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Proposed Redevelopment 485 Ancaster Avenue, Ottawa Transportation Impact Assessment

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**Proposed Residential/Commercial Development
485 Ancaster Avenue**

Transportation Impact Assessment

Prepared By:

NOVATECH

Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
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Dated: June 2018

Revised: November 2018

Revised: August 2019

Novatech File: 118035

Ref: R-2018-025

August 9, 2019

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

Attention: Ms. Rosanna Baggs
Project Manager, Infrastructure Approvals

Dear Ms. Baggs:

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 in support of a Zoning By-Law Amendment. This revised TIA has been prepared to reflect design changes in the concept plan and to respond to comments received from the City in January 2019.

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

Yours truly,

NOVATECH



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



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 9th day of August, 2019.
(City)

Name: Jennifer Luong, P.Eng.
(Please Print)

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Signature of Individual certifier that s/he 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 (l) 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 queueing 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.

Transit

- 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)
 - 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**.

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.



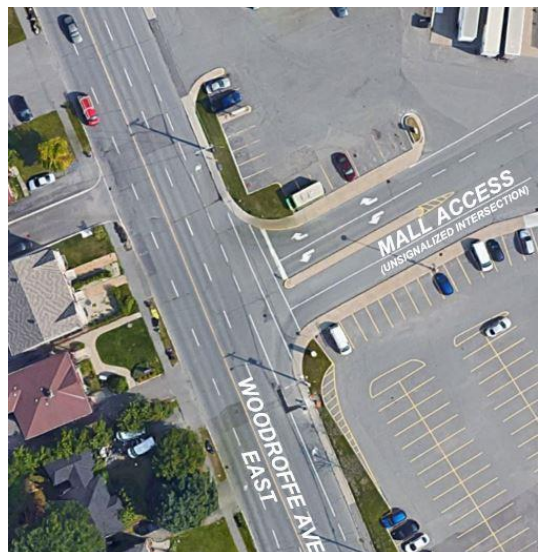
Carling Avenue/Iroquois Road

- 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



Woodroffe Avenue East/
Carlingwood Shopping Centre
(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



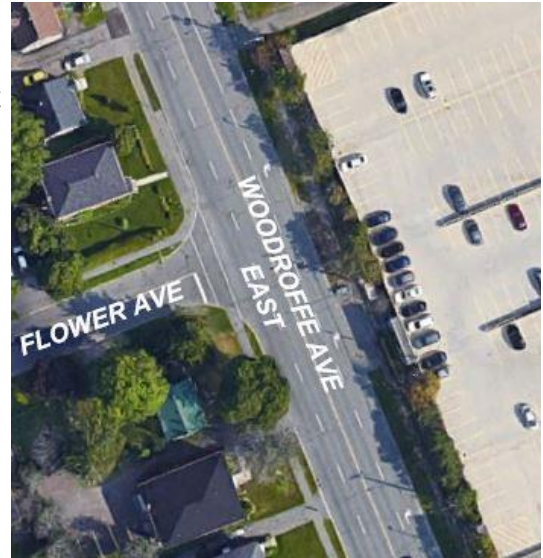
Woodroffe Avenue East/
Carlingwood Shopping Centre
(approximately 220m north of Carling Avenue)

- 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

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, East Side:

- 1 unsignalized access to Carlingwood Shopping Centre

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 | January 12, 2016 |
| • Carling Avenue/Ancaster Avenue | July 22, 2003 |
| • Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue | March 30, 2017 |
| • Carling Avenue/Carlingwood Shopping Centre | June 17, 2015 |
| • Carling Avenue/Iroquois Road | May 10, 2017 |
| • Woodroffe Avenue East/Carlingwood Shopping Centre (signalized) | 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**.

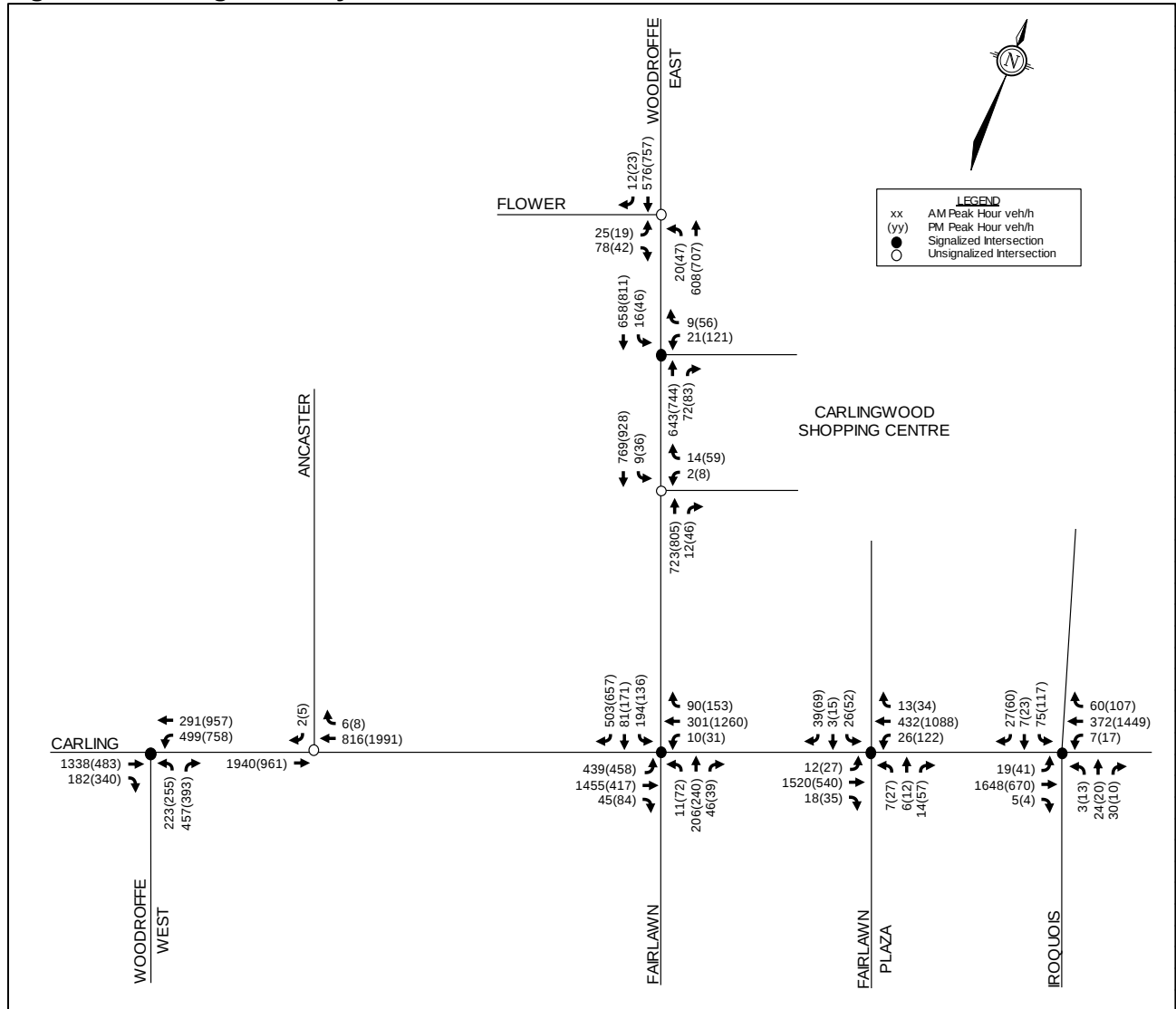
All traffic counts are included in **Appendix C**.

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



The map shows the Carlingwood Shopping Centre area with the following intersections and traffic volumes (AM Peak Hour veh/h, PM Peak Hour veh/h):

- Carlingwood Road (East-West):**
 - Intersection with Woodroffe West: Signalized intersection. Volumes: [569] (Eastbound), [175] (Westbound), [170] (Eastbound), [427] (Westbound).
 - Intersection with Fairlawn: Signalized intersection. Volumes: [173] (Eastbound), [1086] (Westbound), [47] (Eastbound), [92] (Westbound).
 - Intersection with Fairlawn Plaza: Signalized intersection. Volumes: [161] (Eastbound), [24] (Westbound), [100] (Eastbound), [90] (Westbound).
 - Intersection with Iroquois: Signalized intersection. Volumes: [48] (Eastbound), [571] (Westbound), [51] (Eastbound), [27] (Westbound).
- Woodroffe Road (North-South):**
 - Intersection with Flower: Signalized intersection. Volumes: [609] (Northbound), [64] (Southbound), [84] (Northbound), [153] (Southbound).
 - Intersection with Carlingwood Road: Signalized intersection. Volumes: [631] (Eastbound), [161] (Westbound), [878] (Eastbound), [53] (Westbound).
 - Intersection with Fairlawn: Unsignalized intersection. Volumes: [840] (Northbound), [78] (Southbound).
- Other Roads:**
 - Ancaster Road (North-South): Unsignalized intersection with Carlingwood Road.
 - Fairlawn Road (North-South): Unsignalized intersection with Carlingwood Road.
 - Fairlawn Plaza Road (North-South): Unsignalized intersection with Carlingwood Road.
 - Iroquois Road (North-South): Unsignalized intersection with Carlingwood Road.

Legend:

- xx AM Peak Hour veh/h
- (yy) PM Peak Hour veh/h
- Signalized Intersection
- Unsignalized Intersection

North Arrow: Points towards the top right of the map.

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 primarily 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, 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**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	• Only required for site plans	Not Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	• Only required for site plans	Not Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	<i>All elements</i>	• 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	4.6.1 Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.8 Network Concept	<i>All elements</i>	• 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

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. The road closure on Ancaster Avenue limits the impact to local streets, and the projected site traffic will not change the role or function of any study area streets (thereby exempting the Neighbourhood Traffic Management module). 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 4.7: 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 trips, 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**.

Table 3: Proposed Residential Trip Generation

Land Use	TRANS Rates	Units	AM Peak (VPH)			PM Peak (VPH)			Sat Peak (VPH)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Proposed Redevelopment											
High-Rise Condominium	AM: 0.38 PM: 0.34	290 units	31	80	111	58	42	100	45	59	104

Table 4: Proposed Residential Person Trip Generation

Land Use	TRANS Auto Share	Units	AM Peak (PPH)			PM Peak (PPH)			Sat Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Proposed Redevelopment											
High-Rise Condominium	AM: 37% PM: 40%	290 units	84	216	300	145	105	250	112	148	260

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.

Table 5: Existing and Proposed Commercial Person Trip Generation

Land Use	ITE Code	GFA	AM Peak (PPH)			PM Peak (PPH)			Sat Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Existing Development											
Specialty Retail (1),(2)	826	23,880 ft²	10	7	17	37	46	83	62	62	124
Proposed Redevelopment											
Specialty Retail	826	11,553 ft²	6	4	10	18	22	40	30	30	60

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
2. 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**Table 6: Proposed and Maximum Development Trip Generation**

Land Use	ITE Code	Units/ GFA	AM Peak (PPH)			PM Peak (PPH)			Sat Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Proposed Redevelopment											
High-Rise Condominium	-	290 units	84	216	300	145	105	250	112	148	260
Specialty Retail	826	11,553 ft²	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 ft²	27	16	43	76	97	173	130	130	260
General Office Building ⁽¹⁾	710	290,000 ft²	505	69	574	88	428	516	0	0	0
Total			532	85	617	164	525	689	130	130	260
Difference			-442	135	-307	-1	-398	-399	12	48	60

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**.

Table 7: Person Trips by Modal Share

Travel Mode		Modal Share	AM Peak			PM Peak			Sat Peak		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Existing Development											
Existing Person Trips			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 Driver (Total)			3	2	5	11	14	25	19	19	38
Auto Passenger (Total)			1	1	2	6	7	13	9	9	18
Transit (Total)			1	0	1	2	2	4	3	3	6
Non-Auto (Total)			5	4	9	18	23	41	31	31	62
Proposed Redevelopment											
Residential Person 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 Passenger (Total)			13	34	47	25	19	44	22	27	49
Transit (Total)			17	43	60	29	22	51	23	31	54
Non-Auto (Total)			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

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.

Table 8: Existing Intersection Volumes at Select Intersections

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

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**.

Table 9: Primary and Pass-by Trips

Trip Type	AM Peak			PM Peak		
	IN	OUT	TOT	IN	OUT	TOT
<i>Commercial Vehicle Trips</i>	2	1	3	6	7	13
Pass-by	0	0	0	2	2	4
Primary	2	1	3	4	5	9

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 7: Existing Site-Generated Traffic

