

1309 Carling Avenue

Transportation Impact Assessment Strategy Report - Rev 3





May 2019





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 $\sqrt{\text{appropriate field(s)}}$ is either transportation engineering \mathbf{v} or transportation planning \mathbf{v} .

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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Westgate Shopping Centre – Phase 1 1309 Carling Avenue

Transportation Impact Assessment Report, Revision 3

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Transportation Impact Assessment Report

1. SCREENING FORM

The Screening Form was completed to confirm the need for a Transportation Impact Assessment (TIA) for Phase 1 of the Westgate Shopping Centre development. The Trip Generation, Location, and Safety triggers were met based on the proposed unit count, collisions along Carling, location within Carling Arterial Mainstreet Design Priority Area (DPA) and proximity to the Carling Avenue/Merivale Road intersection. The Screening Form and Correspondence are provided in Appendix A.

2. DESCRIPTION OF PROPOSED DEVELOPMENT

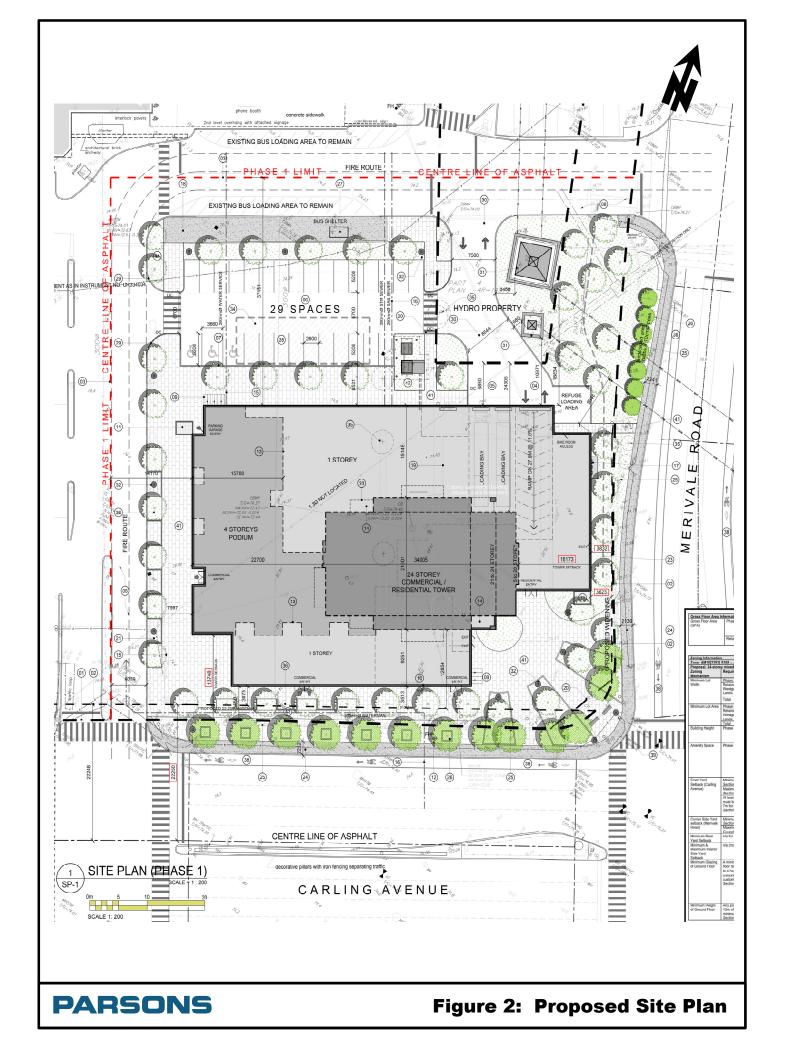
2.1. PROPOSED DEVELOPMENT

This study has been prepared by Parsons in support of Site Plan Application for the proposed development, located at 1309 Carling Avenue, Ottawa. The proposed development corresponds to Phase I of the Westgate redevelopment subdivision. As part of the application process, an Official Plan Amendment and Zoning By-Law Amendment were submitted to the City and approved on May 2017. The site is located in Ward 15 and the local context is illustrated in Figure 1.

The Phase 1 development will include 203 apartment units, 17,758 sq. ft of commercial retail and 2,381 sq. ft of commercial restaurant. The estimated date of occupancy is 2020. Site access will occur via at the existing Westgate Shopping Centre driveways: one on Merivale Road and the east entrance on Carling Avenue. The proposed development will replace an existing restaurant. The Site Plan is illustrated in Figure 2.



Figure 1: Local Context



3. EXISTING CONDITIONS

3.1. AREA ROAD NETWORK

Carling Avenue is an east-west arterial roadway with a six-lane cross-section and a 44.5 m right-of-way (ROW) protection within the study area. It extends from March Road in the west and Bronson Avenue in the east. The posted speed limit is 60 km/h. It is also identified as a Transit Priority Corridor.

Merivale Road is a north-south arterial roadway with a two-lane cross-section with a 30 m ROW protection. It extends from Island Park Drive in the north and Prince of Wales Drive in the south. Within the study area, the posted speed limit is 50 km/h. It is also identified as a Transit Priority Corridor.

Kirkwood Avenue is a north-south arterial roadway with a four-lane cross-section and a 26 m ROW protection within the study area. It extends from Wilber Avenue in the north and Merivale Road in the south. Within the study area, the posted speed limit is 50 km/h.

Highway 417 is an east-west Provincial Freeway with a six-lane cross-section within the study area. This highway is part of the Trans-Canada Highway and extends beyond the borders of Ottawa in both the west and east ends. The posted speed limit is 100 km/h. Access/egress to/from HWY 417 is provided via multiple on/off ramps on Carling Avenue within the vicinity of the Carling/Kirkwood intersections.

3.2. PEDESTRIAN AND CYCLING NETWORK

Regarding pedestrian connectivity, sidewalks exist along both sides of Carling Avenue and Merivale Road. A sidewalk is provided on the north side of Carling Avenue at the Queensway underpass. Pedestrian crossings are provided at all study area signalized intersections, providing good connectivity to adjacent residential neighbourhoods to the south and to the east. Connectivity to commercial and residential areas to the west is less convenient due to the presence of highway ramps. Currently, pedestrian crossing at the eastbound ramp is not demarcated. Pedestrian crossing at the westbound ramp is yield controlled and is announced approximately 60 meters before the point of conflict.

With regard to cycling, bike lanes currently exist along both sides of Carling Avenue and Merivale Road adjacent to the site. The westbound bike lane on Carling Avenue currently merges with traffic at the Queensway underpass, after which it intersects with the westbound highway off-ramp. No signage or elements announcing the presence of cyclists on Carling Avenue at this location and at the underpass have been identified at this moment. The 2013 City of Ottawa Transportation Master Plan identifies Carling Avenue, Merivale Road and Island Park Drive as Spine Routes and a multi-use pathway along the south side of Island Park Drive, providing connections to the communities north of the subject site. The City's Cycling Plan identifies "neighbourhood bikeways" proposed as a Phase 1 (2014-2019) City project, north of Highway 417.

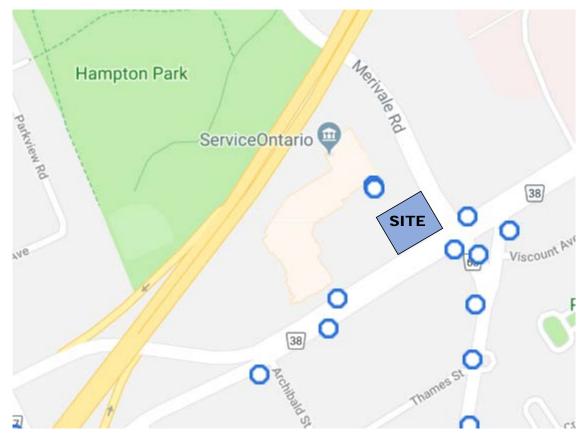
3.3. TRANSIT NETWORK

Local transit service consists of local routes #81 and #85, frequent route #80 and peak routes # 101 and #103. Facilities on-site include a bus stop for local routes located within the site's internal roadway network, serving neighbourhoods to the north and south of the subject site. Bus stops for frequent and peak routes are also available along Carling Avenue adjacent to the subject site at Merivale Road and at the westernmost site-access, serving neighbourhoods to the west and the east of the subject site. The existing transit network is illustrated in Figure 3 and existing transit stops is illustrated as Figure 4.

Figure 3: Area Transit Network



Figure 4: Existing Transit Stops



3.4. EXISTING STUDY AREA INTERSECTION

Merivale/Westgate SC

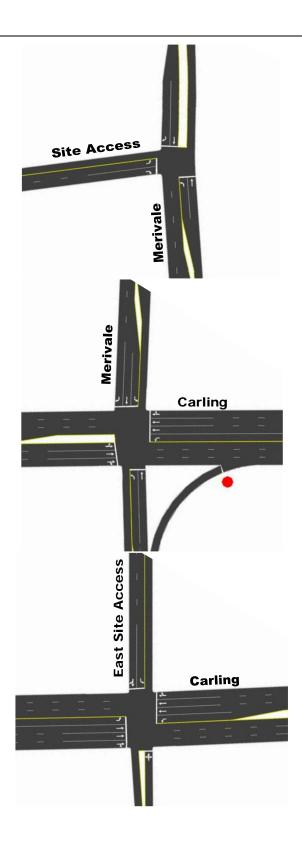
The Merivale/Westgate SC intersection is a signalized 'T' intersection. The eastbound approach consists of a single right-turn lane and a single left-turn lane. The southbound approach consists of one shared right-turn/ through lane and a single through lane. The northbound approach consists of a single left-turn lane, a single through lane and a curbside bike lane. At this location, the only restricted movement is the banned eastbound left-turn for trucks.

Merivale/Carling

The Merivale/Carling intersection is a signalized four-legged intersection. The westbound approach consists of a single left-turn lane, two through lanes and a single shared through/right-turn lane. The southbound approach consists of a single left-turn lane, a single through lane, a pocket bike-lane and a single right-turn lane. The northbound approach consists of a single left-turn lane, a single through lane, a curbside bike lane and a single channelized right-turn lane. Bus stops exist on Merivale Road at both sides of this approach. At this intersection, there are no restricted or banned movements.

Carling/Westgate Shopping Centre

The Carling/Westgate SC intersection is a signalized four-legged intersection. The east and westbound approaches both consist of a single left-turn lane, two through lanes, a single shared through/right-turn lane and a curbside bike lane. The southbound approach consists of a single left-turn lane and a single shared through/right-turn lane. The northbound approach consists of a single all-movement lane. At this location, there are no restricted or banned movements.



Carling/West Site Access

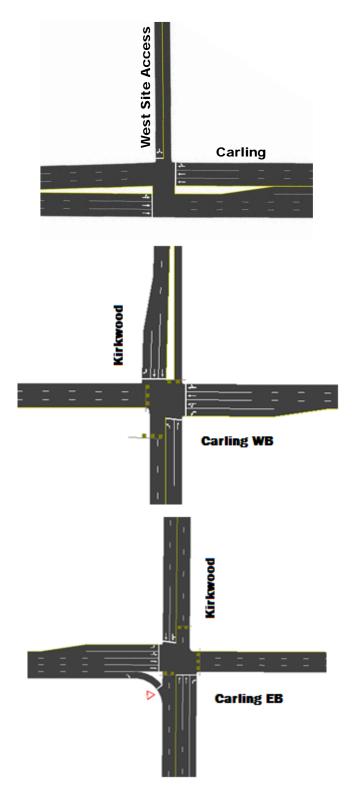
The Carling/West Site Access intersection is a signalized 'T' intersection. The westbound approach consists of a curbside bike lane, a single shared through/right-turn lane and two through lanes. The eastbound approach consists of a single shared through/left-turn lane, two through lanes and a curbside bike lane. The southbound approach consists of a single shared left/right-turn lane. At this location, east and westbound U-turns are not permitted, and eastbound left-turns are restricted to permit trucks only.

Carling WB/Kirkwood N

The Carling WB/Kirkwood N intersection is a signalized four-legged intersection. The westbound approach consists of a shared through/right-turn lane, a through lane, a shared through/left-turn lane and a left-turn lane. The southbound approach consists of a single right-turn lane and two through lanes. The northbound approach consists of a single through lane and a single left-turn lane. At this location, there are no restricted or banned movements; however, Carling Avenue operates in the westbound direction only.



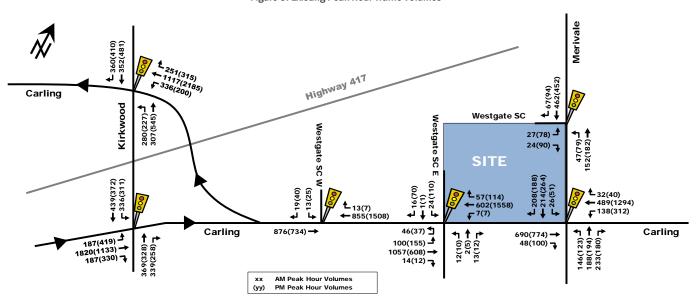
The Carling EB/Kirkwood S intersection is a signalized four-legged intersection. The eastbound approach consists of a single channelized right-turn lane, two through lanes, a shared through/left-turn lane and a left-turn lane. The southbound approach consists of a shared through/left-turn lane and a single through lane. The northbound approach consists of two through lanes and a single right-turn lane. At this location, the only restricted movement is the 'no right-turn on red' in the northbound direction. Also, Carling Avenue operates in the eastbound direction only at this location.



3.5. EXISTING INTERSECTION VOLUMES

The existing peak hour traffic volumes (Figure 5) were collected by the City of Ottawa between 2014 and 2016. The resulting peak hour and full traffic volume counts are included as Appendix B.

Figure 5: Existing Peak Hour Traffic Volumes



During the pre-consultation with City of Ottawa Staff, it was requested that additional counts be conducted to assess the changes in travel patterns due to the Highway 417 widening and closure of the eastbound on-ramp from Carling Avenue westbound. A new count for the Carling/Westgate E intersection was conducted on March 19th, 2019 to better understand the change in traffic patterns with the closure of the 417 ON-Ramp west of this location. A new count was only completed at this location as there is a queue storage concern with the eastbound left-turn movement at this location.

3.6. EXISTING ROAD SAFETY CONDITIONS

Collision history for study area (2012 to 2016, inclusive) was obtained from the City of Ottawa. A total of 103 collisions have been reported within the study area. The majority (80%, or 82) of collisions involved property damage while the remaining (20%, or 20) collisions involved non-fatal injuries.

Regarding the type of collision, turning movement accounted for 31% (or 32 collisions) of collisions, rear end accounted for 28% (or 29 collisions) of collisions, sideswipe accounted for 20% (or 20 collisions) of collisions, angle accounted for 17% (or 17 collisions) of collisions, single vehicle other accounted for 3% (or 3 collisions) of collisions and other accounted for 2% (or 2 collisions) of collisions.

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). The reported collision rate for the study area intersections are as follows:

- Carling Avenue at Merivale Road 1.09 MEV;
- Carling Avenue at Westgate SC E 0.31 MEV;
- Carling Avenue at Westgate SC W 0.08 MEV;
- Merivale Road at Westgate SC 0.09 MEV;
- Carling Avenue, between Highway 417 Ramps 76 and 65 0.23 MEV;
- Carling Avenue, between Highway 417 to Westgate SC W 0.02 MEV;
- Carling Avenue, between Meath Street to Archibald Street 0.04 MEV;
- Carling Avenue, between Archibald Street to Westgate SC W 0.04 MEV;
- Carling Avenue, between Westgate SC W to Westgate SC E 0.04 MEV; and
- Merivale Road, between Island Park Drive to Westgate SC 0.11 MEV.

It is noteworthy that in 2012 there was a fatal accident involving a cyclist and a passenger vehicle at the Carling/Archibald intersection.

With regard to U-turning vehicles in the area, 4 collisions were noted to involve U-turn movements (1 westbound on Carling at Westgate SC W, 2 eastbound on Carling at Merivale, and 1 westbound on the Westgate SC Access at Merivale).

Overall, there does not appear to be any prevailing safety issues within the study area. The source of the collision data is provided by the City of Ottawa and related analysis is provided within Appendix C.

4. PLANNED CONDITIONS

4.1. PLANNED STUDY AREA TRANSPORTATION NETWORK CHANGES

Within the study area, notable transportation network changes within the study area are described as follows.

Merivale Road

Identified on the Affordable Network are peak period bus lanes in the peak direction only. Transit signal priority would be provided between Carling Avenue and Baseline Road by reallocating existing traffic lanes.

Identified on the Network Concept is road widening to provide exclusive bus lanes and transit signal priority between Carling Avenue and Slack Road.

Carling Avenue

Identified on the Affordable Network are exclusive bus lanes and transit signal priority between Lincoln Fields Station and the Carling O-Train Station. The existing curbside traffic lanes would be converted to bus lanes in lieu of widening the corridor, which reduces the number of travel lanes for general traffic from 6 to 4.

Identified on the City's 2031 Network Concept Plan are further improvements to transit within the study area beyond 2031. Carling Avenue is identified as a future Light Rail Transit (LRT) corridor with a station planned at Merivale Road

Carling Transit Priority Study

In February 2017, the City of Ottawa initiated a study to develop a Recommended Functional Design Plan to provide for the introduction of Transit Priority Measures along Carling Avenue from Lincoln Fields to Bronson Avenue. Key elements of the design include transit priority measures, provisions for widened sidewalks and cycling facilities in key areas and intersection modifications and/or traffic control signal adjustments.

The current plan within the vicinity of the site is shown as Figure 6. The timing of the planned modifications is unknown at this time however, it is understood that implementation would ideally occur in the next five years.

Figure 6: Carling Avenue Transit Priority Plan

Source: https://ottawa.ca/en/carling-avenue-transit-priority-measures, Accessed 2018-11-05

Closure of the Highway 417 E-E On-Ramp at Carling Avenue:

In March 2018 the Ministry of Transportation closed the westbound Carling Avenue eastbound on-ramp to Highway 417 coming from the Westgate Mall. As indicated in the Queensway Expansion East project webpage, this closure is part of the Queensway Expansion from Maitland Avenue to Island Park Drive, which will add one lane in each direction. Construction is expected to conclude on 2020 and mitigation for redirected traffic is planned to be implemented at the Carling Avenue westbound/Kirkwood Avenue and Carling Avenue/Saigon Court intersections. Mitigation measures include:

- Two dedicated left-turn lanes on Carling Avenue westbound at Kirkwood Avenue to accommodate left-turning traffic, including redirected traffic from the closed E-E (eastbound) on-ramp;
- A raised concrete median island constructed between the through lanes and the left-turn lanes on Carling Avenue westbound at Kirkwood Avenue to prevent E-W off-ramp traffic from weaving across Carling Avenue westbound to turn left on to Kirkwood Avenue southbound;
- A dedicated left turn lane on Carling Avenue westbound at Saigon Court to accommodate traffic turning left on to Saigon, including redirected traffic from the E-W off-ramp seeking access to Carling Avenue eastbound/Kirkwood Avenue south;
- Widening of Saigon Court by one lane to provide additional capacity;
- New traffic signals at the Carling Avenue eastbound/Saigon Court intersection;
- New sidewalks and a segregated bike lane on Carling Avenue westbound; and
- Speed humps and other improvements on Coldrey Avenue.

The Traffic Assessment Report Summary for the Proposed Closure of Highway 417 E-E On-Ramp at Carling Avenue Interchange, produced by MMM Group in December 2016, identified a total of 360 vehicles during the AM peak and 250 vehicles during the PM peak would be displaced by this closure. Figure 7 illustrates the proposed traffic impacts of the updated traffic counts and proposed changes listed above.

Carling WB @ Saigon

Carling WB @ Saigon

E-E On-Ramp

E-E On-Ramp

Carling EB @ Saigon

Carling EB @ Saigon

Figure 7: Net Traffic Impacts - Carling E-E On-Ramp Closure and Modifications (MMM Group, 2016)

4.2. OTHER AREA DEVELOPMENTS

1400 Carling Avenue

Sharon Enterprise (the Owner) has submitted a Zoning By-Law Application to increase in height from 10 storeys to 13 storeys for the addition of two towers onto the existing five storey Embassy West retirement home. A total of 83 new units in the west tower and 280 new units in the east tower are proposed. No Transportation Impact Study was prepared for this application.

1354 - 1376 Carling Avenue

Holloway Lodging has submitted a Zoning By-Law Application for a new residential development consisting of four buildings on the properties municipally known as 1376 and 1354 Carling Avenue. Two buildings front Carling Avenue and are both proposed with 20 storeys and two 9 storey buildings are proposed further south on the site. The total number of residential units is 914 within the four buildings. Approximately 2,440 m² (26,200 ft²) of commercial is proposed as part of buildings fronting Carling Avenue. The Community Transportation Study projects an increase in two-way vehicle traffic of 186 to 253 veh/h during the weekday commuter peak hours.

900 Merivale Road

An expansion of the existing Community Health Centre is planned at the above-noted location, which is located approximately 250 m southeast of the subject development. The Transportation Overview (prepared by Parsons) projects an increase in two-way vehicle traffic of 40 to 50 veh/h during the weekday commuter peak hours.

5. STUDY AREA

5.1. TRANSIT

Transit has been discussed in Section 3.3.

5.2. NETWORK CONCEPT

No screenlines are present in the immediate vicinity of the proposed site, and the impact of the development is anticipated to be minimal.

5.3. INTERSECTION DESIGN

The proposed site will use existing accesses to the Westgate Shopping Centre. The Strategy Report will review and document any changes to the existing accesses, if required.

6. TIME PERIODS

The weekday morning and afternoon peak hours are considered the appropriate time periods for operational analysis for this development.

7. HORIZON YEARS

The expected build-out date for Phase I of the proposed development is assumed to be 2020. Considering the new Merivale Road (North) Community Design Plan and the construction of the new Civic Hospital Campus at Sir John Carling Site, a 5-years beyond full build-out will be analyzed for year 2025.

8. EXEMPTIONS REVIEW

Based on the foregoing analysis and review of the existing conditions in Step 2, the Scoping Report, it is recommended that, if required, any future work within the context of this TIA excludes the following modules and elements summarized in Table 1.

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Networks	Not required for Site Plan Applications.
4.2 Parking	4.2.2 Spillover Parking	According to Part 4 of Zoning By-Law 2008-250 (Table 101-R15-N83), the development will require a total of 104 parking spaces. The proposed development includes 138 above grade and below grade parking spaces and is therefore meeting Zoning By-Law requirements. As such, no parking spillover is anticipated.
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	The proposed development relies on the existing Carling Avenue and Merivale Road access. Carling Avenue and Merivale Road are classified as arterial roads, as such, no development-related traffic is anticipated to impact area collector and local roads.
4.8 Network Concept	All Elements	As part of the application process, an Official Plan Amendment and Zoning By-Law Amendment have been previously approved for the proposed development.

