A	А		A		
Approach Delay	36.9		5.6			9.4		
Approach LOS	D		A			A		
Queue Length 50th (m)	30.3	0.0	23.5	0.0		39.0		
Queue Length 95th (m)	46.9	10.0	39.2	5.0		67.8		
Internal Link Dist (m)	83.1	10.1	57.6	0.0		62.5		
Turn Bay Length (m)	00.1		07.0			02.0		
Pase Capacity (vph)	365	300	0383	1046		1710		
Stonyotion Con Bodyoth	0	0	2303	1040		0		
Starvation Cap Reductin	0	0	0	0		0		
Spillback Cap Reductin	0	0	0	0		0		
Storage Cap Reductin	0 50	0 04	0.04	0 40		0		
Reduced V/C Ratio	0.52	0.21	0.34	0.12		0.60		
Intersection Summary								
Area Type:	Other							
Cycle Length: 95								
Actuated Cycle Length: 95								
Offset: 45 (47%), Referenced to	phase 2:N	BT and 6:	SBTL, Star	t of Green				
Natural Cycle: 70	1							
Control Type: Actuated-Coordin	nated							
Maximum v/c Ratio: 0.68								
Intersection Signal Delay: 11.2				In	tersection	LOS' B		
Intersection Capacity Litilization	81 1%					f Service D		
Analysis Period (min) 15	101.170			i.				
Splits and Phases: 18: Wood	Iroffe E & Ca	arlingwood	ISC					
Ø2 (R)								
64 s								
(P)								

64 s

26 s

5 s

1: Woodroffe E & Access PM Peak Hour

	≯	\mathbf{r}	1	1	Ŧ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		1		***	≜ t≽	
Traffic Volume (vph)	0	19	0	974	1103	26
Future Volume (vph)	0	19	0	974	1103	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	0.95
Frt		0.865			0.997	
Flt Protected						
Satd. Flow (prot)	0	1526	0	4771	3310	0
Flt Permitted						
Satd. Flow (perm)	0	1526	0	4771	3310	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	53.6			15.2	67.0	
Travel Time (s)	3.9			1.1	4.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Adj. Flow (vph)	0	19	0	974	1103	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	19	0	974	1129	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0	Ū		0.0	0.0	Ū
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 43.1%			IC	U Level of	Service A
Analysis Period (min) 15						

	٦	-	-	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		***	tttts.			1
Traffic Volume (vph)	0	1030	2063	53	0	40
Future Volume (vph)	0	1030	2063	53	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt			0.996			0.865
Flt Protected						
Satd. Flow (prot)	0	4771	6046	0	0	1526
Flt Permitted						
Satd. Flow (perm)	0	4771	6046	0	0	1526
Link Speed (k/h)		50	50		50	
Link Distance (m)		65.5	128.3		77.6	
Travel Time (s)		4.7	9.2		5.6	
Confl. Peds. (#/hr)				27		
Confl. Bikes (#/hr)				6		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Adj. Flow (vph)	0	1030	2063	53	0	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1030	2116	0	0	40
Enter Blocked Intersection	No	Yes	Yes	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	_
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 42.6%			ICI	J Level of	Service A
Analysis Period (min) 15						

10: Woodroffe E & Flower PM Peak Hour

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥				41 2	
Traffic Volume (vph)	19	42	47	797	879	23
Future Volume (vph)	19	42	47	797	879	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.907				0.996	
Flt Protected	0.985			0.997		
Satd. Flow (prot)	1577	0	0	3343	3340	0
Flt Permitted	0.985			0.997		
Satd. Flow (perm)	1577	0	0	3343	3340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	194.4			86.5	82.4	
Travel Time (s)	14.0			6.2	5.9	
Confl. Peds. (#/hr)	8		18			18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	42	47	797	879	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	844	902	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 65.0%			IC	U Level of	Service C

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	5			1		
Traffic Volume (vph)	35	0	0	45	0	0
Future Volume (vph)	35	0	0	45	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1676	0	0	1526	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1676	0	0	1526	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	48.2		77.6			6.2
Travel Time (s)	3.5		5.6			0.4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	0	0	45	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	45	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 6.7%			IC	U Level of	Service A

25: Woodroffe E & Carlingwood SC PM Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	<u>ቀ</u> ትኈ			^
Traffic Volume (vph)	0	89	865	82	0	1127
Future Volume (vph)	0	89	865	82	0	1127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.865	0.987			
Flt Protected						
Satd. Flow (prot)	0	1526	4755	0	0	3353
Flt Permitted						
Satd. Flow (perm)	0	1526	4755	0	0	3353
Link Speed (k/h)	50		50			50
Link Distance (m)	105.2		67.0			81.6
Travel Time (s)	7.6		4.8			5.9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	89	865	82	0	1127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	947	0	0	1127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0	Ū	0.0	Ū		0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 36.2%			IC	U Level of	Service A