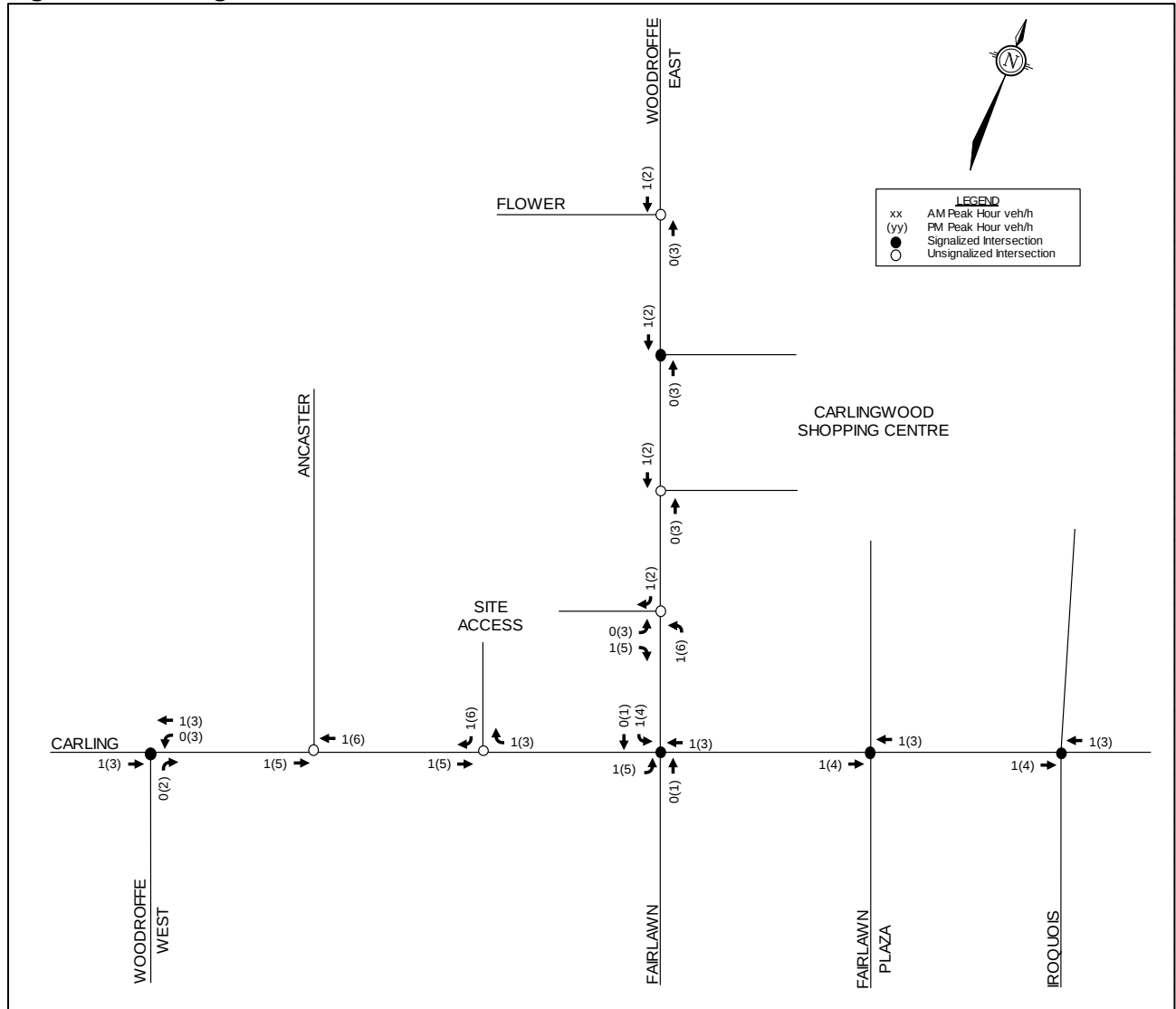


Figure 8: Proposed Site-Generated Traffic

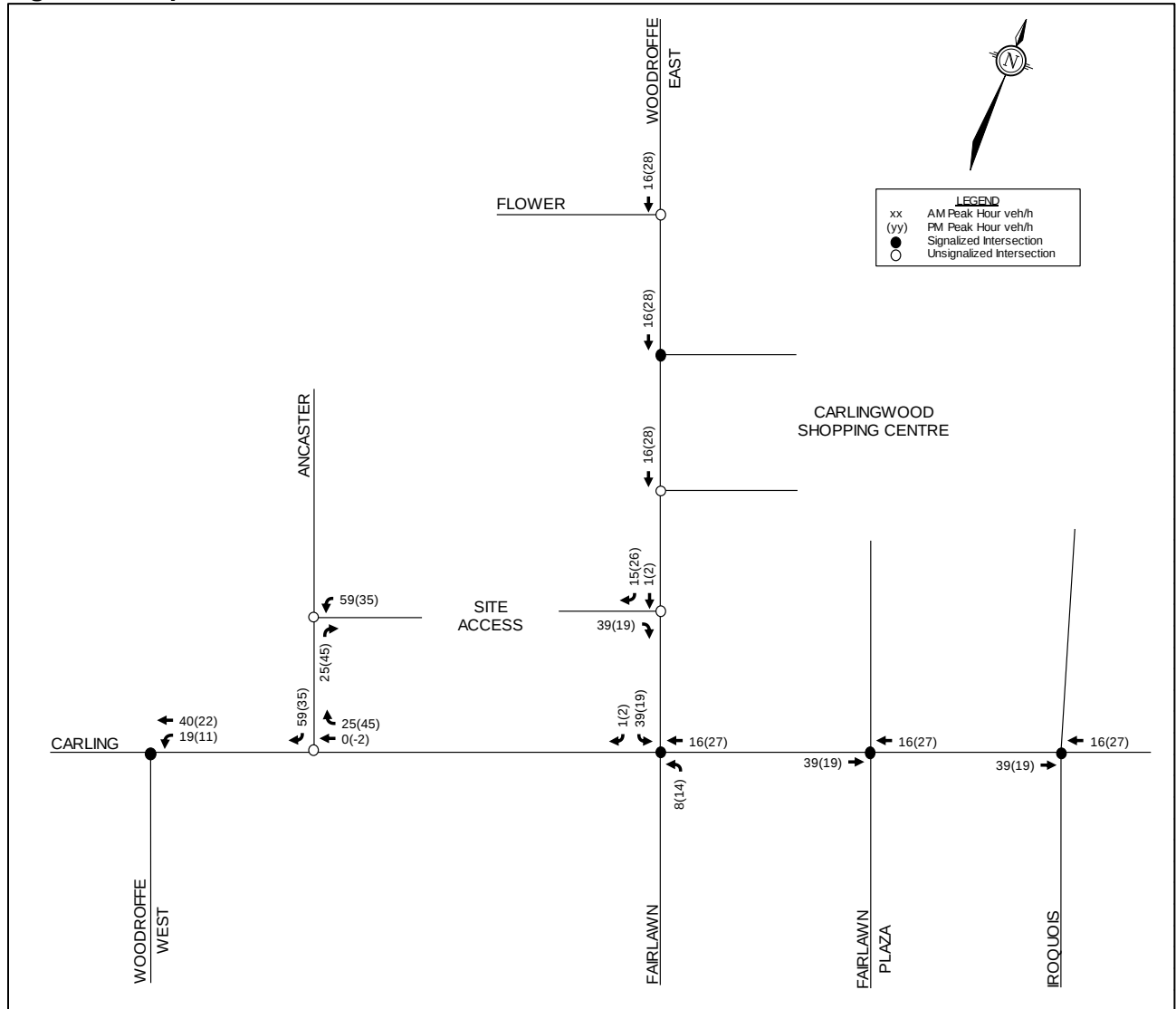


Figure 9: 2022 Background Traffic

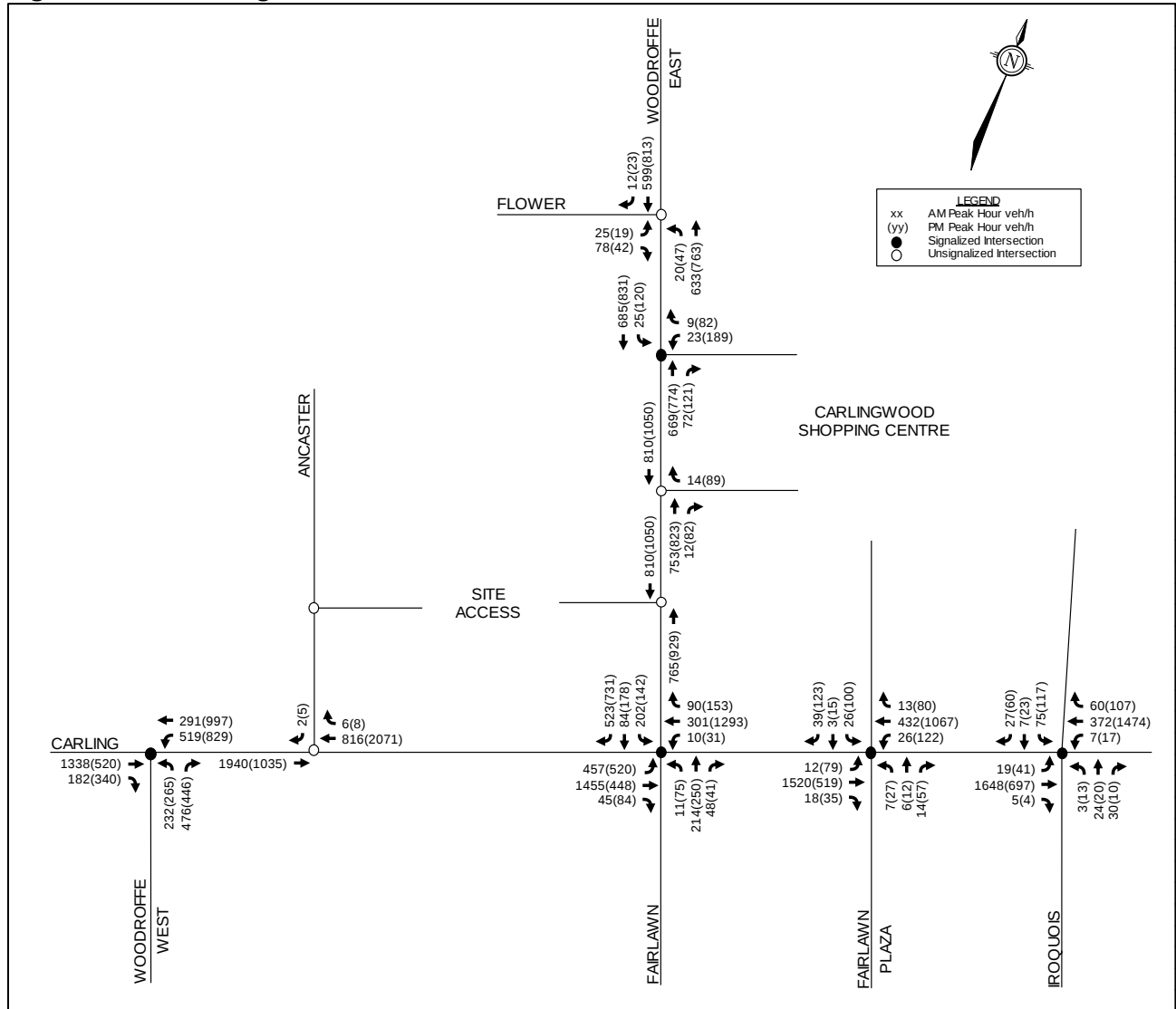


Figure 10: 2027 Background Traffic

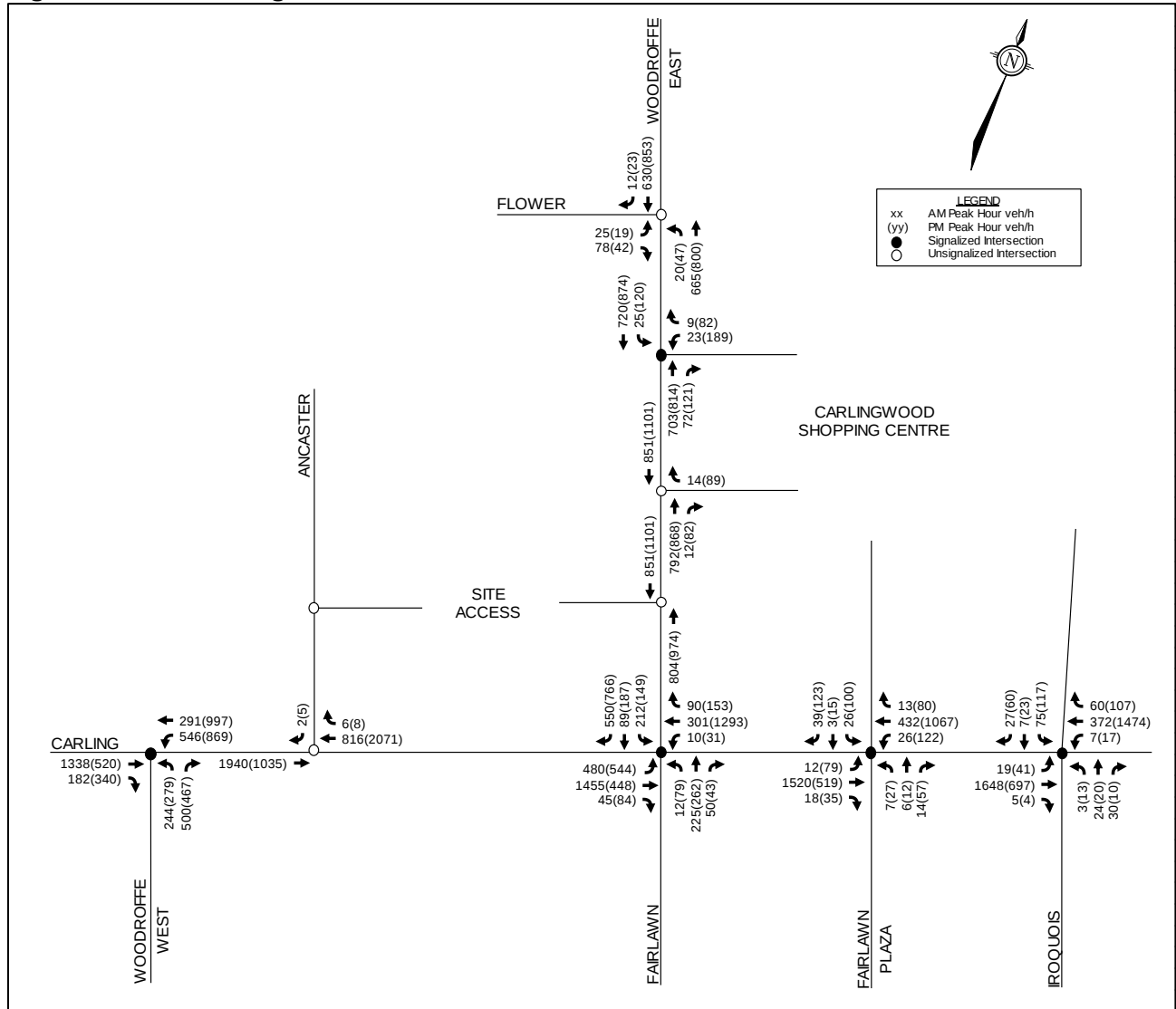


Figure 11: 2022 Total Traffic

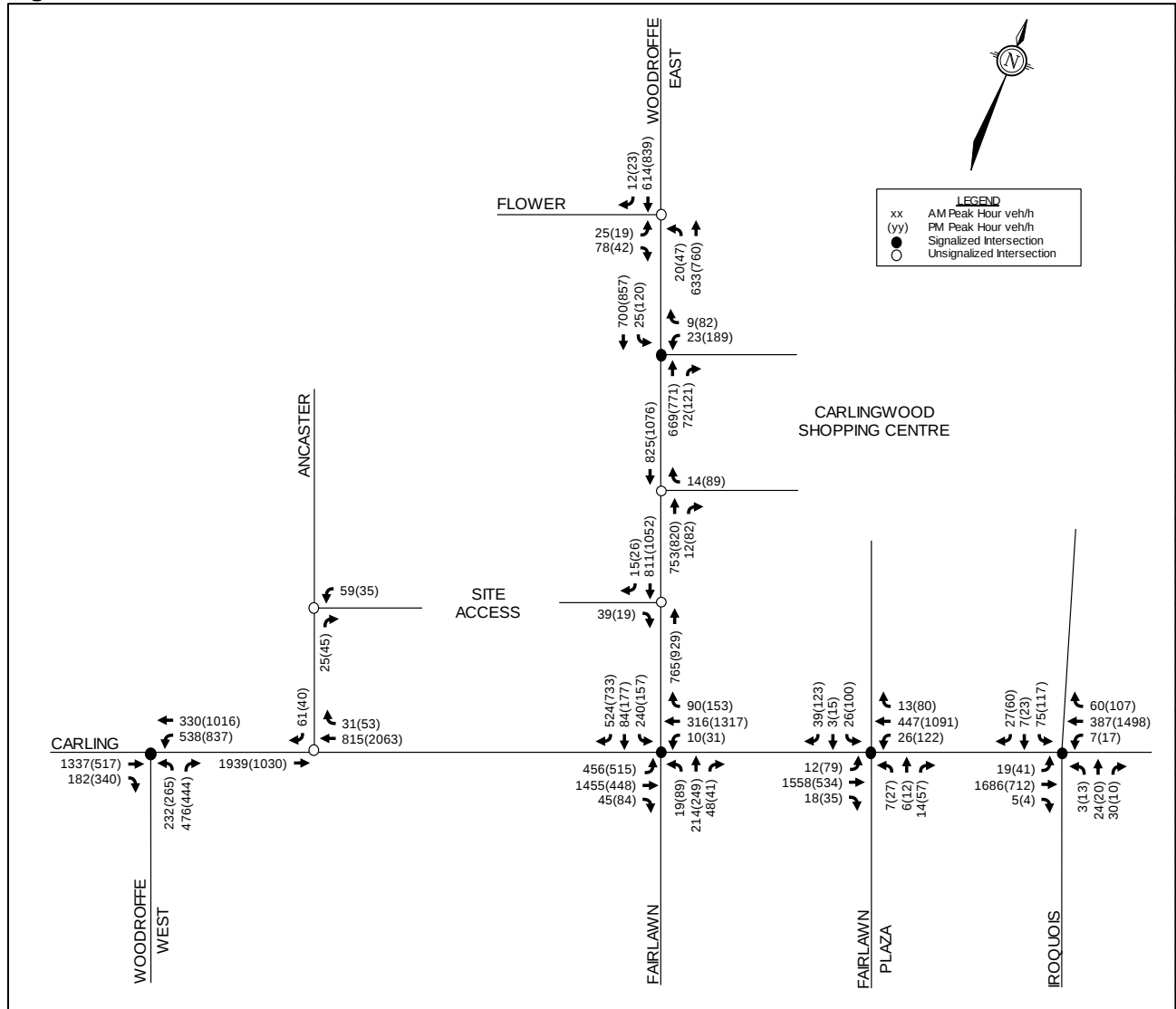
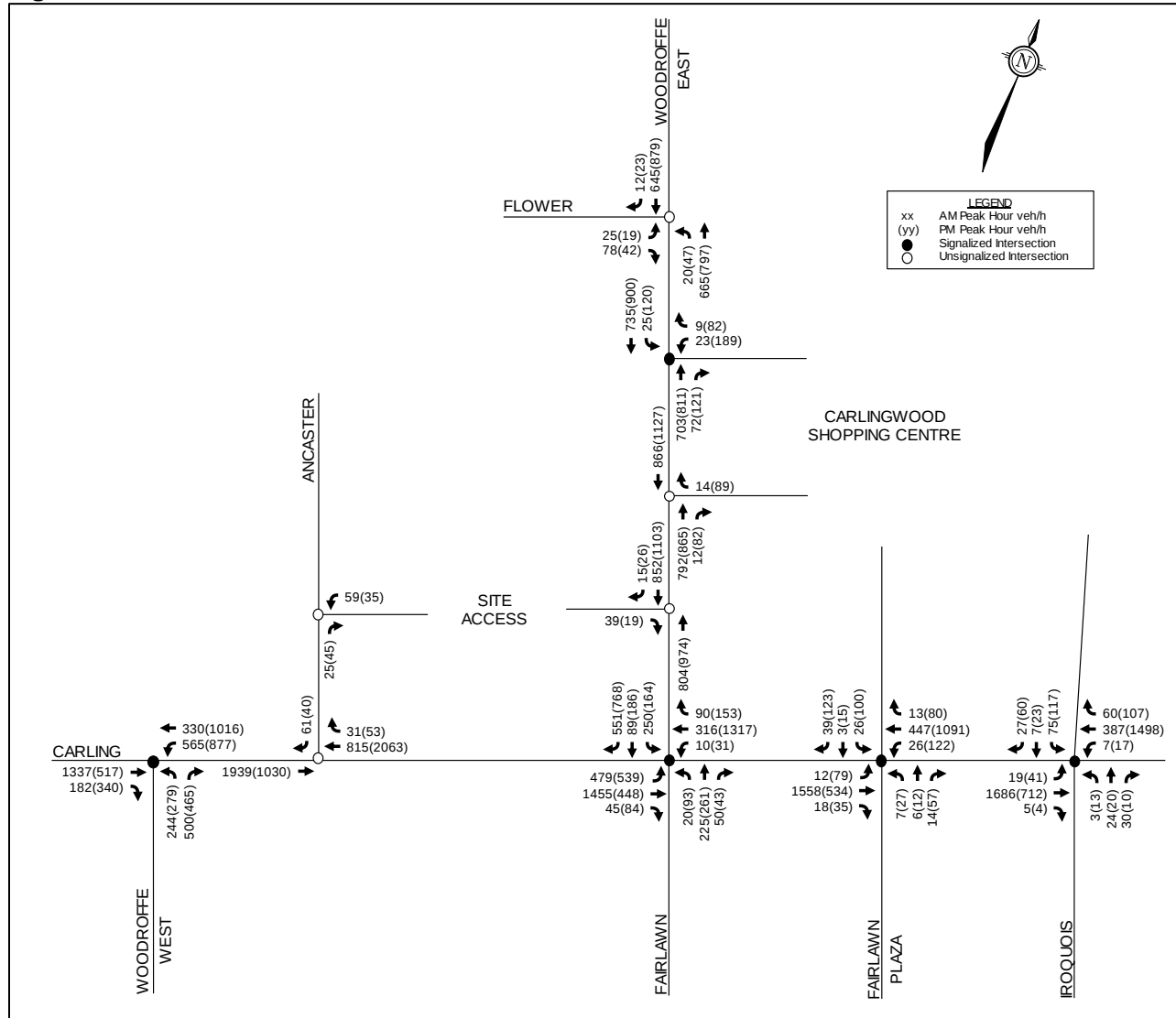


Figure 12: 2027 Total Traffic

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**.

Table 10: Parking Requirement Per Zoning By-Law

Land Use	Rate	Units/GFA	Required
<i>Minimum Vehicle Parking</i>			
Apartment Building, Mid-High Rise	0.50 per dwelling unit after the first 12 units; 0.10 per dwelling unit after the first 12 for visitors	290 units	167
Retail Store	1.25 per 100 m ² GFA	1,161 m ²	15
Minimum			182
Provided			229
<i>Minimum Bicycle Parking</i>			
Apartment Building, Mid-High Rise	0.50 per dwelling unit	290 units	145
Retail Store	1.0 per 250 m ² GFA	1,161 m ²	5
Minimum			150

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**.

Table 11: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed ^{(1),(2)}	Segment PLOS
Carling Avenue (north side)					
1.8m	0m	> 3000 vpd	No	70 km/h	F
Carling Avenue (south side)					
1.8m	0m	> 3000 vpd	No	70 km/h	F
Woodroffe Avenue East (east side)					
1.5m	0m	< 3000 vpd	No	60 km/h	F
Woodroffe Avenue East (west side)					
1.8m	0m	> 3000 vpd	No	60 km/h	F
Ancaster Avenue (east side)					
No sidewalk		< 3000 vpd	N/A	30 km/h	C
Ancaster Avenue (west side)					
No sidewalk		< 3000 vpd	N/A	30 km/h	C

1. Operating speed of Carling Avenue and Woodroffe Avenue East taken as the posted speed limit plus 10 km/h

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**.

Table 12: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Centerline Markings	Operating Speed	Segment BLOS
Carling Avenue (Woodroffe Avenue West to Woodroffe Avenue East)						
Arterial	Spine Route	Mixed Traffic	6	Yes	70 km/h	F
Woodroffe Avenue East (Carling Avenue to Carlingwood Shopping Centre)						
Arterial	Spine Route	Mixed Traffic	4 to 5	Yes	60 km/h	F
Ancaster Avenue (Carling Avenue to Flower Avenue)						
Local	No Designation	Mixed Traffic	2	No	30 km/h	A

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

Facility Type	Level/Exposure to Congestion Delay, Friction and Incidents			Segment TLOS
	Congestion	Friction	Incident Potential	
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	C
Woodroffe Avenue East (Carlingwood Shopping Centre to Carling Avenue)		
3.5m to 3.7m	2	A

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**.

Table 15: Auto LOS Segment Analysis

Direction	Directional Capacity	Traffic Volumes		V/C Ratio and LOS			
		AM Peak	PM Peak	AM Peak		PM Peak	
				V/C	LOS	V/C	LOS
Carling Avenue (Woodroffe Avenue West to Woodroffe Avenue East)							
Eastbound	3000 vph	1940	959	0.65	B	0.32	A
Westbound	3000 vph	816	1987	0.27	A	0.66	B
Woodroffe Avenue East (Carling Avenue to Carlingwood Shopping Centre)							
Northbound	1600 vph	735	851	0.46	A	0.53	A
Southbound	1600 vph	778	964	0.49	A	0.60	A
Ancaster Avenue (Carling Avenue to Flower Avenue)							
Northbound	400 vph	6	8	0.02	A	0.02	A
Southbound	400 vph	2	5	0.01	A	0.01	A

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
Pedestrian	Sidewalk Width	1.8m	1.5m	0m
	Boulevard Width	0m	0m	0m
	Average Daily Curb Lane Traffic Volume	> 3000 vpd	> 3000 vpd	< 3000 vpd
	On-Street Parking	No	No	N/A
	Operating Speed	70 km/h	60 km/h	30 km/h
	Level of Service	F	F	C
	Target	C	C	C
Cyclist	Road Classification	Arterial	Arterial	Local
	Bike Route Classification	Spine Route	Spine Route	None
	Type of Bikeway	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Travel Lanes	6	4 to 5	2
	Centerline Markings	Yes	Yes	No
	Operating Speed	70 km/h	60 km/h	30 km/h
	Level of Service	F	F	A
	Target	C	C	D
Transit	Facility Type	Mixed Traffic	Mixed Traffic	-
	Friction/Congestion/Incident Potential	Limited	Limited	-
	Level of Service	D	D	-
	Target	D	-	-
Truck	Lane Width	3.3m to 3.5m	3.5m to 3.7m	-
	Travel Lanes (per direction)	3	2	-
	Level of Service	C	A	-
	Target	D	D	-
Auto	Level of Service	B	A	A
	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 (l) 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 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.

6.6 Intersection Design

6.6.1 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 Summary

Intersection	PLOS		BLOS		TLOS		TkLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Carling Avenue/ Woodroffe Avenue West	F	C	F	C	E	D	D	D	D	D
Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue	F	C	F	C	F	D	C	D	E	D
Carling Avenue/ Carlingwood Shopping Centre	F	C	F	C	B	D	D	D	A	D
Carling Avenue/ Iroquois Road	F	C	F	B	B	D	D	D	A	D
Woodroffe Avenue East/ Carlingwood Shopping Centre	E	C	F	C	B	-	D	D	A	D
Woodroffe Avenue East/ Carlingwood Shopping Centre ⁽¹⁾	-	-	-	-	-	-	-	-	E	D
Carling Avenue/ Ancaster Avenue ⁽¹⁾	-	-	-	-	-	-	-	-	A	D
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	-	-	-	-	-	-	-	-	C	D

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.

6.6.1.1 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.

6.6.1.2 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 at-grade 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.

6.6.1.3 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.

6.6.1.4 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.

6.6.1.5 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.

6.6.1.6 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.

6.6.2 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**.

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

Movement	AM Peak				PM Peak			
	Existing		Jug Handle		Existing		Jug Handle	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
NBL	0.78	C	0.78	C	0.81	D	0.81	D
NBR	0.85	D	0.85	D	0.55	A	0.55	A
EBT	0.78	C	0.78	C	0.55	A	0.55	A
WBL	0.80	C	0.80	C	0.86	D	0.86	D
WBT	0.14	A	0.14	A	0.45	A	0.46	A
Intersection Delay	38.9 sec	D	39.1 sec	D	33.0 sec	D	33.2 sec	D

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 all-movement 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**.

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

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

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.

6.6.3 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**.

Table 20: 2022 Background – Intersection Operations

Intersection	AM Peak			PM Peak		
	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	E	SBL	0.96	E	SBR
Carling Avenue/ Carlingwood Shopping Centre	0.39	A	EBT	0.56	A	SBL
Carling Avenue/ Iroquois Road	0.43	A	EBT	0.54	A	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.28	A	SBT	0.68	B	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	A	WBR	11 sec	B	WBR
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	A	SBR	9 sec	A	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	14 sec	B	EBL/ EBR	20 sec	C	EBL/ EBR
Carling Avenue/ Site Access ⁽¹⁾	9 sec	A	SBR	9 sec	A	SBR
Woodroffe Avenue East/ Site Access ⁽¹⁾	15 sec	B	EBR	17 sec	C	EBR

1. Unsignalized intersection

Table 21: 2022 Background – Queues Over Capacity

Intersection	Mvmt	AM Peak				PM Peak			
		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	C	63	80	0.85	D	104	m104
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBL	0.91	E	42	52	0.58	A	28	37
	SBR	0.68	B	48	56	0.96	E	127	#164
	EBL	0.79	C	57	m74	0.71	C	56	#94
	EBT	0.71	C	51	#240	0.30	A	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.

6.6.4 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**.

Table 22: 2027 Background – Intersection Operations

Intersection	AM Peak			PM Peak		
	v/c	LOS	Mvmt	v/c	LOS	Mvmt
Carling Avenue/ Woodroffe Avenue West	0.84	D	NBR	0.87	D	WBL
Carling Avenue/ Woodroffe Avenue East/Fairlawn Avenue	0.96	E	SBL	0.97	E	SBR
Carling Avenue/ Carlingwood Shopping Centre	0.39	A	EBT	0.56	A	SBL
Carling Avenue/ Iroquois Road	0.43	A	EBT	0.54	A	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.29	A	SBT	0.68	B	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	A	WBR	11 sec	B	WBR
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	A	SBR	9 sec	A	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	B	EBL/ EBR	21 sec	C	EBL/ EBR
Carling Avenue/ Site Access ⁽¹⁾	9 sec	A	SBR	9 sec	A	SBR
Woodroffe Avenue East/ Site Access ⁽¹⁾	15 sec	B	EBR	18 sec	C	EBR

1. Unsignalized intersection

Table 23: 2027 Background – Queues Over Capacity

Intersection	Mvmt	AM Peak				PM Peak			
		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	C	66	84	0.87	D	110	m111
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBL	0.96	E	~45	#56	0.62	B	29	39
	SBR	0.70	B	53	62	0.97	E	139	#180
	EBL	0.80	C	59	m77	0.69	B	60	#101
	EBT	0.72	C	51	#240	0.30	A	37	73

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.

6.6.5 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		
	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	A	EBT	0.56	A	SBL
Carling Avenue/ Iroquois Road	0.44	A	EBT	0.54	A	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.28	A	SBT	0.70	B	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	A	WBR	11 sec	B	WBR
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	A	SBR	9 sec	A	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	B	EBL/ EBR	20 sec	C	EBL/ EBR
Ancaster Avenue/ Site Access ⁽¹⁾	9 sec	A	WBL	9 sec	A	WBL
Woodroffe Avenue East/ Site Access ⁽¹⁾	11 sec	B	EBR	11 sec	B	EBR

1. Unsignalized intersection

Table 25: 2022 Total – Queues Over Capacity

Intersection	Mvmt	AM Peak				PM Peak			
		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	C	65	83	0.85	D	106	m106
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBL	1.08	F	~60	#72	0.64	B	31	41
	SBR	0.69	B	51	59	0.97	E	127	#164
	EBL	0.79	C	57	m74	0.71	C	56	#93
	EBT	0.71	C	51	#240	0.30	A	33	72

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.

6.6.6 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**.

Table 26: 2027 Total – Intersection Operations

Intersection	AM Peak			PM Peak		
	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	A	EBT	0.56	A	SBL
Carling Avenue/ Iroquois Road	0.44	A	EBT	0.54	A	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.29	A	SBT	0.68	B	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	10 sec	A	WBR	11 sec	B	WBR
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	A	SBR	10 sec	A	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	B	EBL/ EBR	22 sec	C	EBL/ EBR
Ancaster Avenue/ Site Access ⁽¹⁾	9 sec	A	WBL	9 sec	A	WBL
Woodroffe Avenue East/ Site Access ⁽¹⁾	11 sec	B	EBR	11 sec	B	EBR

1. Unsignalized intersection

Table 27: 2027 Total – Queues Over Capacity

Intersection	Mvmt	AM Peak				PM Peak			
		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	C	68	87	0.87	D	111	m112
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBL	1.13	F	~66	#80	0.67	B	33	43
	SBR	0.71	C	57	66	0.97	E	139	#181
	EBL	0.80	C	60	m77	0.68	B	60	#99
	EBT	0.72	C	51	#240	0.30	A	36	72

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.

6.6.7 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:

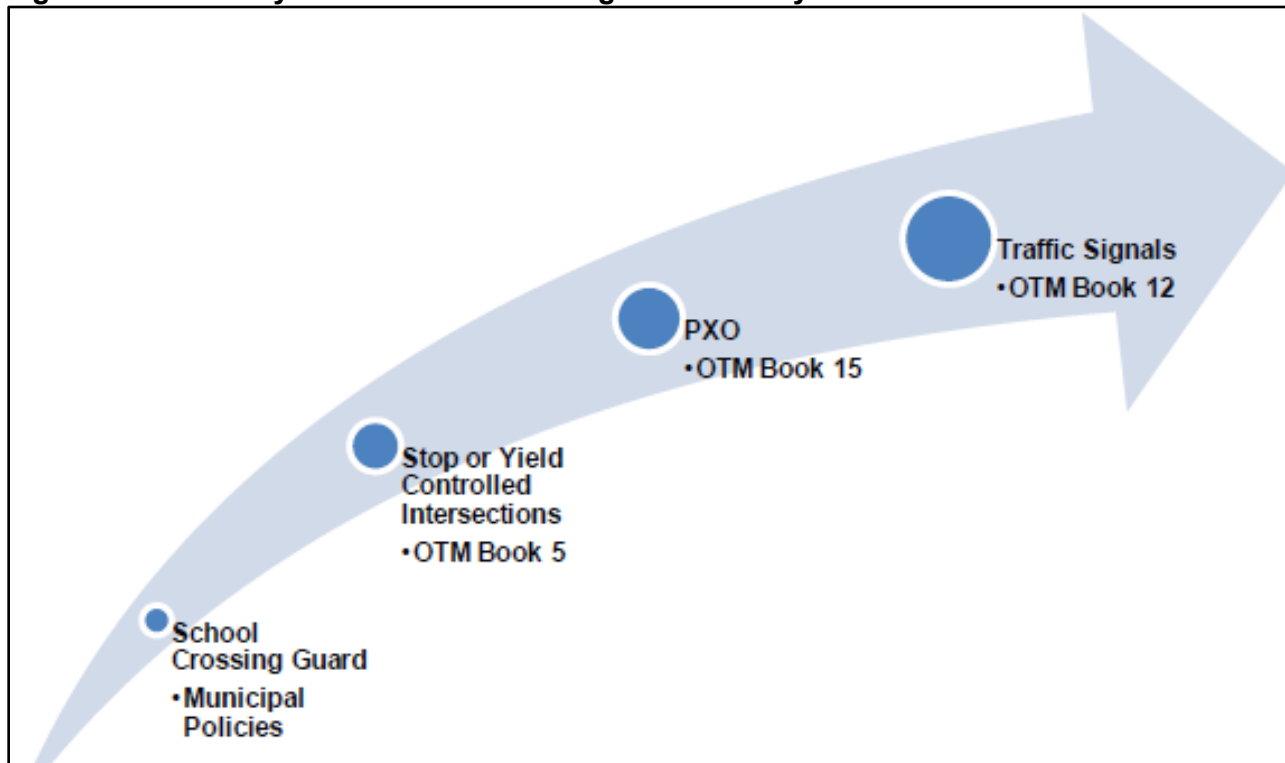
- Crossing Woodroffe Avenue East (north approach, no crosswalk): 86 pedestrians
- Crossing Woodroffe Avenue East (south approach, no crosswalk): 11 pedestrians
- Crossing Flower Avenue (west approach, standard crosswalk): 87 pedestrians

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**.

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.

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 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 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 (l) 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 queueing 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.