Table 1: Exemptions Review Summary

In addition to the above recommendations of the Exemptions Review, the following exemptions are also proposed and summarized in Table 2.

Table 2: Additional Recommended Exemptions Summary

Module	Element	Exemption Consideration					
4.2 Parking	4.2.1 Parking Supply	The proposed development meets the minimum parking space requirements. As such, no parking supply issues are anticipated.					

9. DEVELOPMENT GENERATED TRAVEL DEMAND

9.1. TRIP GENERATION AND MODE SHARES

The proposed redevelopment includes 203 apartment units, 17,758 ft² of commercial retail, and 2,381 ft² of commercial restaurant and will replace the existing Monkey Joe's Bar & Grill (approximately 4,200 ft²). Traffic from the new retail land use and the existing restaurant land use will be generated using the ITE Trip Generation Manual 10th Edition and the TRANS Trip Generation Study for the residential use. Vehicle trip generation rates are summarized in Table 3.

Table 3: Vehicle Trip Generation Rates for Retail and Residential Uses

Land Use	Data Sauras	Trip Rate				
Land Use	Data Source	AM Peak	PM Peak			
High Rise Apartment	TRANS	T = 0.24(du)	T = 0.27(du)			
Shopping Centre	ITE 820	-	T = 3.81(X)			
High Turnover Restaurant	ITE 932	-	T = 9.77(X)			
T - Avarada Vahial	- Tuin Fords					

T = Average Vehicle Trip Ends $X = 1000 ft^2 Gross Floor Area$

du = Dwelling unit

Commercial Trip Generation

Notes:

As ITE trip generation surveys only record vehicle trips and typically reflect highly suburban locations (with little to no access by travel modes other than private automobiles), adjustment factors appropriate to the Ottawa study area context were applied to attain estimates of person trips for the proposed Phase 1 development. To convert ITE vehicle trip rates to person trips, an auto occupancy factor and a non-auto trip factor were applied to the ITE vehicle trip rates. Our review of available literature suggests that a combined factor of approximately 1.3 is considered reasonable to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. The person trip generation for the proposed office and retail developments is summarized in Table 2.

Table 4: Modified Person Trip Generation - Retail and Restaurant

Land Use	Data Source Area		PM Peak (Person Trips/hr)				
Land USE	Data Source	Alea	In	Out	Total		
Shopping Centre	ITE 820	17,758 ft ²	42	46	88		
High Turnover Restaurant (proposed)	ITE 932	2,381 ft ²	18	12	30		
High Turnover Restaurant (existing)	ITE 932	4,200 ft ²	-32	-21	-53		
	28	37	65				

The person trips shown in Table 2 for the proposed commercial developments were then reduced by modal share values. Given the development's location in the Merivale area and the site's close proximity to transit facilities available on Carling Avenue, the active and transit modal splits are expected to be higher than outlined in the TRANS OD Survey. Table 5 outlines the mode shares for the Merivale area and selected mode splits. The resulting mode shares for the proposed retail and restaurant and existing restaurant development are summarized in Table 6, Table 7, and Table 8 respectively.

Table 5: Merivale Mode Shares

		24 hrs			AM Peak			PM Peak			Coloated
	From District	To District	Within District	From District	To District	Within District	From District	To District	Within District	Average	Selected Split
Auto	61	61	55	53	60	43	64	59	52	56	45
Passenger	15	15	15	11	12	15	14	14	15	14	10
Transit	18	18	7	26	22	11	17	19	9	16	30
Bicycle/Walk	4	4	19	5	3	20	3	6	20	9	15
Other	2	2	4	5	3	11	2	3	5	4	

Table 6: Proposed Retail Modal Site Trip Generation

Travel Mode	Mode Share	PM Peak (Person Trips/h)				
Traver Mode	Widde Share	ln	Out	Total		
Auto Driver	45%	19	21	40		
Auto Passenger	10%	5	5	10		
Transit	30%	12	14	26		
Non-motorized	15%	6	6	12		
Total Person Trips	100%	42	46	88		
	Less Pass-by (10%)	-2	-2	-4		
	Total 'New' Auto Trips	17	19	36		

Table 7: Proposed Restaurant Modal Site Trip Generation

Travel Mode	Mode Share	PM Peak (Person Trips/h)				
Travel Mode	Wode Share	In	Out	Total		
Auto Driver	45%	9	6	15		
Auto Passenger	10%	2	2	4		
Transit	30%	5	3	8		
Non-motorized	15%	2	1	3		
Total Person Trips	100%	18	12	30		
	Total 'Existing' Auto Trips	9	6	15		

Table 8: Existing Restaurant Modal Site Trip Generation

Travel Mode	Mode Share	PM Peak (Person Trips/h)				
Traver Mode	Widde Share	In	Out	Total		
Auto Driver	45%	15	10	25		
Auto Passenger	10%	4	2	6		
Transit	30%	9	6	15		
Non-motorized	15%	4	3	7		
Total Person Trips	100%	32	21	53		
Total '	Existing' Auto Trips	15	10	25		

Residential Tip Generation

Using the TRANS Trip Generation rates outlined in Table 3 and the TRANS Trip Generation mode splits for the residential component of the site, the total amount of person trips generated by the proposed 215 residential units is summarized in Table 9.

Table 9: Residential Person Trip Generation

Land Use	Data	Linita	AM Pe	ak (Person	Trips/hr)	PM Peak (Person Trips/hr)		
Land Use	Source	Units	In	Out	Total	In	Out	Total
High Rise Apartment	TRANS	203 du	30	102	132	85	52	137

As shown in Table 9, a total of 132 and 137 person-trips per hour are projected to travel to/from the proposed residential development during the weekday morning and afternoon commuter peak hours. Using the model splits from the TRANS Trip Generation report, these person trips were broken down by modal shares as outlined in Table 10.

Table 10: TRANS Model Site Trip Generation - Residential

Travel Mode	Mode	Share	AM Pe	ak (Person T	rips/h)	PM Pe	ak (Person T	(Person Trips/h) Out Total 21 55 4 12 20 51 8 19 52 137	
Traver Mode	AM	PM	In	Out	Total	In	Out	Total	
Auto Driver	37%	40%	11	38	49	34	21	55	
Auto Passenger	8%	9%	3	8	11	8	4	12	
Transit	41%	37%	12	42	54	31	20	51	
Non-motorized	14%	14%	4	14	18	11	8	19	
Total Person Trips	10	0%	30	102	132	85	52	137	
Total 'New' Auto Trips		11	38	49	34	21	55		

To determine the net increase in site trips, the existing restaurant generated trips were removed from the total proposed retail and residential generated trips. As such, Table 11 outlines the net increase in trips generated by the proposed development.

Table 11: Net Total Site Person-Trip Generation

Travel Mode	AM P	eak (Person Tri	ps/h)	PM P	eak (Person Trips/h)			
Travel Mode	In	Out	Total	In	Out	Total		
Auto Driver	11	38	49	47	38	85		
Auto Passenger	3	8	11	11	9	20		
Transit	12	42	54	39	31	70		
Non-motorized	4	14	18	15	12	27		
Total Person Trips	30	102	132	113	89	202		
Less Retail Pass-By (30%)	0	0	0	-2	-2	-4		
Total 'New' Auto Trips	11	38	49	45	36	81		

As shown in Table 11, the resulting number of potential 'new' two-way vehicle trips for the proposed developments is approximately 49 and 81 veh/h during the weekday morning and afternoon peak hours, respectively. Transit trips in the area are expected to increase by approximately 54 to 70 persons per hour and active mode trips are expected to increase by approximately 18 to 27 persons per hour.

9.1.1. MODE SHARES

As shown in Table 5, the chosen transit and non-motorized mode shares for the development are already twice that identified for the rest of the Merivale area. As there are no future transit stations planned within a kilometer of the site (Figure 8) and the site is not within a TOD zone, it is unlikely the future transit and active modes to/from this retail site will increase significantly. As such, the future mode shares are assumed to be the same as existing for the 2020 and 2025 horizon years.

600m Zoning Bylaw Area around Transit Station TUNNEY'S PAST **Existing Transit Station** Existing Bus Rapid Transit (BRT) Existing Light Rail Transit (LRT) **Future Transit Station** ARLING Future Bus Rapid Transit (BRT) Future Light Rail Transit (LRT) NOMINION Area: 3.17 sq km Perimeter: 6,310 m Radius: 1,006 m 417 Radius: 690 m **NEW ORCHARD** MOONEY'S BAY

Figure 8: Transit Stations Located Close to Site

9.2. TRIP DISTRIBUTION

Traffic distribution was based on the 2011 NCR Household Origin – Destination Survey, existing volume splits at study area intersections and our knowledge of the surrounding area. The resultant distribution is outlined as follows.

- 30% to/from the west via HWY 417;
- 20% to/from the east via HWY 417;
- 10% to/from the west via Carling Avenue;
- 10% to/from the east via Carling Avenue;
- 10% to/from the north via Merivale Road;
- 10% to/from the south via Merivale Road;
- 5% to/from the north via Kirkwood Avenue; and
- <u>5%</u> to/from the south via Kirkwood Avenue.
 100%

9.3. TRIP ASSIGNMENT

New site generated trips were assigned to the study area intersections using the foregoing distribution. Figure 9 illustrates the resulting volume assignment of the new and pass-by site generated vehicle trips used in this analysis.

Highway 417 Carling Kirkwood Westgate SC Westgate SC E Westgate SC W 4(4) SITE £ 4(5) -28(27) Carling 8(32) → 4(4) Carling 8(33) 1(2)1 15 0(-1) AM Peak Hour Volumes

Figure 9: New and Pass-by Site Generated Traffic

10. BACKGROUND NETWORK TRAVEL DEMAND

10.1. TRANSPORTATION NETWORK PLANS

The transportation network changes have been discussed within Section 4.1 and have been considered within the horizon analysis. It is noted that the future Carling Avenue Light Rail Transit (LRT) corridor falls outside the scope of the foregoing study, as is identified in the Transportation Master Plan as a post 2031 measure.

10.2. BACKGROUND GROWTH

The historical traffic count data for the Carling Avenue and Merivale Road intersection (years 2010, 2014, 2015 and 2016) was reviewed to determine the background growth along Carling Avenue. In general, Carling Avenue has experienced a 2.5% to 3% growth and Merivale Road has experienced a -0.5% to a 2% growth. Therefore, 2.5% growth was applied to Carling Avenue, 2% to Kirkwood Avenue, and 1.5% to Merivale Road.

10.2.1. BACKGROUND 2020 OPERATIONS

The background 2020 traffic volumes were derived by superimposing the other study area developments and the background growth rate on the existing traffic volumes. The resulting background 2020 traffic volumes are illustrated in Figure 10. Table 12 provides a summary of the background 2020 operations at the study area intersections. The SYNCHRO model output of background 2020 conditions is provided within Appendix D.

Figure 10: Projected Background 2020 Traffic Volumes

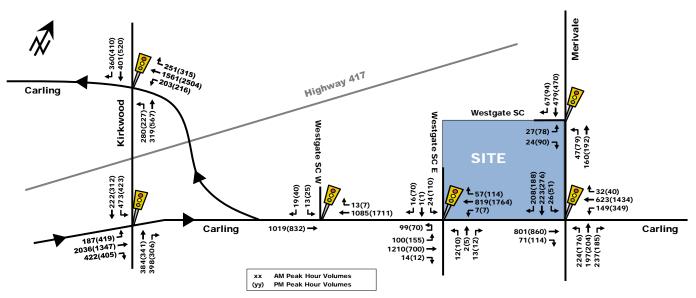


Table 12: Projected Background 2020 Performance at Study Area Intersection

		W	eekday AM Pea	ak (PM Peak)							
Intersection		Critical Movement		Intersection 'as a whole'							
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c					
Carling/Westgate SC E	A(D)	0.47(0.81)	EBT(EBT)	4.6(14.6)	A(C)	0.42(0.75)					
Merivale/Westgate SC	A(A)	0.36(0.48)	SBT(EBL)	4.4(6.3)	A(A)	0.32(0.39)					
Carling/Merivale	E(E)	0.98(0.93)	NBL(WBL)	28.6(33.0)	A(C)	0.56(0.75)					
Carling/Westgate SC W	A(A)	0.27(0.44)	WBT(WBT)	1.7(2.2)	A(A)	0.27(0.44)					
Carling ///informed N	D(F)	0.85(1.05)	SBR	24 E(07 0)	D(E)	0.04(4.47)					
Carling/Kirkwood N	D(F)	0.84(1.27)	WBT	31.5(87.9)	D(F)	0.84(1.17)					
	F(B)	1.04(0.73)	EBT								
Carling/Kirkwood S	F(E)	1.03(0.93)	SBL	56.1(31.6)	E(C)	0.96(0.73)					
	E(F)	0.98(1.03)	NBR								
Note: Analysis of intersections assu	mes a PHF of 0.95	and a saturation flow ra	ate of 1800 veh/h	/lane.							

As shown in Table 12, the study area intersections "as a whole" will operate at an acceptable LoS 'D' or better during peak hours with the exception of the Carling/Kirkwood S intersection which operates at an LoS 'E' during the morning peak hour and the Carling/Kirkwood N intersection which operates at an LoS 'F' during the afternoon peak hour.

The following critical movements at study area intersection are operating close to or above capacity (LoS 'E' or 'F') during peak hours:

Morning peak hour:

- NBL at the Carling/Merivale intersection
- EBT at the Carling/Kirkwood S intersection
- NBR at the Carling/Kirkwood S intersection
- SBL at the Carling/Kirkwood S intersection

Afternoon peak hour:

- WBL at the Carling/Merivale intersection
- SBR at the Carling/Kirkwood N intersection
- WBT at the Carling/Kirkwood N intersection
- NBR at the Carling/Kirkwood S intersection
- SBL at the Carling/Kirkwood S intersection

The eastbound left-turn queue for background 2020 conditions at the Carling/Westgate E intersection is summarized in Table 13. It should be noted that a new count for this location was conducted on March 19th, 2019 to better understand the change in traffic patterns with the closure of the 417 ON-Ramp west of this location.

Table 13: EBLT Queueing at Carling/Westgate E, Background 2020 Conditions

lut	Eastbound Left-Turn Queue (m) AM Peak (PM Peak)							
Intersection	Available Storage	Average Queue	95th Percentile Queue					
Carling/Westgate E	Carling/Westgate E 80 10(35) 55(#75)							
Note: # and ~ symbols indicate the queue is operating above capacity and queues may not clear intersection during one signal cycle.								

As shown in Table 13, the average 95th percentile EBLT queue is projected to fall within existing storage capacity in both morning and afternoon peak hours. However, it is understood from discussions with the City's Traffic Services Department (Signal Operations) that there are times of day currently when the EBLT queue extends beyond available storage.

10.2.2. BACKGROUND 2025 OPERATIONS

The background 2025 traffic volumes were derived by superimposing the other study area developments and the background growth rate on the existing traffic volumes. The resulting background 2025 traffic volumes are illustrated in Figure 11. Table 14 provides a summary of the background 2025 operations at the study area intersections. The SYNCHRO model output of projected background 2025 conditions is provided within Appendix E.

Highway 417 Carling Kirkwood 280(227) **4** 339(602) **↓** Westgate SC Westgate SC E Westgate SC W 27(78) 24(90) SITE 24(110) 13(25) € 32(40) € 662(1538) € 149(349) **1** 13(7) ← 1154(18<u>33)</u> **₽**7(7) 224(176) ↓ 206(213) ↓ 237(185) ↓ Carling 99(70) 츀 12(10) ♣ 2(5) ♣ 13(12) ♣ Carling 1090(891) 857(923) → 71(114) → 100(155) 1295(749) -14(12) AM Peak Hour Volumes PM Peak Hour Volumes

Figure 11: Projected Background 2025 Traffic Volumes

Table 14: Projected Background 2025 Performance at Study Area Intersection

		W	eekday AM Pe	ak (PM Peak)						
Intersection	(Critical Movement		Interse	ction 'as	a whole'				
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c				
Carling/Westgate SC E	A(E)	0.47(1.00)	EBT(WBT)	5.1(25.5)	A(E)	0.47(1.00)				
Merivale/Westgate SC	A(A)	0.38(0.48)	SBT(EBL)	4.4(6.4)	A(A)	0.34(0.40)				
	E(D)	0.98(0.83)	NBL							
Carling/Merivale	A(E)	0.55(0.98)	WBL	29.7(58.3) B(D)		0.68(0.89)				
_	B(E)	0.63(0.91)	EBT							
Carling/Westgate SC W	A(B)	0.40(0.67)	WBT(WBT)	2.2(5.5)	A(B)	0.40(0.66)				
Onding ///idoon ad N	D(F)	0.88(1.26)	WBT	20.0(4.00.4)	D(E)	0.00(4.00)				
Carling/Kirkwood N	D(F)	0.85(1.05)	SBR	32.8(109.4)	D(F)	0.88(1.23)				
	F(C)	1.12(0.72)	EBT							
Carling/Kirkwood S	E(F)	0.98(1.02)	NBR	71.2(32.6) F(C) 1.02(1.02(0.77)				
	F(D)	1.06(0.90)	SBL							
Note: Analysis of intersections assu	mes a PHF of 0.95 a	nd a saturation flow ra	te of 1800 veh/h	/lane.						

The implementation of the transit priority lanes on Carling Avenue reduces the capacity of Carling Avenue as general-purpose lanes are repurposed for transit only. As such, there is an overall reduction in level of service at major intersections along the corridor which results in the increase overall intersection delays and v/c ratios compared to background 2020 conditions.

As shown in Table 14, the study area intersections "as a whole" will operate similar to background 2020 conditions with the exception of the Carling/Kirkwood S intersection which is projected to decrease in level of service from an 'E' to an 'F' in the morning peak hour and a 'C' to an 'E' in the afternoon peak hour. The Carling/Westgate E intersection is also projected to decrease in overall level of service from a 'C' to an 'E'.

The critical movements at study area intersections will also operate similar to background 2020 conditions. The following critical movements at study area intersection are operating close to or above capacity (LoS 'E' or 'F') during peak hours:

Morning peak hour:

- NBL at the Carling/Merivale intersection
- EBT at the Carling/Kirkwood S intersection
- NBR at the Carling/Kirkwood S intersection
- SBL at the Carling/Kirkwood S intersection

Afternoon peak hour:

- WBT at the Carling/Westgate E intersection
- WBL at the Carling/Merivale intersection
- EBT at the Carling/Merivale intersection
- SBR at the Carling/Kirkwood N intersection
- WBT at the Carling/Kirkwood N intersection
- NBR at the Carling/Kirkwood S intersection

The eastbound left-turn queue for 2025 background conditions at the Carling/Westgate E intersection are projected to be similar to 2020 background conditions. The eastbound left-turn queue for background 2025 conditions at the Carling/Westgate E intersection is summarized in Table 15.

Table 15: EBLT Queueing at Carling/Westgate E, Background 2025 Conditions

L. L	Eastbound Left-Turn Queue (m) AM Peak (PM Peak)						
Intersection	Available Storage	Average Queue	95th Percentile Queue				
Carling/Westgate E 80 10(35) 55(#75)							
Note: # and ~ symbols indicate the queue is operati	ng above capacity and queues m	nay not clear intersection durin	ig one signal cycle.				

As shown in Table 15, the 95th percentile EBLT queue is projected to fall within existing storage capacity in both morning and afternoon peak hours. However, it is understood from discussions with the City's Traffic Services Department (Signal Operations) that there are times of day currently when the EBLT queue extends beyond available storage.

10.3. OTHER DEVELOPMENTS

The City of Ottawa's Development Applications webtool has been used to determine if there are proposed developments within the area of influence of the proposed development. These developments have been discussed in greater detail in Section 4.2 and 2 will have an impact on the study area intersections. Figure 12 and Figure 13 illustrate for the 1354-1376 Carling Avenue and 900 Merivale Road developments. These have been included in the background analysis.

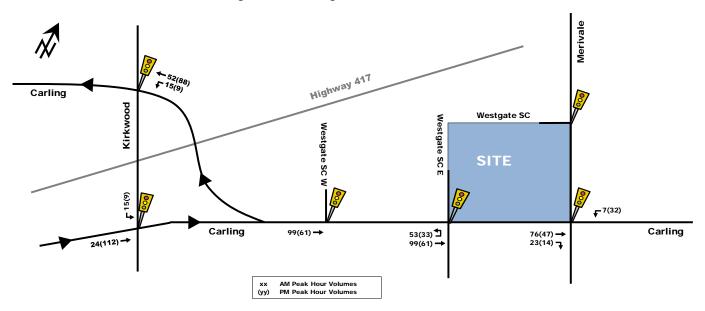
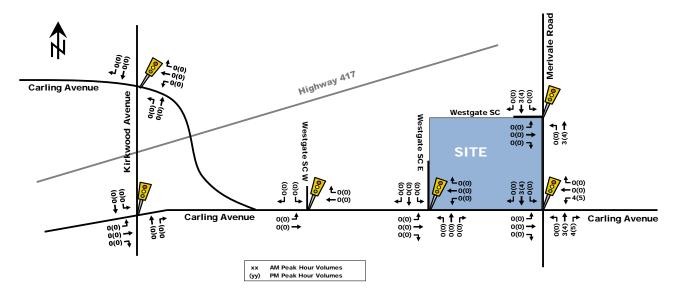


Figure 12: 1354 Carling Avenue Site-Generated Traffic





11. DEMAND RATIONALIZATION

The analysis herein has noted that there are performance issues at the Carling Avenue and Kirkwood intersections due in part to existing conditions, background traffic growth and these intersections providing access/egress to adjacent Highway 417 ramps. As the Phase 1 site-generated traffic volumes are extremely low compared to the existing and projected background traffic, no changes to the site trip generation or distribution analysis is proposed as traffic operations will not be affected. What could help to reduce vehicle travel demand in the Carling and Merivale Corridors is the current Highway 417 widening (reallocation of east-west commuter traffic) and implementation of transit priority along Carling and Merivale (i.e., better transit service would attract more transit users).

12. DEVELOPMENT DESIGN

12.1. DESIGN FOR SUSTAINABLE MODES

The proposed development falls within the Area X – Inner Urban for the City's Zoning By-Law. Vehicle parking is proposed in both underground parking and a surface parking lot. A total of 215 parking spaces will be provided, meeting the minimum of 136 spaces required (96 for residential, 19 for visitors, 21 for shopping centre). With regard to bicycle parking, 137 spaces will be provided which meets the City's Bylaw Requirements (102 for residential and 10 for shopping centre).

Sidewalk facilities are provided along the Carling Avenue and Merivale Road frontage and include pedestrian access within the existing Westgate Shopping Centre.

Transit service is provided in the Westgate Shopping Centre by OC Transpo. No additional service or stop locations are proposed/required.

12.2. CIRCULATION AND ACCESS

The existing driveway accesses will be used for the proposed development and they currently support delivery vehicles and OC Transpo vehicles. No circulation or operational issues are noted with the proposed 29 space surface parking lot or the loading bay adjacent to Merivale Road.

13. BOUNDARY STREET DESIGN

The boundary streets for the development are Carling Avenue and Merivale Road. It is assumed that Carling Avenue has undergone a complete street exercise during the latest renewal, and Merivale Road has not had one completed.

The multi-modal level of service analysis for the road segments along the boundary streets adjacent to the site is summarized in Table 16, with detailed analysis provided in Appendix F. The existing MMLoS targets for the Arterial Main Streets were used for this site.

	Level of Service									
Road Segment	Pedestria	an (PLoS)	Bicycle	(BLoS)	Trans	it (TLoS)	Truck	Truck (TkLoS)		
	PLoS	Target	BLoS	Target	TLoS	Target	TLoS	Target		
Carling Avenue	Е	С	D	С	D	D	С	D		
Merivale Road	С	С	С	С	D	D	D	Е		

Table 16: MMLOS - Boundary Street Segments

As shown in Table 16, the pedestrian and bicycle target level of service is not currently met on Carling Avenue. The travel speeds, assumed to be above the posted 60km/h, govern the pedestrian LoS, and the 3 travel lanes govern the bicycle

LoS. Carling Avenue would need to be reduced to an operating speed of 30-50 km/h and narrowed to 2 lanes per direction to meet the MMLOS targets. If the bike lanes were physically separated, the BLoS will achieve an 'A'. This measure could be implemented in conjunction with the Carling Transit Priority Study measures.

14. ACCESS INTERSECTIONS DESIGN

14.1. LOCATION AND DESIGN OF ACCESS

The proposed development will use the existing Westgate Shopping Centre accesses. No changes or modifications are proposed as part of this development.

14.2. INTERSECTION CONTROL

The proposed development will use the existing Westgate Shopping Centre accesses. No changes or modifications are proposed as part of this development.

15. TRANSPORTATION DEMAND MANAGEMENT

The TDM checklist is attached as Appendix G. Some of the TDM measures that the proponent is providing/considering are as follows:

- Direct and safe access to public sidewalks along Merivale Road and Carling Avenue;
- Direct and safe access to transit stops;
- Provide more than minimum bicycle requirements than are outlined in the City By-law;
- Unbundle parking cost from monthly rent; and,
- Provide multi-modal travel options information package to new residents.

16. TRANSIT

16.1. ROUTE CAPACITY

As outlined within Section 9.1.1, the forecasted 'new' two-way transit trips are estimated to be 54 trips (12 in, 42 out) during the AM peak and 70 trips (39 in, 31 out) during the PM peak. During the PM peak, the in/outbound trips represent approximately 75% of a single bus (55 passengers), approximately 55% of an articulated bus (75 passengers), or approximately 46% of a double decker bus (90 passengers).

Westgate Shopping Centre is serviced by five routes (see Section 3.3) with over 11 stops during the peak hour. The impact on the buses, depending on origins and destinations, could translate to 5 to 6 passengers per bus during the AM peak and 6 to 7 passengers during the PM peak, with some trips at popular times attracting even more. For routes that are already well used in peak periods, such as Routes 80 and 85, this may be enough new demand to warrant an increased level of service.

16.2. TRANSIT PRIORITY

No transit priority is noted or recommended during the area during the study horizons.

17. INTERSECTION DESIGN

17.1. PROJECTED TOTAL 2020 OPERATIONS

The total projected 2020 traffic volumes were derived by superimposing the site-generated traffic volumes onto 2020 background traffic volumes. The resulting total projected 2020 traffic volumes are illustrated in Figure 14

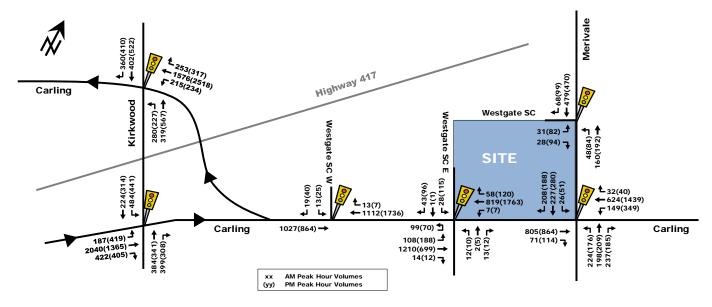


Figure 14: Projected Total 2020 Traffic Volumes

Table 17 provides a summary of the total projected operations at the study area boundary intersection based on the SYNCHRO (V10) traffic analysis software for Phase 1 build-out year 2020. The SYNCHRO model output of 2020 projected conditions is provided within Appendix H.

			Weekday AM P	eak (PM Peak)					
Intersection		Critical Movemer	nt	Inters	section 'as a	whole'			
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c			
Carling/Westgate SC E	A(D)	0.58(0.81)	EBT(WBR)	8.7(16.2)	A(D)	0.53(0.81)			
Merivale/Westgate SC	A(B)	0.34(0.69)	SBT(EBL)	4.6(10.9)	A(A)	0.32(0.42)			
Carling/Merivale	B(E)	0.70(0.91)	NBL(NBL)	22.6(30.5)	A(C)	0.59(0.76)			
Carling/Westgate SC W	A(A)	0.28(0.45)	WBT(WBT)	1.5(2.7)	A(A)	0.28(0.45)			
	D(F)	0.80(1.08)	WBT						
Carling ///informed N	D(F)	0.81(1.06)	SBR	20.2(57.6)	0) 0(5) 0 00(4				
Carling/Kirkwood N	C(F)	0.75(1.08)	NBL	20.2(57.6)	C(F)	0.80(1.02)			
	A(E)	0.46(0.97)	NBT						
	F(B)	1.05(0.76)	EBT						
Carling/Kirkwood S	F(C)	1.07(0.80)	SBL	54.0(27.7)	F(C)	1.05(0.77)			
	E(D)	0.99(0.81)	NBR]					
	Analysis of intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 yeb/h/lane								

Table 17: Projected Total 2020 Performance at Study Area Boundary Intersections

As shown in Table 17, the study area intersections "as a whole" will operate with similar levels of service as projected in the 2020 background conditions. Slight increases in delays and capacity ratios at the site accesses, due to the addition of proposed development traffic. The following critical movements at study area intersection are operating close to or above capacity (LoS 'E' or 'F') during peak hours:



Morning peak hour:

- EBT at the Carling/Kirkwood S intersection
- NBR at the Carling/Kirkwood S intersection
- SBL at the Carling/Kirkwood S intersection

Afternoon peak hour:

- NBL at the Carling/Merivale intersection
- SBR at the Carling/Kirkwood N intersection
- WBT at the Carling/Kirkwood N intersection
- NBL at the Carling/Kirkwood N intersection
- NBT at the Carling/Kirkwood N intersection

The eastbound left-turn queue for total projected 2020 conditions at the Carling/Westgate E intersection is summarized in Table 18.

Table 18: EBLT Queueing at Carling/Westgate E, Projected Total 2020 Conditions

	Eastbound Left-Turn Queue (m) AM Peak (PM Peak)										
Intersection	Available Storage	Average Queue	95 th Percentile Queue								
Carling/Westgate E 80 30(45) 80(#75)											
Note: # and ~ symbols indicate the queue is operation	ng above capacity and queues m	ay not clear intersection durin	Note: # and ~ symbols indicate the queue is operating above capacity and queues may not clear intersection during one signal cycle.								

As shown in Table 18, the average and 95th percentile EBLT queue is projected to fall within existing storage capacity in both morning and afternoon peak hours. However, it is understood from discussions with the City's Traffic Services Department (Signal Operations) that there are times of day currently when the EBLT queue extends beyond available storage. It should be noted that implementing the permissive-protected eastbound left-turn phase in the morning peak will reduce projected queues.

Mitigative Measures

With no changes to the existing six (6) general purpose lanes on Carling along the site's frontage, the projected EBL queue can be mitigated by providing the movement with additional green time (i.e. optimize signal timing).

17.2. MMLOS ANALYSIS - 2020 CONDITIONS

The MMLoS analysis for the study area signalized intersections is summarized in Table 19. The detailed MMLoS analysis is provided as Appendix F. The existing lane configuration is assumed for the 2020 horizon year.

Table 19: MMLoS - Signalized Study Area Intersections, 2020 Horizon Year

				Level o	of Service			(TkLoS) Target						
Intersection	Pedestria	an (PLoS)	Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)							
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target						
Carling/Westgate SC E	F	С	F	С	Е	D	С	D						
Carling/Westgate SC W	Е	С	D	С	С	D	F	D						
Merivale/Westgate SC	С	С	D	С	В	D	С	Е						
Carling/Merivale	F	С	F	С	F	D	С	D						
Carling/Kirkwood N	F	С	Е	С	F	D	D	D						
Carling/Kirkwood S	E	С	F	С	F	D	D	D						

The letters identified in red text in Table 19 do not meet the MMLoS Targets for their designated area (general urban area). At study area intersections, the pedestrian and bicycle target levels of service are not met. The following discussion regarding these modes is provided:

 Pedestrian – High pedestrian level of service is difficult to achieve (PLoS 'A' is impossible to achieve) at signalized intersections. At study area intersections, pedestrians cross 4 to 7 lanes of traffic on Carling Avenue. Prohibiting

right-turn on red or providing advance pedestrian walk phases will also help to improve the PLoS, but will decrease the transit and vehicle levels of service;

- Bicycles While curb-side bike lanes are provided east and westbound along Carling Avenue adjacent to the site, there are no left-turn facilities which results in poor BLoS. Providing left-turn boxes would improve the BLoS to 'A' at intersections along Carling Avenue. However, with the implementation of bike boxes, the right-turn-on-red will need to be prohibited. Another measure could be implementing cross-rides. This measure can be implemented in conjunction with the Carling Transit Priority Study;
- Transit The TLoS is not met at the Carling/Westgate SC E, Carling/Merivale, Carling/Kirkwood N, and Carling/Kirkwood S intersections due to high delays experienced by transit; and,
- Truck The TkLoS is not met at the Carling/Westgate SC W intersection due to only having one receiving lane on the north leg.

17.3. PROJECTED TOTAL 2025 OPERATIONS

The total projected 2025 traffic volumes were derived by superimposing the site-generated traffic volumes onto 2025 background traffic volumes. The resulting total projected 2025 traffic volumes are illustrated in Figure 15.

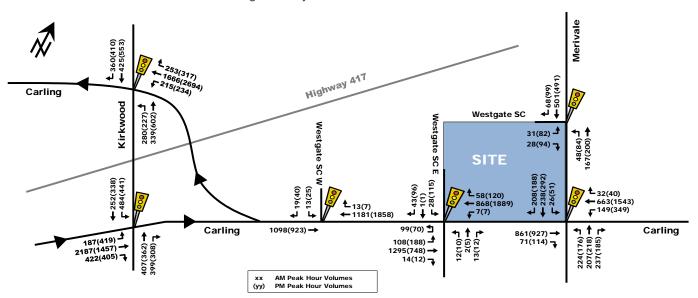


Figure 15: Projected Total 2025 Traffic Volumes

Table 20 provides a summary of the total projected operations at the study area boundary intersections based on the SYNCHRO (V10) traffic analysis software For Phase 1 build out plus 5-year horizon. The SYNCHRO model output of 2025 projected conditions are provided within Appendix I.

Table 20: Projected Total 2025 Performance at Study Area Boundary Intersections

		,	Weekday AM F	Peak (PM Peak)						
Intersection		Critical Movemen	t	Intersection 'as a whole'						
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c				
Carling/Westgate SC E	A(F)	0.50(1.06)	EBL(WBT)	5.1(38.3)	A(F)	0.47(1.06)				
Merivale/Westgate SC	A(B)	0.38(0.69)	SBT(EBL)	4.4(10.9)	A(A)	0.34(0.43)				
Carling/Merivale	E(D)	0.98(1.01)	NBL	29.6(45.2) B(D)		0.68(0.80)				
	A(E)	0.56(1.07)	WBL			0.68(0.89)				
Carling/Westgate SC W	A(B)	0.41(0.69)	WBT(WBT)	2.1(4.4)	A(B)	0.40(0.68)				
	D(F)	0.81(1.11)	WBT							
Corling ///irluuned N	D(F)	0.85(1.10)	SBR	22.0(7.4.8)	D(C)	0.80(4.07)				
Carling/Kirkwood N	D(F)	0.78(1.27)	NBL	32.0(74.8)	D(F)	0.82(1.07)				
	A(F)	0.49(1.09)	NBT							
	F(C)	1.12(0.79)	EBT							
Carling/Kirkwood S	E(D)	0.98(0.84)	NBR	71.0(28.2)	F(C)	1.03(0.80)				
	F(D)	1.08(0.83)	SBL							
Notes: Analysis of intersections Future horizon year timin				, ,						

As shown in Table 20, the study area intersections are projected to operate similar to the background 2025 conditions, with slight increase in delay and capacity ratios due to site traffic. The exception is the westbound through movement at the Carling/Westgate E intersection which is projected to decrease from LoS 'E' to LoS 'F'. It should be noted that to improve WBT operations at the Carling/Merivale intersection, additional through time would be required, which would result in less time for the EBL turn movement. This would degrade the EBL performance and increase potential queues to the extent that the median through lanes could be blocked at times. Mitigative measures for the EBL queueing issues are discussed below.

As mentioned above, the implementation of the transit priority lanes on Carling Avenue reduces the capacity of Carling Avenue as general-purpose lanes are repurposed for transit only. As such, there is an overall reduction in level of service at major intersections along the corridor which results in the increase overall intersection delays and v/c ratios compared to total projected 2020 conditions.

The following critical movements at study area intersection are operating close to or above capacity (LoS 'E' or 'F') during peak hours:

Morning peak hour:

- NBL at the Carling/Merivale intersection
- EBT at the Carling/Kirkwood S intersection
- NBR at the Carling/Kirkwood S intersection
- SBL at the Carling/Kirkwood S intersection

Afternoon peak hour:

- WBT at the Carling/Westgate E intersection
- WBL at the Carling/Merivale intersection
- EBT at the Carling/Merivale intersection
- SBR at the Carling/Kirkwood N intersection
- WBT at the Carling/Kirkwood N intersection
- NBL at the Carling/Kirkwood N intersection
- NBT at the Carling/Kirkwood N intersection

The eastbound left-turn queue for future 2025 conditions at the Carling/Westgate E intersection is summarized in Table 21.

Table 21: EBLT Queueing at Carling/Westgate E, Projected Total 2025 Conditions

Later and an	Eastbound Left-Turn Queue (m) AM Peak (PM Peak)		
Intersection	Available Storage	Average Queue	95th Percentile Queue
Carling/Westgate E	80	10(~50)	40(#105)
Note: # and ~ symbols indicate the queue is operating above capacity and queues may not clear intersection during one signal cycle.			

As shown in Table 21, the 95th percentile EBLT queue is projected to exceed existing storage capacity in the afternoon peak hour. However, a reduction in the EBLT volume by approximately 10% would result in a projected 95th percentile queue length that would consistently fit within the available storage lane. Additionally, should the 6-lane cross section be maintained along the site frontage and the signal timing optimized, the 95th percentile projected eastbound left-turn queue at this location would be approximately 80m, which would not exceed storage capacity.

It is important to consider that future network changes, such as Stage 2 LRT and the Carling Avenue transit priority measures will significantly alter travel patterns in the surrounding region and reduce Carling Avenue vehicle capacity. Projecting future traffic volumes under these conditions is challenging due to the uncertainty of cumulative downstream effects, but the impacts to regional/background traffic should still be considered. In this case, peak hour traffic along Carling Avenue should be expected to decrease over time, with adoption of transit and the reduction of lane capacity, which incentivises people to choose alternative routes. This transit mode share increase is expected to occur beyond the 2025 horizon year of this report.

Mitigative Measures

The cumulative effect of site-generated traffic from the proposed development and other developments in the area will impact operations at the Carling/Westgate E signalized intersection and along Carling Avenue eastbound. With planned transit priority measures in place, should the EBL queue extend beyond the existing storage lane, one eastbound through lane would be blocked leaving a single through lane for general traffic. This would severely impact operations along Carling Avenue eastbound and may result in increased rear-end collisions and general traffic usage of the bus lane.

Once the City has introduced the transit lanes and assuming that taking green time away from the east-west movement along Carling Avenue is not feasible, then possible mitigation measures to be explored by the City at that time could include:

- Option 1: Introduce a new EBLT lane at the Carling/Merivale intersection;
 - This provides an additional access to the site for vehicles travelling from the west;
 - Implementation only requires modifying the existing median on the west leg and removing the EBLT prohibition;
 - It should be noted the EBLT prohibition is in place as historically the NCC had concerns over Island Park Drive being used by drivers attempting to by-pass congestion along Carling Avenue or HWY 417:
 - The EBLT movement at this location would likely need to be fully protected;
 - Consideration could be given to providing additional storage length for the EBLT at this location by reducing the length of the existing WBLT storage serving the Best Western (i.e., Carling/Westgate E intersection) on the premise this auxiliary lane is currently underutilized;
- Option 2: Provide dual EBLT lanes at the Carling/Westgate E intersection;
 - As the EBLT volume is approaching 300 veh/h, dual EBLT lanes would be warranted based on TAC standards:
 - Implementation would require significant geometric design changes along Carling Avenue (e.g. modifying curbs, removal of the bike lanes, need to provide two on-site receiving lanes, removal of on-site lay-by, etc.);

- Option 3: Introduce a new EBLT lane at the Carling/Westgate W intersection;
 - This provides an additional access to the site for vehicles travelling from the west;
 - Implementation would require significant geometric design changes (e.g. modifying curbs, removal of the bike lanes, etc.).

Based on the foregoing, implementing an EBLT lane at the Carling/Merivale intersection is considered the most practical and cost effective mitigative measure, although engagement with the NCC would be necessary. It is recommended that prior to detailed design of the Carling Avenue Transit Priority Plan, the Carling Avenue Corridor west of Merivale Road be reassessed by the City, with updated traffic data, to determine the appropriate lane arrangements.

17.4. MMLOS ANALYSIS - 2025 CONDITIONS

Given the proposed changes to Carling Avenue are solely reassignment of existing lane uses and the lane geometry does not change, the multi-model level of service for these intersections remains the same as total 2020 conditions (Table 19). The projected MMLoS analysis is provided as Appendix F.

18. SUMMARY OF IMPROVEMENTS INDICATED AND MODIFICATION OPTIONS

Based on the results summarized herein, the following findings and conclusions are provided:

Proposed Site

- The proposed development is located within the Westgate Shopping centre at 1309 Carling Avenue and will redevelop the existing restaurant (4,200 ft²) and parking area in the southeast corner by the Carling Avenue and Merivale Road intersection:
- In total, the development will include 203 residential units and approximately 15,940 ft² net increase of retail and restaurant space on the ground floor; and
- The development will be accessed through the existing Westgate Shopping Centre signalized driveway intersections on Carling Avenue and Merivale Road.

Existing and Background Conditions

- A desktop review identified background growth rates of 2.5% for Carling Avenue, 2% for Kirkwood Avenue, and 1.5% for Merivale Road;
- The study area intersections will experience a travel pattern shift due to the closure of the Carling E-E on-ramp to Highway 417 and median modifications at the Carling Avenue and Kirkwood Avenue N intersection; and,
- Overall, the study area intersections 'as-a-whole', are projected to operate acceptably during the peak hours during
 the 2020 and 2025 background horizon years. Exceptions include the Carling/Kirkwood N and Carling/Kirkwood
 S intersections during both horizon years and the Carling/Westgate SC E in during the background 2025 horizon
 year.

Projected Conditions

- Overall, the study area intersections are projected to operate similar to the background conditions during the 2020 and 2025 total horizons;
- With regard to MMLoS street segment targets, the boundary streets meet targets with exception of the pedestrian, cyclist, and transit targets. Improving the BLoS can be done in conjunction to the Carling Transit Priority Study by implementing separated cycle lanes. It would be difficult and expensive to meet the PLoS target as Carling Avenue is a six-lane arterial; and,

- Storage capacity issues are forecasted at the 2025-time horizon year for the eastbound left-turn lane at the Carling/Westgate SC E intersection (if the Carling Transit Priority Plan is implemented and existing travel lanes on Carling Avenue are converted to bus lanes);
 - o The preferred measure to mitigative potential EBLT queues would be to provide an opportunity for the EBLT movement at the Merivale/Carling intersection (assuming sufficient storage length can be provided);
 - At detailed design of the Carling Transit Priority Plan, it is recommended that the Carling Avenue Corridor west of Merivale Road be reassessed, with updated traffic data, to determine the appropriate lane arrangements.

Site Plan

- The number of vehicle and bicycle parking spaces meets the City's minimum By-Law requirement;
- No issues are noted with respect to on-site circulation or truck turning movements; and,
- There are no issues with the existing transit service capacity for the existing or projected total site-generated transit riders.

Based on the foregoing, approval of the proposed Site Plan is recommended from a transportation perspective. However, it is recommended that the eastbound left-turn capacity issue at the site, identified herein, be resolved prior to the start of subsequent phases of development.