Transit

- 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)
 - 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:



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

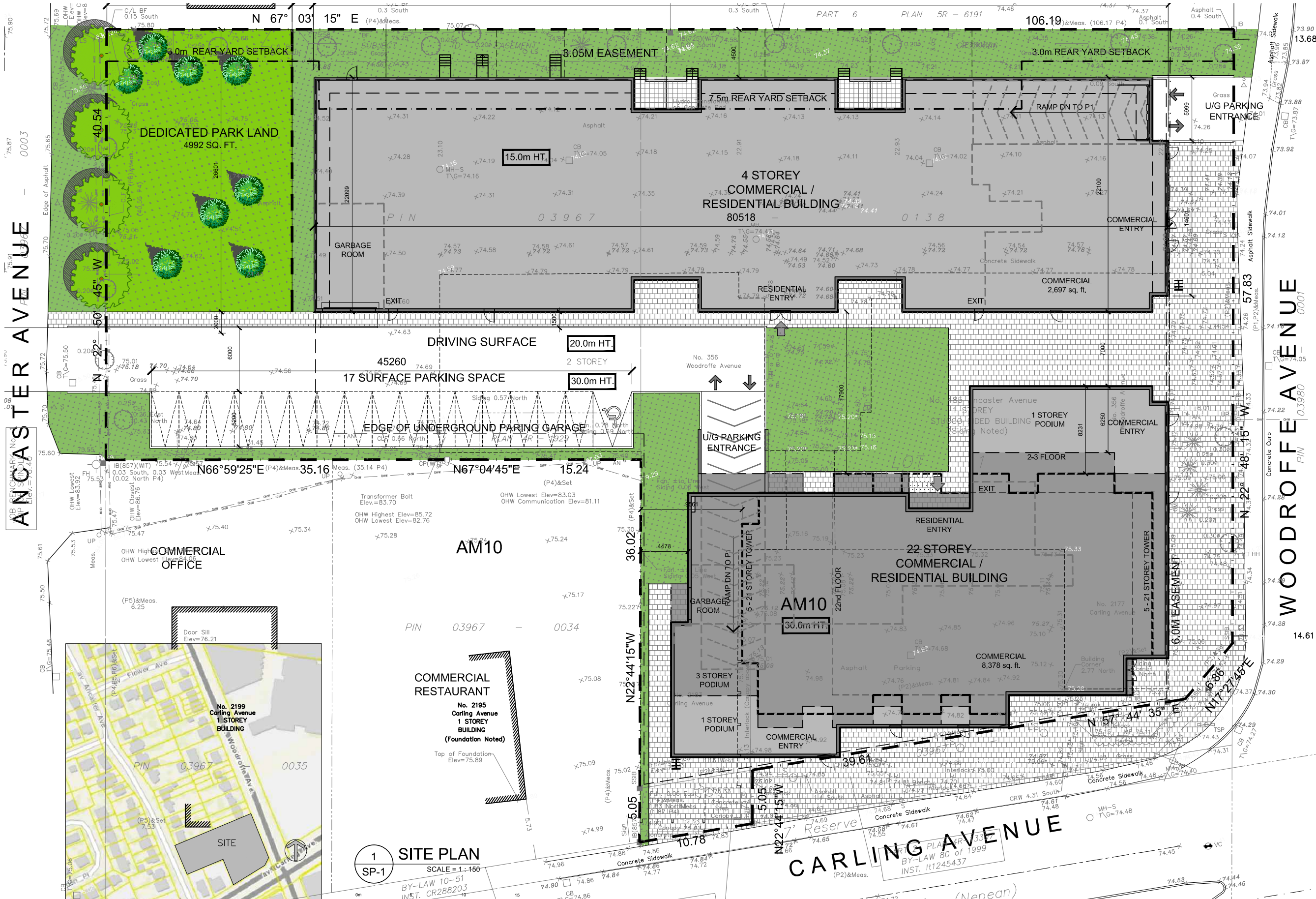
Reviewed by:



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

APPENDIX A

Concept Plan



ANCASTER AVENUE

WOODROFFE AVENUE

CARLING AVENUE



PROJECT INFORMATION		
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 NORTH BLDG. 22 STOREY - 68.0 M	
AMENITY AREA	6 m ² PER UNIT	1,740 sq. m.
GROSS BUILDING - AREAS (4 STOREY BLDG.)		
(CITY OF OTTAWA'S DEFINITION)		
PARKING LEVELS (2 LEVELS U/G)		N/A
GROUND FLOOR		749.8 sq. m. (6,071 sq. ft.)
2nd to 3rd FLOOR	2 x 1,405.1 sq. m. 2 x 15,770 sq. ft.	2,810.2 sq. m. (31,540 sq. ft.)
4th FLOOR		1,317.8 sq. m. (14,185 sq. ft.)
TOTAL AREA		4,997.8 sq. m. (53,796 sq. ft.)
GROSS BUILDING - AREAS (23 STOREY BLDG.)		
(CITY OF OTTAWA'S DEFINITION)		
PARKING LEVELS (2 LEVELS U/G)		N/A
GROUND FLOOR		778.3 sq. m. (8,378 sq. ft.)
2nd & 3rd FLOOR	2 x 854.3 sq. m. 2 x (9,196 sq. ft.)	1,708.7 sq. m. (18,392 sq. ft.)
4th FLOOR		823.3 sq. m. (8,862 sq. ft.)
5th to 21st FLOOR	17 x 619.15 sq. m. 17 x (6,666 sq. ft.)	10,210.4 sq. m. (109,994 sq. ft.)
22nd FLOOR		421.7 sq. m. (4,539 sq. ft.)
MECHANICAL / AMENITY FLOOR		N/A
TOTAL AREA		14,972.0 sq. m. (161,470 sq. ft.)
UNIT STATISTICS		
STUDIO UNIT		13
1 BEDROOM UNIT		135
1 BEDROOM + DEN UNIT		33
2 BEDROOM UNIT		104
2 BEDROOM + DEN UNIT		5
TOTAL		290
COMMERCIAL RETAIL - 4 storey		250.6 sq. m. (2,697 sq. ft.)
COMMERCIAL RETAIL - 22 storey		778.3 sq. m. (8,378 sq. ft.)
TOTAL AREA		1,028.9 sq. m. (11,007 sq. ft.)
CAR PARKING		
REQUIRED BY ZONING BY-LAW		
RESIDENCE	- 0.5 PER UNIT (200 UNITS) (AFTER 12 UNITS)	139
VISITOR	- 0.1 PER DWELLING UNIT (AFTER 12 UNITS)	28
COMMERCIAL RETAIL	- 0 UNDER 500 sq.m. PER UNIT	0
TOTAL		167
PROVIDED		
2 LEVEL UNDER GROUND PARKING		212
SURFACE		17
TOTAL		229
BICYCLE PARKING		
REQUIRED		
RESIDENCE	- 0.5 PER UNIT (200 UNITS)	145
COMMERCIAL RETAIL	- 1.0 PER 250m ² OF G.F.A.	4
TOTAL		149
PROVIDED		
EXTERIOR		10
INDOOR ON GROUND FLOOR		99
INDOOR ON P1 & P2 PARKING LEVELS		40
TOTAL		149
LOT COVERAGE		
DRIVING / PARKING SURFACE =	690.6 sq. m. 7,434 sq. ft.	11.9%
BUILDING FOOTPRINT =	2,865.3 sq. m. 30,851 sq. ft.	49.2%
PROPOSED PARK AREA =	915.3 sq. m. 9,875 sq. ft.	8.9%
LANDSCAPE OPEN SPACE =	1,277.2 sq. m. 13,748 sq. ft.	22.0%
PARK LAND =	493.8 sq. m. 5,299 sq. ft.	8.5%
TOTAL =	5,816.14 sq. m. 62,604 sq. ft.	100.0%
AMENITY AREA		
PRIVATE AT GRADE		288.0 sq. m.
EXTERIOR COMMUNAL AT GRADE		354.3 sq. m.
1st FLOOR COMMUNAL AMENITY ROOM		340.2 sq. m.
PRIVATE ROOF DECKS		553.9 sq. m.
PRIVATE BALCONIES		1,001.1 sq. m.
23rd FLOOR COMMUNAL AMENITY ROOM		231.6 sq. m.
TOTAL =		2,769.1 sq. m.
TOTAL COMMUNAL =		926.0 sq. m.
REQUIRED - 6.0m ² PER UNIT (290) =		1,740.0 sq. m.
REQUIRED COMMUNAL @ 50% =		870.0 sq. m.

APPENDIX B

TIA 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 m² or 11,553 ft² 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 m²
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, the Trip Generation Trigger is satisfied.

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?*	✓	

**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?		✓
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?	✓	
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	✓	
Does the development include a drive-thru facility?		✓

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?	✓	
Does the development satisfy the Location Trigger?	✓	
Does the development satisfy the Safety Trigger?	✓	

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

APPENDIX C

Traffic Count Data



Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

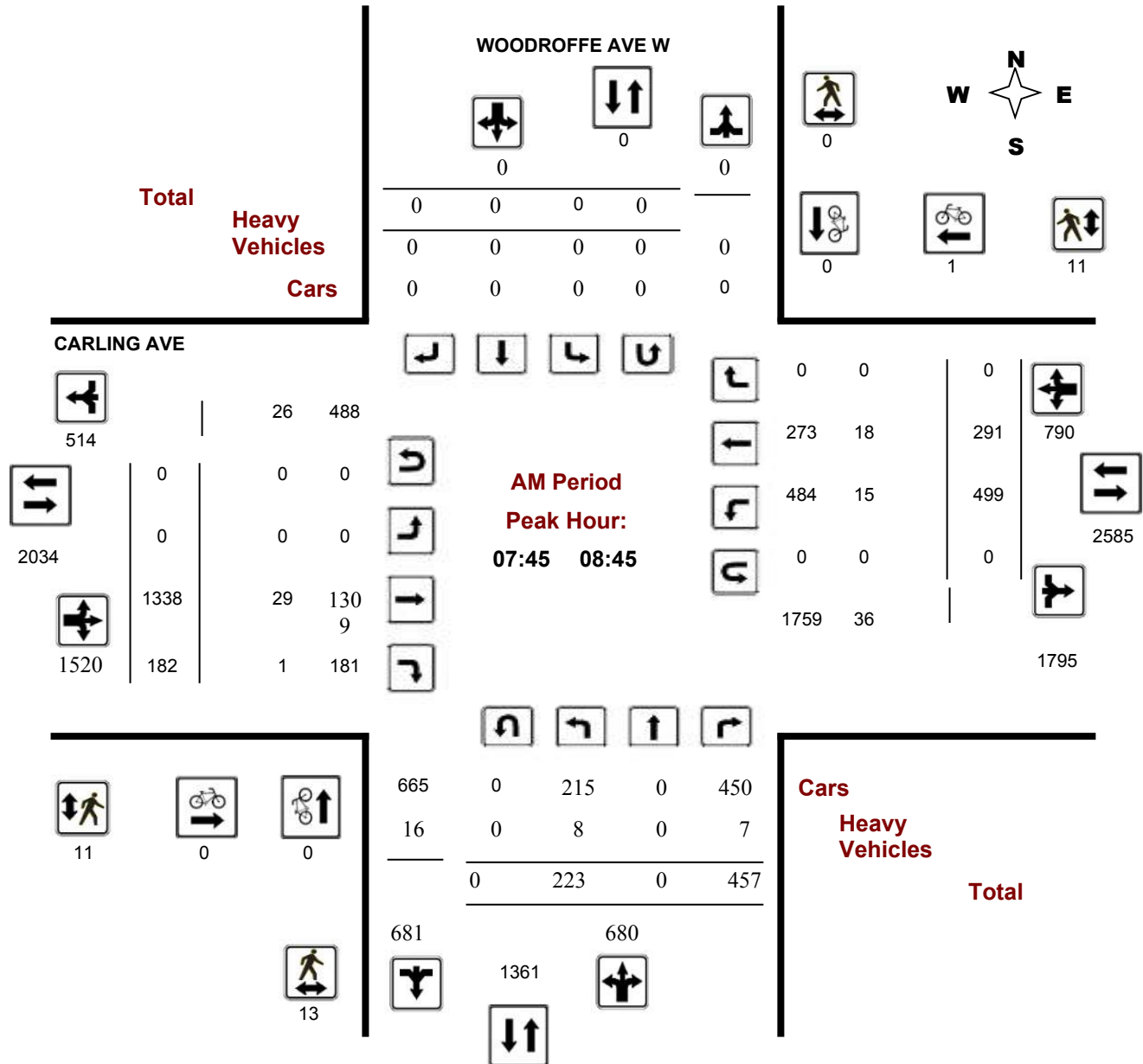
CARLING AVE @ WOODROFFE AVE W

Survey Date: Tuesday, January 12, 2016

Start Time: 07:00

WO No: 34389

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

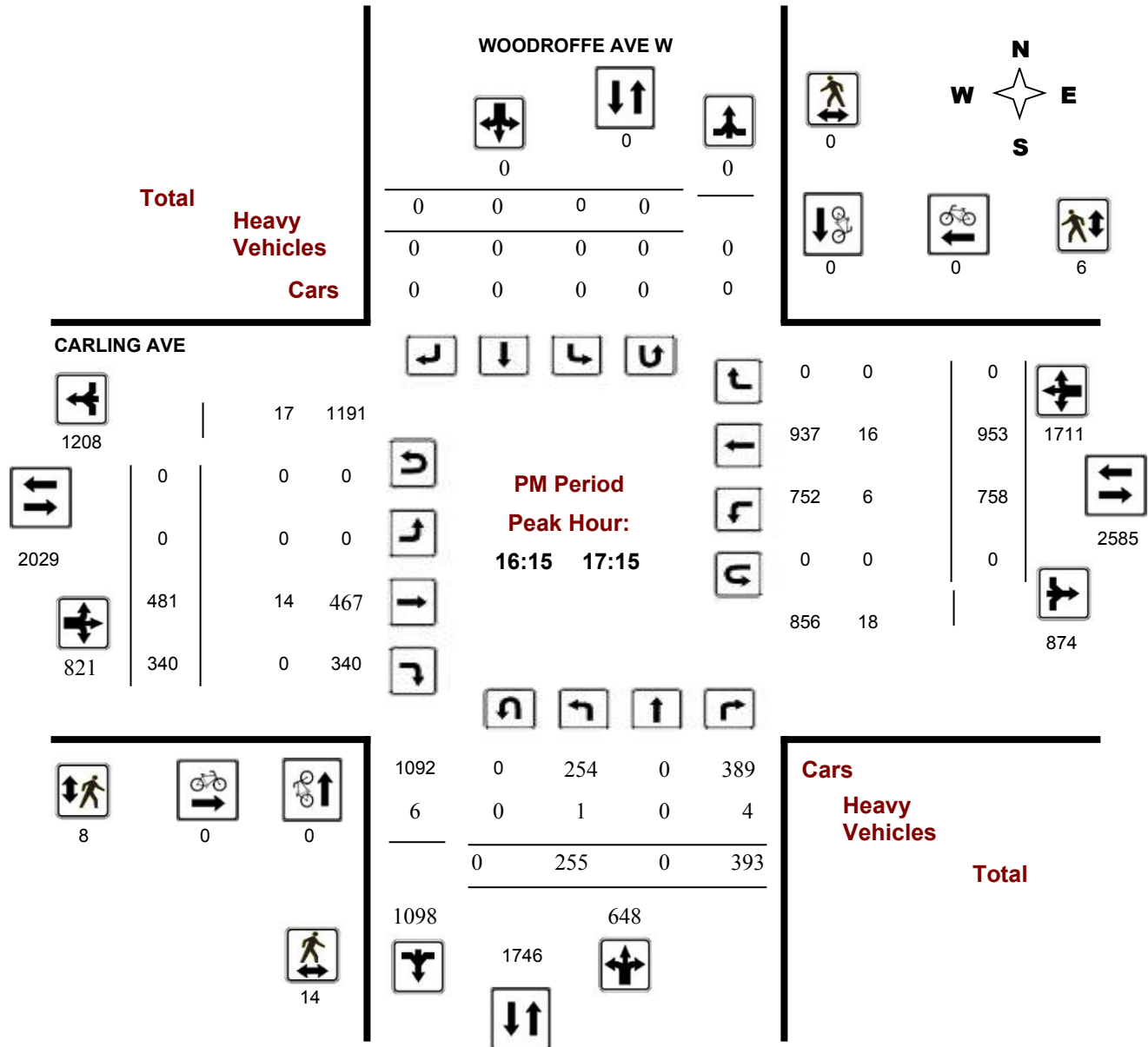
CARLING AVE @ WOODROFFE AVE W

Survey Date: Tuesday, January 12, 2016

Start Time: 07:00

WO No: 34389

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

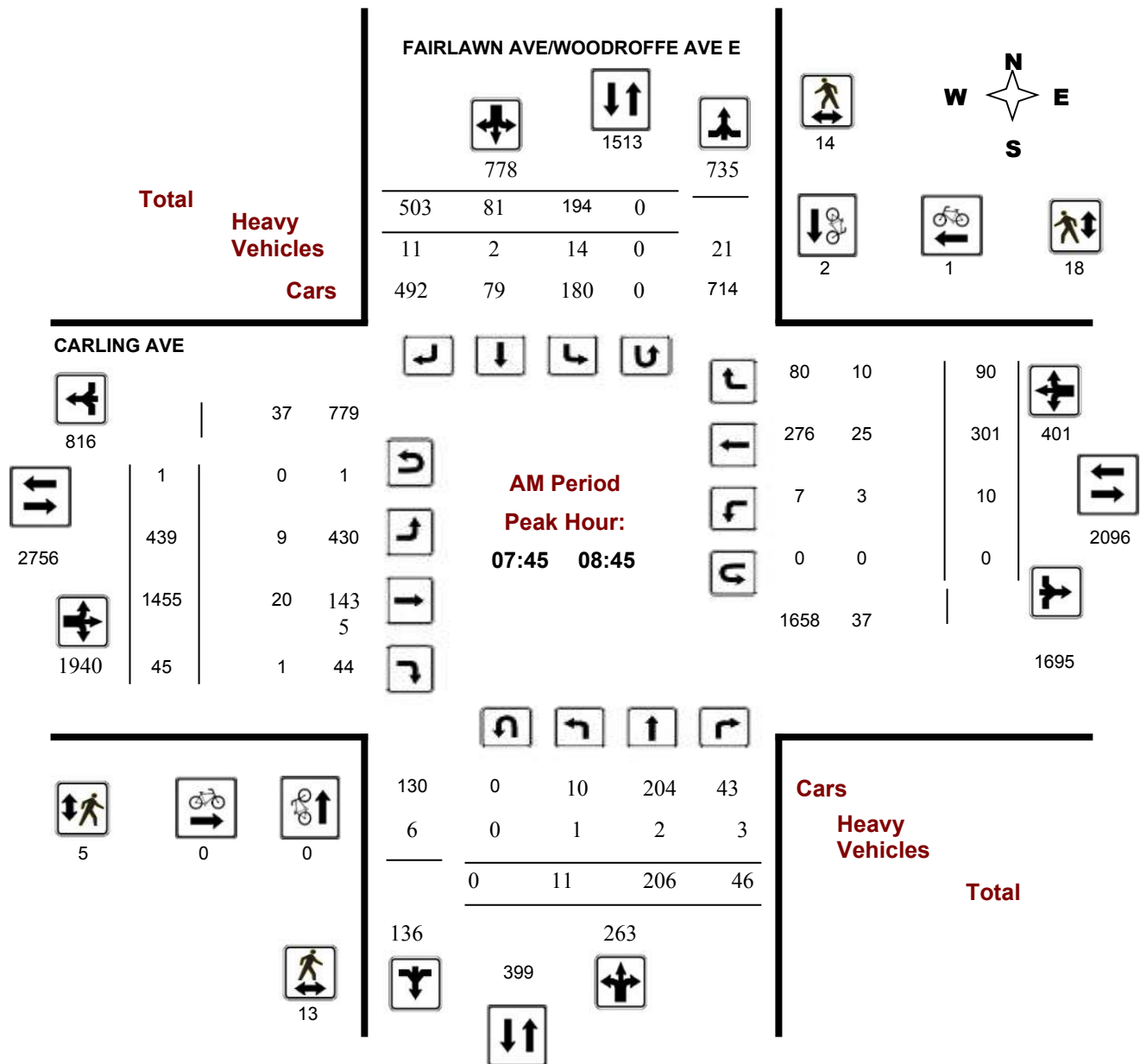
CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E

Survey Date: Thursday, March 30, 2017

Start Time: 07:00

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Device: Miovision

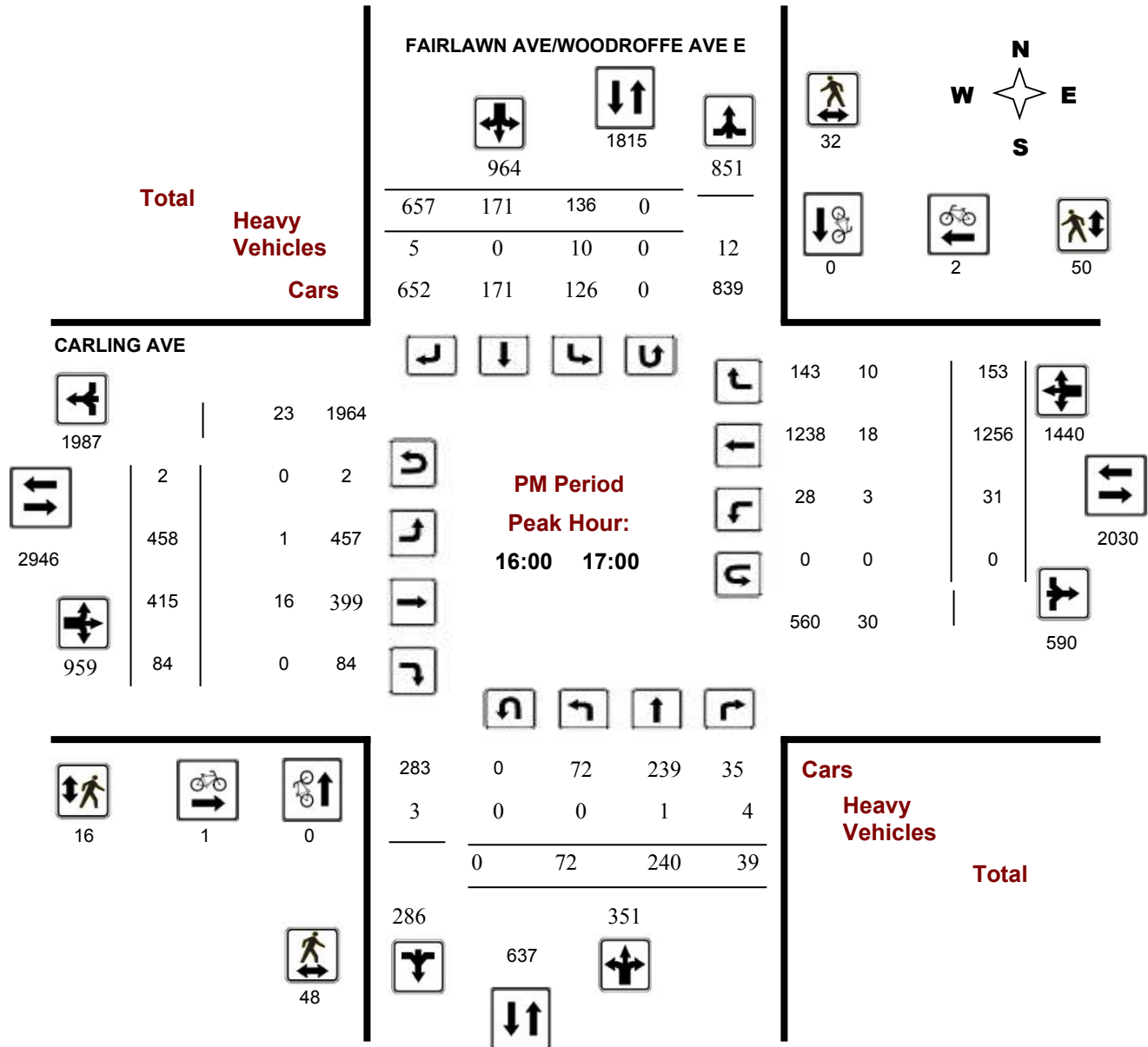


Survey Date: Thursday, March 30, 2017

Start Time: 07:00

WO No: 36827

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

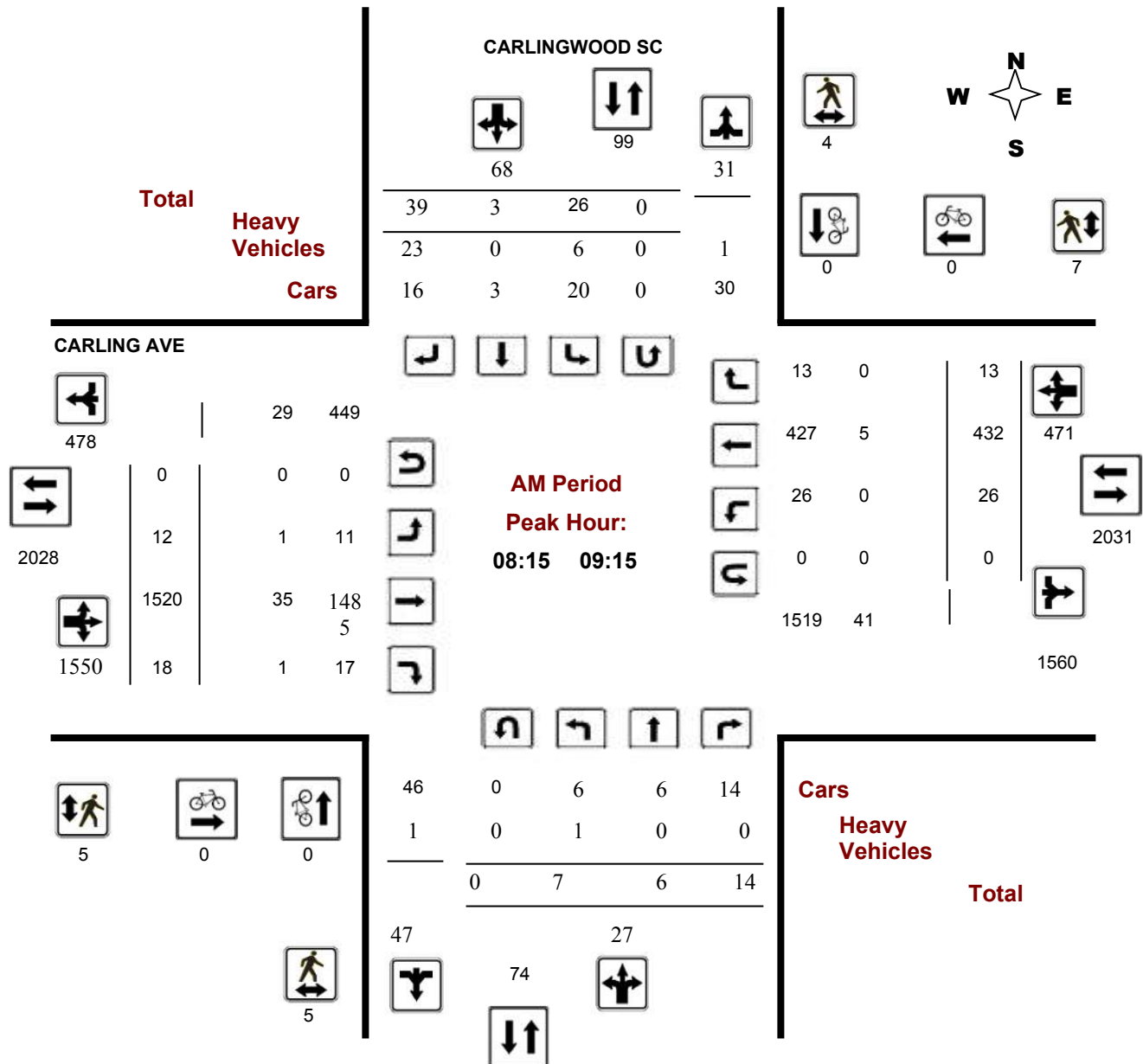
CARLING AVE @ CARLINGWOOD SC

Survey Date: Wednesday, June 17, 2015

Start Time: 07:00

WO No: 34715

Device: Jamar Technologies, Inc





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

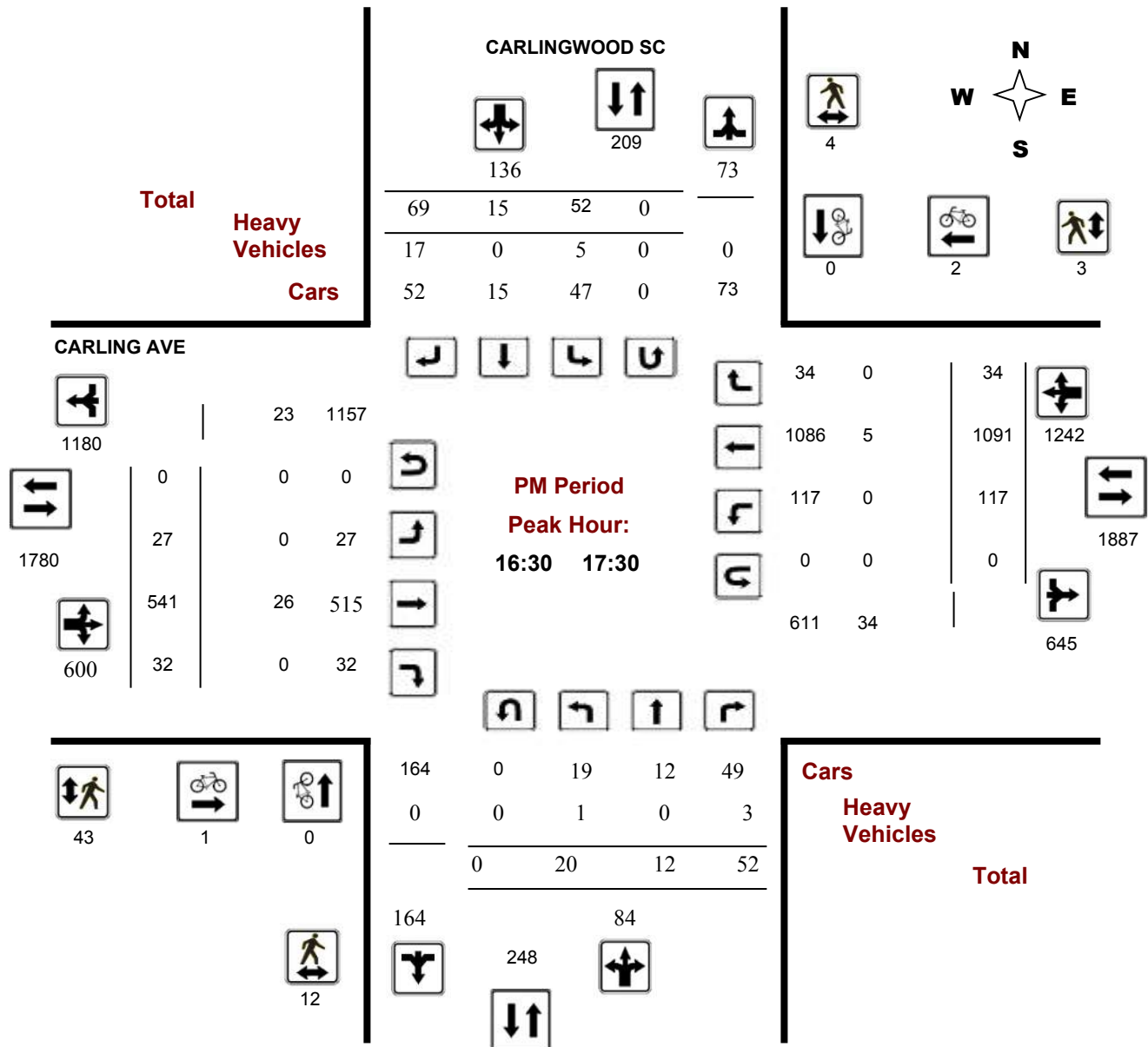
CARLING AVE @ CARLINGWOOD SC

Survey Date: Wednesday, June 17, 2015

Start Time: 07:00

WO No: 34715

Device: Jamar Technologies, Inc





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

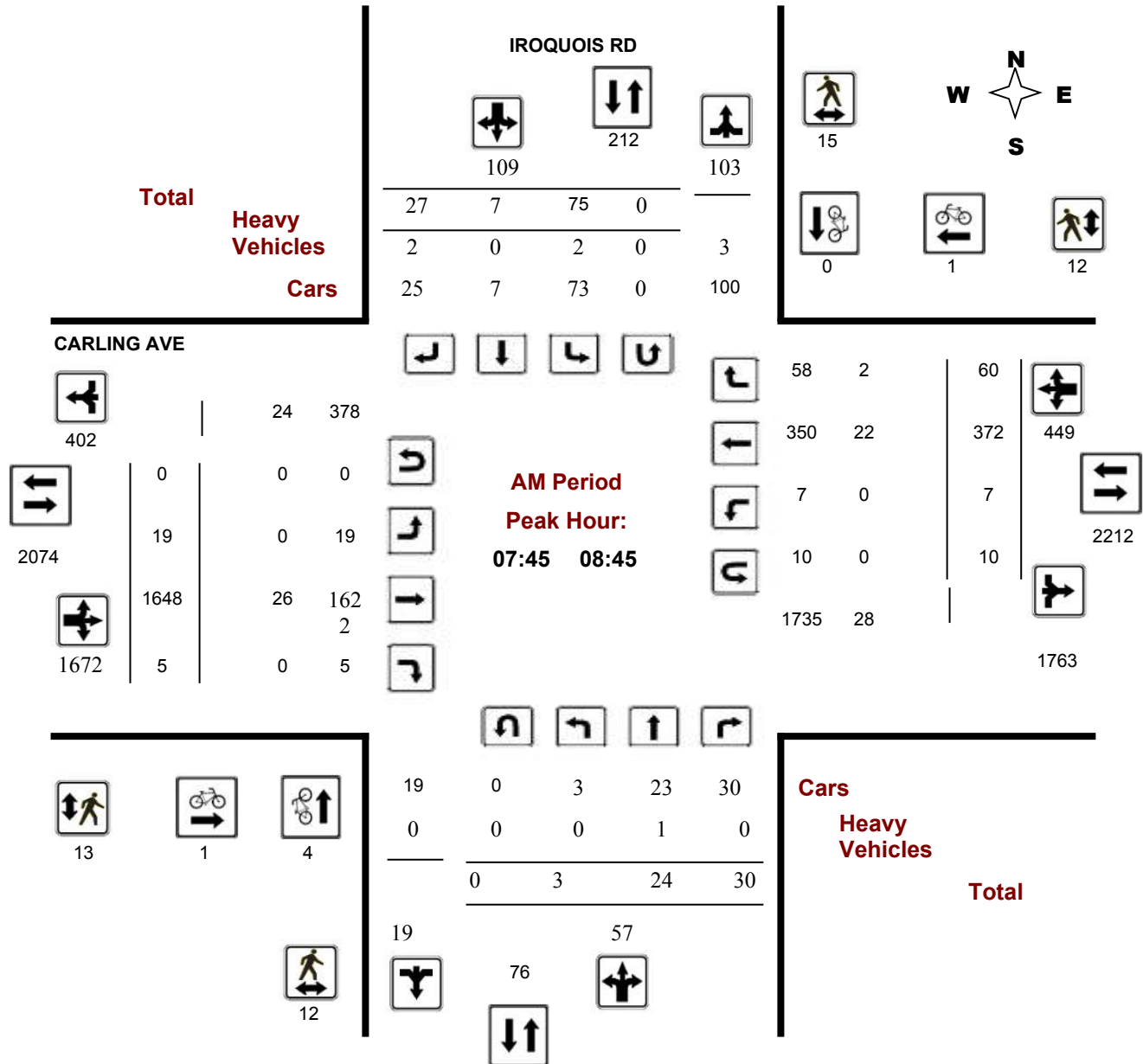
CARLING AVE @ IROQUOIS RD

Survey Date: Wednesday, May 10, 2017

Start Time: 07:00

WO No: 37025

Device: Miovision

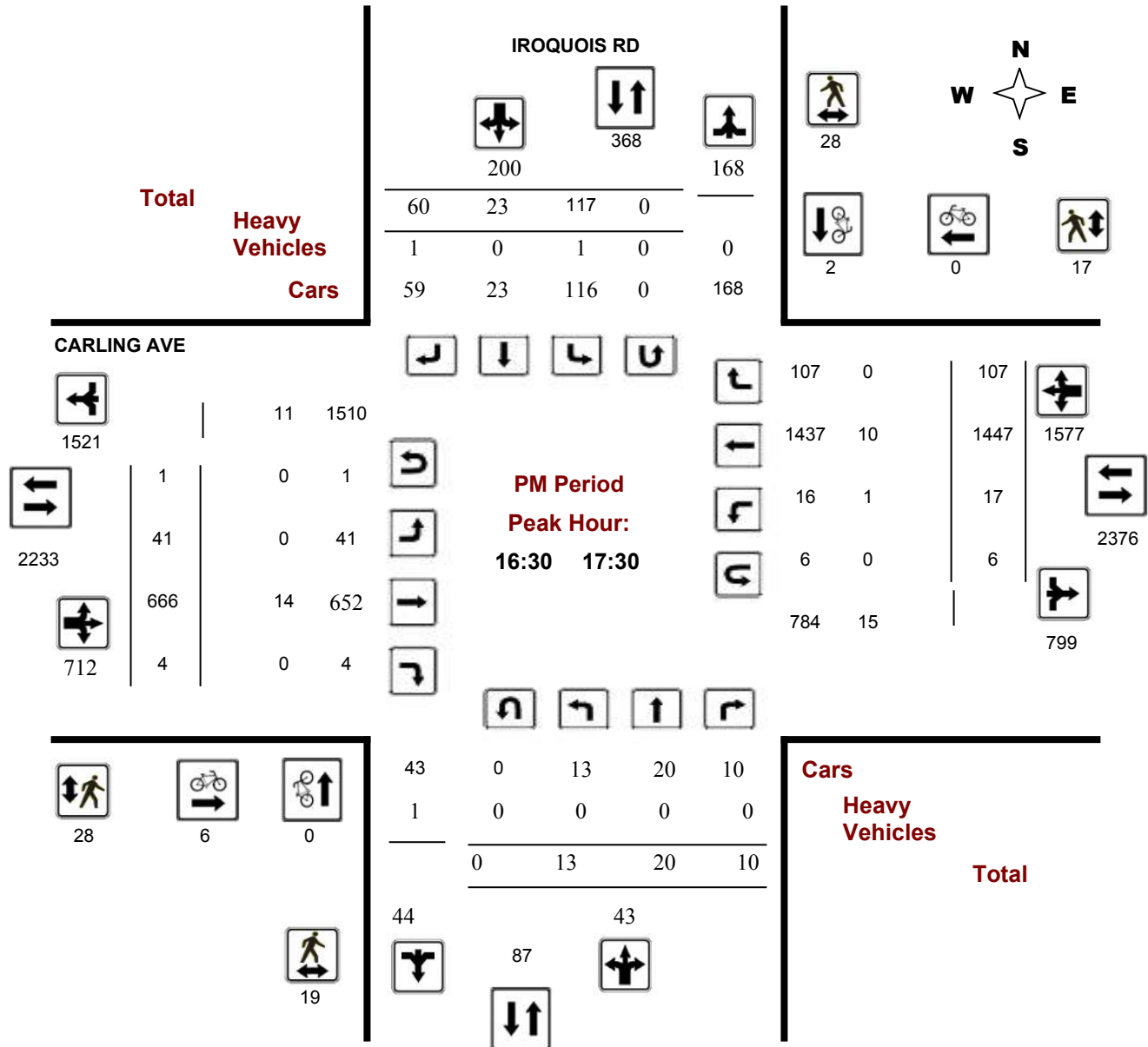


Survey Date: Wednesday, May 10, 2017

Start Time: 07:00

WO No: 37025

Device: Miovision



Turning Movement Count - Full Study Peak Hour Diagram

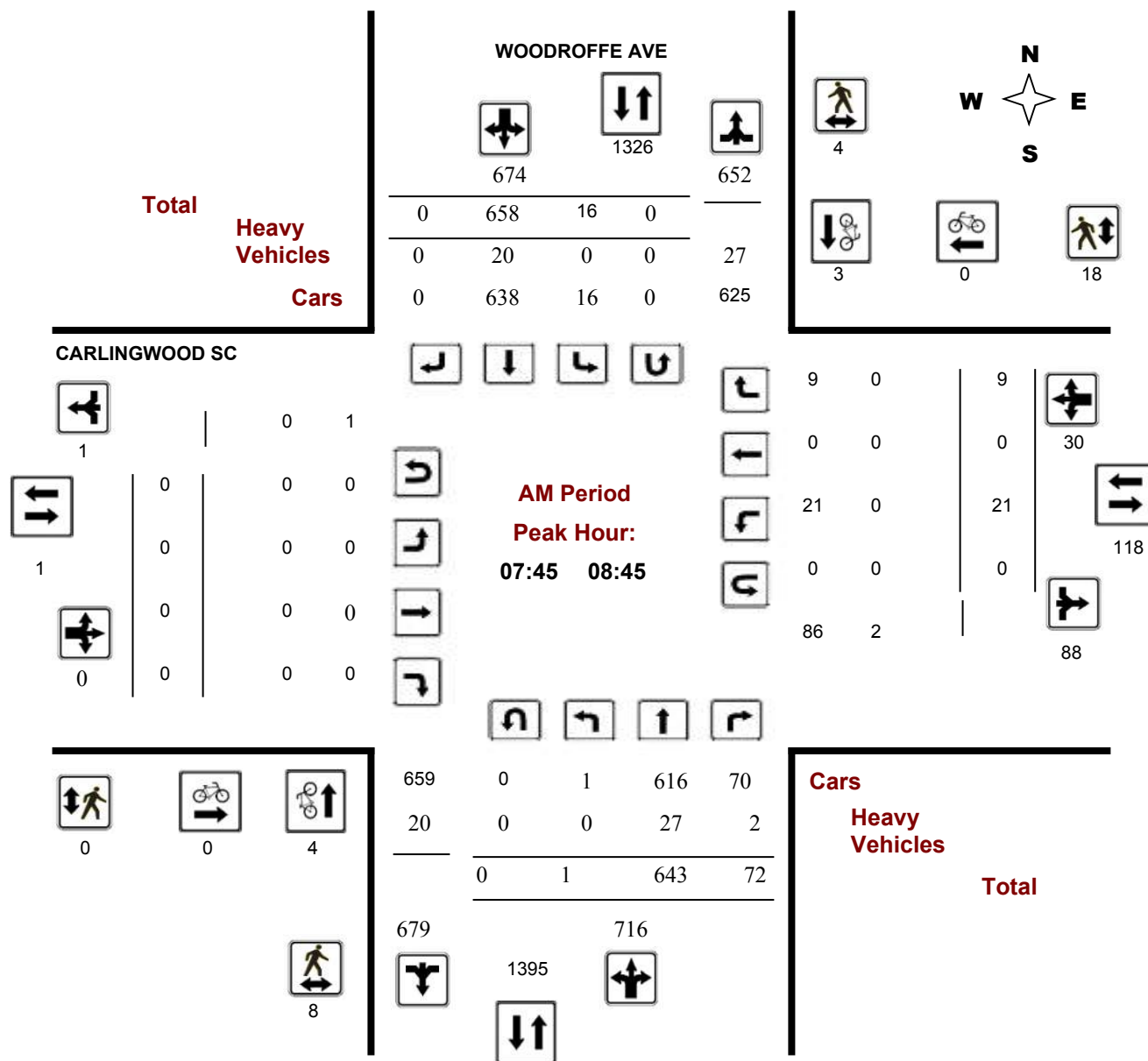
CARLINGWOOD SC @ WOODROFFE AVE

Survey Date: Wednesday, June 17, 2015

Start Time: 07:00

WO No: 34717

Device: Jamar Technologies, Inc



Comments



Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

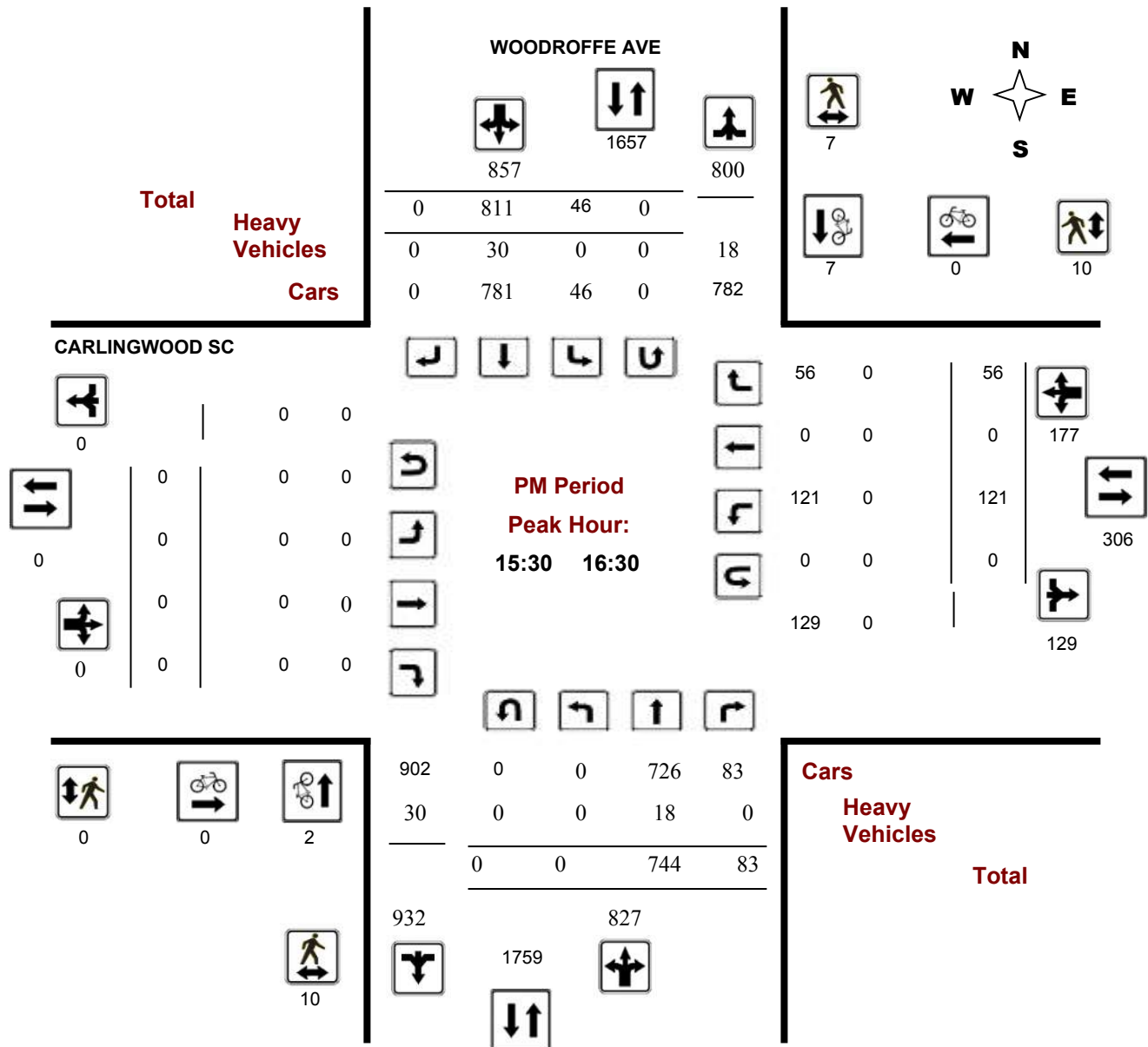
CARLINGWOOD SC @ WOODROFFE AVE

Survey Date: Wednesday, June 17, 2015

Start Time: 07:00

WO No: 34717

Device: Jamar Technologies, Inc

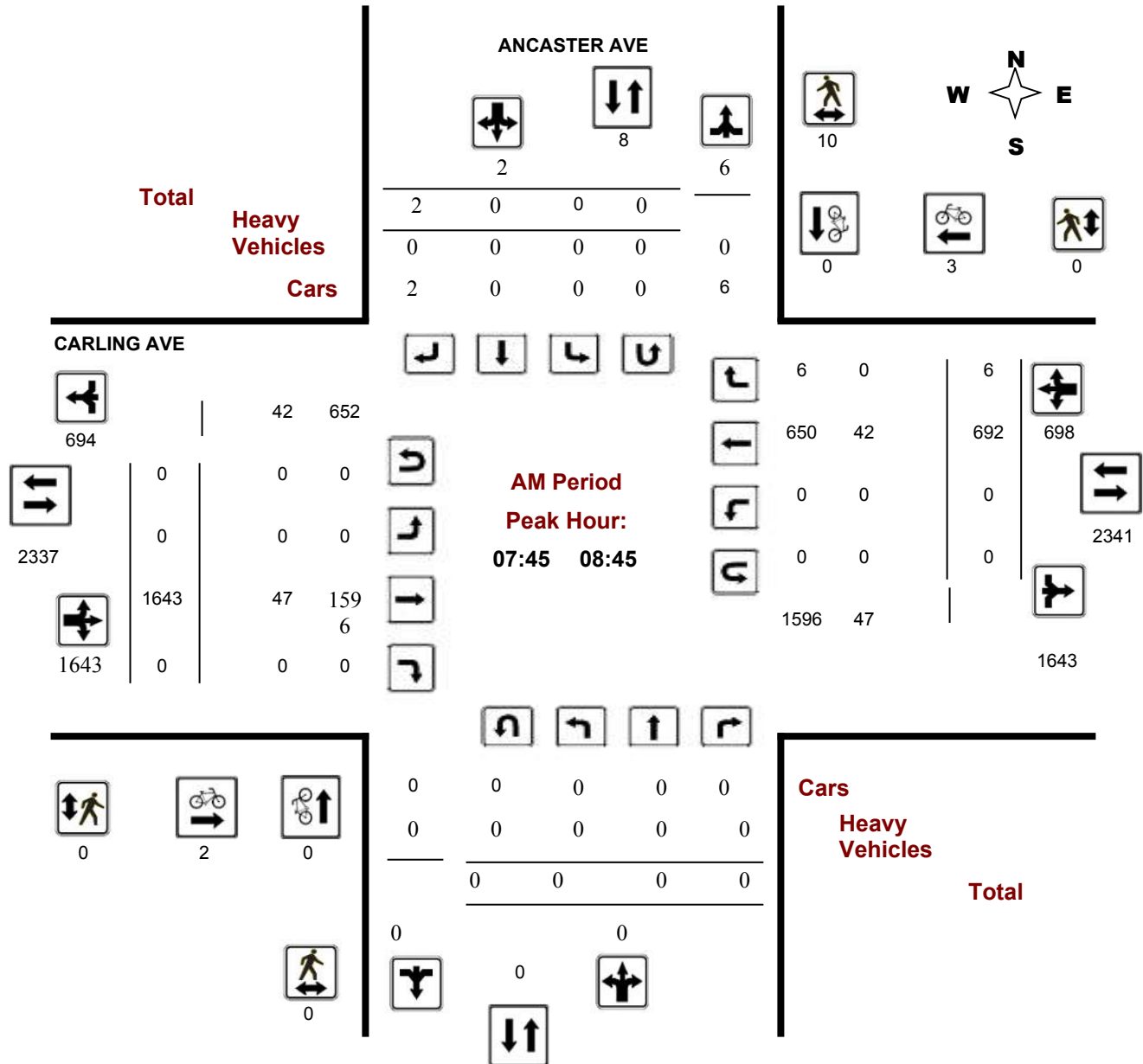


Survey Date: Tuesday, July 22, 2003

Start Time: 07:00

WO No: 16728

Device:





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

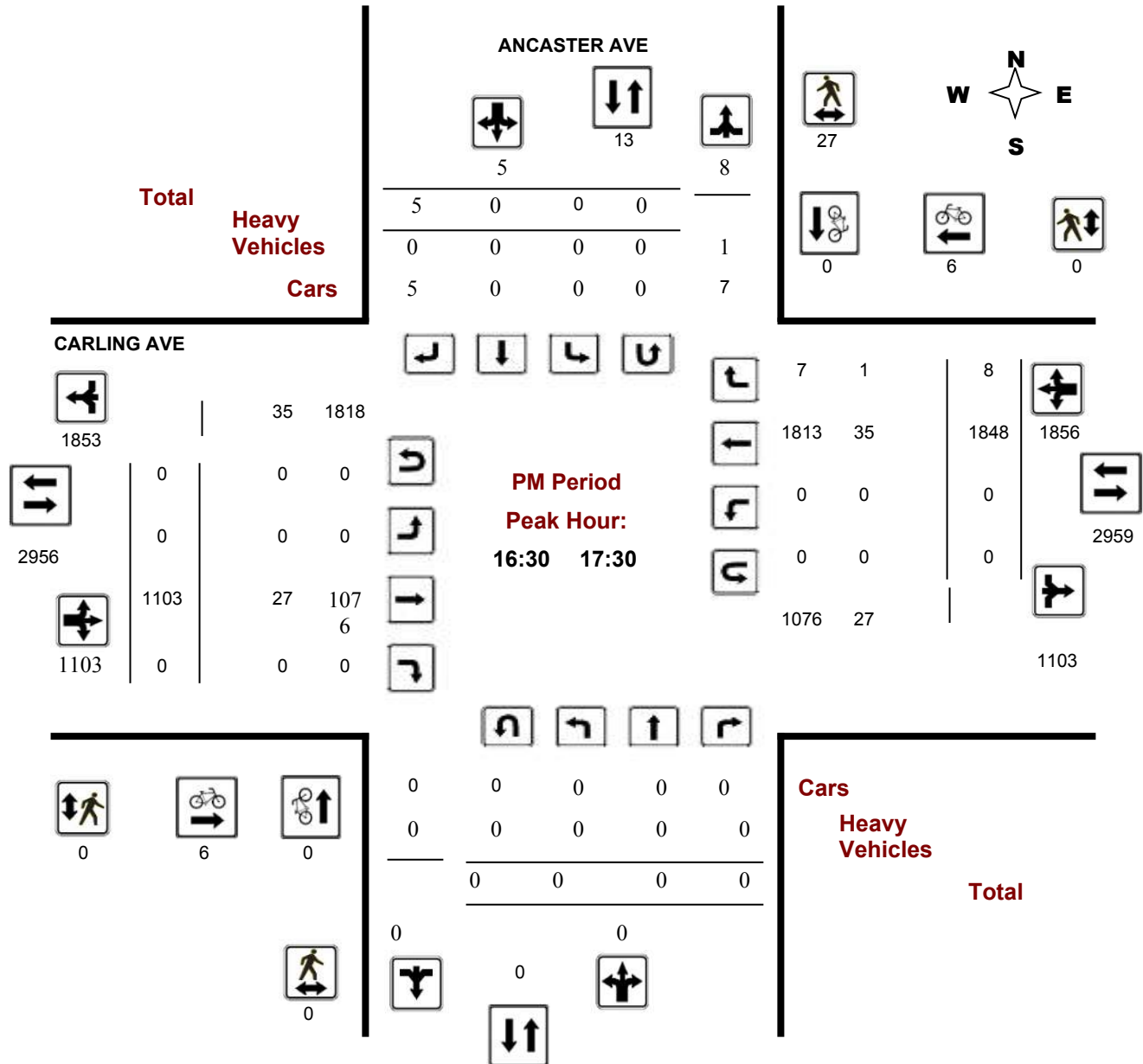
ANCASTER AVE @ CARLING AVE

Survey Date: Tuesday, July 22, 2003

Start Time: 07:00

WO No: 16728

Device:

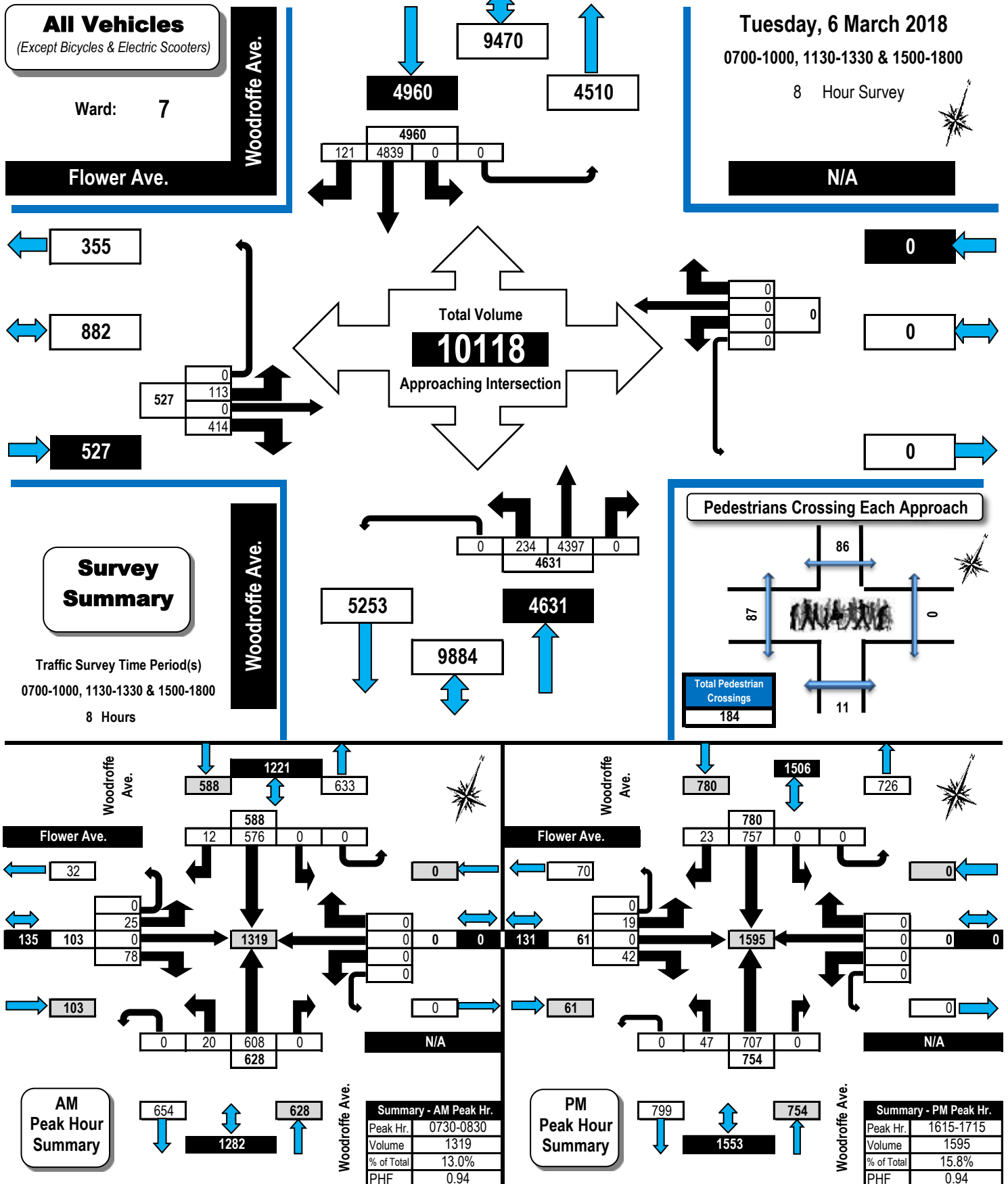




Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flower Avenue & Woodroffe Avenue Ottawa, ON



Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

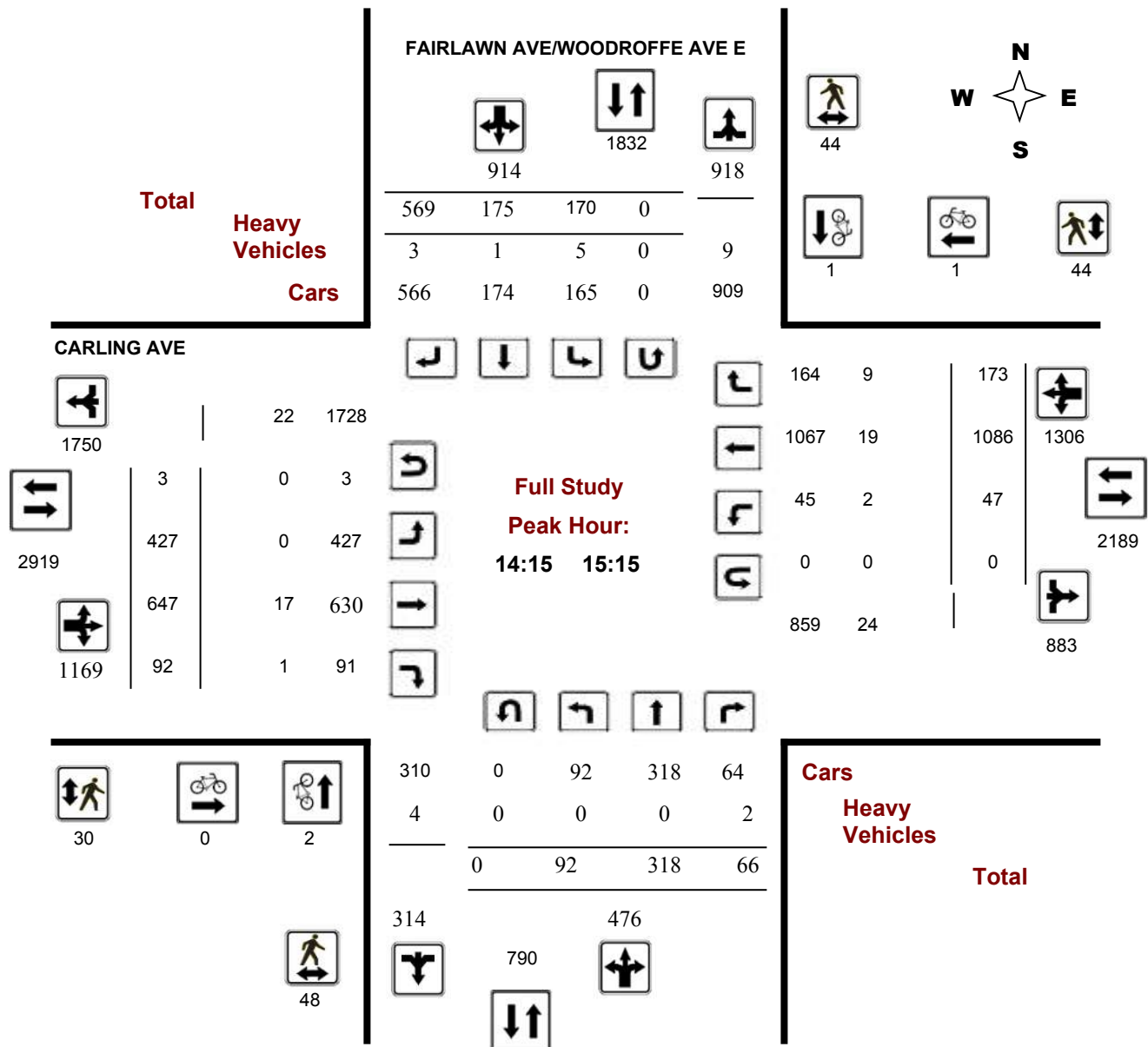
CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E

Survey Date: Saturday, April 29, 2017

Start Time: 11:00

WO No: 36971

Device: Miovision



Comments



Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

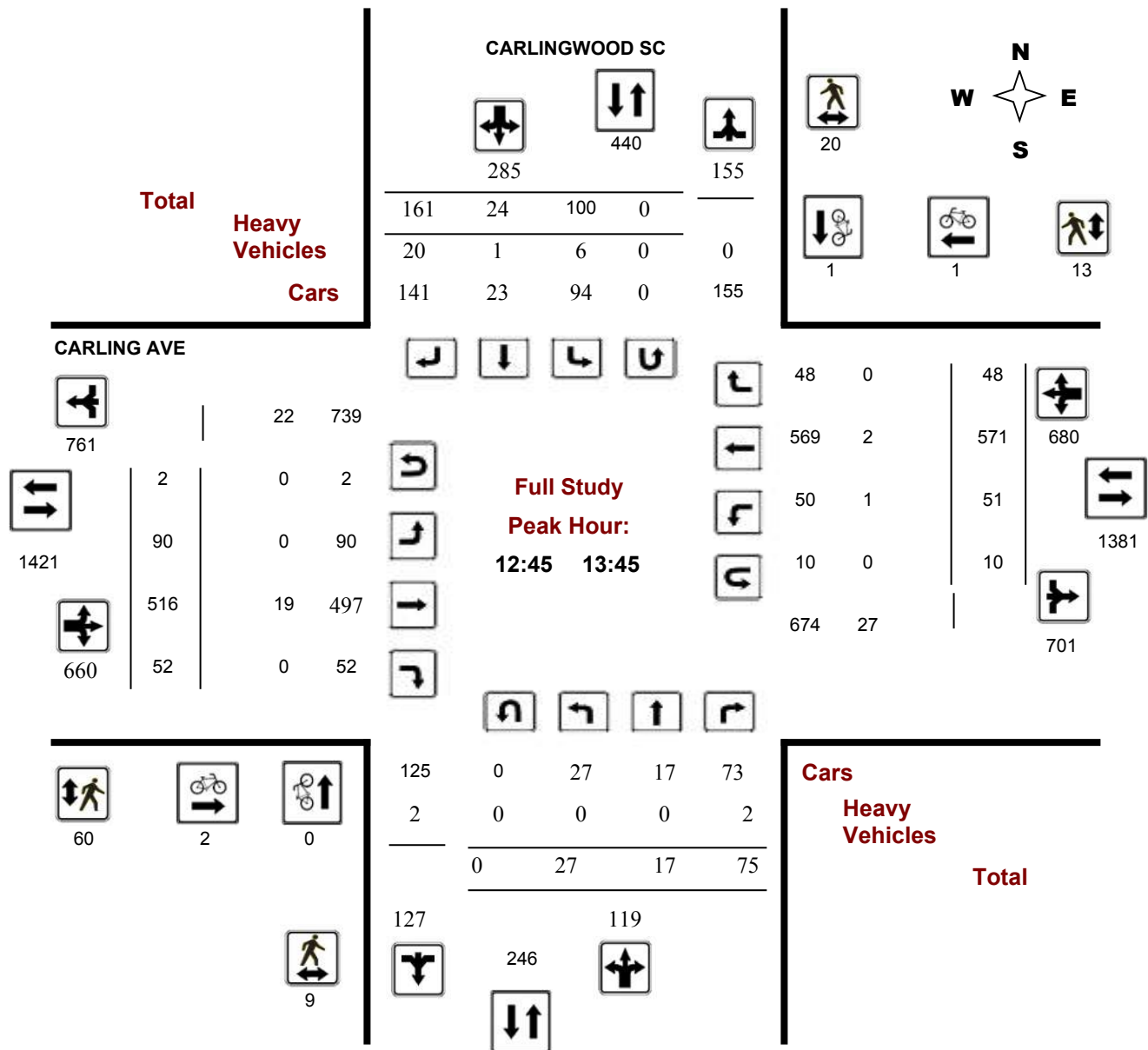
CARLING AVE @ CARLINGWOOD SC

Survey Date: Saturday, June 16, 2012

Start Time: 11:00

WO No: 686

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CARLINGWOOD SC @ WOODROFFE AVE

Survey Date: Saturday, February 01, 2014

Start Time: 11:00

WO No: 29218

Device: Miovision

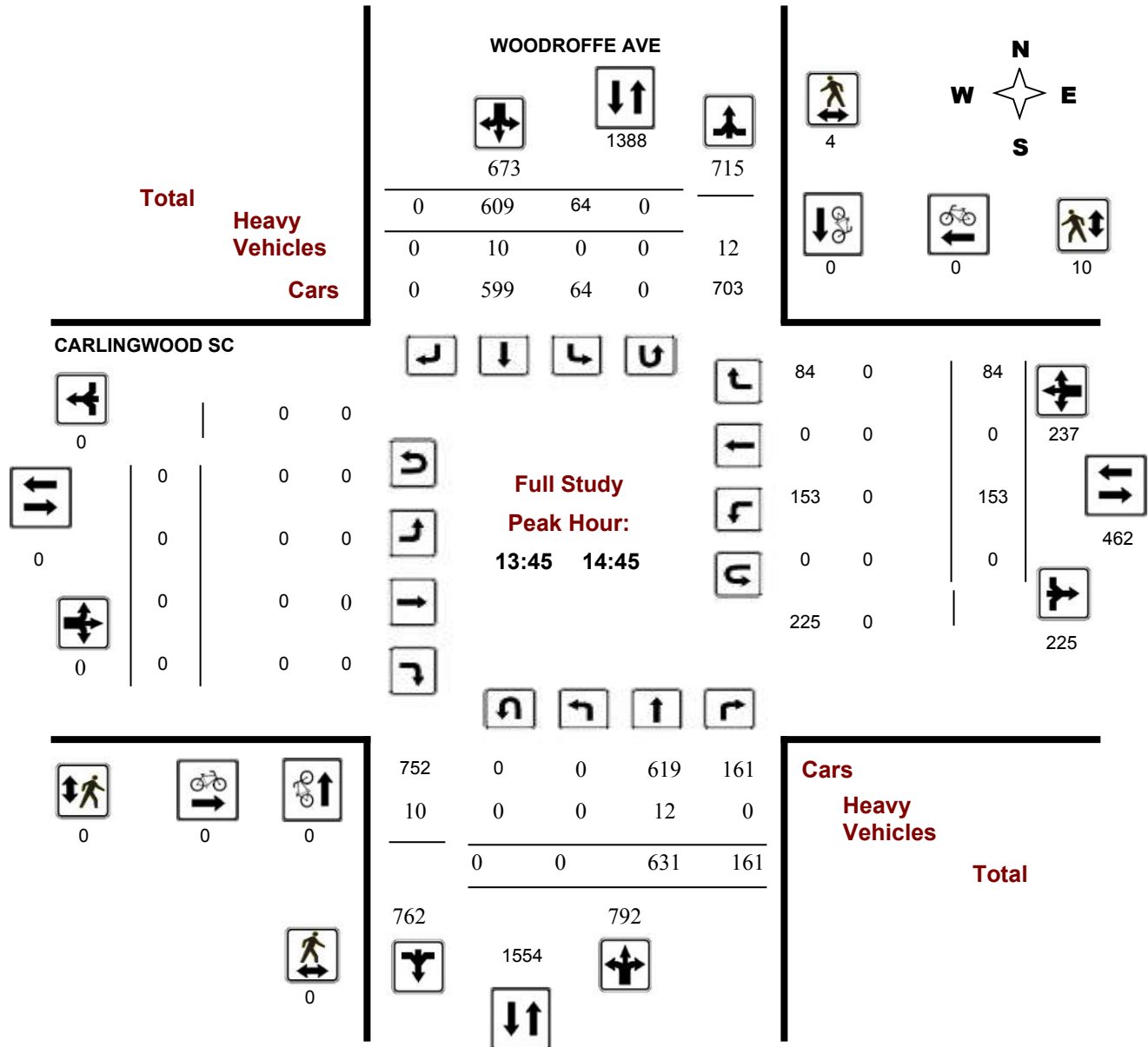
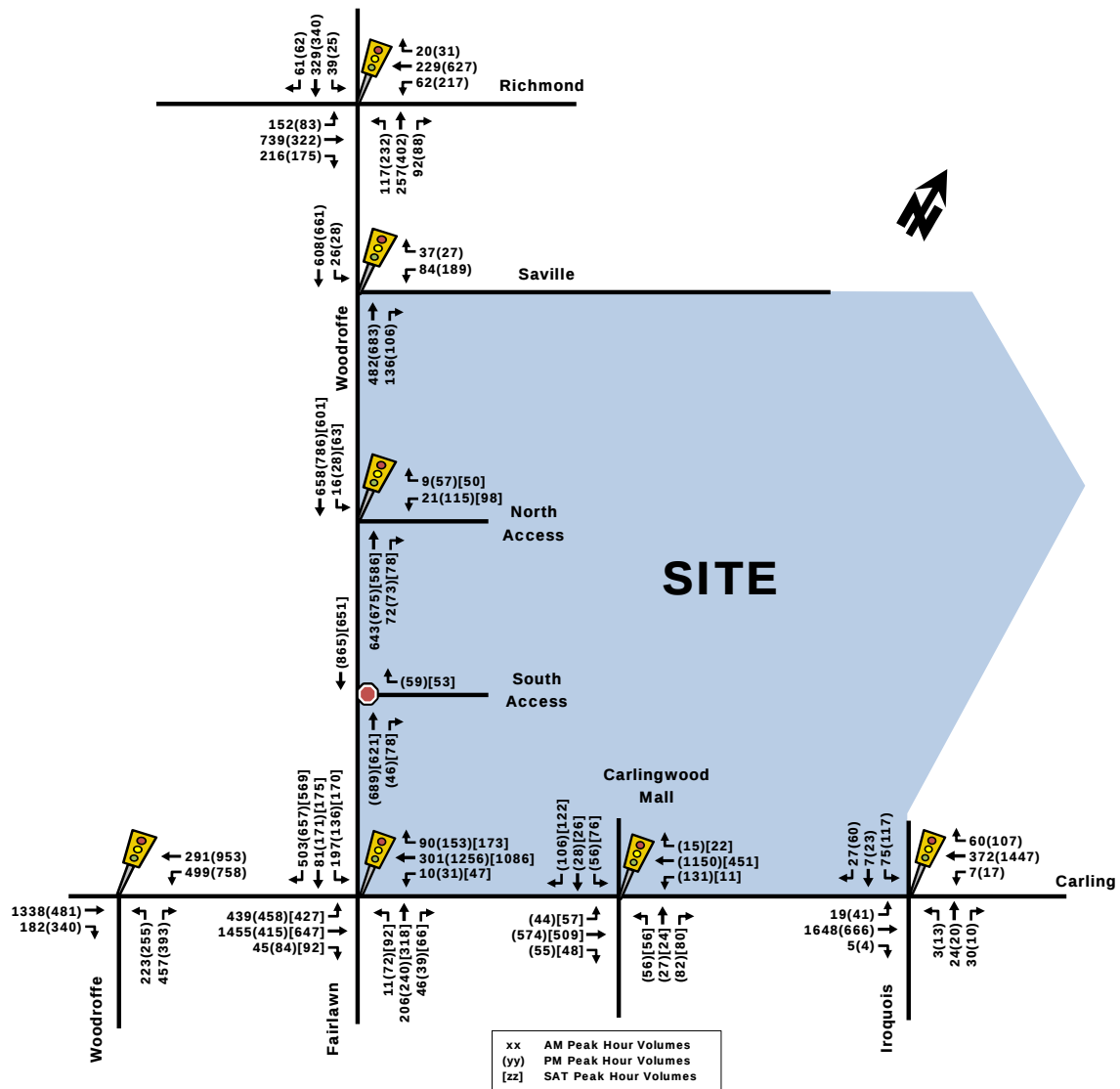


Figure 4: Existing Traffic Volumes



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.

APPENDIX D

Collision Records

Collision Main Detail Summary

OnTRAC Reporting System

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

CARLING AVE & CARLINGWOOD SC

Former Municipality: Ottawa

Traffic Control: Traffic signal

Number 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	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	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	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	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	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	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	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

CARLING AVE & FAIRLAWN AVE

Former Municipality: Ottawa

Traffic Control: Traffic signal

Number of Collisions: 23

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
9	2012-01-05	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
10	2012-02-24	Fri	16:05	Snow	Daylight	Rear end	P.D. only	V1 S V2 S	Loose snow Loose snow	Slowing or Stopped	Passenger van 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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Collision Main Detail Summary

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	0
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 Turning left	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0
16	2012-11-07	We	13:55	Clear	Daylight	Angle	Non-fatal	V1 W V2 N	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 V2 E	Dry Dry	Turning left Turning left	Passenger van Pick-up truck	Other motor vehicle Other motor vehicle	0
19	2013-04-23	Tue	11:56	Clear	Daylight	Rear end	Non-fatal	V1 S V2 S	Dry Dry	Going ahead Stopped	Automobile, station 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 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 V2 W	Wet Wet	Slowing or Stopped	Automobile, station Unknown	Other motor vehicle 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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Collision Main Detail Summary

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 Municipality: Ottawa

Traffic Control: Traffic signal

Number of Collisions: 7

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	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 E V2 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 W V2 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 W V2 S	Dry Dry	Going ahead Turning right	Passenger van Automobile, station	Other motor vehicle Other motor vehicle	0
35	2012-06-08	Fri	20:08	Clear	Daylight	Angle	P.D. only	V1 W V2 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)

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Collision Main Detail Summary

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

Number 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 N V2 N	Loose snow 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 W V2 W	Ice Ice	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	Mo	08:10	Clear	Daylight	Rear end	Non-fatal	V1 E V2 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 W V2 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 N V2 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 N V2 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 E V2 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 E V2 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)

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Collision Main Detail Summary

OnTRAC Reporting System

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

CARLINGWOOD SC & WOODROFFE AVE

Former Municipality: Ottawa

Traffic Control: Traffic signal

Number 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 W	Packed snow Packed snow	Going ahead Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
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	Dry 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	Dry Dry	Slowing or Stopped	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
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 Control: Stop sign

Number of Collisions: 4

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
9	2012-07-04	We	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	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)

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Collision Main Detail Summary

OnTRAC Reporting System

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

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

(Note: Time of Day = "00:00" represents unknown collision time)

Tuesday, February 20, 2018

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City Operations - Transportation Services

Collision Details Report - Public Version

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

Location: CARLING AVE @ CARLINGWOOD SC

Traffic Control: Traffic signal

Total Collisions: 22

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	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, station wagon	Other motor vehicle	
					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, station wagon	Other motor vehicle
					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	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 snow	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jun-08, Wed,17:11	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor 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	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CARLING AVE @ FAIRLAWN AVE/WOODROFFE AVE E

Traffic Control: Traffic signal

Total Collisions: 26

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	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	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	Dry	South	Turning left	Automobile, station wagon	Other motor 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	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 Manoeuvre	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: Traffic signal

Total Collisions: 28

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	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	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	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: CARLINGWOOD SC @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	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: FLOWER AVE @ WOODROFFE AVE

Traffic Control: Stop sign

Total Collisions: 9

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	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-Feb-08, Sat,12:49	Clear	SMV other	P.D. only	Dry	South	Going ahead	Pick-up truck	Other
2014-Aug-29, Fri,16:59	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Other motor 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, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Passenger van	Other motor vehicle
2015-Jan-22, Thu,11:42	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Sep-11, Fri,07:58	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor 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, station wagon	Other motor vehicle



City Operations - Transportation Services

Collision Details Report - Public Version

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

Location: WOODROFFE AVE btwn CARLINGWOOD SC & CARLING AVE

Traffic Control: No control

Total Collisions: 15

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	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	

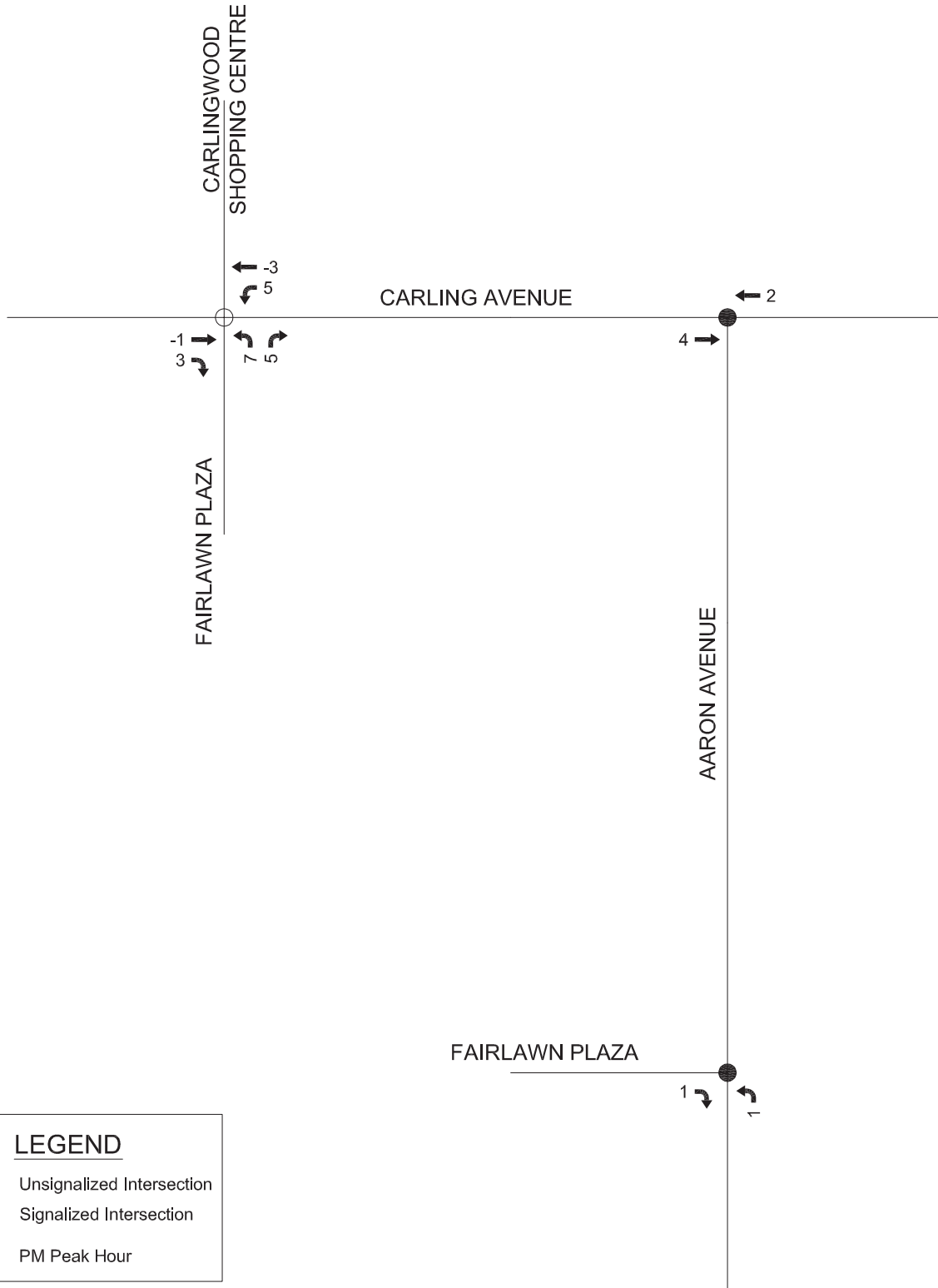
					South	Turning left	Pick-up truck	Other motor vehicle
2016-Dec-02, Fri,17:37	Clear	Angle	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Feb-15, Fri,16:13	Clear	Rear end	Non-fatal injury	Dry	South	Slowing or stopping	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

M:\2013\113002\CAD\Design\Figures\Traffic\TRAFFIC FIGS.dwg, PRIMARY_PASS-BY (RETAIL), Dec 05, 2013 - 4:42pm, bbyvelds



LEGEND

- Unsignalized Intersection
- Signalized Intersection

xx VPH PM Peak Hour

NOVATECH
ENGINEERING
CONSULTANTS LTD.