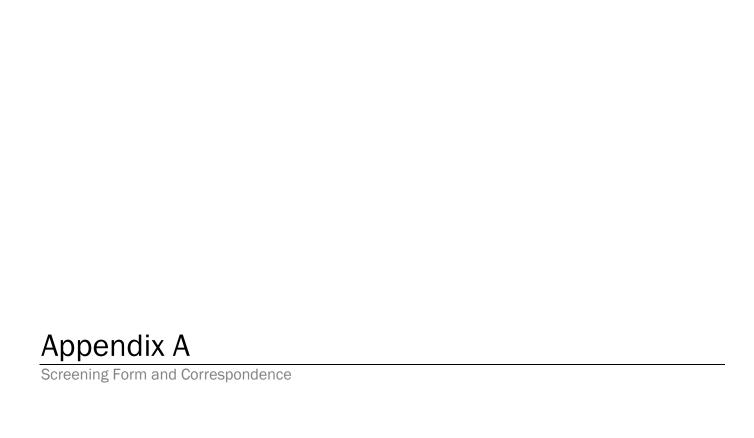
Prepared By:

Rani Nahas, E.I.T. Transportation Analyst

Ra Nol

Reviewed by:

Mark Baker, P.Eng. Senior Transportation Project Manager





City of Ottawa 2017 TIA Guidelines Date 8/27/2018

TIA Screening Form

Project Riocan - Westgate
Project Number 476755

	-3	
Results of Screening	Yes/No	
Development Satisfies the Trip Generation Trigger	Yes	
Development Satisfies the Location Trigger	Yes	
Development Satisfies the Safety Trigger	Yes	

Module 1.1 - Description of Proposed Development	
Municipal Address	1309 Carling Avenue
Description of location	CON 1 OF PT TWP LOT 33 R O W;EASE CARLING W RP5R14579;PARTS 1 5 & 7
Land Use	Residential; Commercial
Development Size	203 aparment units; 21,150 s.f. retail and restaurant
Number of Accesses and Locations	Two existing accesses on Carling Avenue and one existing access on Merivale Road
Development Phasing	N/A
Buildout Year	2020
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	203	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	No
Development is in a Design Priority Area (DPA) or Transit- oriented Development (TOD) zone. (See Sheet 3)	Yes
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	
A proposed driveway is 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) or within auxiliary lanes of an intersection;	No	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	Yes	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	



TRANSPORTATION COMMENTS (July 9, 2019)	PARSONS RESPONSE
Transportation Engineering	
Given the impact of site vehicle traffic on the boundary streets and intersections with	TDM Measures Checklist included in Appendix G.
future phases, the applicant should review more closely Transportation Demand	
Management strategies and submit a TDM Measures Checklist along with the submitted	
TDM supportive development design and infrastructure checklist. Early inclusion of TDM	
strategies to support a shift in modal shares is encouraged.	
We concur that the applicant should explore the removal of the EB LT restriction on	Noted.
Carling Avenue at Merivale Road with the NCC.	
Traffic Signal Operations	
The posted speed limit along Carling Avenue is 60 km/hr.	This has been corrected in the text.
It is understood that Phase 1 of this project does not generate too much traffic and that	Noted.
the eastbound left turn into Westgate will have minimal impact from this phase of the	
development. Future phases will add more impact to the eastbound left turn into the site	
at Westgate and without any other eastbound left turn access, it will be very difficult from	
a signal timing perspective to provide more green time at this only entrance.	
Traffic Signal Design	
If there are any future proposed changes in the existing roadway geometry for the	Noted.
purpose of construction of a new TCS(s) or modifications to existing TCS(s) the City of	
Ottawa Traffic Signal Design and Specification Unit is required to complete a review for	
traffic signal plant re-design and provide the actual re-design.	
If the proposed traffic signals are warranted/approved for installation or modifications to	
existing TCS are approved, and RMA approved, please forward an approved geometry	
detail design drawings (dwg digital format in NAD 83 coordinates) including base mapping,	
existing and new underground utilities/sewers, new/existing catch basins locations, Turn-	
Radius Modeling and approved pavement markings drawings in separate files for detail	
traffic plant design lay out.	
Please send all digital (CADD) design files to Peter.Grajcar@ottawa.ca 613 580 2424 ext.	
23035.	
Transit Services	
Bus Routes 80 and 81 currently service Westgate Mall on-site. There are no short-term	Noted.
plans to modify the routing for this service, but a review will likely be done within the	
scope of Phase 2 LRT network review. In the advent of detours related to construction on-	
site, please coordinate with OC Transpo for detours. No further comments on TIA.	

· · · · · · · · · · · · · · · · · · ·	PARSONS RESPONSE
Transportation Engineering	
As per the Westgate Secondary Plan, the developer is required to:	Noted, proponent to be informed.
2 Construct a cycle track along the entire north side of 1309 Carling Avenue	
frontage in phase two (2) of the development of the Westgate Lands to the	
satisfaction of the General Manager of Planning, Infrastructure and	
Economic Development Department.	
2 Construct a cycle track along the west side of Merivale Road between	
Carling Avenue and Highway 417 underpass in the final phase of the	
development of the Westgate Lands to the satisfaction of the General	
Manager of Planning, Infrastructure and Economic Development	
Department.	
Traffic Signal Operations	
The previous comments below have not been adequately addressed in the analysis:	
The cumulative effect of site generated traffic from proposed developments in	This comment has been included in Section 17.3
the area will impact operations at the Carling Avenue/Westgate E signalized	of the TIA based on discussions with Traffic
intersection and along Carling Avenue Eastbound. With planned Transit Priority	Signals (Leng Ha) 17 May 2019
measures in place, queues extending beyond the existing storage lane will block	
one eastbound through lane, leaving a single lane for general traffic. This will	
severely impact operations along Carling Avenue EB and may result in	
increased rear end collisions and general traffic usage of the bus lane.	
A detailed review of expected EBL queues at the Carling Avenue/Westgate SC	Mitigative measures have been included in both
E intersection relative to the existing available storage is required. Reference	Sections 17.1 and 17.3 of the TIA. Follow-up
the Carling Transit Priority Corridor functional design, which includes an	discussion with Traffic Services (Phil Edens) 23
eastbound bus lane through the intersection of Carling Avenue and Westgate	May 2019 regarding historical NCC influence at
SC W. EBL queues at Carling Avenue/Westgate SC E spilling out of existing	Carling/Merivale intersection.
storage will block one of the two remaining eastbound general traffic lanes.	carmig/ wienvare intersection.
Mitigating measures should be discussed in the report.	
Carling Avenue and Westgate SC E:	
It is difficult to expect reductions in EBL volumes at Carling Avenue and	The comment on page 26 of the TIA has been
Westgate SC E. The TIA report comments on page 26 contradict comments on	clarified within the report. Transit mode shares
page 14 regarding mode shares.	are expected to increase with the construction o
page 14 regarding mode shares.	the Carling Transit Priority Measures over time.
	However these changes in transit mode shares
	are expected to be realized beyond the horizon
	years of this development.
The analysis presented in the updated TIA does not consider or discuss, in the	Consideration to the WBT movement has been
2025 total projected conditions, WB through traffic conditions in the pm (v/c =	included in the 2025 Total Projected Conditions
1.06, LOS F). In terms of signal timing, additional WB through time would be	within the TIA.
required (taken away from the EBL turn movements) to address poor WB	
operations affecting the corridor and in particular the signal at Carling Avenue	
and Merivale Road. This will degrade EBL performance, increase queues and	
result in the issues identified in the first TIA circulation comments.	
Consultant should clarify the "10%" reduction stated on page 26. Does this refer to queue	· ·
length? It should be stated as a required percentage reduction in volumes.	"10%" refers to a reduction in volumes.

Traffic Engineering	
10. Eastbound left turn volumes at Carling Avenue and Westgate E are underestimated as	
mentioned in the previous circulation. Even if U-turns volumes are removed, the site	Figure depicting 1354 Carling Site Generated
generated left turn volumes (from 1354 Carling Avenue) shown in Figure 11 (allocated to	Trips updated to reflect existing turn prohibitions
Carling Avenue and Westgate W and Carling Avenue and Merivale Road) should be	and correct turning movements projected in the
allocated to Carling Avenue and Westgate E. This results in an eastbound left volume	CTS Study. (Figure numbers changed so this
increase of 76 AM (47 PM). Queues will extend beyond existing storage and into the	image is no longer Figure 11).
adjacent signal at Carling Avenue and Westgate W.	
11. The proposed mitigation measure of banning U-turns would likely force the movement to occur onsite and not reduce the volumes using the eastbound left turn lane.	This comment has been revised.
12. The cumulative effect of site generated traffic from proposed developments in the area will impact operations at Carling Avenue and Westgate E and along Carling Avenue Eastbound. With planned Transit Priority measures in place, queues extending beyond the existing storage lane will block one eastbound through lane, leaving a single lane for general traffic. This will severely impact operations along Carling Avenue EB and may result in increased rear end collisions and general traffic usage of the bus lane.	Synchro and queueing analysis results have been revised to address this issue.
13. There is an error in Table 17, PM – WBR v/c=1.05 for Carling Avenue and Westgate E.	Revised.
14. For projected scenarios, if it is assumed transit priority measures are in place on	Carling Transit Priority Measures included in
Carling Avenue, Synchro files and analysis should be revised to reflect the 2-lane general	background 2025 and total future 2025 horizon
traffic configuration.	years.

1. Carling Avenue is designated as an Arterial road within the City's Official Plan with a ROW protection of 44.5 metres. The ROW limits are to be shown on all the drawings and the offset distance (22.25 metres) is to be dimensioned from the existing centerline of pavement. 2. A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Carling Avenue and Merivale Road and is to be dimensioned from the new ROW protection limits. Transit Services TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
ROW protection of 44.5 metres. The ROW limits are to be shown on all the drawings and the offset distance (22.25 metres) is to be dimensioned from the existing centerline of pavement. Noted. Architect to be advised.
the offset distance (22.25 metres) is to be dimensioned from the existing centerline of pavement. 2. A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Carling Avenue and Merivale Road and is to be dimensioned from the new ROW protection limits. Transit Services TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
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2. A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Carling Avenue and Merivale Road and is to be dimensioned from the new ROW protection limits. Transit Services TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
Avenue and Merivale Road and is to be dimensioned from the new ROW protection limits. Transit Services TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
Avenue and Merivale Road and is to be dimensioned from the new ROW protection limits. Transit Services TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
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TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
TIA Section 3.3 3. In addition to the figure showing the area transit network, a diagram illustrating the
3. In addition to the figure showing the area transit network, a diagram illustrating the
3. In addition to the figure showing the area transit network, a diagram illustrating the
Included as Figure 4.
locations of nearby bus stops should also be included.
TIA Section 16
4. Where did the forecasted 'new' two-way transit trips reported in Section 16.1 come Section 16.1 was not updated for the Step 5
from? These do not match the figures reported in Section 9.1 (Table 10: Net Total Site submission. It has been revised for this currer
Person-Trip Generation). submission.
5. Table 10 reports 60 (AM) and 86 (PM) new transit trips per hour. Peak period service is
planned to operate eleven trips per hour across three different routes. This could
translate to six or seven additional customers per bus, with some trips at popular times
attracting even more. For routes that are already well used in peak periods, such as Acknowledged in TIA, Section 16.1
Routes 80 and 85, this may be enough new demand to warrant an increased level of
service.
6. For future reference, while the real full capacity of a bus may be higher, OC Transpo
currently employs the following Council-approved capacity standards:
7. During peak periods, during the busiest hour and point along the route, frequency of
service is planned so that there are, on average, 45 customers on board standard 40-foot
buses, 70 customers on board articulated buses, and 90 customers on board double-
decker buses.
Site Plan
8. In conjunction with the implementation of the Carling Avenue Transit Priority Measures
project, targeted for completion by the end of 2019, the existing bus stop for Carling
westbound at Merivale Road may be relocated to the west side of the intersection, Noted. Architect to be advised.
adjacent to this development. OC Transpo may require the owner to construct a concrete
bus shelter pad in the City right-of-way.
9. In the northeast portion of the site, OC Transpo requests that the existing concrete
sidewalk at the southwest corner of the Merivale Road / Shopping Centre roadway
intersection be extended westward to provide a continuous sidewalk connection between Noted. Architect to be advised.
Merivale Road and the OC Transpo stop.

The updated TIA report implies that the congestion issues should be resolved as part of Noted. the Carling Transit Priority project. However, this was raised as part of the Transit Priority Project and the response from Transit Planning is below for your reference. Carling Avenue and Westgate East Entrance Traffic Engineering concern: 8. Recent development circulations show expected eastbound left turn volumes in the range of approximately 237-365 veh/hr during peaks with 100-150 m queues beyond existing storage. The proposed design should be reviewed in relation to the development of Westgate Mall. With a curbside bus lane, Carling Avenue will effectively be reduced to 1 eastbound through lane. Transit Planning response: 9. Any road modifications approved through the Development Review process can be incorporated into the bus lane design, if the timeframes are suitable. The bus lane project itself does not include any physical modifications, but modifications by others can be incorporated if known in time. 10. Please include Signals Design (Peter Grajcar) and Traffic Signal Operations (Leng Ha) in any further design discussions related to bike facilities through the 4 signals in the area (one signal was either missed or tie-in to existing not considered in the proposed designs). **Traffic Signal Design** Traffic Signal Design and Implementation Unit provided comments on March 13, 2019 to Development Review Branch.

The following summary is provided:

Existing underground utilities at the corner quadrants of this intersection are rather saturated.

Signal pole locations must be AODA compliant.

12 The submitted design will require modifications (TWSI placement and surface treatment changes) to meet City design requirements.

Noted, proponent to be informed.





Transportation Services - Traffic Services Wa Turning Movement Count - Full Study Peak Hour Diagram	KIRKWOOD AVE N @ CARLING AVE Survey Date: Wednesday, May 04, 2016 Start Time: 07:00 Device: Milovision	Heavy Heavy September Heavy September Heavy September Heavy September September	AM Period 0 0 0 A Period 0 0 A Period	(a) (a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	lents
Ottawa Turning	Survey Date: Wedness Start Time: 07:00	Total He Ve	CARLING AVE 1757 1759 2 2 2 0 2	° 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Comments



Transportation Services - Traffic Services Turning Movement Count - Full Study Peak Hour Diagram KIRKWOOD AVE N @ CARLING AVE

WO No: 35895 Device: Miovision	S S E E C C C C C C C C C C C C C C C C	310 5 315	Cars Heavy Vehicles Total
Survey Date: Wednesday, May 04, 2016 Start Time: 07:00	Total Heavy Vehicles 4 13 0 0 11	Full Study Full Study 16:45 17:45	##

Comments

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Turning Movement Count - Full Study Peak Hour Diagram

KIRKWOOD AVE N @ CARLING AVE

11 55 ***** 165 1 Total 303 **₽**₽ ~ ≷ **ॐ *** Cars 1022 253 0 **₹** 710 t - 21 420 428 ∞ <u>ح</u> KIRKWOOD AVE N 1425 652 11:45 12:45 Peak Hour: MD Period Ł 213 Ξ 224 Ç 1306 **± 4** 69 385 374 Ξ ٦ 654 **+** 13 296 ภ 4 627 27 1531 Cars ***** Heavy Vehicles **€**. **%**† Total CARLING AVE 0 0 * ***** 1612 1612

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Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

KIRKWOOD AVE N @ CARLING AVE

35895

WO No:

Survey Date: Wednesday, May 04, 2016

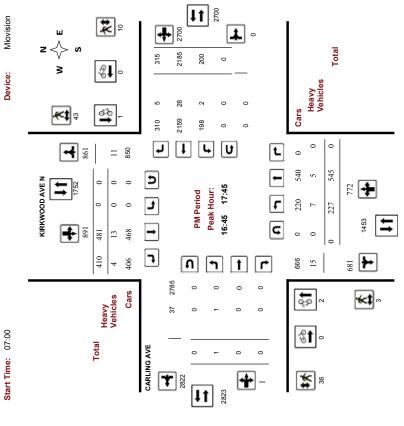
Miovision

35895

WO No: Device:

Survey Date: Wednesday, May 04, 2016

Start Time: 07:00



Comments

Comments

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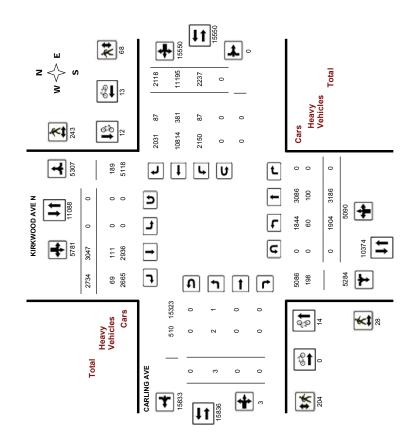


Turning Movement Count - Full Study Diagram

KIRKWOOD AVE N @ CARLING AVE

Survey Date: Wednesday, May 04, 2016

Device: Miovision



Comments

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Transportation Services - Traffic Services

Work Order 35895

Turning Movement Count - Full Study Summary Report KIRKWOOD AVE N @ CARLING AVE

Northbound Nosthbound Nos	Survey Date:	ate:	Wednesday, May 04, 2016	sday,	May 0	4, 201	9			Total (Observ	ed U	Total Observed U-Turns					AAD	AADT Factor	ō
NG AVE								_	Northbou Eastbou			South	:ponnq:	0 0				06.		
NA A A A A A A A A A									ш.	ıll St	ndy									
Mostbound Most				조	WOOL) AVE	z						CA	3LIN	3 AVE					
EB LT ST RT WDB 01 314 744 156 1274 2 343 1038 231 1612 0 317 984 270 1646 0 226 1008 290 1628 0 204 1993 290 2871 1 234 2008 329 2571 1 234 2008 329 2571 0 1195 2119 1550 0 0 3 2323 11195 218 1550 0 3 2323 11195 218 1543 1 234 3109 15501 294 21614 1.39 14005 2650 19453 1413 1.39 14005 2650 19453 1413 3.04 18346 3471 25483 1413 3.06 18346 3471 25483	-		Northbo	punc		S	outhb	punc				Eastbo	pund			Westbo	punc			
2 343 744 156 1274 2 343 1038 231 1612 0 317 984 210 1511 0 268 1108 290 1666 0 208 1034 286 1628 0 204 1993 292 2871 1 234 2008 329 2571 1 234 2008 329 2571 0 0 0 0 0 3 2237 11195 2118 15550 1 3 1237 1195 218 16560 3 2337 1195 218 16560 1413 4 1099 14005 2650 19453 1405 3 266 18346 347 25483 1405 1405 3 366 18346 347 25483 1405 1405 1405 1405<	Period	5		R	NB TOT	5	ST	R	SB TOT	STR TOT	╘	ST	RT	EB 101	5	ST	R	TOT	STR TOT	Grand Total
2 343 1038 231 1612 0 317 984 20 1511 0 268 1108 290 1666 0 308 1034 286 1628 0 204 1993 290 287 1 189 286 326 2801 1 234 2008 329 2571 0 0 0 0 0 1 234 11195 2118 15550 0 3 2237 11195 2118 15550 1 4 109 15561 2944 21614 1.39 4 209 14005 2650 19453 3 2378 14005 2650 19453 3 266 1834 347 25483 3 266 1834 347 25483	00:00 08:00	244		0	498	0	278	254	532	1030	0	0	0	0	374	744	156	1274	1274	2304
0 317 984 20 1511 0 268 1108 290 1666 0 308 1034 286 1628 0 204 1993 290 2487 0 189 2286 326 2801 1 234 2008 329 2571 0 0 0 0 0 1 3 2237 11195 2118 15550 0 1 15561 2944 21614 4 3109 15561 2948 21614 1.39 4 2798 14005 2650 19453 .90 .90 .871 2548 2548 2548 1.31 .3366 18346 347 25483	00:60 00:80	288		0	576	0	403	397	800	1376	2	0	0	2	343	1038	231	1612	1614	2990
10 268 1108 290 1666 1628	00:00 10:00	232		0	009	0	292	298	290	1190	0	0	0	0	317	984	210	1511	1511	2701
103 1034 286 1628 16	11:30 12:30	223		0	654	0	363	307	929	1324	0	0	0	0	268	1108	290	1666	1666	2990
189 200 2487 24	12:30 13:30	226		0	632	0	391	320	711	1343	0	0	0	0	308	1034	286	1628	1628	2971
1 234 2008 326 2801	15:00 16:00	247		0	189	0	421	373	794	1481	0	0	0	0	204	1993	290	2487	2487	3968
1 234 2008 329 2571 3 2237 11195 2118 15680 0 0 0 0 0 3 2237 11195 218 15680 4 3109 15561 2944 21614 4.39 14005 2650 19453 90 347 25483 1.31 1.34	16:00 17:00	228		0	719	0	408	394	802	1521	0	0	0	0	189	2286	326	2801	2801	4322
2237 11195 2118 15550 0 0 0 0 3 2237 11195 2118 15550 1.39 15561 2944 21614 1.39 14005 2650 19453 90 18346 3471 25483 1.31	17:00 18:00	216		0	724	0	491	391	882	1606	-	0	0	-	234	2008	329	2571	2572	4178
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sub Total	1904		0	2090	0	3047	2734	5781	10871	3	0	0	3	2237	11195	2118	15550	15553	26424
3 2237 11195 2118 15560 1.39 15561 2944 21614 1.39 14005 2650 19453 .90 18346 3471 25483 1.31	U Turns				0				0	0				0				0	0	
1.39 15561 2944 21614 1.39 11005 2650 19453 30 30 18346 3471 25483 1.31 1.31 26483 26483	Total	1904		0	2090	0	3047	2734	5781	10871	3	0	0	3	2237	11195	2118	15550	15553	26424
1.39 4 2798 14005 2650 19453 5 3666 18346 3471 25483 1.31	E0 12Hr	2647	4429	0	7075	0	4235	3800	9039	15111	4		0	4	3109	15561	2944	21614	21618	36729
30 19453 - 30 19453 - 30 3471 25483 1.31	Note: These	values	are calcul	ated by	multiply	ing the	totals b	y the ap	propriat	e expan	sion fact	Ä.		_	39					
5 3666 18346 3471 25483 1.31	AVG 12Hr Note: These	2382 volume	3986 ss are calc	0 ulated	6368 by multip	0 lying th	3812 e Equiv	3420 alent 1;	7232 2 hr. tota	13600 Is by the	4 AADT f	0 actor.	0	4	2798	14005	2650	19453	19457	33057
	AVG 24Hr	3120		0	8342	0	4993	4481	9474	17816	5	0	0	2	3999	18346		25483	25488	43304
	Note: These	volume	s are calc	ulated	by multip	lying th	e Avera	ige Dail	y 12 hr.	totals by	12 to 24	expans	sion facto		.31					