ENGINEERS & PLANNERS

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K2M 1P6

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Email: novainfo@novatech-eng.com

2148 CARLING AVENUE

PRIMARY AND PASS-BY
TRAFFIC VOLUMES

DEC 2013

113002

FIGURE # 2

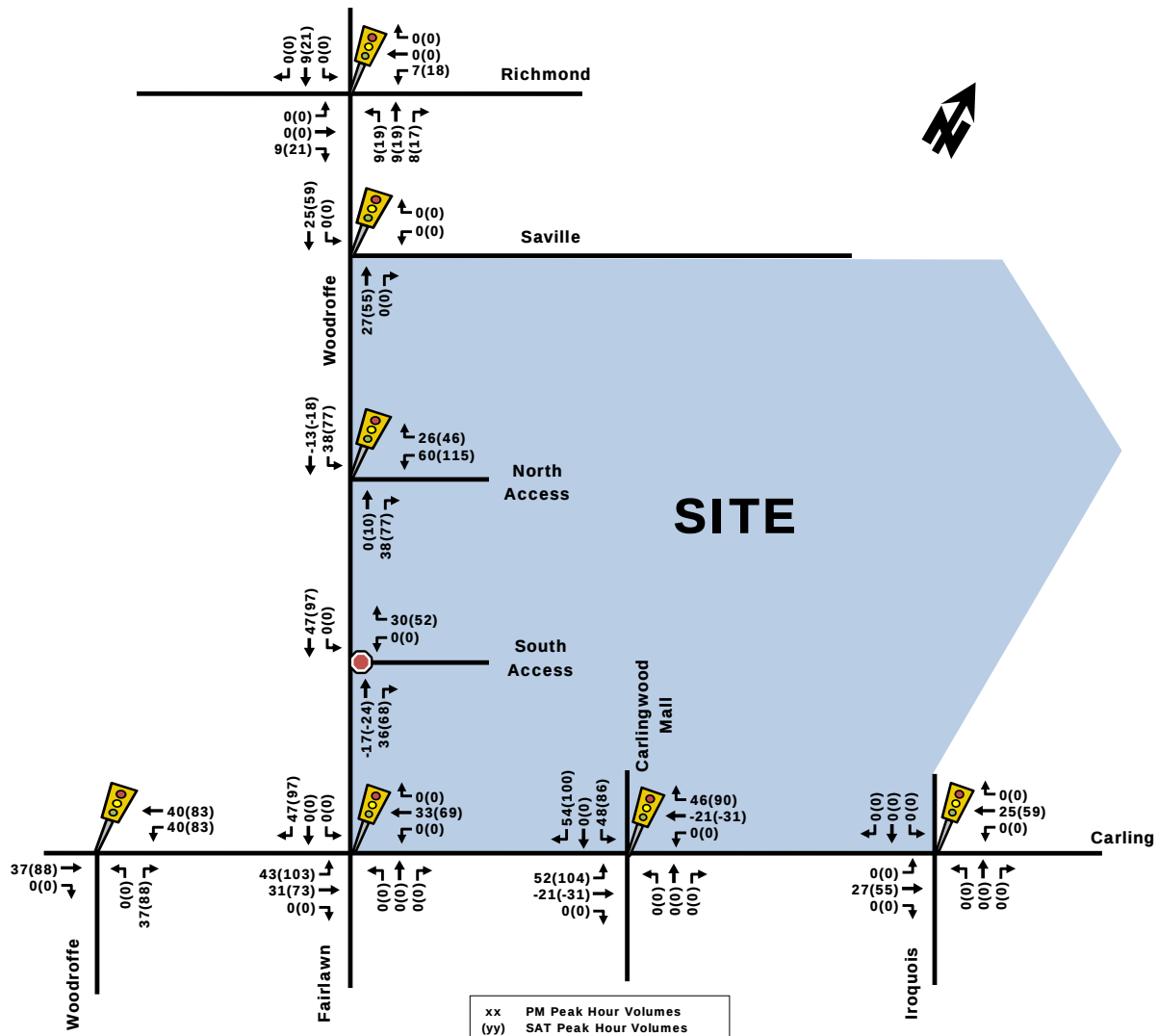
3.1.2 Trip Distribution and Assignment

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.

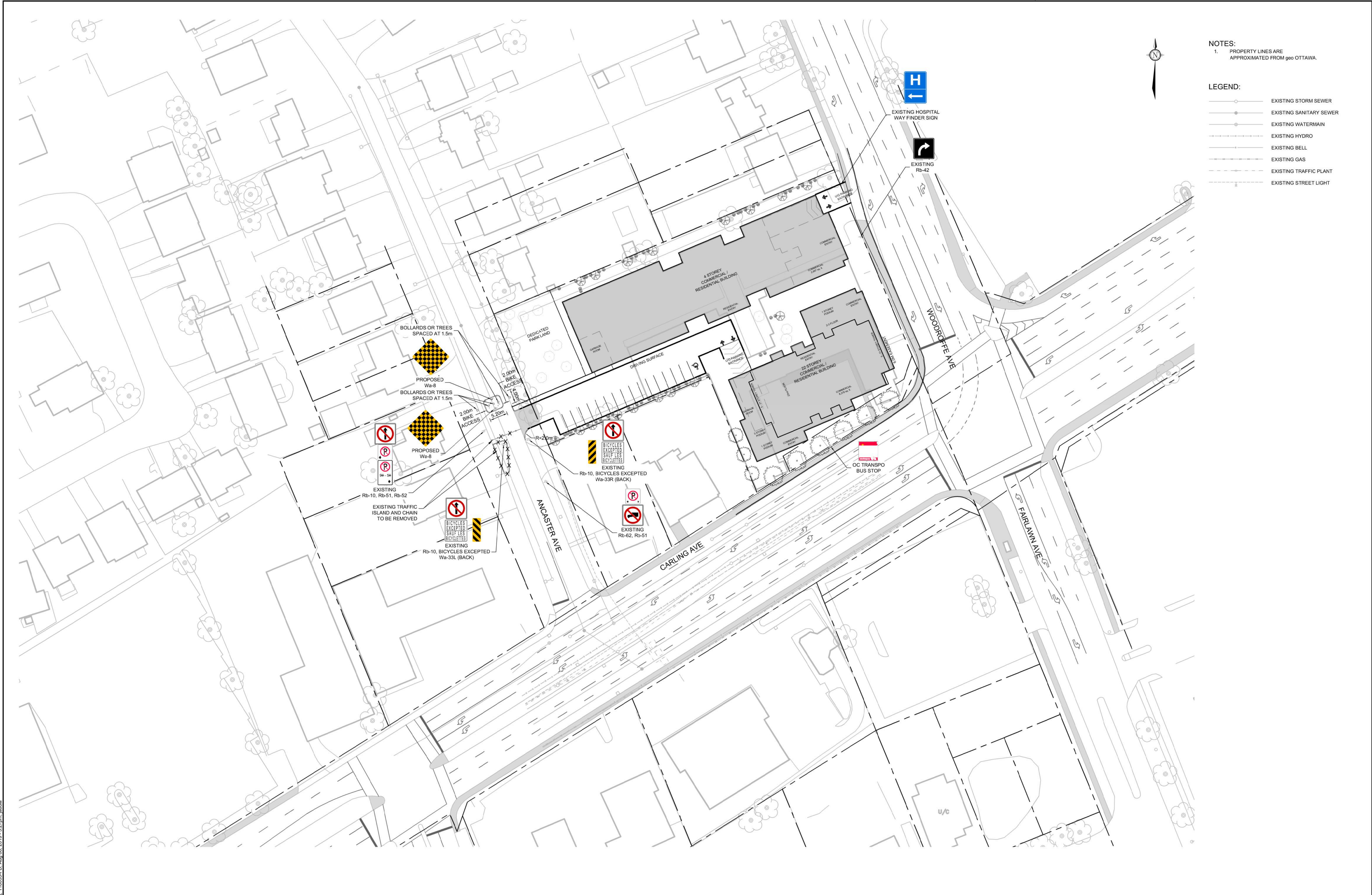
Based on the foregoing distributions, 'new' and 'pass-by' 2020 projected site-generated trips (Table 7) were assigned to the study area, which are illustrated as Figure 6.

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



APPENDIX F

Functional Design of Ancaster Road Closure



NOTES:
1. PROPERTY LINES ARE APPROXIMATED FROM geo OTTAWA.

- LEGEND:
- EXISTING STORM SEWER
 - EXISTING SANITARY SEWER
 - EXISTING WATERMAIN
 - EXISTING HYDRO
 - EXISTING BELL
 - EXISTING GAS
 - EXISTING TRAFFIC PLANT
 - EXISTING STREET LIGHT

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
2.	CONCEPT PLAN REVISED	AUG 08/19	JA
1.	FOR PRELIMINARY REVIEW	NOV 21/18	JA

SCALE
1:500
0 5 10 15 20

DESIGN
JA
CHECKED
JLL
DRAWN
RCH
CHECKED
JA
APPROVED
JLL

FOR REVIEW ONLY

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION CITY of OTTAWA 485 ANCASTER AVENUE	PROJECT No. 118035-00
DRAWING NAME FUNCTIONAL DESIGN	DATE AUGUST 2019
	DRAWING No. 118035-FD

M:\2018\118035\CAD\Design\118035-FD.dwg, 118035-FD, Aug 08, 2019 - 3:27pm, jauda

PLANNING.DWG - 841mmx566mm

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	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	N/A	0	No	72	Yes	45	Yes	45
Lanes Crossed (3.5m Lane Width)	N/A		5		7		7	
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
PETSİ 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		-		E		F		F

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

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETS I SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	55	No	39	Yes	0	Yes	15
Lanes Crossed (3.5m Lane Width)	6		7		10 +		9	
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
PETS I SCORE		30		10		-40		-20
LOS		E		F		F		F
DELAY SCORE								
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		E		E		E		D
OVERALL		E		F		F		F

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

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	23	No	39	No	-10	No	-10
Lanes Crossed (3.5m Lane Width)	8		7		10 +		10 +	
SİGNAL PHASİNG AND TIMİNG								
Left Turn Conflict	Perm + Prot	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNİR 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	No Right Turn Channel	-4	No Right Turn Channel	-4	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
CROSSİNG TREATMENT								
Treatment	Standard	-7	Standard	-7	Zebra Stripe	-4	Zebra Stripe	-4
PETSİ SCORE		-12	2		-41		-44	
LOS		F	F		F		F	
DELAY SCORE								
Cycle Length	130	130		130	130	130		130
Pedestrian Walk Time	29.8	47.8		28.1	28.1	28.1		28.1
DELAY SCORE		38.6	26.0		39.9		39.9	
LOS		D	C		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	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	88	Yes	0	Yes	0
Lanes Crossed (3.5m Lane Width)	4		4		10 +		10 +	
SİGNAL PHASİNG AND TIMİNG								
Left Turn Conflict	Perm + Prot	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	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
CORNİR RADİUS								
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
CROSSİNG TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSİ 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		C	B		E		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	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	72	No	72	N/A	0
Lanes Crossed (3.5m Lane Width)	4		5		5		N/A	
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
PETSİ SCORE		66	PETSİ SCORE		54	PETSİ SCORE		38
LOS		C	LOS		D	LOS		E
DELAY SCORE								
Cycle Length		95		95		85		-
Pedestrian Walk Time		7.3		7.3		30.0		-
DELAY SCORE		40.5	DELAY SCORE		40.5	DELAY SCORE		17.8
LOS		E	LOS		E	LOS		B
OVERALL		E	OVERALL		E	OVERALL		E

Table 6: BLOS Intersection Analysis

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Carling Avenue/Woodroffe Avenue West				
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	1 lane crossed; ≥ 60 km/h	F
East Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
		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/Woodroffe Avenue East/Fairlawn Avenue				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	2 lanes crossed; ≥ 50 km/h	F
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	2 lanes crossed; ≥ 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/Carlingwood Shopping Centre				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	2 lanes crossed; ≤ 40 km/h	D
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	B
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		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	3 lanes crossed; ≥ 50 km/h	F

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Carling Avenue/Iroquois Road				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	1 lane crossed; 50 km/h	D
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	B
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	3 lanes crossed; ≥ 50 km/h	F
Woodroffe Avenue East/Carlingwood Shopping Centre				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
		Left Turn Accommodation	1 lane crossed; 60 km/h	F
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	No left turn	-
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane < 50m; Turning speed < 25 km/h	D
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	B

Table 7: TLOS Intersection Analysis

Approach	Delay ⁽¹⁾	TLOS
Carling Avenue/Woodroffe 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⁾	B
South	-	-
East	5 sec	B
West	5 sec	B
Carling Avenue/Iroquois Road		
North	-	-
South	-	-
East	15 sec	B
West	5 sec	B
Woodroffe Avenue East/Carlingwood Shopping Centre		
North	5 sec	B
South	5 sec	B
East	-	-

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

Table 8: TkLOS Intersection Analysis

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	A
Carling Avenue/Woodroffe Avenue East/Fairlawn Avenue			
North	10m to 15m	3	B
South	> 15m	3	A
East	> 15m	2	A
West	> 15m	1	C
Carling Avenue/Carlingwood Shopping Centre			
North	10m to 15m	4	B
South	< 10m	3	D
East	10m to 15m	2	B
West	> 15m	1	C
Carling Avenue/Iroquois Road			
North	10m to 15m	4	B
South	< 10m	3	D
East	> 15m	1	C
West	> 15m	1	C
Woodroffe Avenue East/Carlingwood Shopping Centre			
North	-	-	-
South	< 10m	2	D
East	10m to 15m	2	B

Table 9: Auto LOS Intersection Analysis – Existing

Intersection	AM Peak			PM Peak		
	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	E	SBL	0.96	E	SBR
Carling Avenue/ Carlingwood Shopping Centre	0.44	A	EBT	0.32	A	WBT/ NBT
Carling Avenue/ Iroquois Road	0.50	A	EBT	0.58	A	SBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (signalized)	0.29	A	SBT	0.57	A	WBL
Woodroffe Avenue East/ Carlingwood Shopping Centre (unsignalized) ⁽¹⁾	26 sec	D	WBL	37 sec	E	WBL
Carling Avenue/ Ancaster Avenue ⁽¹⁾	10 sec	A	SBR	10 sec	A	SBR
Woodroffe Avenue East/ Flower Avenue ⁽¹⁾	15 sec	B	EBL/ EBR	21 sec	C	EBL/ EBR
Carling Avenue/ Site Access ⁽¹⁾	9 sec	A	SBR	10 sec	A	SBR
Woodroffe Avenue East/ Site Access ⁽¹⁾	17 sec	C	EBL/ EBR	19 sec	C	EBL/ EBR

1. Unsignalized intersection

Table 10: Existing Queues Over Capacity

Intersection	Mvmt	AM Peak				PM Peak			
		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	C	67	86	0.86	D	107	m107
Carling Ave/ Woodroffe Ave East/ Fairlawn Ave	SBL	0.98	E	~48	#60	0.63	B	30	39
	SBR	0.73	C	62	71	0.96	E	127	#225
	EBL	0.81	D	60	m78	0.71	C	57	#92
	EBT	0.80	D	55	#283	0.32	A	40	77
	WBT	0.18	A	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		Carling Avenue/ Woodroffe Avenue West			Carling Avenue/ Woodroffe Avenue East/Fairlaw Avenue				Carling Avenue/ Carlingwood Shopping Centre				Carling Avenue/ Iroquois Road				Woodroffe Avenue East/ Carlingwood Shopping Centre		
		SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST
Pedestrian	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
	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
	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
	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
	Level of Service	D	F	F	E	F	F	F	F	F	F	F	D	D	F	F	E	E	E
		F			F				F				F				E		
	Target	C			C				C				C				C		
Cyclist	Type of Bikeway	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed 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
	Shared Through-Right Lane	No	-	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	-	No	No
	Bike Box	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	Lanes Crossed (Left Turns)	1	2	-	2	2	4	2	2	0	4	3	1	0	4	3	1	-	0
	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	B	F	F	D	B	F	F	F	F	D
		F			F				F				F				F		
	Target	C			C				C				B				C		
Transit	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	-
	Level of Service	-	E	E	F	F	E	E	B	-	B	B	-	-	B	B	B	B	-
		E			F				B				B				B		
	Target	D			D				D				D				-		
Truck	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
	Level of Service	D	-	A	B	A	A	C	B	D	B	C	B	D	C	C	-	D	B
		D			C				D				D				D		
	Target	D			D				D				D				D		
Auto	Level of Service	D			E				A				A				A		
	Target	D			D				D				D				D		

APPENDIX H

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

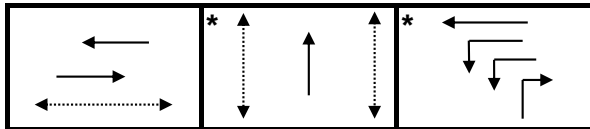
Intersection:	Main: Carling	Side: Woodroffe South
Controller:	MS-3200	TSD: 5213
Author:	Spencer Willows	Date: 20-Apr-2018

Existing Timing Plans†

	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	130	110	130	100	105			
Offset	112	18	27	X	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:**
- 1) For all plans except Plan 4, there is a minimum recall of 10s green for the NB movement.
 - 2) 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		Saturday		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

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

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

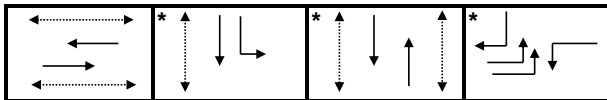
Intersection:	Main: Carling	Side: Woodroffe/Fairlawn
Controller:	MS-3200	TSD: 5283
Author:	Spencer Willows	Date: 23-Apr-2018

Existing Timing Plans†

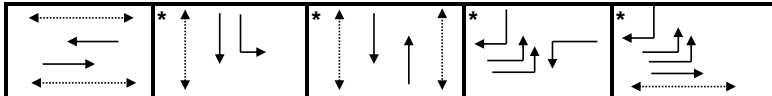
	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	130	110	130	100	105			
Offset	128	16	0	X	13			
EB Thru	53.7	37	51.7	42	37	7	24	3.7+2.4
WB Thru	44	37	47	42	37	7	24	3.7+2.4
SB Left	14	11	14	-	12	-	-	3.3+3.0
NB Thru	41	42	43	46	41	23	11	3.3+3.6
SB Thru	55	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‡

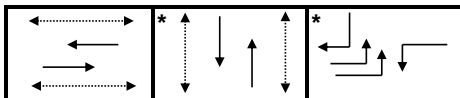
Plan: 2, 5



Plan: 1, 3



Plan: 4



Notes:

- 1) For all plans, if there is no pedestrian actuation for the NS thru movements, the NS thru movements will be forced off 6 seconds early.
- 2) For plan 5, there is a minimum recall of 10s green time for the NS thru movements.
- 3) There is a transit signal priority measure for the EW thru that extends the green time by 14 seconds for Plans 1 and 3.
- 4) The WB left turn has a maximum green time of 15 seconds.

Schedule

Weekday

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

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)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

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

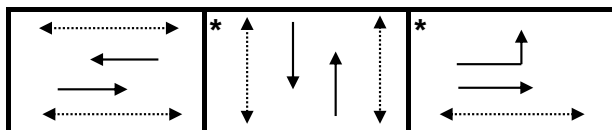
Existing Timing Plans†

	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Evening 12	Walk	DW	A+R
Cycle	130	110	130	100	105	100			
Offset	128	6	100	X	11	X			
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

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

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

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

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

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

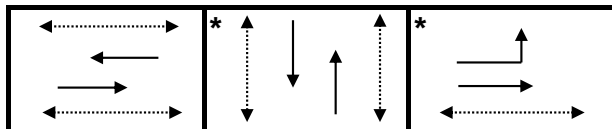
Intersection:	Main: Carling	Side: Iroquois
Controller:	MS-3200	TSD: 5276
Author:	Spencer Willows	Date: 23-Apr-2018

Existing Timing Plans†

	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	130	110	130	100	105			
Offset	6	107	95	X	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



Notes: 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

Weekday

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

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)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection:	Main: Woodroffe	Side:	255m N of Carling/Carlingwood SC
Controller:	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	X	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

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

Phasing Sequence[‡]

Plan: All



Schedule

Weekday

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

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

3: Woodroffe W & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑↑	↑↑	↑	↑
Traffic Volume (vph)	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)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	1.00		1.00		0.99	0.98
Frt	0.982					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	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%
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
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+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						

	→	↘	↙	←	↖	↗
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)	59.3		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 Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	2161		707	2369	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%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.996				0.850		0.973				0.850
Flt 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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
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)		7			7	7	9	9			9	
Act Effct Green (s)	24.2	81.6		6.5	53.9	53.9	18.6	18.6		33.2	32.6	57.4
Actuated g/C Ratio	0.19	0.63		0.05	0.41	0.41	0.14	0.14		0.26	0.25	0.44
v/c Ratio	0.81	0.80		0.14	0.18	0.15	0.07	0.58		0.98	0.21	0.73
Control Delay	71.9	15.5		75.4	19.1	1.0	44.1	52.1		100.2	37.5	19.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.9	15.5		75.4	19.1	1.0	44.1	52.1		100.2	37.5	19.8
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		28.3			16.5			51.7			41.7	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	60.3	55.3		2.8	13.7	0.0	2.6	31.3		~47.5	17.4	62.3
Queue Length 95th (m)	m77.7	#283.4		9.2	12.0	0.2	6.9	37.7		#59.7	25.1	71.3
Internal Link Dist (m)		19.3			138.2			145.9			30.4	
Turn Bay Length (m)				35.0								
Base Capacity (vph)	641	2093		179	1852	671	321	865		220	646	783
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 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.

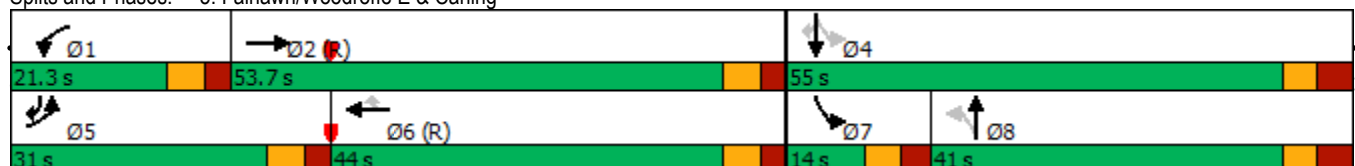
Queue shown is maximum after two cycles.