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



The transmission The transmi	#	TA A	_		<u>ran</u>	sp	orta	tior	Š	Transportation Services	Ses		- Traffic Services	<u>S</u>	ēZ	ice		W.O.	356	35895
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6 6 6 6 6 7 7 6 7	07:30	4	72	0	118	0	92	64	140	258	0	0	0	0	85	188	33	306	306	564
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14 14<	08:00	29	81	0	148	0	82	85	167	315	0	0	0	0	133	244	61	438	438	753
44 44<	08:15	72	2	0	142	0	126	109	235	377	0	0	0	0	80	180	4	301	301	829
44 5 44 5 44 5 44 5 44 5 44 5 44 5 44 5 44 5 44 6 6 6 6 6 44 6 6 6 44 6 6 74 44 74	08:30	63	69	0	132	0	8	93	177	309	7	0	0	7	88	295	61	444	446	755
44 44<	08:45	8	92	0	146	0	130	119	249	395	0	0	0	0	72	273	62	407	407	802
44 86 6 6 7 7 7 7 7 7 90 0 0 0 0 0 1 2 1 35 30 30 30 0<	00:60	72	8	0	156	0	63	92	139	295	0	0	0	0	103	290	29	460	460	755
41 1	09:15	8	88	0	153	0	75	72	147	300	0	0	0	0	73	259	61	393	393	693
48 10 11 1 12 12 14 318 0 0 0 0 10 12 24 318 10 0 0 0 0 10	06:60	\$	8	0	135	0	89	29	135	270	0	0	0	0	95	226	26	374	374	644
4 5 6 7 7 7 8 7 4 302 6 6 7 24 36	09:45	99	108	0	174	0	72	72	144	318	0	0	0	0	62	258	22	392	392	710
43 43 73 46 334 6 6 75 75 76 334 6 6 75 75 76 334 6 6 75 <td>10:00</td> <td>48</td> <td>06</td> <td>0</td> <td>138</td> <td>0</td> <td>1</td> <td>87</td> <td>164</td> <td>302</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>73</td> <td>241</td> <td>38</td> <td>352</td> <td>352</td> <td>654</td>	10:00	48	06	0	138	0	1	87	164	302	0	0	0	0	73	241	38	352	352	654
43 43<	11:45	62	109	0	171	0	83	77	160	331	0	0	0	0	65	275	26	396	396	727
4 4	12:00	63	120	0	183	0	98	20	156	339	0	0	0	0	29	301	72	432	432	171
47 165 6 6 6 6 6 24 75 378 378 83 106 6 166 16 17 184 333 346 6 6 246 69 361 381 381 49 106 148 0 166 366 366 26 26 26 361 381 412 <t< td=""><td>12:15</td><td>21</td><td>26</td><td>0</td><td>148</td><td>0</td><td>85</td><td>42</td><td>161</td><td>309</td><td>0</td><td>0</td><td>0</td><td>0</td><td>85</td><td>285</td><td>06</td><td>460</td><td>460</td><td>692</td></t<>	12:15	21	26	0	148	0	85	42	161	309	0	0	0	0	85	285	06	460	460	692
43 10 1 43 353 0 0 0 0 0 6 246 36 381 381 43 36 1 46 36 36 36 0	12:30	47	105	0	152	0	112	81	193	345	0	0	0	0	29	247	72	378	378	723
48 6 6 7 6 7 7 4	12:45	63	106	0	169	0	105	42	184	353	0	0	0	0	99	246	69	381	381	734
6 11 0 11 0 11 0 11 0 12 369 369 0 0 0 0 0 10 20 20 20 0 0 0 0 10 10 20 42 42 42 42 42 42 30 0 <td>13:00</td> <td>49</td> <td>66</td> <td>0</td> <td>148</td> <td>0</td> <td>95</td> <td>92</td> <td>168</td> <td>316</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>98</td> <td>250</td> <td>9/</td> <td>412</td> <td>412</td> <td>728</td>	13:00	49	66	0	148	0	95	92	168	316	0	0	0	0	98	250	9/	412	412	728
44 6 74 </td <td>13:15</td> <td>09</td> <td>113</td> <td>0</td> <td>173</td> <td>0</td> <td>109</td> <td>87</td> <td>196</td> <td>369</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>20</td> <td>284</td> <td>89</td> <td>422</td> <td>422</td> <td>191</td>	13:15	09	113	0	173	0	109	87	196	369	0	0	0	0	20	284	89	422	422	191
40 11 6 11 6 11 12 21 391 6 6 6 6 6 6 6 6 6 6 6 6 7 6 7 6 7 7 7 7 7 1 2 1 1 2 1 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 3 3 3 3 3 3 3 3	13:30	22	88	0	142	0	82	78	163	305	0	0	0	0	98	254	73	413	413	718
4.0 1.0 <td>15:15</td> <td>99</td> <td>113</td> <td>0</td> <td>179</td> <td>0</td> <td>110</td> <td>102</td> <td>212</td> <td>391</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>29</td> <td>429</td> <td>88</td> <td>929</td> <td>976</td> <td>296</td>	15:15	99	113	0	179	0	110	102	212	391	0	0	0	0	29	429	88	929	976	296
49 108 0 145 0 128 110 238 395 0 0 0 4 523 54 621	15:30	11	109	0	186	0	100	96	196	382	0	0	0	0	28	464	89	620	620	1002
45 110 0 165 0 183 65 148 313 0 0 0 0 6 <	15:45	49	108	0	157	0	128	110	238	395	0	0	0	0	44	523	25	621	621	1016
31 11 0 165 0 11 16 0 11 16 11 16 381 0 <	16:00	22	110	0	165	0	83	65	148	313	0	0	0	0	43	547	80	670	029	983
42 124 0 48 0 <td>16:15</td> <td>23</td> <td>112</td> <td>0</td> <td>165</td> <td>0</td> <td>105</td> <td></td> <td>216</td> <td>381</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>22</td> <td>571</td> <td>69</td> <td>969</td> <td>969</td> <td>1076</td>	16:15	23	112	0	165	0	105		216	381	0	0	0	0	22	571	69	969	969	1076
42 144 0 48 88 88 48 332 0 0 0 42 58 58 721 721 72<	16:30	89	121	0	189	0	66	87	186	375	0	0	0	0	48	258	16	269	269	1072
65 154 0 219 0 106 108 214 433 0 0 0 0 4 5 72 688 688 688 688 68 134 0 134 0 145 0 15 10 10 10 10 10 10 10 10 10 10 10 10 10	16:45	45	104	0	146	0	86	88	186	332	0	0	0	0	45	585	8	721	721	1053
50 134 0 184 0 106 100 390 1 0 0 1 39 540 82 661 662 55 121 0 176 0 130 90 20 396 0 0 0 0 51 590 89 730 730 57 136 0 139 112 251 444 0 0 0 66 483 72 621 621 4 117 0 116 89 306 306 90 0 0 0 0 66 483 72 621 621	17:00	92	2	0	219	0	106	108	214	433	0	0	0	0	44	572	72	688	889	1121
55 121 0 176 0 130 90 220 396 0 0 0 0 51 590 89 730 730 510 136 0 138 0 139 112 251 444 0 0 0 0 66 483 72 621 621 621 621 117 0 171 0 116 89 205 375 0 0 0 0 0 78 355 86 559 559	17:15	20	434	0	184	0	106	100	206	390	-	0	0	-	39	540	82	661	662	1052
57 136 0 193 0 139 112 251 444 0 0 0 0 6 483 72 621 621 51 54 117 0 171 0 116 89 205 376 0 0 0 78 385 86 589 589	17:30	22	121	0	176	0	130	06	220	396	0	0	0	0	21	290	68	730	730	1126
54 117 0 171 0 116 89 205 376 0 0 0 0 7 8 395 86 559 559	17:45	22	136	0	193	0	139	112	251	44	0	0	0	0	99	483	72	621	621	1065
	18:00	\$	117	0	171	0	116	88	205	376	0	0	0	0	78	395	98	559	929	935

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Note: U-Turns are included in Totals.



Transportation Services - Traffic Services Ottawa Turning Movement Count - Cyclist Volume Report

Work Order

Count Da	ate: Wednesda	Count Date: Wednesday, May 04, 2016				Start Time: 07:00	00:20
	Z	KIRKWOOD AVE N	z		CARLING AVE		
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 08:00	2	0	2	0	-	-	3
08:00 09:00	0	2	2	0	-	-	8
09:00 10:00	0	ဇ	က	0	-	-	4
11:30 12:30	ဗ	0	က	0	-	-	4
12:30 13:30	-	_	7	0	-	-	8
15:00 16:00	ဇ	ဇ	9	0	2	9	1
16:00 17:00	-	2	က	0	2	2	ιo
17:00 18:00	4	-	ĸ	0	-	-	9
Total	14	12	26	·	13	13	39

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

2017-Mar-17

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W.O. 35895

Turning Movement Count - Heavy Vehicle Report

KIRKWOOD AVE N @ CARLING AVE

Wednesday, May 04, 2016

Survey Date:

		Grand Total	131	128	148	130	114	110	82	54	897	0	897
		STR (85	7	94	82	77	99	25	30	292	0	292
		V TOT	85	92	8	82	4	99	25	59	222	0	222
	i	RT	12	10	13	4	80	15	7	4	87		87
	pund	ST	22	49	89	52	53	43	32	24	381		381
ш	Westbound	LT	16	=	13	16	16	80	9	-	87		87
CARLING AVE		тот	0	-	0	0	0	0	0	-	2	0	2
RLIN		RT	0	0	0	0	0	0	0	0	0		0
Ö	punc	ST	0	0	0	0	0	0	0	0	0		0
	Eastbound	LT	0	-	0	0	0	0	0	-	2		2
		~ _											
	l	STR TOT	46	57	54	48	37	4	30	24	340	0	340
	l	S STE TOT TOT	18 46	30 57	33 54	25 48	24 37	21 44	16 30	13 24	180 340	0 0	180 340
	! I												
	puno	S TOT	18	30	33	25	24	21	16	13	180		180
NII	Southbound	LT ST RT S	9 18	08 6	10 33	14 25	11 24	9 21	4 16	3 13	69 180		69 180
D AVE N	Southbound	ST RT S	9 9 18	21 9 30	10 33	11 14 25	11 24	12 9 21	4 16	10 3 13	111 69 180		111 69 180
WOOD AVE N	Southbound	LT ST RT S	0 9 9 18	0 21 9 30	0 23 10 33	0 11 14 25	0 13 11 24	0 12 9 21	0 12 4 16	0 10 3 13	0 111 69 180	0	0 111 69 180
KIRKWOOD AVE N		N LT ST RT S	28 0 9 9 18	27 0 21 9 30	0 23 10 33	23 0 11 14 25	13 0 13 11 24	23 0 12 9 21	14 0 12 4 16	11 0 10 3 13	160 0 111 69 180	0 0	0 0 111 69 180
KIRKWOOD AVE N		RT N LT ST RT ST TOT	0 28 0 9 9 18	0 27 0 21 9 30	0 21 0 23 10 33	11 12 0 23 0 11 14 25	0 13 0 13 11 24	0 23 0 12 9 21	14 0 12 4 16	0 11 0 10 3 13	0 160 0 111 69 180	0 0	0 0 0 111 69 180
KIRKWOOD AVE N	Northbound Southbound	ST RT N LT ST RT ST TOT	19 0 28 0 9 9 18	17 0 27 0 21 9 30	17 0 21 0 23 10 33	12 0 23 0 11 14 25	5 0 13 0 13 11 24	17 0 23 0 12 9 21	14 0 12 4 16	6 0 11 0 10 3 13	100 0 160 0 111 69 180	0	100 0 0 0 1111 69 180

Ottawa

Transportation Services - Traffic Services

Work Order 35895

Turning Movement Count - Pedestrian Volume Report

		KIR	(MOOD)	KIRKWOOD AVE N @ CARLING AVE	LING AVE		
Count Dat	Count Date: Wednesday, May 04, 2016	May 04, 2016				Start Time:	00:20
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	0	1	0	,	1
07:15 07:30	-	_	7	2	-	9	80
07:30 07:45	0	2	7	4	2	9	80
07:45 08:00	-	12	13	7	_	80	21
07:00 08:00	2	15	17	17	4	21	38
08:00 08:15	1	11	12	7	9	10	22
08:15 08:30	0	10	10	4	0	4	4
08:30 08:45	2	2	7	4	2	9	13
08:45 09:00	-	1	12	80	2	10	22
08:00 09:00	4	37	41	23	7	30	7.1
09:00 09:15		10	10	4	-	2	15
09:15 09:30		4	4	ဇ	_	4	80
09:30 09:45	0	16	16	80	0	80	24
09:45 10:00	-	80	6	6	က	12	21
09:00 10:00	1	38	39	24	2	29	89
11:30 11:45	-	89	6	4	-	2	14
11:45 12:00	2	6	41	2	9	11	25
12:00 12:15	0	က	က	8	2	22	80
12:15 12:30	0	4	4	2	0	2	9
11:30 12:30	9	24	30	14	6	23	53
12:30 12:45	-	2	9	7	-	8	14
12:45 13:00	-	80	6	က	က	9	15
13:00 13:15	0	6	6	7	-	80	17
13:15 13:30	-	6	10	10	4	4	24
12:30 13:30	3	31	34	27	6	36	20
15:00 15:15	0	9	9	8	2	13	19
15:15 15:30	-	9	7	6	-	10	17
15:30 15:45	-	80	6	6	4	13	22
15:45 16:00	-	7	80	12	ဇ	15	23
	3	27	30	38	13	51	81
16:00 16:15	0	2	2	4	2	9	8
16:15 16:30		12	15	1	4	15	30
16:30 16:45		80	1	9	2	80	19
16:45 17:00	0	11	7	2	_	9	17
16:00 17:00	9	33	39	26	6	35	74
17:00 17:15	1	14	15	8	3	11	26
17:15 17:30	0	80	80	6	0	6	17
17:30 17:45		10	12	41	9	20	32
17:45 18:00	0	9	9	4	3	7	13
17:00 18:00	3	38	41	35	12	47	88
Total	28	243	271	204	89	272	543

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Work Order 35895

Turning Movement Count - Pedestrian Volume Report

		KIR	KWOOD /	KIRKWOOD AVE N @ CARLING AVE	LING AVE		
Count Dat	Count Date: Wednesday, May 04, 2016	, May 04, 2016				Start Time:	00:20
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	0	1	0	-	1
07:15 07:30	-	_	7	2	-	9	80
07:30 07:45	0	2	2	4	2	9	80
07:45 08:00	-	12	13	7	-	8	21
	2	15	17	17	4	21	38
08:00 08:15	1	11	12	7	3	10	22
08:15 08:30	0	10	10	4	0	4	4
08:30 08:45	2	2	7	4	2	9	13
08:45 09:00	-	1	12	80	2	10	23
00:60 00:80	4	37	41	23	7	30	71
09:00 09:15	0	10	10	4	+	2	15
09:15 09:30	0	4	4	ო	-	4	œ
09:30 09:45	0	16	16	80	0	8	24
09:45 10:00	-	80	6	6	က	12	21
09:00 10:00	1	38	33	24	2	29	89
11:30 11:45	-	8	6	4	٢	2	14
11:45 12:00	2	6	4	2	9	7	52
	0	က	ო	က	2	2	80
12:15 12:30	0	4	4	2	0	7	9
11:30 12:30	9	24	30	14	6	23	53
12:30 12:45	1	2	9	7	1	8	14
12:45 13:00	-	80	6	က	က	9	15
	0	6	6	7	-	80	17
13:15 13:30	_	6	10	10	4	41	24
12:30 13:30	က	31	34	27	6	36	20
15:00 15:15	0	9	9	8	2	13	19
	_	9	7	6	-	10	17
15:30 15:45	_	80	6	6	4	13	23
15:45 16:00	-	7	œ	12	က	15	23
15:00 16:00	3	27	30	38	13	51	81
	0	2	2	4	2	9	8
	က	12	15	1	4	15	30
	က	80	7	9	2	80	19
16:45 17:00	0	#	£	2	-	9	17
16:00 17:00	9	33	39	26	6	35	74
	_	14	15	8	3	11	56
17:15 17:30	0	80	80	6	0	6	17
	7	10	12	4	9	20	32
17:45 18:00	0	9	9	4	3	7	13
17:00 18:00	3	38	41	35	12	47	88
Total	. 28	243	271	204	89	272	543

2017-Mar-17

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Transportation Services - Traffic Services

Work Order 35895

Turning Movement Count - 15 Min U-Turn Total Report

KIRKWOOD AVE N @ CARLING AVE

Survey Date:		Wednesday, May 04, 2016	1, 2016			
Time	Time Period	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
00:20	07:15	0	0	0	0	0
07:15	02:30	0	0	0	0	0
02:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	00:60	0	0	0	0	0
00:60	09:15	0	0	0	0	0
09:15	06:30	0	0	0	0	0
08:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Tc	Total	0	0	0	0	0

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Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE S

35894 Miovision

WO No: Device:

Survey Date: Wednesday, May 04, 2016

Start Time: 07:00

24 95 T *****0 1 Total **&**\$\display ≷ Heavy Vehicles 83 **ॐ *** 2402 13 326 **₹** 25 531 349 20 369 <u>ح</u> د KIRKWOOD AVE S 1331 0 807 07:45 08:45 AM Period Peak Hour: 319 336 17 Ł 0 0 0 1334 **±** ς **♣** 52 439 427 12 ٦ **€**56 ภ 1 4 209 19 175 180 Cars **≮\$** ₽ Heavy Vehicles **₹**0 **%**1 -Total 1820 187 CARLING AVE 187 2194 32 ***** 2194

Ottav

Transportation Services - Traffic Services

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

2495 *****0 Miovision 35894 1 2495 Total **₽**. ≷ Device: WO No: Heavy Vehicles 93 **ॐ** Cars **≪**‡ 2402 326 13 339 531 Ţ ₹ 38 25 349 20 369 <u>ح</u> KIRKWOOD AVE S 1331 80 💠 07:45 08:45 Peak Hour: Full Study t 319 17 336 0 0 Ç 1334 **♣** 577 439 427 12 0 0 ٦ **4** Survey Date: Wednesday, May 04, 2016 209 រា 4 19 175 Cars **€**\$0 ***<**‡ ₽ Heavy Vehicles Start Time: 07:00 \$1 Total CARLING AVE 1820 187 187 2194 **4 Ж *** 11 2194

Comments

Comments

2017-Mar-08

2017-Mar-08

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Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ KIRKWOOD AVE S

1532 * Miovision 35894 **₽**↓-≷ WO No: Device: 8 **ॐ** Cars *****\$ 1451 10 226 216 Ł ₹ 🗗 18 625 292 300 <u>ح</u> د KIRKWOOD AVE S 1297 \$26 11:45 12:45 MD Period Peak Hour: t 306 295 0 1145 **±** Ç **♣** 654 347 19 328 ٦ 619 Survey Date: Wednesday, May 04, 2016 ภ ٢ 591 28 332 940 263 Cars *****\$ Heavy Vehicles **←** ∘ 90 **\$**1 Start Time: 07:00 Total 1000 272 CARLING AVE 342 1614 % Q ***** 1614

Ottawa

Transportation Services - Traffic Services

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

170Z *****0 Miovision 35894 1 1702 **Z**I-≷ Device: WO No: **ॐ** Cars **≪**‡ 1663 U 252 258 L 4 4 10 737 323 328 <u>ح</u> د KIRKWOOD AVE S **★** 989 16:45 17:45 Peak Hour: PM Period t 307 311 0 0 Ç 1288 **♣** 889 372 362 2 0 0 ٦ Survey Date: Wednesday, May 04, 2016 **→** 102 681 4 រា 21 110 Cars **€ *<**‡ ₹ Heavy Vehicles Start Time: 07:00 18 t Total 1133 CARLING AVE 330 419 1882 **₩** 8 ***** 11 1882

Comments

Comments

2017-Mar-08

2017-Mar-08

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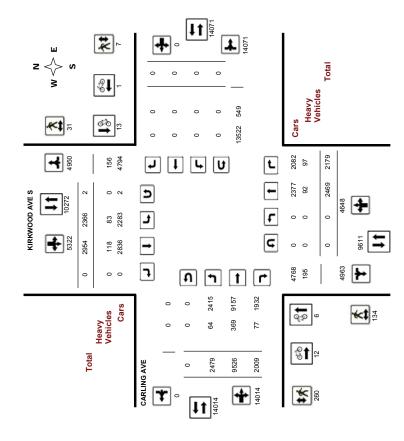


Turning Movement Count - Full Study Diagram

CARLING AVE @ KIRKWOOD AVE S

Survey Date: Wednesday, May 04, 2016

Device: Miovision



Comments

2017-Mar-08

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Transportation Services - Traffic Services

Ottawa

Work Order 35894

Turning Movement Count - Full Study Summary Report

CARLING AVE @ KIRKWOOD AVE S

and the family framework that the family	;		,	5	:	,			ola	asac	nen o	Iodal Observed 0-1 urils	S)				Y Y	AADI FACTOR	5
							2 =	Northbound: Eastbound:	0 :pur		Sour	Southbound: Westbound:					06:		
								ш.	Full Study	ndy									
			KIRK	KIRKWOOD AVE S	AVE	S						Ö	ARLIN	CARLING AVE					
l	Z	Northbound	punc		S	Southbound	pun	ĺ	•		Eastbound	puno		_	Westbound	pund			
Period	5	ST	R	NB TOT	₽	ST	RI	SB TOT	STR TOT	5	ST	R	10T	h	ST	R	WB TOT	STR TOT	Grand Total
07:00 08:00	0	296	279	575	250	414	0	999	1239	202	1435	181	1818	0	0	0	0	1818	3057
00:60 00:80	0	358	338	969	333	407	0	740	1436	214	1767	186	2167	0	0	0	0	2167	3603
00:00 10:00	0	281	241	522	274	336	0	610	1132	288	1086	190	1564	0	0	0	0	1564	2696
11:30 12:30	0	288	234	522	292	330	0	622	1144	320	1018	274	1642	0	0	0	0	1642	2786
12:30 13:30	0	270	210	480	310	393	0	703	1183	354	466	223	1574	0	0	0	0	1574	2757
15:00 16:00	0	332	296	628	325	325	0	920	1278	320	1102	264	1716	0	0	0	0	1716	2994
16:00 17:00	0	350	338	889	265	338	0	903	1291	307	1045	329	1711	0	0	0	0	1711	3002
17:00 18:00	0	294	243	537	317	411	0	728	1265	414	1076	332	1822	0	0	0	0	1822	3087
Sub Total	0	2469	2179	4648	2366	2954	0	5320	8966	2479	9256	2009	14014	0	0	0	0	14014	23982
U Turns				0				2	2				0				0	0	
Total	0	2469	2179	4648	2366	2954	0	5322	0266	2479	9526	2009	14014	0	0	0	0	14014	23984
EQ 12Hr	0	3432	3029	6461	3289	4106	0	7398	13859		3446 13241	2793	19479	0	0	0	0	19479	33338
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.	ilues ar	e calcul	lated by	multiply	ing the	totals by	the ap	propriat	e expan	sion fac	tor.		-	1.39					
AVG 12Hr 0 3089 2726 5815 2960 3695 0 6658 12473 3101 11917 Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.	0 Inmes	3089 are calci	2726 sulated b	5815 by multip	2960 olying th	3695 e Equiva	0 llent 12	6658 hr. tota	12473 Is by the	3101 AADT	11917 factor.	2513	17532	0 06:	0	0	0	17532	30005
AVG 24Hr	0	4046	3571	7197	3877	4841	0	8722	16339	4063	15611	3292	22966	0	0	0	0	22966	39305
Note: There is to see a selection of the fact that the Areas and Dally 40 he totals by 40 to 04 areas alone feeter				-										:					

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



AMA After Metallic M	Transportation Services - Traffic Services W.O. 35894	Turning Movement Count - 15 Minute Summary Report	G AVE @ KIRKWOOD AVE S	16 Total Observed U-Turns Northbound: 0 Southbound: 2 Eastbound: 0 Westbound: 0	CARLING AVE	Eastbound Westbound S STR E	TOT TOT LT ST RT TOT LT ST RT TOT TOT	0 130 238 45 252 31 328 0 0 0 0 328 566	0 149 268 63 346 48 457 0 0 0 0 457 725	0 182 339 43 404 46 493 0 0 0 0 493 832	0 203 394 51 433 56 540 0 0 0 0 540 934	0 211 378 40 486 37 563 0 0 0 0 563 941	0 154 333 48 443 37 528 0 0 0 0 528 861	0 207 378 48 458 57 563 0 0 0 0 563 941	0 169 348 78 380 55 513 0 0 0 0 513 861	0 158 290 66 304 45 415 0 0 0 0 415 705	0 150 270 62 294 54 410 0 0 0 0 410 680	0 155 303 92 256 37 385 0 0 0 0 385 688	0 147 269 68 232 54 354 0 0 0 0 354 623	0 144 269 102 274 54 430 0 0 0 0 430 699	0 149 277 96 255 71 422 0 0 0 0 422 699	0 161 293 77 255 78 410 0 0 0 0 410 703	0 169 306 75 234 71 380 0 0 0 0 380 686	0 175 304 94 256 52 402 0 0 0 0 402 706	0 181 291 88 245 59 392 0 0 0 0 392 683	0 178 305 97 246 55 398 0 0 0 0 398 703	0 0 0 382	0 176 340 102 292 59 453 0 0 0 0 453 793	0 168 318 85 282 63 430 0 0 0 0 430 748	0 166 335 74 288 66 428 0 0 0 0 428 763		0 148 339 76 258 92 426 0 0 0 0 426 765	0 158 315 81 266 88 435 0 0 0 0 435 750	0 133 314 50 241 110 401 0 0 0 0 401 715	0 164 323 100 280 69 449 0 0 0 0 449 772	0 132 296 106 328 93 527 0 0 0 0 527 823	0 200 326 90 271 106 467 0 0 0 0 467 793	0 187 324 123 254 62 439 0 0 0 439 763
Me horthbound by the property of the property	tion	ment	G AV	916					-				0	0	0	0	0	0	0			0	0 16	0	0	0	0	0		0	0	0		-				0
Me horthbound by the property of the property	orta	Novel	RLIN	y 04, 20	S	outhboun	ST	82	93	11	128	118	83	110	96	06	98	80	80	80	9/	98	88	26	107	91	86	87	83	8	74	81	92	9/	98	89	106	112
Me horthbound by the property of the property	nsp	ng N	CA	y, May	AVE		7			7	75	. 93	7	97	72	_									74		7										-	
Me horthbound by the property of the property	Tra	ırni		iesda	V00	z	5	108	119	157	191	167	179	171	179	132	120	148	122	125	128	132	137	129	110	127	114	164	150	169	145	191	157	181	159	164	126	137
2 http://displays.com/displays/displa		Ţ		Wedn	GRK	pun	R	20	22	8	88	80	83	88	87	2	49	69	29	61	53	99	52	23	52	29	46	8	09	82	74	107	70	95	69	\$	48	24
	2	Ŋ			_	lorthbo	ST	28	62	73	103	87	96	83	95	89	7	79	63	2	75	2	82	92	28	89	89	8	06	87	7	8	87	88	06	80	78	8
		aw		ate:		_			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	100			Sur			Time Period	02:00	07:15	02:20	07:45	08:00	08:15	08:30	08:45	00:60	09:15	09:30	09:45	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30

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Note: U-Turns are included in Totals.



Transportation Services - Traffic Services Ottawa Turning Movement Count - Cyclist Volume Report

Work Order

Count Da	te: Wednesda	Count Date: Wednesday, May 04, 2016				Start Time: 07:00	00:20
	₹	KIRKWOOD AVE S	s		CARLING AVE		
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
00:80 00:20	-	3	4	0	0	0	4
08:00 00:00	0	2	2	2	0	7	4
09:00 10:00	0	-	-	0	0	0	-
11:30 12:30	2	-	ဗ	2	0	2	ß
12:30 13:30	-	0	-	-	0	-	7
15:00 16:00	2	4	9	-	0	-	7
16:00 17:00	0	2	2	0	0	0	7
17:00 18:00	0	0	0	9	-	7	7
Total	9	13	19	12		13	33

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

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W.O. 35894

Turning Movement Count - Heavy Vehicle Report

CARLING AVE @ KIRKWOOD AVE S

Wednesday, May 04, 2016

Survey Date:

			2	3	NIRAWOOD AVE S	0						3	Y L	CARLINGAVE	ш					
		Northbound	puno			Southbound	puno				Eastbound	punc			Westbound	pund	ı			
Time	Time Period	Ц	ST	RT	⊼ TO	LT	ST	RT	S TOT	STR	LT	ST	RT	д ТОТ	LT	ST	RT	W TOT	STR	Grand Total
07:00	08:00	0	18	14	32	11	14	0	25	22	10	36	4	20	0	0	0	0	20	107
08:00	00:60	0	22	7	33	16	4	0	30	63	7	73	7	87	0	0	0	0	87	150
00:60	10:00	0	œ	16	24	18	18	0	36	9	7	43	13	29	0	0	0	0	29	127
11:30	12:30	0	6	12	7	13	17	0	30	51	12	51	12	75	0	0	0	0	75	126
12:30	13:30	0	9	4	20	6	20	0	59	49	7	51	7	92	0	0	0	0	9	114
15:00	16:00	0	15	4	29	6	13	0	22	51	10	49	7	92	0	0	0	0	20	121
16:00	17:00	0	10	6	19	4	15	0	19	38	-	4	16	28	0	0	0	0	28	96
17:00	18:00	0	4	7	7	ო	7	0	10	7	9	25	7	88	0	0	0	0	38	29
Sub	Sub Total	0	95	26	189	83	118	0	201	390	4	369	22	510	0	0	0	0	510	006
U-Turr	U-Turns (Heavy Vehicles)	y Vet	icles)		0				0	0				0				0	0	0
To	Total	0	92	26	0	83	118	0	201	390	49	369	22	510	0	0	0	0	510	006
Heavy \	Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary	includ	e Buse	s, Sing	e-Unit	Trucks	and Ari	iculate	d Truck	s. Furt	ner, the	y ARE	include	d in the	Turnin	g Move	ment C	ount S	ummary.	

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Transportation Services - Traffic Services

Work Order 35894

Turning Movement Count - Pedestrian Volume Report

ount Dat	Count Date: Wednesday, May 04, 2016	May 04, 2016)	9	Start Time:	00:20
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	0	3	2	0	2	2
07:15 07:30	က	0	ဗ	ဇ	0	ဗ	9
07:30 07:45	4	2	9	9	0	9	12
07:45 08:00	က	0	က	6	0	6	12
07:00 08:00	13	2	15	20	0	20	35
08:00 08:15	7	1	8	10	0	10	18
08:15 08:30	2	0	7	4	0	4	9
08:30 08:45	-	0	-	6	0	6	10
08:45 09:00	7	0	7	2	0	ıs	12
08:00 09:00	17	-	18	28	0	28	46
09:00 09:15	2	0	2	2	0	2	7
09:15 09:30	4	2	9	က	-	4	10
09:30 09:45	7	0	7	14	0	14	21
09:45 10:00	2	2	4	2	0	9	6
09:00 10:00	15	4	19	27	-	28	47
11:30 11:45	3	0	3	9	0	9	6
11:45 12:00	9	2	œ	9	-	7	15
12:00 12:15	4	_	9	4	0	4	6
2:15 12:30	2	0	7	2	0	2	4
	15	3	18	18	1	19	37
	•	0	10	8	0	8	18
	2	2	4	2	0	22	6
13:00 13:15		2	9	89	0	80	4
13:15 13:30	က	4	7	7	0	1	18
2:30 13:30	19	8	27	32	0	32	29
5:00 15:15		1	4	15	0	15	19
		2	7	14	-	15	22
5:30 15:45	•	က	15	12	2	14	29
5:45 16:00	2	4	9	12	-	13	19
15:00 16:00	22	10	32	53	4	22	89
16:00 16:15	4	2	9	7	0	7	13
16:15 16:30	4	0	4	18	0	18	22
16:30 16:45	7	0	7	7	0	7	41
16:45 17:00	9	0	9	80	0	8	4
16:00 17:00	21	2	23	40	0	40	63
7:00 17:15	3	0	3	2	0	2	8
7:15 17:30		0	7	41	0	14	16
7:30 17:45	က	-	4	16	0	16	20
7:45 18:00	4	0	4	7	-	80	12
7:00 18:00	12	+	13	42	1	43	26

Comment:



Work Order 35894

Turning Movement Count - 15 Min U-Turn Total Report

OD AVE S

ednesday, May 04, 2016
Wedn

		į	Ī	I	1	I	1 1	Ì	1 1	1 1	1 1	1	I	I	I	1	I	1	1 1	Ì	Ī	I	1	Ī	1 1	1	1 1	1	Ī	I	1	Ì	i i	l 1	I 1
		Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
א א מי		Westbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C NINKWOOD AVE		Eastbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	, 2016	Southbound U-Turn Total	0	0	0	0	0	0	0	1	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Wednesday, May 04, 2016	Northbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		eriod	07:15	02:30	07:45	08:00	08:15	08:30	08:45	00:60	09:15	06:60	09:45	10:00	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	lal
	Survey Date:	Time Period	00:20	07:15	02:30	07:45	08:00	08:15	08:30	08:45	00:60	09:15	06:30	09:45	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Total

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Transportation Services - Traffic Services Turning Movement Count - AM Period Diagram CARLING AVE @ MERIVALE RD

WO#: 36124 Device: Miovision	$\begin{array}{c c} \bullet & & & & \\ \bullet & &$	84 4 88
. 2016	MERNALE RD 1389 1946 557	AM Period AM Period 1115 0 324 463 574 39 0 12 4 21 0 336 467 596 1154 1154 1154 1154
Survey Date: Thursday, August 04, 2016 Start Time: 07:00	Peak Hour 08:00 09:00 Total Heavy Vehicles Cars	CARLING AVE 2 2277 1 1 0 1 4224 1766 92 1673 1947 1779 10 169

Comments:

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Turning Movement Count - Full Study Diagram

CARLING AVE @ MERIVALE RD

1106 Miovision # 12 36124 7615 **4** 6491 ₩ ♦ Total 302 5830 1451 32 **%**₽ Device: Heavy Vehicles #0M 257 199 61 ego ≅ Cars *****\$ 282 6234 1390 295 3 26 1688 1422 1474 t Ţ 1 **4 0** 1388 975 1407 <u>د</u> د 0 0 **††** MERIVALE RD 3857 Full Study Ł 329 946 6 353 Ç <u></u> 3857 1819 1837 0 ٦ 29 1632 Survey Date: Thursday, August 04, 2016 3960 3857 1661 ្សា ٦ 1 4 8211 4428 Cars **∮**20 4 Heavy Vehicles 257 198 24 **4** Start Time: 07:00 Total CARLING AVE 4626 671 **Peak Hour** 16:00 17:00 5304 ***** 52 8468

Comments:

‡

}

135

7817



Transportation Services - Traffic Services

Turning Movement Count - MD Period Diagram

CARLING AVE @ MERIVALE RD

Survey Date: Thursday, August 04, 2016

Start Time: 07:00

Miovision

Device:

36124

S & R	2 22 22 23 24 25 25 25 25 25 25 25 25 25 25 25 25 25	2 99 1182 1582 1582 177 297 1474 1474 1474 1474 Vehicles Total
*	2	97 2 1139 43 280 17 1402 72 Hear Vehi
₹ 88	13	1
E RD + 1448	0 00	riod
MERIVALE RD	2 117	286 101 101 101 101 101 101 101 101 101 10
₩ • 096	423 10 413	→
	11 407	
	Heavy Vehicles Cars	64 1832 0 0 0 0 3 55 967 7 164
2	Total	AVE
Peak Hour 11:45 12:45		1896 0 3092 3 4 1771 1196 477 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Comments:

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Turning Movement Count - PM Period Diagram

CARLING AVE @ MERIVALE RD

36124 Miovision WO#: Device: Survey Date: Thursday, August 04, 2016 Start Time: 07:00

Z ♦ Z	17 53	3314 64 3378 4320 795 17 812 E878	15 0 15 15 15 15 15 15 15	Cars Heavy Vehicles Total	
MERIVALE RD	573 781 154 0 8 6 2 0 5 565 775 152 0 664	PW Period		1865 1 336 550 533 30 0 7 4 17 1 343 554 550	1915 1448
Peak Hour 16:00 17:00	Total Heavy Vehicles Cars	4295 779 4216	<u>*</u> 2	1	≪\$

Comments:



Transportation Services - Traffic Services **Turning Movement Count - Full Study Diagram**

CARLING AVE @ MERIVALE RD

Miovision

WO#: Device:

Survey Date: Thursday, August 04, 2016

36124

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				CARLING AVE	*	Î	13772	4	5304	*	2		

Comments

2017-Mar-08



Work Order 36124

Turning Movement Count - Full Study Summary Report

CARLING AVE @ MERIVALE RD

3051 3520 12919 20633 AADT Factor 12885 2015 2520 1930 7615 7583 1646 1284 43 40 302 302 Ъ 32 Westbound ST 5830 5830 626 CARLING AVE 5304 1451 273 5302 1451 Southbound: 0 588 646 Westbound: 1/9 **Total Observed U-Turns** 671 늄 Eastbound S 4626 5 4626 Full Study Northbound: 1 Eastbound: 2 77.14 STR TOT 7713 880 919 SB TOT 359 1837 1661 **3857** 3857 442 R Southbound 1661 ST 1837 Survey Date: Thursday, August 04, 2016 MERIVALE RD 326 3826 1407 1474 3857 MB T0T 438 469 꿉 1474 Northbound 196 1407 ST 148 200 160 975 107 123 113 975 00:00 08:00 15:00 16:00 16:00 17:00 00:60 00:80 00:01 00:60 11:30 12:30 12:30 13:30 17:00 18:00 Sub Total Period Total

25811 33814 21172 16161 12480 9526 495 7293 9554 AVG 24Hr 1598 2306 2416 6321 588 3010 2722 6321 12642 8 7581 1100 8692 2378 6635 1815 1.31 Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. 839 1220 1760 1844 **4825** 449 2298 2078 **4825 9650** 6 5787 Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. Note: These values are calculated by multiplying the totals by the appropriate expansion factor. AVG 12Hr

420 10585

8104

7373 2017

7 6430 933

10722

2553 2309 5361

499

5361

1956 2049

1355

EQ 12Hr

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services wo.

36124

Turning Movement Count - 15 Minute Summary Report

Mark	Maintain Maintain							O	AR	Ž.	₹ }	П (Ø	Ž	CARLING AVE @ MERIVALE RD	ALE	2	_			i		
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17.15 31 60 40 137 270 0 147 28 176 78 314 11 404 6 17.30 21 40 54 116 58 49 118 233 0 157 27 184 73 312 9 396 6 17.45 38 38 37 113 9 61 30 100 213 0 114 27 141 62 174 7 244 3 18:00 23 32 63 108 7 49 39 95 203 0 122 24 146 60 179 6 245 3 18:00 23 32 63 162 385 303 0 122 24 146 60 179 6 245 3 18:00 13:05 14:05 14:05 14:05 14:05 14:05	17:15 31 50 43 19 69 49 137 270 0 147 28 145 14 28 145 14 233 0 147 28 148 73 0 147 28 148 73 0 145 78 73 14 14 27 144 62 174 7 144 62 174 7 28 14 14 28 48 140 28 20 14 27 444 60 174 7 22 18:0 23 23 14 24			38	48	49	135	10	28	48	116	251	0	151	29	180	8	353	4	448	628	879
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· 975 1407 1474 3 857 359 1837 1661 3857 7714 5 4626 671 5304 1451 5830 302 7615	.: 975 1407 1474 3857 359 1837 1661 3857 7714 5 4626 671 5304 1451 5830 302			23	32	23	108	7	49	39	92	203	0	122	24	146	09	179	2	245	391	594
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2017-Mar-08 Page 1 of 1

2017-Mar-08

Page 1 of 1

Work Order

36124

Start Time: 07:00 Ottawa Turning Movement Count - Cyclist Volume Report CARLING AVE @ MERIVALE RD Count Date: Thursday, August 04, 2016

CARLING AVE	d Westbound Street Total Grand Total	1 6 18	5 5 16	2 4 9	2 2 3	8 9 0	3 4 17	4 5 13	7 8 29	***
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	Time Period	07:00 08:00	00:60 00:80	09:00 10:00	11:30 12:30	12:30 13:30	15:00 16:00	16:00 17:00	17:00 18:00	ŀ

Comment:



Transportation Services - Traffic Services

W.O. 36124

Turning Movement Count - Heavy Vehicle Report

Solution Color C							ز	CARLING AVE @ MERIVALE ND	ני בי	2) ((3)			į							
HIPMALE RIPLE	urvey	Date		Η	rsday	, Augu	ıst 04	1, 2016	(0												
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3 10 1 2 6 8 18 0 35 4 39 6 33 1 40 6 15 7 13 33 0 26 4 30 9 26 2 37 3 1 10 25 0 29 3 32 8 17 0 26 8 13 0 14 0 16 3 19 5 24 1 30 6 8 13 6 14 0 12 2 24 7 18 0 25 6 8 1 2 14 0 13 2 14 0 22 2	08:00	00:6	2	-	7	17	0	0	က	က	70	0	36	~	37	13	28	~	45	4	66
1 5 8 20 1 5 7 13 33 0 26 4 30 9 26 2 3 37 3 6 6 15 1 5 4 10 25 0 29 3 32 8 17 0 26 4 1 8 13 0 1 2 3 16 0 22 2 24 7 18 0 25 5 1 1 6 8 2 1 3 6 14 0 13 2 15 5 2 17 18 0 25 5 1 2 100 6 18 29 53 153 0 198 24 222 61 199 7 268 5 1 2 3 1 3 3 1 3 3 1 3 3	00:60	0:00	2	2	က	10	~	2	2	8	18	0	32	4	39	9	33	~	4	4	97
6 15 4 10 25 0 29 3 32 8 17 0 26 3 7 0 4 3 7 14 0 16 3 19 5 24 1 30 6 8 1 2 3 16 0 22 2 24 7 18 0 25 52 100 1 3 6 14 0 13 2 15 5 2 <td>11:30 1</td> <td>2:30</td> <td>7</td> <td>2</td> <td>œ</td> <td>20</td> <td>~</td> <td>2</td> <td>7</td> <td>13</td> <td>33</td> <td>0</td> <td>56</td> <td>4</td> <td>30</td> <td>6</td> <td>56</td> <td>7</td> <td>37</td> <td>29</td> <td>100</td>	11:30 1	2:30	7	2	œ	20	~	2	7	13	33	0	56	4	30	6	56	7	37	29	100
3 7 0 4 3 7 14 0 16 3 19 5 24 7 18 0 25 6 8 13 6 14 0 13 2 15 15 15 2 2 14 0 25 2 24 7 18 0 25 52 100 6 18 26 14 0 13 2 15 5 22 0 2 52 100 6 18 29 63 153 0 198 24 222 61 199 7 268 6 18 29 63 153 0 198 24 222 61 199 7 269		3:30	က	9	9	15	~	2	4	10	52	0	59	က	32	œ	17	0	56	28	83
8 13 0 1 2 3 16 0 22 2 24 7 18 0 25 5 8 2 1 3 6 14 0 13 2 15 5 22 0 27 52 100 6 18 29 63 153 0 198 24 222 61 199 7 269 6 0 <th< td=""><td>15:00 1</td><td>9:00</td><td>7</td><td>2</td><td>က</td><td>7</td><td>0</td><td>4</td><td>8</td><td>7</td><td>4</td><td>0</td><td>16</td><td>3</td><td>19</td><td>2</td><td>24</td><td>~</td><td>30</td><td>49</td><td>63</td></th<>	15:00 1	9:00	7	2	က	7	0	4	8	7	4	0	16	3	19	2	24	~	30	49	63
6 8 2 1 3 6 14 0 13 2 15 5 22 0 27 6 27 6 1 6 2 10 0 2 1	16:00 1	2:00	4	-	80	13	0	~	2	ო	16	0	22	2	24	7	18	0	25	64	92
52 100 6 18 29 53 153 0 198 24 222 61 199 7 268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17:00 1	8:00	-	-	9	œ	2	~	က	9	4	0	5	7	15	2	22	0	27	45	26
52 0 6 18 29 53 153 0 198 24 222 61 199 7 269	Sub To	tal	29	19	52	100	9	18	59	53	153	0	198	24	222	61	199	7	268	490	643
29 19 52 0 6 18 29 53 153 0 198 24 222 61 199 7 269	J-Turns	Heav	y Veh	icles)		0				0	0				0				-	-	-
	Total		29	19	52	0	9	18	29	53	153	0	198	24	222	61	199	7	269	491	644

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2017-Mar-0

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Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

2017-Mar-08



Work Order

Survey Date:

Turning Movement Count - Pedestrian Volume Report

		Ö	ARLING /	CARLING AVE @ MERIVALE RD	ALE RD		
Count Dat	Count Date: Thursday, August 04, 2016	ugust 04, 2016				Start Time:	00:20
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	2	8	3	2	2	13
07:15 07:30		2	9	4	4	80	4
07:30 07:45	2	က	œ	က	_	4	12
07:45 08:00		4	13	80	9	14	27
00:80 00:40	18	17	35	18	13	31	99
08:00 08:15	9	3	6	3	2	2	14
08:15 08:30	80	7	15	-	80	6	54
08:30 08:45	10	ო	13	ဇ	0	ဗ	16
08:45 09:00		ო	9	80	7	15	21
00:60 00:80	27	16	43	15	17	32	75
09:00 09:15	_	10	11	2	0	2	13
09:15 09:30	e	ო	9	-	0	-	7
09:30 09:45	4	7	£	2	7	6	70
09:45 10:00	4	9	10	4	2	6	19
09:00 10:00	12	26	38	6	12	21	29
11:30 11:45	4	11	15	4	4	8	23
11:45 12:00	6	#	4	7	4	7	52
12:00 12:15	_	19	70	6	0	6	53
12:15 12:30	-	41	15	2	4	9	21
11:30 12:30	6	55	64	22	12	34	86
12:30 12:45	7	8	15	6	2	14	59
12:45 13:00	_	7	00	4	_	2	13
13:00 13:15	2	12	17	7	က	10	27
13:15 13:30	ဇ	2	9	2	_	9	7
12:30 13:30	16	29	45	25	10	35	80
15:00 15:15	6	7	16	4	က	7	23
15:15 15:30	-	13	24	10	က	13	37
15:30 15:45	2	12	4	7	2	12	56
15:45 16:00	7	13	15	10	80	18	33
15:00 16:00	24	45	69	31	19	20	119
16:00 16:15		17	20	7	7	14	34
16:15 16:30	က	2	œ	10	2	12	70
16:30 16:45		41	70	2	80	13	33
16:45 17:00	4	9	10	9	2	80	18
16:00 17:00	16	42	28	28	19	47	105
17:00 17:15	0	7	7	2	2	7	14
•	2	7	12	7	9	13	52
	2	9	7	4	4	80	19
17:45 18:00	3	12	15	6	3	12	27
17:00 18:00	13	32	45	25	15	40	82
Total	. 135	262	397	173	117	290	289

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2017-Mar-08

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Transportation Services - Traffic Services

Work Order 36124

Turning Movement Count - 15 Min U-Turn Total Report
CARLING AVE @ MERIVALE RD
Thursday, August 04, 2016

Time Period	eriod	Northbound U-Turn Total	Southbound U-Turn Total	Lastbound U-Turn Total	westbound U-Turn Total	Total
00:20	07:15	0	0	0	-	1
07:15	02:30	0	0	0	0	0
02:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	2	2
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	-	-
08:30	08:45	0	0	0	0	0
08:45	00:60	0	0	0	0	0
00:60	09:15	0	0	0	2	2
09:15	06:30	0	0	-	4	2
08:30	09:45	0	0	0	2	2
09:45	10:00	0	0	0	-	~
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	-	~
12:45	13:00	0	0	0	-	~
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	2	2
15:00	15:15	0	0	0	4	4
15:15	15:30	0	0	0	-	-
15:30	15:45	0	0	0	3	3
15:45	16:00	0	0	0	2	2
16:00	16:15	-	0	0	0	-
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	-	-
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	-	-	2
17:15	17:30	0	0	0	-	-
17:30	17:45	0	0	0	1	-
17:45	18:00	0	0	0	1	1
To	Total	1	0	2	32	35
l						

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37476

Turning Movement Count - 15 Minute Summary Report

Survey Date: Wednesday, January 31, 2018 Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 14 Westbound: 2

STAMESTGATE SC

Northbound: 0

CARLING AVE

CARLING AVE

	₽_																																
	Grand Total	322	404	439	472	452	483	541	471	490	411	434	440	406	461	380	459	438	449	408	417	610	549	618	552	678	616	630	625	662	809	565	556
	STR	321	401	437	468	449	475	531	467	419	398	421	415	392	434	329	439	421	430	393	396	584	540	809	534	650	604	619	209	644	594	222	246
	¥₽	144	49	190	210	209	226	274	247	265	204	219	208	245	237	211	235	242	228	228	234	411	386	440	369	427	373	366	342	377	337	324	337
_	R	0	7	7	4	7	က	6	က	4	2	4	7	4	ဗ	←	က	-	-	←	~	7	0	~	7	0	-	က	0	7	←	-	-
Westbound	ST	144	162	183	206	207	223	265	244	261	199	214	201	241	234	210	232	241	227	227	233	409	386	439	367	426	372	363	342	375	336	323	336
We	₽	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	д ТОТ	177	237	247	258	240	249	257	220	214	194	202	207	147	197	148	204	179	202	165	162	173	154	168	165	223	231	253	265	267	257	231	509
	RT	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
punc	ST	177	237	247	256	238	249	256	215	213	193	202	207	147	194	148	203	176	201	165	160	172	154	167	165	223	230	253	263	267	255	231	509
Eastbound			0 2	5	2	2	2	2	2	2	-	2	2	-	-	-	2	-	8	-	-	-	-	-	-	2	2	2	2	2	2	2	2
	L	0	0	0	_	_	0	_	(A	0	0	0	0	0	(4	0	0	_	_	0	_	_	0	0	0	0	_	0	(A	0	_	0	٥
	∝ ⊢							_		_				_		_	_		_		_			_				_			_	_	_
	STR TOT	1	ო	7	4	က	80	10	4	Ξ	13	13	25	4	27	77	20	1	19	15	7	56	6	19	18	78	12	£	18	18	4	10	10
	S STR TOT TOT	1 1	e 8	2 2	4	e 6	8	10 10	4	1 4	13 13	13 13	25 25	14 14	27 27	21 21	20 20	17 17	19 19	15 15	21 21	26 26	6	10 10	18 18	28 28	12 12	11 11	18 18	18 18	14 14	10 10	10 10
pui		1 1 1	2 3 3	1 2 2	3 4 4	2 3 3	8 8 7	7 10 10	1 4 4	8 11 11			•					12 17 17			19 21 21	•	6 6 8			•••	_	7 11 11	-				-
W uthbound	s TOT	0 1 1 1	0 2 3 3	0 1 2 2	0 3 4 4	0 2 3 3	8 8 2 0	0 7 10 10	0 1 4 4		13	13	52	4	27	21	20	-	19	15		•		10	18	•••	12	0 7 11 11	-		4	10	10
E SC W Southbound	S RT TOT	0 0 1 1 1	1 0 2 3 3	-	1 0 3 4 4	1 0 2 3 3	1 0 7 8 8	3 0 7 10 10	3 0 1 4 4		13	13	52	4	27	21	20	-	19	15		•		10	18	•••	12	4 0 7 11 11	-	11 18	12 14 1	5 10 1	2 10
IGATE SC W Southbound	ST RT TOT	0 0 0 1 1 1	0 1 0 2 3 3	-	0 1 0 3 4 4	0 1 0 2 3 3	0 1 0 7 8 8	0 3 0 7 10 10	0 3 0 1 4 4	8 0	0 10 13 1	0 11 13 1	0 19 25	4	27	0 16 21	0 15 20	0 12	0 11 19 1	15	0 19	0 17 26		0 8 10	18	•••	12	0 4 0 7 11 11	0 9 18 1	11 18	0 12 14 1	0 5 10 1	0 5 10
ESTGATES	S LT ST RT TOT	0	0 0 1 0 2 3 3	1 0 1	0 0 1 0 3 4 4	0 0 1 0 2 3 3	0 0 1 0 7 8 8	0 0 3 0 7 10 10	0 0 3 0 1 4 4	3 0 8	0 10 13 1	0 11 13 1	0 19 25	4	27	0 16 21	0 15 20	0 12	0 11 19 1	15	0 19	0 17 26		0 8 10	18	•••	12	0 0 4 0 7 11 11	0 9 18 1	11 18	0 12 14 1	0 5 10 1	0 5 10
ESTGATES	N S TOT LT ST RT TOT	0 0		0 1 0	0 0 0 1 0 3 4 4	0 0 0 1 0 2 3 3	0 0 1 0 7 8 8	0 0 0 3 0 7 10 10	0 0 0 3 0 1 4 4	3 0 8	0 10 13 1	0 11 13 1	0 19 25	4	27	0 16 21	0 5 0 15 20	0 12	0 11 19 1	15	0 19	0 17 26		0 8 10	18	•••	12	. 2 0 4 0	0 9 18 1	0 7 0 11 18 1	0 2 0 12 14 1	0 5 0 5 10 1	0 5 0 5 10
ST/WESTGATE SC W Northbound Southbound	N S TOT LT ST RT TOT	0 0		0 1 0	0 0 0 0 1 0 3 4 4	0 0 0 0 1 0 2 3 3	0 0 0 0 1 0 7 8 8	0 0 0 3 0 7 10 10	0 0 0 0 3 0 1 4 4	3 0 8	0 10 13 1	0 11 13 1	0 19 25	4	27	0 16 21	0 5 0 15 20	0 12	0 11 19 1	15	0 19	0 17 26		0 8 10	18	•••	12	. 2 0 4 0	0 9 18 1	0 7 0 11 18 1	0 2 0 12 14 1	0 5 0 5 10 1	0 5 0 5 10
ESTGATES	N ST RT TOT LT ST RT TOT	0 0 0 0 0 0		0 1 0	08:00 0 0 0 0 3 4 4	08:15 0 0 0 0 1 0 2 3 3	08:30 0 0 0 0 1 0 7 8 8	08:45 0 0 0 0 7 10 10	09:00 0 0 0 0 1 4 4	3 0 8	0 10 13 1	0 11 13 1	0 19 25	4	27	0 16 21	0 5 0 15 20	0 12	0 11 19 1	15	0 19	0 17 26		0 8 10	18	•••	12	. 2 0 4 0	0 9 18 1	0 7 0 11 18 1	0 2 0 12 14 1	0 5 0 5 10 1	0 5 0 5 10

Ottawa

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 37476

Grand Total Start Time: 07:00 Street Total CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC CARLING AVE Westbound 73 E OF ARCHIBALD STWESTGATE SC W Street Total Count Date: Wednesday, January 31, 2018 Southbound Northbound Time Period 07:00 08:00 08:00 09:00 17:00 18:00 Total 09:00 10:00 11:30 12:30 12:30 13:30 15:00 16:00 16:00 17:00

Comment

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Page 1 of 1

2018-Mar-28

Page 1 of 1

8909 15611 16046

8828 79

0

0 6702

435 15 6673

435

0 304

0

TOTAL:

Note: U-Turns are included in Totals. 2018-Mar-28



Turning Movement Count - Full Study Diagram

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018

37476 Miovision WO#: Device:

W K		74 5 79	Total
73 E OF ARCHIBALD STWESTGATE SC W 436 529 94	304 0 131 0 11 0 3 0 9 293 0 128 0 85		
	Total Heavy Vehicles Cars	GARLING AVE 9146 114 0 114 15848 15 4 11 15848 6702 0 0 0 0	*

Comments

2018-Mar-28

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Transportation Services - Traffic Services

W.O. 37476

Turning Movement Count - Heavy Vehicle Report

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018

Simple			~ 0	3 E O	FAR	73 E OF ARCHIBALD	7						S	RLIN	CARLING AVE						
Nat Nat		-	Northb	punc	5	0 0	3outhb	puno	1			Eastbo	punc		_	Vestbo	pund	I			
0 0 0 1 1 1 1 2 2 2 2 2 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 6 4 7 8 6 7 2 6 7 8 8 9 2 9 9 4 9 4 7 9 6 6 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 3 3 4 7 3 6 4 4 7 3 6 4 7 4	Time Pe	eriod	H	ST	ᅜ	νþ	5	ST	R	s T0T	STR TOT		ST	R	ᄪᅝ	5	ST	R	×٢	STR TOT	Grand Total
0 0 0 0 0 0 1 28 0 29 0 30 2 32 61 0 0 1 2 8 8 0 26 0 44 0 44 70 0 0 0 2 2 1 27 28 0 36 1 36 64 0 0 0 2 2 2 1 24 0 36 0 36 64 0 0 1 2 2 1 24 0 26 0 36 64 0 0 0 0 0 0 0 25 0 26 0 30 26 0 0 0 0 0 0 0 25 0 26 0 30 26 0 0 0 0 0 0 <t< td=""><td></td><td>08:00</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>-</td><td>-</td><td>-</td><td>0</td><td>22</td><td>0</td><td>22</td><td>0</td><td>24</td><td>-</td><td>25</td><td>47</td><td>48</td></t<>		08:00	0	0	0	0	0	0	-	-	-	0	22	0	22	0	24	-	25	47	48
0 1 0 7 8 8 0 26 26 26 44 0 44 70 0 0 0 2 2 2 1 27 0 26 0 36 44 70 0 0 0 2 2 1 2 2 1 24 0 26 0 36 64 0 0 0 0 0 0 0 26 0 26 0 30 36 64 0 0 0 0 0 0 0 26 0 26 0 30 36 64 0 0 0 0 0 0 0 0 26 0 26 0 30 36 64 0 0 0 0 0 0 0 14 0 14 0 18 0		00:60	0	0	0	0	0	0	0	0	0	~	28	0	59	0	30	2	32	64	61
0 0 0 2 2 2 1 27 0 28 0 36 1 36 64 0 0 1 2 2 1 24 0 26 0 2 1 27 30 30 36 </td <td></td> <td>10:00</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>-</td> <td>0</td> <td>7</td> <td>8</td> <td>80</td> <td>0</td> <td>56</td> <td>0</td> <td>56</td> <td>0</td> <td>4</td> <td>0</td> <td>4</td> <td>92</td> <td>78</td>		10:00	0	0	0	0	-	0	7	8	80	0	56	0	56	0	4	0	4	92	78
0 1 0 1 2 2 1 24 0 26 0 26 27 27 26 27 26 27 26 27		12:30	0	0	0	0	0	0	2	7	7	~	27	0	28	0	32	~	36	2	99
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 25 0 25		13:30	0	0	0	0	-	0	~	7	7	~	54	0	25	0	56	~	27	25	54
0 0 0 0 0 1 0 0 0 0 0 0 0 0 1 23 0 24 0 19 0 19 0 19 43 0 0 1 1 0 0 1 1 14 14 14 18 0 18 0 18 0		16:00	0	0	0	0	0	0	0	0	0	0	25	0	25	0	30	0	30	22	22
0 0 1 0 0 1 1 0 0 0 1 1 14 1 15 18 0 14 0 15 0 15 0 15 26 18		17:00	0	0	0	0	0	0	0	0	0	~	23	0	24	0	19	0	19	43	43
0 0 3 0 11 14 14 4 189 0 193 0 220 5 226 418		18:00	0	0	0	0	~	0	0	-	-	0	4	0	4	0	12	0	12	56	27
0 0 3 0 11 14 14 4 189 0 193 0 220 5 225 418	Sub T	otal	0	0	0	0	8	0	£	4	4	4	189	0	193	0	220	2	225	418	432
0 0 0 0 0 3 0 11 14 14 4 189 0 193 0 220 5 225 418	U-Turns	(Неа	y Veh	icles)		0				0	0				0				0	0	0
	Tota	_	0	0	0	0	33	0	1	14	14	4	189	0	193	0	220	2	225	418	432

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Work Order 37476

Turning Movement Count - Pedestrian Volume Report

CARLING AVE @ 73 E OF ARCHIBALD STYWESTGATE SC COUNT Date: Wednesday, January 31, 2018 Start Time: 07:00 Time Period (Ref Moroscal) (Lef W. Crosscal) Total Colspan="6">Total Colspan="6">Total Colspan="6">Start Time: 07:00 Time Period (Lef W. Crosscal) Total Colspan="6">Total Colspan="6								
Part Date: We Approach Med neaday, January 31, 2018 EB Approach Med Approach Med Approach Med Approach Med Approach Med Approach Med			CARLING AVE	@ 73 E O	F ARCHIBAL	D ST/WESTG	TE SC	
Perford NB Approach (Par WCrossing) Total (Nord Crossing) Tot	unt Dat	e: Wednesday,	January 31, 2018				Start Time:	00:20
07/15 0 4 4 1 3 4 07/30 0 4 4 1 5 6 07/30 0 2 2 2 2 4 08/30 0 1 4 4 1 1 1 08/30 0 1 1 1 1 1 1 08/30 0 1 4 4 4 1 1 1 08/30 0 1 4 4 4 1 1 1 08/30 0 1	Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)		Total	Grand Total
07730 0 4 4 1 5 6 07740 0 2 2 2 2 1 4 0800 0 3 2 2 1 4 4 0800 0 13 13 6 21 2 1 0810 0 1 1 1 1 12 2 0820 0 4 4 4 1 1 1 1 0820 0 4 4 4 1 5 6 6 0800 0 4 4 4 1 1 12 1 0800 0 4 4 4 1 1 1 1 0800 0 4 4 4 1 0 2 1 1100 1 1 1 1 1 1 1 1100 1 <td>07:00 07:15</td> <td></td> <td>4</td> <td>4</td> <td>٢</td> <td>3</td> <td>4</td> <td>8</td>	07:00 07:15		4	4	٢	3	4	8
08000 0 2 2 2 4 0800 0 13 13 6 11 14 13 0800 0 13 13 6 21 27 15 0813 0 1 1 1 1 1 12 0813 0 1 4 4 4 1 1 1 08000 0 1 4 4 1 1 1 1 08000 0 1 4 4 1 1 1 1 08000 0 1 4 4 1 0 6	07:15 07:30	0	4	4	-	2	9	10
0800 0 3 3 2 11 13 08100 0 13 13 6 21 27 08100 0 4 4 1 1 1 12 08130 0 4 4 4 1 1 1 1 08130 0 4 4 4 1 5 6 6 0800 0 4 4 4 1 5 10 12 0800 0 6 6 6 6 6 6 12 0810 0 16 1 0 3 0 12 12 0810 0 1 1 1 0 5 10 10 1100 0 1 1 1 1 1 1 10 1100 0 2 2 1 2 1 1 1 </td <td>07:30 07:45</td> <td>_</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>4</td> <td>9</td>	07:30 07:45	_	2	2	2	2	4	9
0800 0 13 13 6 21 27 0815 0 1 1 1 1 1 1 1 12 10 12 10 12 10 12 10 12 10 12 12 10 12 13 14	07:45 08:00		က	က	2	11	13	16
0815 0 1 1 1 1 12 0830 0 4 4 1 5 6 0830 0 4 4 2 10 12 0830 0 6 6 6 6 6 6 0830 0 1 1 1 2 12 12 0830 0 1 1 1 0 5 6 6 6 6 0830 0 1 1 1 0 5 10 10 12 10 <t< td=""><td>00:80 00:</td><td></td><td>13</td><td>13</td><td>9</td><td>21</td><td>27</td><td>40</td></t<>	00:80 00:		13	13	9	21	27	40
08830 0 4 4 1 5 6 08845 0 4 4 4 1 10 12 08845 0 6 6 6 6 6 6 12 08070 0 15 16 17 12 12 12 08175 0 1 1 1 0 5 12 12 08175 0 1 1 1 0 5 14 10 10 12 10 12 10 10 12 10 12 10 1	08:00 08:15		-	-	1	11	12	13
0845 0 4 4 2 10 12 0800 0 6 6 6 12 0800 0 16 16 16 17 2 0801 0 1 1 0 2 4 2 0803 0 1 1 1 2 15 15 0803 0 7 7 7 10 2 10 0804 0 7 7 7 1 4 5 1 1000 0 7 7 7 1 4 5 6 5 1100 23 23 14 4 7 1 1 1 1200 3 3 4 7 1 1 1 1 1210 3 3 2 4 7 1 1 1224 0 3 3 <	08:15 08:30	_	4	4	-	2	9	10
0900 6 6 6 6 7 7 0930 0 15 15 10 32 42 0930 0 15 15 10 12 0930 0 1 1 0 5 4 2 0930 0 1 1 1 0 5 12 4 2 10	08:30 08:45	_	4	4	2	10	12	16
0900 0 15 16 10 32 42 0945 0 8 8 3 9 12 0945 0 7 7 3 7 10 1000 0 7 7 3 7 10 1000 0 7 7 5 14 5 1000 0 23 23 11 40 51 1145 0 11 11 4 7 10 1230 0 13 13 4 7 11 1230 0 13 4 7 11 13 1230 0 14 7 14 13 14 1230 0 14 7 14 13 14 1230 0 14 1 14 14 14 1330 0 1 1 1 14 14	08:45 09:00		9	9	9	9	12	18
09015 0 0 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 4 5 1 2 1 <td>00:60 00:80</td> <td>0</td> <td>15</td> <td>15</td> <td>10</td> <td>32</td> <td>42</td> <td>22</td>	00:60 00:80	0	15	15	10	32	42	22
0930 0 1 1 0 5 5 0945 0 7 7 7 9 7 10 1000 0 7 7 7 19 24 10 1000 0 14 4 3 14 40 51 1100 0 14 4 3 7 10 10 1210 0 14 4 3 4 7 11 11 11 11 14 2 11 11 11 14 2 11 11 11 14 4 7 11 11 14 2 11 13 11 13 11 13 14	09:00 09:15	0	8	8	3	6	12	20
0945 0 7 7 3 7 10 1000 0 7 7 3 7 10 1000 0 7 7 1 4 9 24 1100 1 1 4 4 3 7 10 51 1120 0 11 1 4 7 14 21 1212 0 13 4 7 11 13 11 13 1220 0 17 7 2 11 13 11 13 14 13 14 13 14 13 14 13 14 13 14	09:15 09:30	0	_	-	0	2	ιo	9
100 0	09:30 09:45	_	7	7	က	7	10	17
1,000	09:45 10:00		7	7	2	19	24	34
11445 0	09:00 10:00	0	23	23	11	40	51	74
12.50 0 11 11 7 14 21 12.15 0 13 13 4 7 11 12.20 0 7 7 7 11 13 12.20 0 7 6 7 11 13 12.20 0 11 14 2 16 39 56 12.20 0 11 14 3 2 9 11 16 13.50 0 3 3 2 9 11 14 13.30 0 3 3 4 10 14 14 13.30 0 3 1 18 3 5 6 9 15.30 0 3 1	11:30 11:45		4	4	3	7	10	14
12.30 0 13 13 4 7 11 12.30 0 7 7 7 11 12.30 0 3 3 16 39 56 12.45 0 3 3 6 9 7 16 12.45 0 3 3 2 9 11 11 13.00 0 3 3 2 9 14 13.30 0 3 4 10 14 15.50 0 3 2 9 14 15.50 0 3 4 4 10 14 15.50 0 3 4 4 10 14 15.50 0 4 1 0 8 8 1 15.50 0 4 1 1 1 1 1 1 15.40 0 2 2 2	11:45 12:00	_	1	7	7	14	21	32
1230 0 7 7 2 11 13 1230 0 36 36 16 39 56 1300 0 11 11 3 6 9 7 16 1300 0 11 11 3 6 9 7 16 1330 0 31 34 16 10 14 10 14 1330 0 4 4 1 0 14 14 14 14 14 14 10 14 <		_	13	13	4	7	7	24
17230 0 36 35 16 39 65 17245 0 9 9 7 16 1320 0 11 3 2 9 11 1330 0 31 31 18 5 9 11 1330 0 31 31 18 5 6 8 11 1530 0 31 31 18 2 6 8 8 14		_	7	7	2	1	13	70
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14600 0 8 8 1 13 14 14 15 15 14 15 15 14 15 15	15:30 15:45	_	7	7	0	80	80	15
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14615 0 2 2 2 7 9 9 10 10 10 10 10 10	15:00 16:00	0	27	27	4	33	37	64
1630 0 11 11 1 1 9 10 10	6:00 16:15		2	2	2	7	6	11
1645 0 7 7 4 8 12 1700 0 7 7 3 10 13 1700 0 27 10 34 44 1730 0 9 5 7 12 1730 0 6 6 4 8 12 1745 0 3 3 6 9 9 1800 0 4 4 0 10 10 1800 0 22 12 31 43 13 1100 10 10 10 10 10 10	16:15 16:30	_	£	£	-	o	10	21
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17750 0 27 27 10 34 44 17155 0 9 9 5 7 12 1736 0 6 4 8 12 1745 0 6 4 8 9 1850 0 4 4 0 10 1850 0 22 12 31 10 1850 0 13 13 87 262 349 1	16:45 17:00		7	7	က	10	13	70
17.15 0 9 9 5 7 12 17.30 0 6 6 4 8 12 17.45 0 3 3 6 9 18.00 0 4 4 0 10 18.00 0 22 22 12 31 43 0 193 193 87 262 349 1	16:00 17:00	0	27	27	10	34	44	7.4
1730 0 6 4 8 12 1745 0 3 3 3 6 9 1800 0 4 4 0 10 1800 0 22 12 31 43 1800 0 193 87 262 349 1	17:00 17:15		6	6	2	7	12	21
17745 0 3 3 3 6 9 1800 0 4 4 0 10 1800 0 22 22 12 31 43 1800 0 193 43 87 262 349 13	17:15 17:30		9	9	4	80	12	18
1800 0 4 4 0 10 10 1800 0 22 22 12 31 43 0 193 193 87 262 349 1	17:30 17:45		က	ဗ	က	9	6	12
18:00 0 22 22 12 31 43 0 193 193 87 262 349 1	17:45 18:00	_	4	4	0	10	10	4
0 193 193 87 262 349 1	17:00 18:00	0	22	22	12	31	43	92
		0	193	193	87	262	349	542