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



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			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%
Adj. Flow (vph)	13	1689	20	29	480	14	8	7	16	29	3	43
Shared Lane Traffic (%)												
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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

12: Carling & Carlingwood SC
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
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	A	A		A	A			C		D	B	
Approach Delay		2.2			4.9			28.5			31.1	
Approach LOS		A			A			C			C	
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								
Base Capacity (vph)	666	3912		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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 55.6%

ICU Level of Service B

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
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt 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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				95		18			30	
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	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%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	21	1831	6	8	413	67	3	27	33	83	8	30
Shared Lane Traffic (%)												
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
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	A		B	A	A		D		E	B	
Approach Delay		1.9			7.7			37.1			45.1	
Approach LOS		A			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)		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:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 6.0

Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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 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					0.999	
Satd. Flow (prot)	1710	1530	3288	1471	0	3317	
Flt Permitted	0.950					0.932	
Satd. Flow (perm)	1693	1504	3288	1401	0	3094	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		10		80			
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	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	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)			9.4			9.4	
Detector 2 Size(m)			0.6			0.6	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	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

	↖	↗	↑	↘	↙	↓	
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		0.0	
Total Lost Time (s)	5.7	5.7	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	0.06	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	C	B	A	A		A	
Approach Delay	27.8		3.3			3.7	
Approach LOS	C		A			A	
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)							
Base Capacity (vph)	404	366	2754	1186		2591	
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	0.03	0.26	0.07		0.29	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	32.7%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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		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		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 47.4%	ICU Level of Service A					
Analysis Period (min) 15						

23: Carling & Access
AM Peak Hour

485 Ancaster Avenue
Existing Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑
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 Utilization 33.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization 39.1%	ICU Level of Service A					
Analysis Period (min) 15						

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
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)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	0.98
Frt	0.938					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4458	0	3252	3353	1693	1515
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	4458	0	3220	3353	1677	1486
Right Turn on Red		Yes				Yes
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			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	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						8
Detector Phase	2		1	6	8	1
Switch Phase						

	→	↘	↙	←	↖	↗
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			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)	46.3		39.2	91.6	26.9	66.0
Actuated g/C Ratio	0.36		0.30	0.70	0.21	0.51
v/c Ratio	0.55		0.86	0.45	0.81	0.55
Control Delay	31.4		65.4	6.2	66.3	17.1
Queue Delay	0.0		0.0	0.1	0.0	0.0
Total 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			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

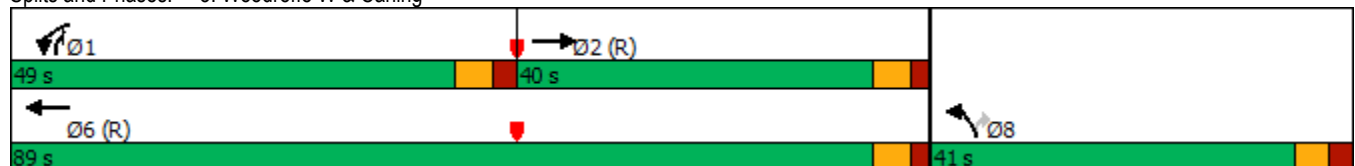
Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		0.95	0.99	0.99		0.97		0.97
Frt		0.975				0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3252	3204	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Flt Permitted	0.950			0.950			0.638			0.366		
Satd. Flow (perm)	3221	3204	0	1583	4771	1407	1110	3251	0	625	1765	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				147		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		2.7			9.7			12.2			3.9	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
Existing Traffic

												
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)	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	C		F	C	A	D	D		D	D	D
Approach Delay		38.5			32.0			49.3			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		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

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

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

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 39.5

Intersection LOS: D

Intersection Capacity Utilization 94.8%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



04/10/2014, 11:04:00 AM

Dynamic 16 Report

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.992			0.995			0.920			0.877	
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1644	4676	0	1693	6097	0	0	1556	0	1368	1392	0
Flt Permitted	0.167			0.399				0.890		0.674		
Satd. Flow (perm)	289	4676	0	705	6097	0	0	1389	0	968	1392	0
Right Turn on Red			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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	

												
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			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	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	319	3265		447	3873			479		306	492	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	63			1		0	1	
Storage Cap Reductn	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

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 Signal Delay: 8.2

Intersection LOS: A

Intersection Capacity Utilization 79.1%

ICU 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

485 Ancaster Avenue
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				119		11			67	
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	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%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	46	744	4	19	1610	119	14	22	11	130	26	67
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic

												
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?												
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 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 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	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	202	3460		395	3097	910		443		358	482	
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	0.23	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

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



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	121	56	744	83	46	811	
Future Volume (vph)	121	56	744	83	46	811	
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					0.997	
Satd. Flow (prot)	1710	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%	
Adj. Flow (vph)	134	62	827	92	51	901	
Shared Lane Traffic (%)							
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	
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

	↖	↗	↑	↘	↙	↓	
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	2.7	2.7	2.7	2.7	0.0
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					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)	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	B	A	A		A	
Approach Delay	35.5		4.9			6.3	
Approach LOS	D		A			A	
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 Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.37	0.17	0.33	0.09		0.45	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 8.5

Intersection LOS: A

Intersection Capacity Utilization 73.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



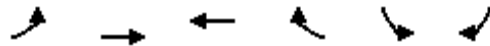
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	8	10	851	964	4
Future Volume (vph)	5	8	10	851	964	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.91	0.91	0.95	0.95
Frt	0.919				0.999	
Flt Protected	0.980			0.999		
Satd. Flow (prot)	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 Utilization	38.3%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
Existing Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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 Utilization	40.6%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	58.8%			ICU Level of Service B		
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑↑
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 Utilization 50.6%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization 59.0%	ICU Level of Service B					
Analysis Period (min) 15						

3: Woodroffe W & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

							Ø5
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑↑		↵↵	↑↑	↵	↗	
Traffic Volume (vph)	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)		120.0	0.0		0.0	0.0	
Storage Lanes		1	2		1	1	
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	1.00		1.00		0.99	0.98	
Frt	0.982					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	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%	
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	
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	
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	5
Permitted Phases						8	
Detector Phase	2		1	6	8	1	
Switch Phase							

3: Woodroffe W & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

	→	↘	↙	←	↖	↗	
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?				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	C		E	A	E	D	
Approach Delay	34.1			37.6	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	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%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 39.1

Intersection LOS: D

Intersection Capacity Utilization 78.6%

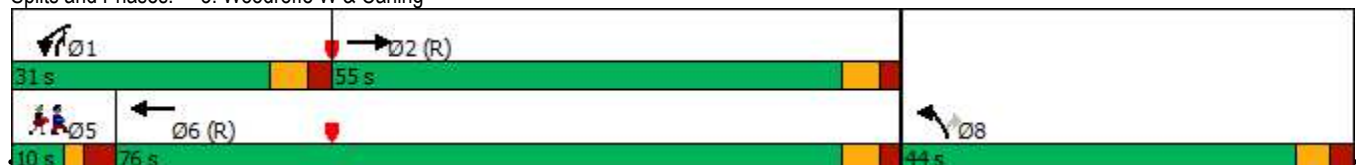
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.996				0.850		0.973				0.850
Flt 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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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)		7			7	7	9	9			9	
Act Effct Green (s)	24.2	81.6		6.5	53.9	53.9	18.6	18.6		33.2	32.6	57.4
Actuated g/C Ratio	0.19	0.63		0.05	0.41	0.41	0.14	0.14		0.26	0.25	0.44
v/c Ratio	0.81	0.80		0.14	0.18	0.15	0.07	0.58		0.98	0.21	0.73
Control Delay	71.9	15.5		75.4	19.1	1.0	44.1	52.1		100.2	37.5	19.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.9	15.5		75.4	19.1	1.0	44.1	52.1		100.2	37.5	19.8
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		28.3			16.5			51.7			41.7	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	60.3	55.3		2.8	13.7	0.0	2.6	31.3		~47.5	17.4	62.3
Queue Length 95th (m)	m77.7	#283.4		9.2	12.0	0.2	6.9	37.7		#59.7	25.1	71.3
Internal Link Dist (m)		19.3			138.2			145.9			30.4	
Turn Bay Length (m)				35.0								
Base Capacity (vph)	641	2093		179	1852	671	321	865		220	646	783
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 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.

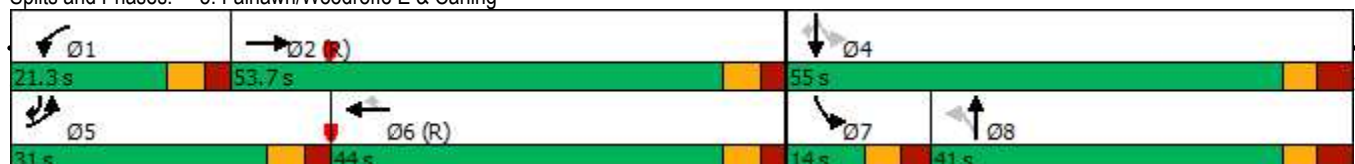
Queue shown is maximum after two cycles.

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

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			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%
Adj. Flow (vph)	13	1689	20	29	480	14	8	7	16	29	3	43
Shared Lane Traffic (%)												
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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

12: Carling & Carlingwood SC
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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	A	A		A	A			C		D	B	
Approach Delay		2.2			4.9			28.5			31.1	
Approach LOS		A			A			C			C	
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								
Base Capacity (vph)	666	3912		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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 4.0

Intersection LOS: A

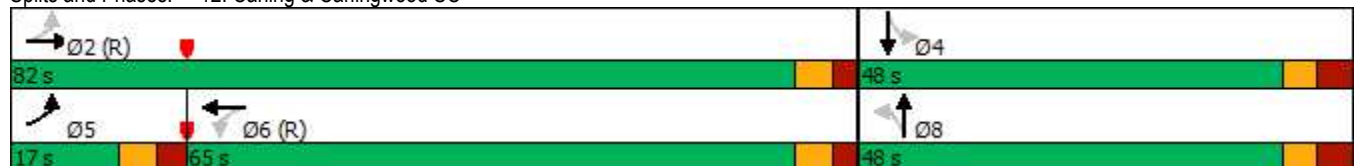
Intersection Capacity Utilization 55.6%

ICU Level of Service B

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
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt 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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				95		18			30	
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	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%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	21	1831	6	8	413	67	3	27	33	83	8	30
Shared Lane Traffic (%)												
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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	A		B	A	A		D		E	B	
Approach Delay		1.9			7.7			37.1			45.1	
Approach LOS		A			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)		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:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 6.0

Intersection LOS: A

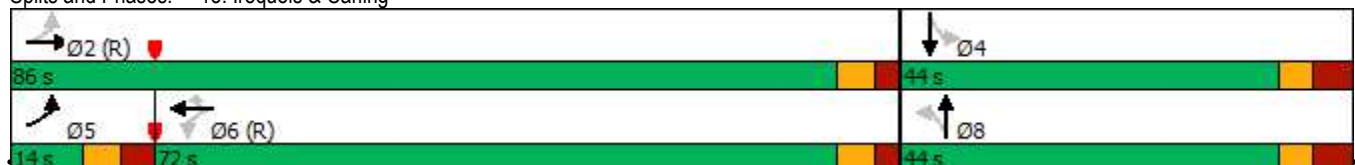
Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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 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					0.999	
Satd. Flow (prot)	1710	1530	3288	1471	0	3317	
Flt Permitted	0.950					0.932	
Satd. Flow (perm)	1687	1501	3288	1401	0	3094	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		10		80			
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	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	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	5.0
Minimum Split (s)	21.0	21.0	35.0	35.0	35.0	35.0	10.0

	←	↖	↑	↗	↘	↓	
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	48.0	5.0
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	3.0
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					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	5.0
Flash Dont Walk (s)	13.0	13.0	18.0	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	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 Length 95th (m)	8.7	3.8	39.0	4.9		42.3	
Internal Link Dist (m)	83.1		54.4			62.5	
Turn Bay Length (m)							
Base Capacity (vph)	303	278	2715	1170		2554	
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	0.08	0.04	0.26	0.07		0.29	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 4.8

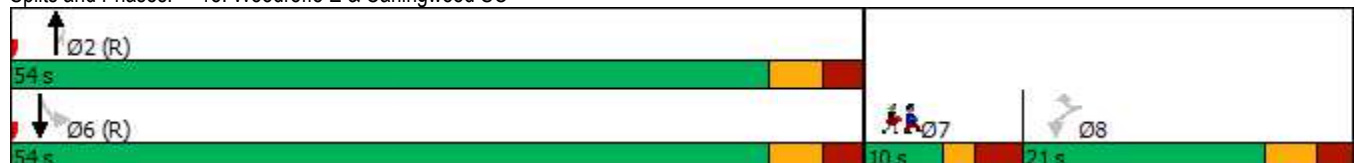
Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



1: Woodroffe E & Access
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	32.7%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑
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		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		
Analysis Period (min)	15					

10: Woodroffe E & Flower
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 47.4%	ICU Level of Service A					
Analysis Period (min) 15						

23: Carling & Access
AM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑↑
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 Utilization 33.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization 39.1%	ICU Level of Service A					
Analysis Period (min) 15						

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

							
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø5
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗	
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)		120.0	0.0		0.0	0.0	
Storage Lanes		1	2		1	1	
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	0.98	
Frt	0.938					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	4458	0	3252	3353	1693	1515	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	4458	0	3220	3353	1677	1486	
Right Turn on Red		Yes				Yes	
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			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	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	5
Permitted Phases						8	
Detector Phase	2		1	6	8	1	
Switch Phase							

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

	→	↘	↙	←	↖	↗	
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)	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?				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)	46.3		39.2	89.6	26.9	66.0	
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	C		E	A	E	B	
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 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: 33.2

Intersection LOS: C

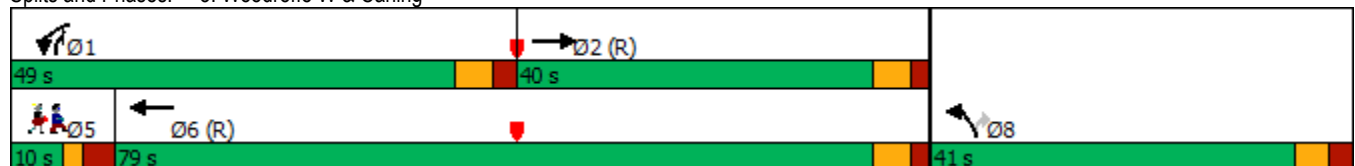
Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		0.95	0.99	0.99		0.97		0.97
Frt		0.975				0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3252	3204	0	1660	4771	1485	1676	3251	0	1676	1765	1500
Flt Permitted	0.950			0.950			0.638			0.366		
Satd. Flow (perm)	3221	3204	0	1583	4771	1407	1110	3251	0	625	1765	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				147		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		2.7			9.7			12.2			3.9	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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)	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	C		F	C	A	D	D		D	D	D
Approach Delay		38.5			32.0			49.3			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		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

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

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

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 39.5

Intersection LOS: D

Intersection Capacity Utilization 94.8%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



Dynamic Report

12: Carling & Carlingwood SC
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.992			0.995			0.920			0.877	
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1644	4676	0	1693	6097	0	0	1556	0	1368	1392	0
Flt Permitted	0.167			0.399				0.890		0.674		
Satd. Flow (perm)	289	4676	0	705	6097	0	0	1389	0	968	1392	0
Right Turn on Red			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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			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	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	319	3265		447	3873			479		306	492	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	63			1		0	1	
Storage Cap Reductn	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

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 Signal Delay: 8.2

Intersection LOS: A

Intersection Capacity Utilization 79.1%

ICU 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

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				119		11			67	
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	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%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	46	744	4	19	1610	119	14	22	11	130	26	67
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

												
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?												
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 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 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	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	202	3460		395	3097	910		443		358	482	
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	0.23	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

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



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	121	56	744	83	46	811	
Future Volume (vph)	121	56	744	83	46	811	
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	0.98	0.97		0.95		1.00	
Frt		0.850		0.850			
Flt Protected	0.950					0.997	
Satd. Flow (prot)	1710	1530	3353	1500	0	3310	
Flt Permitted	0.950					0.857	
Satd. Flow (perm)	1678	1492	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%	
Adj. Flow (vph)	134	62	827	92	51	901	
Shared Lane Traffic (%)							
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	
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	5.0
Minimum Split (s)	21.0	21.0	35.0	35.0	35.0	35.0	10.0

	↖	↗	↑	↘	↙	↓	
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)	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	3.0
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					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	5.0
Flash Dont Walk (s)	13.0	13.0	18.0	18.0	18.0	18.0	0.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	3
Act Effct Green (s)	12.3	12.3	69.0	69.0		69.0	
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	
Total Delay	51.2	12.2	6.0	1.7		7.2	
LOS	D	B	A	A		A	
Approach Delay	38.9		5.6			7.2	
Approach LOS	D		A			A	
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: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 9.5

Intersection LOS: A

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



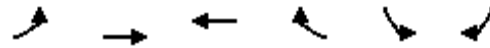
1: Woodroffe E & Access
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	38.3%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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 Utilization	40.6%			ICU Level of Service A		
Analysis Period (min)	15					

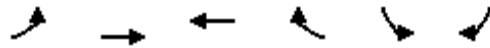
10: Woodroffe E & Flower
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	58.8%			ICU Level of Service B		
Analysis Period (min)	15					

23: Carling & Access
PM Peak Hour

485 Ancaster Avenue
Existing Traffic - Jug Handle Modifications



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑↑
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 Utilization 50.6%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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 Utilization 59.0%	ICU Level of Service B					
Analysis Period (min) 15						

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
Traffic Volume (vph)	1338	182	519	291	232	476
Future Volume (vph)	1338	182	519	291	232	476
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	1.00		1.00		0.99	0.98
Frt	0.982					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		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%
Adj. Flow (vph)	1338	182	519	291	232	476
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1520	0	519	291	232	476
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
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
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						

	→	↘	↙	←	↖	↗
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	C		E	A	E	D
Approach Delay	29.4			39.1	51.5	
Approach LOS	C			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%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 37.1

Intersection LOS: D

Intersection Capacity Utilization 79.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
AM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt 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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				191		20				251
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	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%	10%	10%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	457	1455	45	10	301	90	11	214	48	202	84	523
Shared Lane Traffic (%)												
Lane Group Flow (vph)	457	1500	0	10	301	90	11	262	0	202	84	523
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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
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)		7			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	0.79	0.71		0.13	0.16	0.13	0.06	0.56		0.91	0.20	0.68
Control Delay	73.7	13.7		76.0	18.4	0.8	44.2	51.7		83.1	37.6	16.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	73.7	13.7		76.0	18.4	0.8	44.2	51.7		83.1	37.6	16.0
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		27.7			15.9			51.4			35.0	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	56.5	50.5		2.5	12.1	0.0	2.4	29.2		42.2	16.3	47.7
Queue Length 95th (m)	m73.5	#240.2		8.2	11.0	0.2	6.5	35.3		52.2	23.8	55.8
Internal Link Dist (m)		19.3			138.2			145.9			30.4	
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 to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 98.7%

ICU Level of Service F

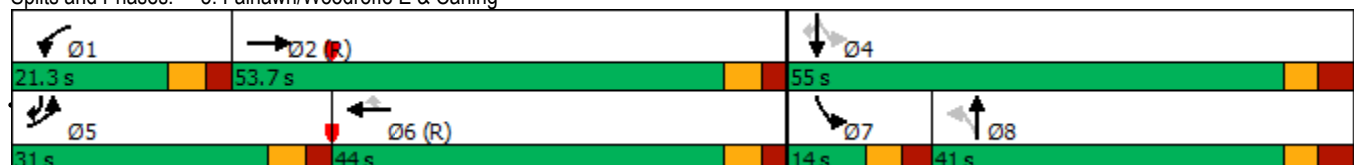
Analysis Period (min) 15

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



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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%
Adj. Flow (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

												
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)	104.3	105.9		100.8	100.8			15.6		15.6	15.6	
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	
Total Delay	2.8	2.2		8.5	4.6			28.7		52.3	17.6	
LOS	A	A		A	A			C		D	B	
Approach Delay		2.2			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	18.8		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	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 to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 55.6%

ICU Level of Service B

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
AM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			0.881	
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1676	4817	0	1629	4680	1457	0	1610	0	1660	1508	0
Flt Permitted	0.485			0.138				0.985		0.840		
Satd. Flow (perm)	837	4817	0	236	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
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	A	A		B	A	A		C		E	B	
Approach Delay		1.4			6.5			29.6			44.2	
Approach LOS		A			A			C			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 to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 5.2

Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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	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

	↖	↗	↑	↘	↙	↓	
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		0.0	
Total Lost Time (s)	5.7	5.7	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		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	C	B	A	A		A	
Approach Delay	28.3		3.3			3.7	
Approach LOS	C		A			A	
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	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 54.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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			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 27.0%				ICU Level of Service A		
Analysis Period (min) 15						

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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		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		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 48.1%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑↑
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 Utilization 33.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization 27.0%	ICU Level of Service A					
Analysis Period (min) 15						

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖↖	↑↑	↖	↗
Traffic Volume (vph)	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)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	0.98
Frt	0.941					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4475	0	3252	3353	1693	1515
Flt 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%
Adj. Flow (vph)	520	340	829	997	265	446
Shared Lane Traffic (%)						
Lane Group Flow (vph)	860	0	829	997	265	446
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	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						

	→	↘	↙	←	↖	↗
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			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)	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	C		E	A	E	B
Approach Delay	30.0			32.4	36.1	
Approach LOS	C			C	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

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: 0.85

Intersection Signal Delay: 32.6

Intersection LOS: C

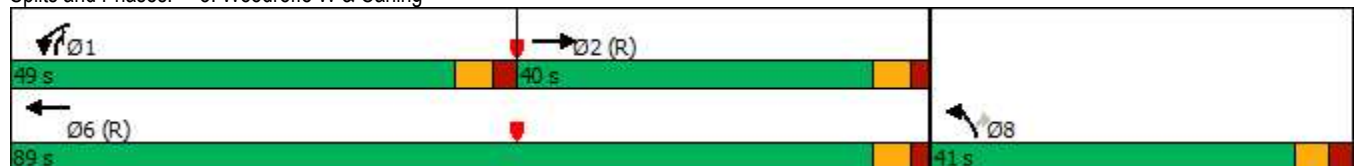
Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		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
Flt 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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				143		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		2.7			9.7			12.2			3.9	
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)	520	448	84	31	1293	153	75	250	41	142	178	734
Shared Lane Traffic (%)												
Lane Group Flow (vph)	520	532	0	31	1293	153	75	291	0	142	178	734
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
2022 Background Traffic

												
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	C		F	C	A	D	D		D	D	D
Approach Delay		37.8			30.9			48.8			48.1	
Approach LOS		D			C			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:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 100.3%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



Dynamic 16 Report

12: Carling & Carlingwood SC
PM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		12	12		4	43		3	3		43
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 (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Shared Lane Traffic (%)												
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)		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	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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

485 Ancaster Avenue
2022 Background Traffic

												
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	10.7	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	B	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)		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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 9.3

Intersection LOS: A

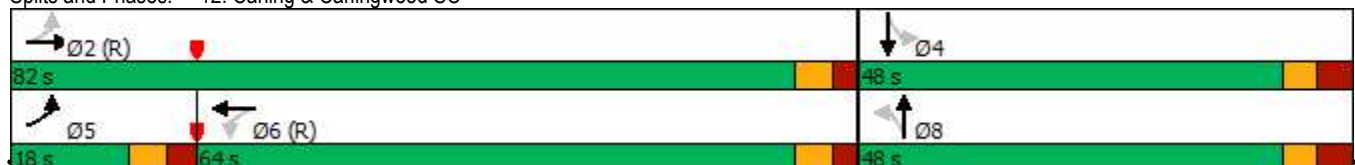
Intersection Capacity Utilization 85.5%

ICU Level of Service E

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

485 Ancaster Avenue
2022 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.969			0.892	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1676	4811	0	1693	4865	1515	0	1706	0	1693	1539	0
Flt Permitted	0.127			0.374				0.902		0.729		
Satd. Flow (perm)	224	4811	0	652	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red			Yes			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
PM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

												
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?												
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	A	A		B	B	A		C		E	B	
Approach Delay		5.5			14.1			34.0			39.3	
Approach LOS		A			B			C			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

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: 0.54

Intersection Signal Delay: 13.9

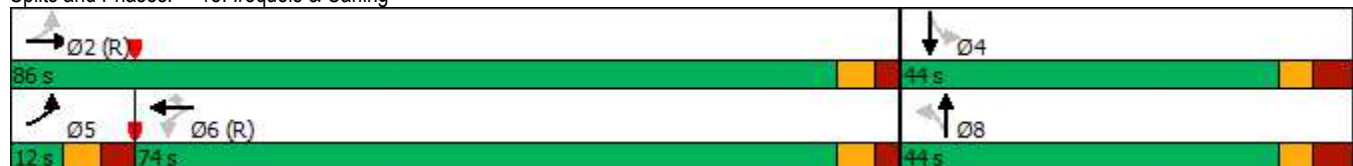
Intersection LOS: B

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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		0.95		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		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	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	774	121	120	831	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	189	82	774	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		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

	↖	↗	↑	↘	↙	↓	
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	2.7	2.7	2.7	2.7	0.0
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					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)	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	A	A	A		A	
Approach Delay	36.9		5.5			8.8	
Approach LOS	D		A			A	
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	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.0

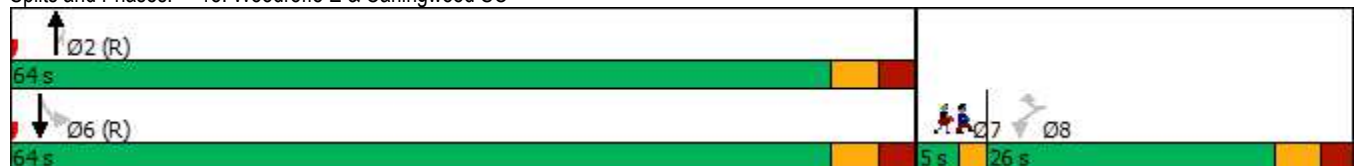
Intersection LOS: B

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	34.0%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
2022 Background Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↘			↗
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		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	41.8%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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			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 62.1%	ICU Level of Service B					
Analysis Period (min) 15						

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑
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 Utilization 45.7%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization 34.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
Traffic Volume (vph)	1338	182	546	291	244	500
Future Volume (vph)	1338	182	546	291	244	500
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	1.00		1.00		0.99	0.98
Frt	0.982					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		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%
Adj. Flow (vph)	1338	182	546	291	244	500
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1520	0	546	291	244	500
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
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+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						

	→	↘	↙	←	↖	↗
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	C		E	A	E	D
Approach Delay	31.1			38.8	51.3	
Approach LOS	C			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

Actuated Cycle Length: 130

Offset: 112 (86%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 38.0

Intersection LOS: D

Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
AM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt 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			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				191		20				251
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	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%	10%	10%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	480	1455	45	10	301	90	12	225	50	212	89	550
Shared Lane Traffic (%)												
Lane Group Flow (vph)	480	1500	0	10	301	90	12	275	0	212	89	550
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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
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)		7			7	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	0.72		0.13	0.16	0.13	0.07	0.58		0.96	0.20	0.70
Control Delay	72.6	13.7		76.2	19.0	0.9	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	0.9	44.2	52.0		94.7	37.6	17.0
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		28.0			16.4			51.6			38.5	
Approach LOS		C			B			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:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

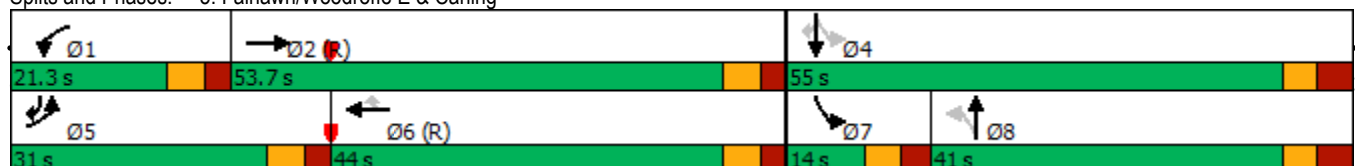
Queue shown is maximum after two cycles.

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



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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%
Adj. Flow (vph)	12	1520	18	26	432	13	7	6	14	26	3	39
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

12: Carling & Carlingwood SC
AM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
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								
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)	104.3	105.9		100.8	100.8			15.6		15.6	15.6	
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	
Total Delay	2.8	2.3		8.5	4.6			28.7		52.3	17.6	
LOS	A	A		A	A			C		D	B	
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 to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.1

Intersection LOS: A

Intersection Capacity Utilization 55.6%

ICU Level of Service B

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
AM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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			0.881	
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1676	4817	0	1629	4680	1457	0	1610	0	1660	1508	0
Flt Permitted	0.485			0.138				0.985		0.840		
Satd. Flow (perm)	837	4817	0	236	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
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	A	A		B	A	A		C		E	B	
Approach Delay		1.4			6.5			29.6			44.2	
Approach LOS		A			A			C			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	8.0		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 to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 5.2

Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



							
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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		0.95		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	703	72	25	720	
Shared Lane Traffic (%)							
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							
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

	↖	↗	↑	↘	↙	↓	
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		0.0	
Total Lost Time (s)	5.7	5.7	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	0.26	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	C	B	A	A		A	
Approach Delay	28.3		3.3			3.7	
Approach LOS	C		A			A	
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	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 55.9%

ICU Level of Service B

Analysis Period (min) 15

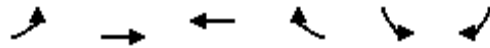
Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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			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 28.2%				ICU Level of Service A		
Analysis Period (min) 15						

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑
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		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		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 49.0%	ICU Level of Service A					
Analysis Period (min) 15						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑↑
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 Utilization 33.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization	28.2%			ICU Level of Service A		
Analysis Period (min)	15					

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑↑	↑↑	↑	↑
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)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	0.98
Frt	0.941					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	4475	0	3252	3353	1693	1515
Flt 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%
Adj. Flow (vph)	520	340	869	997	279	467
Shared Lane Traffic (%)						
Lane Group Flow (vph)	860	0	869	997	279	467
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	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						

	→	↘	↙	←	↖	↗
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			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)	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	C		E	A	E	B
Approach Delay	31.2			32.8	35.9	
Approach LOS	C			C	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 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		0.80	0.42	0.61	0.56

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: 0.87

Intersection Signal Delay: 33.1

Intersection LOS: C

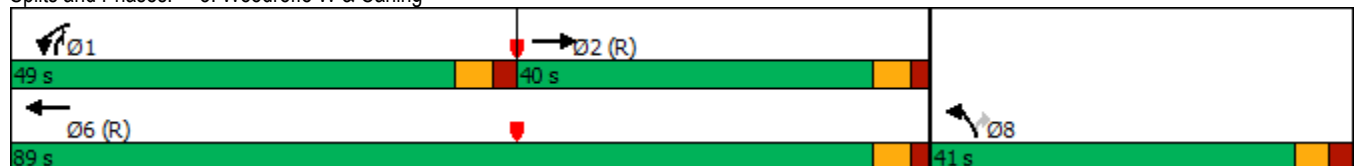
Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.95		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
Flt Permitted	0.950			0.950			0.640			0.371		
Satd. Flow (perm)	3216	3211	0	1580	4771	1407	1113	3251	0	633	1765	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				143		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		45.0			162.2			169.9			54.4	
Travel Time (s)		2.7			9.7			12.2			3.9	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
2027 Background Traffic

												
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)	31.7	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		0.06	0.33	0.33	0.17	0.17		0.29	0.28	0.53
v/c Ratio	0.69	0.30		0.31	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	C		F	D	A	D	D		D	D	D
Approach Delay		37.6			34.0			49.2			47.9	
Approach LOS		D			C			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		191	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		0.16	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:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 40.2

Intersection LOS: D

Intersection Capacity Utilization 102.4%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



Dynamic Report

12: Carling & Carlingwood SC
PM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		12	12		4	43		3	3		43
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 (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	79	519	35	122	1067	80	27	12	57	100	15	123
Shared Lane Traffic (%)												
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)		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	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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

485 Ancaster Avenue
2027 Background Traffic

												
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	A	A		A	A			C		E	B	
Approach Delay		5.5			5.9			21.0			31.2	
Approach LOS		A			A			C			C	
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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 85.5%

ICU Level of Service E

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

485 Ancaster Avenue
2027 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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		0.969			0.892	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1676	4811	0	1693	4865	1515	0	1706	0	1693	1539	0
Flt Permitted	0.127			0.374				0.902		0.729		
Satd. Flow (perm)	224	4811	0	652	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red			Yes			Yes			Yes			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			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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Background Traffic

												
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?												
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	5.3		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	5.3		13.9	14.9	3.1		34.0		55.5	16.4	
LOS	A	A		B	B	A		C		E	B	
Approach Delay		5.5			14.1			34.0			39.3	
Approach LOS		A			B			C			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)	5.6	19.1		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

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: 0.54

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 15: Iroquois & Carling



							
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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 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					0.994	
Satd. Flow (prot)	1710	1530	3353	1500	0	3300	
Flt Permitted	0.950					0.722	
Satd. Flow (perm)	1686	1497	3353	1424	0	2396	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		82		121			
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	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	814	121	120	874	
Shared Lane Traffic (%)							
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

	↖	↗	↑	↘	↙	↓	
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	2.7	2.7	2.7	2.7	0.0
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					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)	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	A	A	A		A	
Approach Delay	36.9		5.6			9.3	
Approach LOS	D		A			A	
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	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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%
Adj. 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			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	35.5%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
2027 Background Traffic



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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		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	41.8%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 64.3%	ICU Level of Service C					
Analysis Period (min) 15						

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↑
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 Utilization 45.6%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization	35.5%			ICU Level of Service A		
Analysis Period (min)	15					

3: Woodroffe W & Carling
AM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
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)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	1.00		1.00		0.99	0.98
Frt	0.982					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		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%
Adj. Flow (vph)	1337	182	538	330	232	476
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1519	0	538	330	232	476
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
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
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						

	→	↘	↙	←	↖	↗
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	C			D	D	
Queue Length 50th (m)	100.0		65.2	9.1	52.6	88.4
Queue Length 95th (m)	135.7		82.7	26.2	72.3	105.8
Internal Link Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	2224		693	2393	487	591
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	0.68		0.78	0.14	0.48	0.81

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 112 (86%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 80.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodroffe W & Carling



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt Permitted	0.950			0.950			0.702			0.379		
Satd. Flow (perm)	3191	3332	0	1549	4467	1349	1233	3242	0	654	1748	1459
Right Turn on Red			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)		7.7			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	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%	10%	10%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	456	1455	45	10	316	90	19	214	48	240	84	524
Shared Lane Traffic (%)												
Lane Group Flow (vph)	456	1500	0	10	316	90	19	262	0	240	84	524
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

												
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)		7			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	0.79	0.71		0.13	0.17	0.13	0.11	0.56		1.08	0.20	0.69
Control Delay	74.1	13.4		75.9	18.4	0.8	45.9	51.7		124.2	37.6	17.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	74.1	13.4		75.9	18.4	0.8	45.9	51.7		124.2	37.6	17.3
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		27.6			16.0			51.3			49.6	
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			138.2			145.9			30.4	
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

Actuated Cycle Length: 130

Offset: 128 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 100.9%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

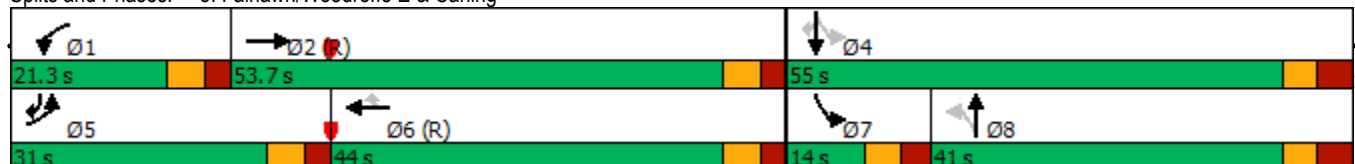
Queue shown is maximum after two cycles.

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



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	6044	0	0	1573	0	1221	1112	0
Flt Permitted	0.435			0.150				0.917		0.740		
Satd. Flow (perm)	766	4806	0	264	6044	0	0	1459	0	945	1112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			5			14			39	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			111.6	
Travel Time (s)		9.7			10.2			12.2			10.0	
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%
Adj. Flow (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Shared Lane Traffic (%)												
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

												
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)	104.3	105.9		100.8	100.8			15.6		15.6	15.6	
Actuated g/C Ratio	0.80	0.81		0.78	0.78			0.12		0.12	0.12	
v/c Ratio	0.02	0.40		0.13	0.10			0.14		0.23	0.25	
Control Delay	3.0	2.3		8.7	4.5			28.7		52.3	17.6	
Queue Delay	0.0	0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay	3.0	2.4		8.7	4.5			28.7		52.3	17.6	
LOS	A	A		A	A			C		D	B	
Approach Delay		2.5			4.7			28.7			30.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.3	16.2		1.0	4.7			2.9		5.9	0.7	
Queue Length 95th (m)	m0.6	m21.2		3.7	9.6			9.0		11.4	8.7	
Internal Link Dist (m)		138.2			146.6			77.7			87.6	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	687	3917		205	4689			470		298	378	
Starvation Cap Reductn	0	995		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

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 128 (98%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 4.2

Intersection LOS: A

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 12: Carling & Carlingwood SC



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		1.00		0.94		0.98		0.99	0.98	
Frt						0.850		0.929			0.881	
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1676	4817	0	1629	4680	1457	0	1610	0	1660	1508	0
Flt Permitted	0.478			0.132				0.985		0.840		
Satd. Flow (perm)	825	4817	0	226	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				95		25			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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

												
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		B	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	5.8		0.3	6.2	0.0		7.0		17.1	1.5	
Queue Length 95th (m)	m0.7	8.0		3.4	22.5	2.1		15.6		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)	694	3864		171	3560	1060		466		409	445	
Starvation Cap Reductn	0	283		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	0.11	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 phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 5.2

Intersection LOS: A

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	23	9	669	72	25	700	
Future Volume (vph)	23	9	669	72	25	700	
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					0.920	
Satd. Flow (perm)	1693	1504	3288	1401	0	3054	
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	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	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

	↖	↗	↑	↘	↙	↓	
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		0.0	
Total Lost Time (s)	5.7	5.7	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		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	C	B	A	A		A	
Approach Delay	28.3		3.3			3.7	
Approach LOS	C		A			A	
Queue Length 50th (m)	3.3	0.0	10.5	0.0		12.0	
Queue Length 95th (m)	8.0	3.3	30.1	4.0		34.2	
Internal Link Dist (m)	83.1		60.6			62.5	
Turn Bay Length (m)							
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:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
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			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	34.2%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 48.1%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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 Utilization 6.8%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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		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 Utilization 27.4%	ICU Level of Service A					
Analysis Period (min) 15						

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
Traffic Volume (vph)	517	340	837	1016	265	444
Future Volume (vph)	517	340	837	1016	265	444
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	0.98
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)		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%
Adj. Flow (vph)	517	340	837	1016	265	444
Shared Lane Traffic (%)						
Lane Group Flow (vph)	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		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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	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						

	→	↘	↙	←	↖	↗
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			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)	47.5		39.4	92.9	25.6	64.8
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		64.0	6.1	66.6	17.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.0		64.0	6.1	66.6	17.7
LOS	C		E	A	E	B
Approach Delay	30.0			32.3	36.0	
Approach LOS	C			C	D	
Queue Length 50th (m)	49.1		105.5	29.8	60.1	53.0
Queue Length 95th (m)	71.3		m105.6	m40.4	81.7	59.9
Internal Link Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	1711		1085	2396	458	828
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

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: 0.85

Intersection Signal Delay: 32.5

Intersection LOS: C

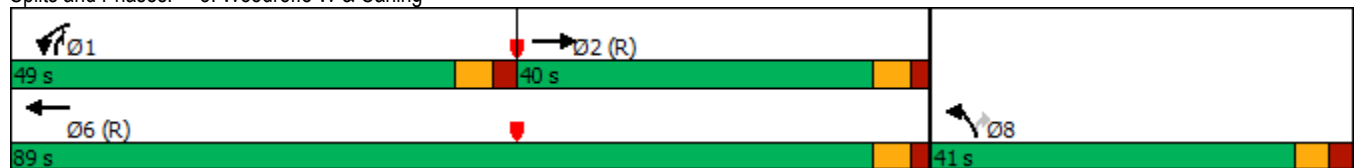
Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt Permitted	0.950			0.950			0.646			0.385		
Satd. Flow (perm)	3217	3211	0	1580	4771	1407	1124	3251	0	656	1765	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				141		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		128.3			162.2			169.9			54.4	
Travel Time (s)		7.7			9.7			12.2			3.9	
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)	515	448	84	31	1317	153	89	249	41	157	177	734
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
2022 Total Traffic

												
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)	29.1	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		0.06	0.35	0.35	0.17	0.17		0.28	0.28	0.51
v/c Ratio	0.71	0.30		0.31	0.79	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	C		F	C	A	D	D		D	D	D
Approach Delay		37.7			31.1			49.5			49.1	
Approach LOS		D			C			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		191	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		0.16	0.79	0.26	0.29	0.32		0.64	0.26	0.97

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

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

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 39.4

Intersection LOS: D

Intersection Capacity Utilization 100.8%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



Dynamic Report

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	0.184			0.428				0.876		0.688		
Satd. Flow (perm)	318	4670	0	755	6062	0	0	1368	0	988	1359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			15			57			123	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			104.5	
Travel Time (s)		9.7			10.2			12.2			9.4	
Confl. Peds. (#/hr)	4		12	12		4	43		3	3		43
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 (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	569	0	122	1171	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)		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	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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	

												
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	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2		6.9	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	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63		0.18	0.18		0.18	0.18	
v/c Ratio	0.26	0.17		0.26	0.31		0.33	0.33		0.56	0.40	
Control Delay	10.8	5.4		7.6	5.8		21.0	21.0		58.0	11.8	
Queue Delay	0.0	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	21.0		58.0	11.8	
LOS	B	A		A	A		C	C		E	B	
Approach Delay		6.1			5.9		21.0	21.0			31.2	
Approach LOS		A			A		C	C			C	
Queue Length 50th (m)	4.4	11.4		4.1	11.1		8.3	8.3		22.9	3.1	
Queue Length 95th (m)	m11.7	16.5		7.3	13.6		19.6	19.6		34.3	17.0	
Internal Link Dist (m)		138.2			146.6		77.7	77.7			80.5	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	343	3365		475	3820		471	471		312	513	
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	0.23	0.17		0.26	0.31		0.20	0.20		0.32	0.27	

Intersection Summary

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: 0.56

Intersection Signal Delay: 9.3

Intersection LOS: A

Intersection Capacity Utilization 85.5%

ICU Level of Service E

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

485 Ancaster Avenue
2022 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.98		0.90		0.98		0.98	0.97	
Frt		0.999				0.850		0.969			0.892	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1676	4811	0	1693	4865	1515	0	1706	0	1693	1539	0
Flt Permitted	0.123			0.368				0.902		0.729		
Satd. Flow (perm)	217	4811	0	642	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red			Yes			Yes			Yes			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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

												
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?												
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		B	B	A		C		E	B	
Approach Delay		5.3			14.2			34.0			39.3	
Approach LOS		A			B			C			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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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		0.95		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	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

	↖	↗	↑	↘	↙	↓	
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	2.7	2.7	2.7	2.7	0.0
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					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)	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	A	A	A		A	
Approach Delay	36.9		5.5			9.0	
Approach LOS	D		A			A	
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)							
Base Capacity (vph)	365	388	2383	1046		1721	
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		0.57	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
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
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	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 Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.6%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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 Utilization	42.6%			ICU Level of Service A		
Analysis Period (min)	15					

10: Woodroffe E & Flower
PM Peak Hour

485 Ancaster Avenue
2022 Total Traffic

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 62.8%	ICU Level of Service B					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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 Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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		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 Utilization	34.7%			ICU Level of Service A		
Analysis Period (min)	15					

3: Woodroffe W & Carling
AM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↙↘	↑↑	↖	↗
Traffic Volume (vph)	1337	182	565	330	244	500
Future Volume (vph)	1337	182	565	330	244	500
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		120.0	0.0		0.0	0.0
Storage Lanes		1	2		1	1
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	1.00		1.00		0.99	0.98
Frt	0.982					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		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%
Adj. Flow (vph)	1337	182	565	330	244	500
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1519	0	565	330	244	500
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
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+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						

	→	↘	↙	←	↖	↗
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)	59.0		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		55.6	6.1	66.5	41.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.8		55.6	6.1	66.5	41.9
LOS	C		E	A	E	D
Approach Delay	31.8			37.3	50.0	
Approach LOS	C			D	D	
Queue Length 50th (m)	104.1		68.1	9.4	55.4	91.3
Queue Length 95th (m)	135.7		86.9	25.3	76.0	113.8
Internal Link Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	2151		717	2375	487	610
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	0.71		0.79	0.14	0.50	0.82

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 112 (86%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 37.7

Intersection LOS: D

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
AM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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
Flt 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			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)		7.7			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	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%	10%	10%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	479	1455	45	10	316	90	20	225	50	250	89	551
Shared Lane Traffic (%)												
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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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
AM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

												
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)		7			7	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	0.72		0.13	0.17	0.13	0.12	0.58		1.13	0.20	0.71
Control Delay	73.1	13.5		76.1	19.0	0.9	45.8	52.0		141.1	37.6	18.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	73.1	13.5		76.1	19.0	0.9	45.8	52.0		141.1	37.6	18.2
LOS	E	B		E	B	A	D	D		F	D	B
Approach Delay		27.9			16.4			51.5			54.7	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	59.5	50.6		2.6	12.8	0.0	4.3	30.7		~65.5	17.2	56.9
Queue Length 95th (m)	m76.9	#239.9		8.2	11.4	0.1	9.7	37.0		#79.6	25.0	65.6
Internal Link Dist (m)		104.3			138.2			145.9			30.4	
Turn Bay Length (m)	75.0			35.0								
Base Capacity (vph)	637	2096		179	1870	675	321	865		221	646	790
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.75	0.72		0.06	0.17	0.13	0.06	0.32		1.13	0.14	0.70

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: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 101.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

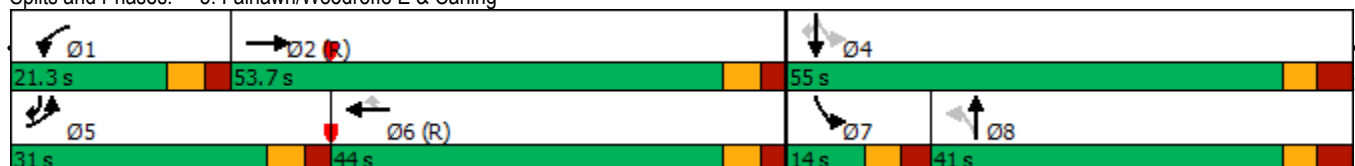
Queue shown is maximum after two cycles.

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



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	6044	0	0	1573	0	1221	1112	0
Flt Permitted	0.435			0.150				0.917		0.740		
Satd. Flow (perm)	766	4806	0	264	6044	0	0	1459	0	945	1112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			5			14			39	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			111.6	
Travel Time (s)		9.7			10.2			12.2			10.0	
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%
Adj. Flow (vph)	12	1558	18	26	447	13	7	6	14	26	3	39
Shared Lane Traffic (%)												
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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												

												
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)	104.3	105.9		100.8	100.8			15.6		15.6	15.6	
Actuated g/C Ratio	0.80	0.81		0.78	0.78			0.12		0.12	0.12	
v/c Ratio	0.02	0.40		0.13	0.10			0.14		0.23	0.25	
Control Delay	3.1	2.4		8.7	4.5			28.7		52.3	17.6	
Queue Delay	0.0	0.1		0.0	0.0			0.0		0.0	0.0	
Total Delay	3.1	2.5		8.7	4.5			28.7		52.3	17.6	
LOS	A	A		A	A			C		D	B	
Approach Delay		2.5			4.7			28.7			30.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.3	16.6		1.0	4.7			2.9		5.9	0.7	
Queue Length 95th (m)	m0.6	m21.7		3.7	9.6			9.0		11.4	8.7	
Internal Link Dist (m)		138.2			146.6			77.7			87.6	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	687	3917		205	4689			470		298	378	
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

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 128 (98%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 4.2

Intersection LOS: A

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 12: Carling & Carlingwood SC



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		1.00		0.94		0.98		0.99	0.98	
Frt						0.850		0.929			0.881	
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1676	4817	0	1629	4680	1457	0	1610	0	1660	1508	0
Flt Permitted	0.478			0.132				0.985		0.840		
Satd. Flow (perm)	825	4817	0	226	4680	1364	0	1590	0	1450	1508	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				95		25			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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
AM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

												
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		B	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		17.1	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)		146.6			161.0			133.7			139.4	
Turn Bay Length (m)	125.0			40.0								
Base Capacity (vph)	694	3864		171	3560	1060		466		409	445	
Starvation Cap Reductn	0	283		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	0.11	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 phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 5.2

Intersection LOS: A

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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	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

	←	↖	↑	↗	↘	↓	
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		0.0	
Total Lost Time (s)	5.7	5.7	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	0.26	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	C	B	A	A		A	
Approach Delay	28.3		3.3			3.8	
Approach LOS	C		A			A	
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 phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 4.0

Intersection LOS: A

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	 	
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			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	35.4%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization 49.0%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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 Utilization 6.8%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			 
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 Utilization	28.6%			ICU Level of Service A		
Analysis Period (min)	15					

3: Woodroffe W & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑	↔	↗
Traffic Volume (vph)	517	340	877	1016	279	465
Future Volume (vph)	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
Storage Lanes		1	2		1	1
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	0.98
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)		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%
Adj. Flow (vph)	517	340	877	1016	279	465
Shared Lane Traffic (%)						
Lane Group Flow (vph)	857	0	877	1016	279	465
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	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	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						

	→	↘	↙	←	↖	↗
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			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)	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	0.52		0.87	0.43	0.81	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
LOS	C		E	A	E	B
Approach Delay	31.3			32.7	35.7	
Approach LOS	C			C	D	
Queue Length 50th (m)	50.7		110.9	30.4	63.2	54.6
Queue Length 95th (m)	71.3		m112.3	m41.4	85.5	64.4
Internal Link Dist (m)	214.7			41.5	218.1	
Turn Bay Length (m)						
Base Capacity (vph)	1649		1085	2370	458	839
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		0.81	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:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 33.0

Intersection LOS: C

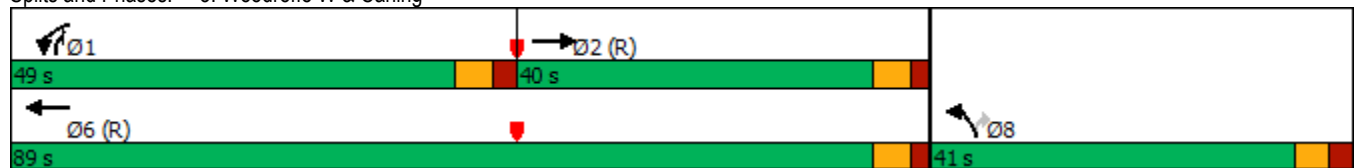
Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 3: Woodroffe W & Carling



5: Fairlawn/Woodroffe E & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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
Flt Permitted	0.950			0.950			0.645			0.372		
Satd. Flow (perm)	3217	3211	0	1580	4771	1407	1122	3251	0	635	1765	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				141		14				26
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		128.3			162.2			169.9			54.4	
Travel Time (s)		7.7			9.7			12.2			3.9	
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)	539	448	84	31	1317	153	93	261	43	142	178	768
Shared Lane Traffic (%)												
Lane Group Flow (vph)	539	532	0	31	1317	153	93	304	0	142	178	768
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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

485 Ancaster Avenue
2027 Total Traffic

												
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			C			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			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: Other

Cycle Length: 130

Actuated Cycle Length: 130

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

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 40.5

Intersection LOS: D

Intersection Capacity Utilization 103.1%

ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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



Dynamic Report

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		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	0.184			0.428				0.876		0.688		
Satd. Flow (perm)	318	4670	0	755	6062	0	0	1368	0	988	1359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			15			57			123	
Link Speed (k/h)		60			60			30			40	
Link Distance (m)		162.2			170.6			101.7			104.5	
Travel Time (s)		9.7			10.2			12.2			9.4	
Confl. Peds. (#/hr)	4		12	12		4	43		3	3		43
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 (%)	4%	4%	4%	1%	1%	1%	4%	4%	4%	25%	0%	10%
Adj. Flow (vph)	79	534	35	122	1091	80	27	12	57	100	15	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	569	0	122	1171	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)		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	
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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	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	

												
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	0.0	
Total Lost Time (s)	6.6	6.2		6.2	6.2		6.9	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	23.3	
Actuated g/C Ratio	0.72	0.72		0.63	0.63		0.18	0.18		0.18	0.18	
v/c Ratio	0.26	0.17		0.26	0.31		0.33	0.33		0.56	0.40	
Control Delay	10.6	5.1		7.6	5.8		21.0	21.0		58.0	11.8	
Queue Delay	0.0	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	21.0		58.0	11.8	
LOS	B	A		A	A		C	C		E	B	
Approach Delay		5.8			5.9		21.0	21.0			31.2	
Approach LOS		A			A		C	C			C	
Queue Length 50th (m)	3.9	10.0		4.1	11.1		8.3	8.3		22.9	3.1	
Queue Length 95th (m)	m12.8	16.8		7.3	13.6		19.6	19.6		34.3	17.0	
Internal Link Dist (m)		138.2			146.6		77.7	77.7			80.5	
Turn Bay Length (m)	110.0			65.0								
Base Capacity (vph)	343	3365		475	3820		471	471		312	513	
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	0.23	0.17		0.26	0.31		0.20	0.20		0.32	0.27	

Intersection Summary

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: 0.56

Intersection Signal Delay: 9.2

Intersection LOS: A

Intersection Capacity Utilization 85.5%

ICU Level of Service E

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

485 Ancaster Avenue
2027 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
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		0.98		0.90		0.98		0.98	0.97	
Frt		0.999				0.850		0.969			0.892	
Flt Protected	0.950			0.950				0.985		0.950		
Satd. Flow (prot)	1676	4811	0	1693	4865	1515	0	1706	0	1693	1539	0
Flt Permitted	0.123			0.368				0.902		0.729		
Satd. Flow (perm)	217	4811	0	642	4865	1362	0	1549	0	1276	1539	0
Right Turn on Red			Yes			Yes			Yes			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	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	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	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	

15: Iroquois & Carling
PM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

												
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?												
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		B	B	A		C		E	B	
Approach Delay		5.4			14.2			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)		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%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 15: Iroquois & Carling



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø7
Lane Configurations							
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		0.95		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	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

	↖	↗	↑	↘	↙	↓	
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	2.7	2.7	2.7	2.7	0.0
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					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)	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	A		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	10.4	39.2	5.0		67.8	
Internal Link Dist (m)	83.1		57.6			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	0.34	0.12		0.60	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.2

Intersection LOS: B

Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: Woodroffe E & Carlingwood SC



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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			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	43.1%			ICU Level of Service A		
Analysis Period (min)	15					

8: Carling & Ancaster
PM Peak Hour

485 Ancaster Avenue
2027 Total Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↑			↗
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 Utilization	42.6%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
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 Utilization	65.0%			ICU Level of Service C		
Analysis Period (min)	15					

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
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 Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
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		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 Utilization	36.2%			ICU Level of Service A		
Analysis Period (min)	15					