Comment:

2018-Mar-28

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Ottawa

Transportation Services - Traffic Services

Work Order 37476

Turning Movement Count - Full Study Summary Report

	CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC	E OF AR(CHIB/	ALD ST/M	ESTGATE SC	
Survey Date:	Survey Date: Wednesday, January 31, 2018	Tota	l Obser	Total Observed U-Turns		AADT Factor
		Northbound: 0	0	Southbound:	0	1.00
		Eastbound: 14	4	Westbound:	2	
		Full Study	Study			

T3 E OF ARCHIBALD STYMESTGATE SIC With Dound CARLING AVE Northbound Southbound Southbound CARLING AVE CARLING AVE Period IT ST RT SS RT SS RT TOT IT ST RT ST RT ST RT RT RT ST										un otuay	Š									
Mestbound IF VMS STR VMS STR TOT		73 E (OF AR	CHIB,	ALD S	TWES	STGAT	E SC	≥				Ö	RLING	3 AVE					
Nat Nat	•	Z	orthbo	pund		S	outhbo	pun	İ	l		Eastbo	pun			Westbo	punc			
18 0 695 13 708 1626 22 0 939 17 996 1918 15 0 875 20 895 1710 94 0 917 11 928 1622 165 0 928 4 932 1637 59 0 1601 5 1606 2265 72 0 1503 4 1507 2479 88 0 1370 5 1375 238 88 0 1370 5 1375 238 88 0 1370 5 140 150 10 0 1370 1 1238 2170 16 0 12271 10 1238 2170 14.39 1 10 1238 2170 14.00 1 1 1238 2170 16 0 1271 10 </th <th>Period</th> <th>L</th> <th>ST</th> <th>RT</th> <th>NB TOT</th> <th>ᄓ</th> <th>ST</th> <th>RT</th> <th>SB TOT</th> <th>STR TOT</th> <th>□</th> <th>ST</th> <th>RT</th> <th>EB TOT</th> <th>≒</th> <th>ST</th> <th>RT</th> <th>WB</th> <th>STR TOT</th> <th>Grand Total</th>	Period	L	ST	RT	NB TOT	ᄓ	ST	RT	SB TOT	STR TOT	□	ST	RT	EB TOT	≒	ST	RT	WB	STR TOT	Grand Total
62 0 939 17 956 1918 15 0 875 20 895 1710 94 0 917 11 928 1622 95 0 928 4 932 1637 59 0 1601 5 1607 2265 72 0 1503 4 1507 2479 88 0 1370 5 1375 2338 88 0 1370 5 1375 1538 10 0 1370 5 1395 1541 10 0 1370 1 1538 2170 14 0 12271 110 12384 2170 14.39 1 1 1 1 1 15 0 12271 10 1 1 1 15 0 1 1 1 1 1 1 <	07:00 08:00	0	0	0	0	3	0	7	10	10	-	917	0	918	0	969	13	708	1626	1636
15	00:60 00:80	0	0	0	0	80	0	17	22	25	4	928	0	962	0	939	17	926	1918	1943
94 0 917 11 928 1622 95 0 928 4 932 1637 95 0 1601 5 1606 2265 72 0 1503 4 1507 2479 88 0 1370 5 1375 2338 88 0 1370 5 1375 2338 14 1 130 1595 146 1507 1505 15 0 1320 5 136 1501 1601 1501 1501 1501 1700 1501 1700 1731 1700 1731 1700 1731 1734 1730 1731 1732 1740 1731 1732 1731 1732 1731 1732 1731 1731 1732 1732 1731 1732 1732 1732 1732 1732 1732 1732 1732 1732 1732 1732 1732 <td< td=""><td>09:00 10:00</td><td>0</td><td>0</td><td>0</td><td>0</td><td>14</td><td>0</td><td>48</td><td>62</td><td>95</td><td>0</td><td>815</td><td>0</td><td>815</td><td>0</td><td>875</td><td>70</td><td>895</td><td>1710</td><td>1772</td></td<>	09:00 10:00	0	0	0	0	14	0	48	62	95	0	815	0	815	0	875	70	895	1710	1772
05 0 928 4 932 1637 59 0 1601 5 1606 2265 72 0 1503 4 1507 2479 63 0 1370 5 1375 2338 88 0 1370 5 1375 2338 14 1 2 16 15595 14 1 2 16 16 15 1 1 1 1 16 0 1 1 1 16 0 1 1 1 16 0 1 1 1 16 0 1 1 1 16 0 1 1 1 1 16 0 1 1 1 1 16 0 1 1 1 1 1 1 1 1 1 1	11:30 12:30	0	0	0	0	21	0	19	85	85	2	692	0	694	0	917	Ξ	928	1622	1704
59 0 1601 5 1606 2248 72 0 1503 4 1507 2479 63 0 1370 5 1375 2338 88 0 1828 79 8907 1561 14 2 16 1 1 1 20 0 8828 79 8908 15611 16 0 12271 110 12384 27700 1.39 1 1221 10 12384 27700 1.00 1 1221 10 12384 27700 1.30 1 1 12384 27700 1.30 1 1 1 2384 27700 1.30 1 1 1 2 2842	12:30 13:30	0	0	0	0	17	0	22	75	72	3	702	0	705	0	928	4	932	1637	1709
72 0 1503 4 1507 2479 63 0 1370 5 1375 2338 88 0 8828 79 8907 15695 14 2 7 7 16 02 0 8828 79 8908 15611 16 0 12271 110 12384 27700 14.39 12271 110 12384 27700 1.00 0 12271 110 12384 27700 1.00 0 12271 110 12384 27700 1.30 0 16 0 12271 110 12384 27700 1.30 1 1 1 1 2 28426	15:00 16:00	0	0	0	0	18	0	45	63	63	-	929	0	629	0	1601	2	1606	2265	2328
63 0 1370 5 1339 2338 88 0 8828 79 8907 15695 14 2 16 1 1 1 12 0 8828 79 8909 15611 1 16 0 12271 110 12384 2700 2 13 0 12271 110 12384 21700 2 10 0 12271 110 12384 21700 2 10 0 12271 110 12384 21700 2 10 0 12271 110 12384 21700 2 11 0 16 0 12271 11 2 2842 11 0 16 0 12 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	16:00 17:00	0	0	0	0	31	0	38	69	69	33	696	0	972	0	1503	4	1507	2479	2548
88 0 8828 7 8907 15595 14 2 16 2 16 02 0 8828 79 8909 15611 16 0 12271 110 12384 21700 16 0 12271 110 12384 21700 100 0 12271 110 12384 21700 11.00 1 12384 1200 1200 11.00 0 12271 14 16222 28426 11.31 1 1436 140 16226 28426	17:00 18:00	0	0	0	0	19	0	33	52	52	1	962	0	963	0	1370	5	1375	2338	2390
1	Sub Total	0	0	0	0	131	0	304	435	435	15	6673	0	8899	0	8828	79	8907	15595	16030
02 0 8828 79 8909 15611 16 0 12271 110 12384 21700 1.39 12271 110 12384 21700 1.00 0 12271 110 12384 21700 0.00 1.0075 144 16222 28426 1.31 1.31 1.31 1.32 28426	U Turns				0				0	0				14				2	16	16
1.39 21271 110 12384 21700 1.39 160 12271 110 12384 21700 1.00 16075 144 16222 28426 1.31	Total	0	0	0	0	131	0	304	435	435	15	6673	0	6702	0	8828	79	8909	15611	16046
16 0 12271 110 12384 21700 1.00 04 0 16075 144 16222 28426 1.31	EQ 12Hr	0	0	0 After the	0 Adillink	182	0 totals by	423 the an	605 propriate	605 expansi	21 on fact	9275 or	0	9316	0 68	12271	110	12384	21700	22305
16 0 12271 110 12384 21700 1.00 104 0 16075 144 16222 28426 1.31																				Ī
04 0 16075 144 16222 28426 1.31	AVG 12Hr Note: These	0 olumes	0 are calc.	0 ulated t	0 by multip	182 olying th	0 e Equiva	423 alent 12	605 hr. total	605 s by the	21 AADT 1	9275 actor.	0		° 00:	12271	110	12384	21700	22305
- 1	AVG 24Hr	0	0	0	0	239	0	554	792	792	27	12151	0	12204	0	16075	144	16222	28426	29218
	Note: These	volumes	are calc	ulated t	oy multip	olying th	e Averaç	je Dail	/ 12 hr. t	otals by	12 to 24	t expans	ion fac	1	31					Ī

Comments: Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

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Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Miovision 37476

WO No: Device:

Survey Date: Wednesday, January 31, 2018

Start Time: 07:00

11 55 **₩** 8 1 Total 0 **Z**. ≷ *****\$ **ॐ** Cars 917 0 73 E OF ARCHIBALD ST/WESTGATE SC W 4 2 Ł 0 0 <u>ح</u> د ₹ o **4** 08:15 09:15 AM Period Peak Hour: Ł 10 0 0 0 **±** Ç 0 **#** # 0 0 ٦ ٠**٠** 23 ก ٦ 0 0 0 907 Cars ***** Heavy Vehicles **←** ∘ **%**† -Total CARLING AVE 933 0 940 42 1020 1960

Transportation Services - Traffic Services

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC Turning Movement Count - Full Study Peak Hour Diagram

¥ k Miovision 37476 1 1001 **₽**₽~ ≷ WO No: Device: 23 **ॐ** Cars *****\$ 1484 876 73 E OF ARCHIBALD STWESTGATE SC W t 0 0 <u>ح</u> د **=** o 🛊 16:00 17:00 Peak Hour: Full Study Ł 0 0 0 **=** Ç **\$** 0 0 Survey Date: Wednesday, January 31, 2018 ٦ 。 **+** 38 38 ภ ۴ 0 0 1522 946 Cars **← *** Heavy Vehicles 23 Start Time: 07:00 **%**1 -Total CARLING AVE 696 0 972 *** *** 2 2513 11

Comments

Comments

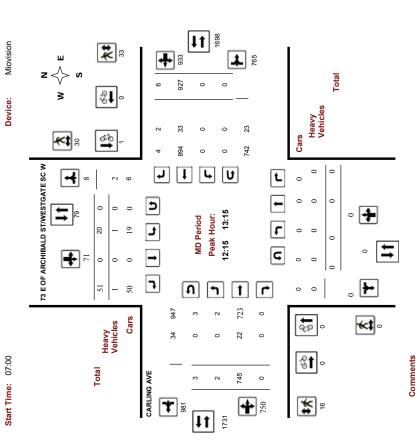
2018-Mar-28

2018-Mar-28

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CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC Turning Movement Count - Full Study Peak Hour Diagram



Transportation Services - Traffic Services

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC Turning Movement Count - Full Study Peak Hour Diagram

Miovision 37476

WO No: Device:

Survey Date: Wednesday, January 31, 2018

37476

WO No:

Survey Date: Wednesday, January 31, 2018

Start Time: 07:00

¥ k 1 1001 **₽**₽~ ≷ 23 **ॐ** Cars *****\$ 1484 876 73 E OF ARCHIBALD STWESTGATE SC W Ł 0 0 <u>ح</u> د **=** o 🛊 16:00 17:00 Peak Hour: PM Period Ł 0 0 0 Ç **\$** 0 0 ٦ 。 **+** 38 38 ภ ۴ 0 0 1522 946 Cars **← *** Heavy Vehicles **%**1 -Total CARLING AVE 696 0 972 *** *** 2 2513 11

Comments

2018-Mar-28



Work Order

Turning Movement Count - 15 Min U-Turn Total Report

CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Survey Date: Wednesday, January 31, 2018

Total	0	0	0	1	1	0	0	3	-	-	-	0	0	-	0	-	2	0	0	1	0	0	1	0	-	0	0	0	0	1	0	0	16
Westbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Eastbound U-Turn Total	0	0	0	1	1	0	0	3	-	-	0	0	0	-	0	-	2	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	14
Southbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound U-Turn Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eriod	07:15	02:30	07:45	08:00	08:15	08:30	08:45	00:60	09:15	08:30	09:45	10:00	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	tal
Time Period	00:20	07:15	07:30	07:45	08:00	08:15	08:30	08:45	00:60	09:15	08:30	09:45	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	Total

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Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ WESTGATE SC E

WO No: Device:

Survey Date: Wednesday, June 17, 2015

34721 Jamar Technologies, Inc 10 z <∕> ∨ **₩** 25 335 Total 812 29 7 **₫1** 5 ≥ Heavy Vehicles 29 <u>ॐ</u> ∘ *****\$ Cars 753 U **4** 528 Ł 224 2 ٦ WESTGATE SC E ⁵³ 301 08:15 09:15 Peak Hour: AM Period Ł t 38 0 38 16 0 16 Ç 38 £ 52 0 0 7 <u>~</u> 35 33 13 ภ 4 0 842 Cars **← ←**‡ ω Heavy Vehicles Start Time: 07:00 **%**↑ ∞ Total CARLING AVE 13 159 892 22 **♣** 66 *** *** 88 2077

Comments

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ر کر Jamar Technologies, Inc **1** 1 2607 23 34721 **4** 8 \$ 8 **z** 🔷 Turning Movement Count - Full Study Peak Hour Diagram 124 **₽**\$... ≥ WO No: Device: *****\$ 5 **ॐ** CARLING AVE @ WESTGATE SC E 1634 777 124 Ţ U **4** 52 **2** 228 t 255 2 461 WESTGATE SC E 16:15 17:15 Peak Hour: Full Study t Ł 66 66 Ç 203 7 Survey Date: Wednesday, June 17, 2015 100 100 ก 1 4 673 128 Cars **€**• Heavy Vehicles **%**↑ Start Time: 07:00 Total 702 CARLING AVE 131 4 ø 882 ¥ 4 1826 11 2708

Total Heavy Vehicles Cars <u>-</u> 10 10 **+** 9 <u>~</u> [→ 5 0

Comments

***<**‡ ≈

Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ WESTGATE SC E

Survey Date: Wednesday, June 17, 2015 Start Time: 07:00

34721 Jamar Technologies, Inc

WO No: Device:

1567 ***** 12 **₽** 842 **♣** 625 **z** 🔷 Total 123 814 **41** ≥ Heavy Vehicles 84 **ॐ** Cars **≪**‡ ⊨ 290 118 99/ Ţ **₩** 92. 1 U Ł 9 13 337 ح WESTGATE SC E **← ₹** 11:30 12:30 Peak Hour: **MD Period** Ł 78 £ 9 0 **=** Ç 33 ⁵⁰⁸ 0 7 <u>∞</u> [→ 129 127 ภ ٣ 19 0 509 953 Cars **← ***\$ Heavy Vehicles \$**1** Total CARLING AVE 539 15 54 225 **₩** 02 **♣** 83 **♣** 50 11 1836

Comments

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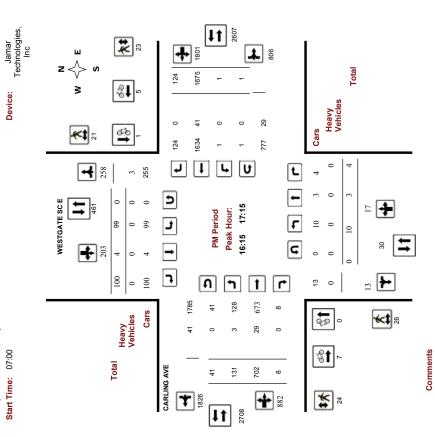


Turning Movement Count - Full Study Peak Hour Diagram

CARLING AVE @ WESTGATE SC E

WO No: Device: Survey Date: Wednesday, June 17, 2015 Start Time: 07:00

34721





Transportation Services - Traffic Services **Turning Movement Count - Full Study Diagram**

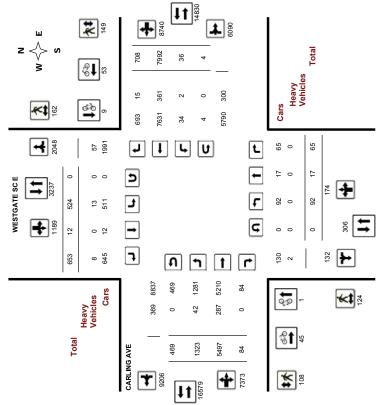
CARLING AVE @ WESTGATE SC E

Survey Date: Wednesday, June 17, 2015

Device:

WO#:

34721 Jamar Technologies, Inc



Comments

2017-Mar-17

2017-Mar-17

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Work Order 34721

AADT Factor

Total Observed U-Turns

Survey Date: Wednesday, June 17, 2015

								Eastbound:		469	West	Westbound:	4						
								F	Full Study	hay									
			WES	WESTGATE SC E	ESC	ш						S	CARLING AVE	3 AVE					
ı	Z	Northbound	pund		S	Southbound	punc	ĺ			Eastbound	pund			Westbound	puno			
Period	5	ST	R	NB TOT	₽	ST	R	SB TOT	STR TOT	b	ST	ᅜ	EB 101	5	ST	Ъ	WB TOT	STR TOT	Grand Total
00:80 00:20	12	-	33	16	22	0	15	37	53	82	821	7	910	2	533	29	292	1477	1530
00:60 00:80	19	2	6	30	27	0	98	92	95	141	915	12	1068	2	784	52	838	1906	2001
00:01 00:60	15	-	12	78	62	-	72	135	163	235	999	6	406	6	764	93	998	1773	1936
11:30 12:30	9	2	9	14	78	-	129	208	222	225	539	15	779	33	814	123	940	1719	1941
12:30 13:30	7	3	7	11	88	3	66	182	199	204	903	4	811	4	707	4	808	1619	1818
15:00 16:00	11	0	13	24	11	-	109	187	211	172	299	15	854	7	1266	96	1368	2222	2433
16:00 17:00	80	4	7	19	66	4	94	197	216	142	1/9	80	821	-	1681	125	1807	2628	2844
17:00 18:00	14	4	8	56	79	2	4	178	204	122	618	14	754	2	1443	94	1542	2296	2500
Sub Total	92	17	99	174	524	12	653	1189	1363	1323	5497	84	6904	36	7992	708	8736	15640	17003
U Turns				0				0	0				469				4	473	473
Total	92	17	99	174	524	12	653	1189	1363	1323	5497	84	7373	36	7992	708	8740	16113	17476
EQ 12Hr	128	24	06	242	728	17	806	1653	1895	1839	7641	117	10248	20	11109	984	12149	22397	24292
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.	alues an	e calcul	ated by	multiply	ing the	totals by	, the ap	propriate (expans	ion fact	or.		-	1.39					
AVG 12Hr	115	21	81	218	959	15	817	1487	1705	1655	2289	105	9224	45	8666	988	10934	20158	21863
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.	olumes (are calc	ulated t	oy multip	olying th	e Equiva	alent 12	hr. totals	by the	AADT 1	factor.		~:	90					
AVG 24Hr	151	28	107	285	859	20	1070	1949	2234	2168	6006	138	12083	26	13097	1160	14323	26406	28640
Make These relies are calculated by southful for the Areses Delir 40 by totals by 40 to 04 are seen feeter		-		-			1							;					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services W.O.

34721

Turning Movement Count - 15 Minute Summary Report

Nedrost WES Northbound LT R Northbound C7.00 C7.15 C7.00 07:00 07:15 C C T 07:15 07:30 S C T C 07:45 08:00 S C T C C T 08:00 08:15 08:00 S C T C C T 08:00 08:45 08:00 S C C T 08:00 08:45 08:00 C C T C C T 08:00 08:45 08:00 C C T C C T C C T C C D T C C D T C D T D C D T D D T D D D T D D D D D	Wednesday, June 17, 2015 WESTGATE SC E Southbound Southbound RT TOT LT RT RT 1 3 5 0 3 1 6 4 0 5	, June	17, 20	115	No.	To Northbound: Eastbound:	otal C	Total Observed U-Turns nd: 0 Southbound:	/ed L	-Turn		l .				
Northbox 07:15 2 0 07:30 5 0 07:45 3 1 08:00 2 0 08:15 8 0 08:30 6 2 08:45 3 0	STGATE TOT 3 6					stboun				Southbound		_				
Northba 07:15 2 0 07:30 5 0 07:45 3 1 08:00 2 0 08:15 8 0 08:30 6 2 08:45 3 0	STGATE N TOT 3 6				Ea			469	Ň	Westbound:						
Northbound Period LT ST 2 0 07:30 5 0 07:45 3 1 1 08:00 2 0 08:15 8 0 08:15 8 0 08:45 3 0 09:00 2 09:00 2 0 09:00 2 0 09:00 2 0 09:00 2 0 09:00 2 0 09:00 2 0 0		SCE						o	ARL	CARLING AVE	Щ					
Period LT ST 07.15 2 0 0 07.30 5 0 0 07.45 3 1 1 08.00 2 0 08.15 8 0 08.45 3 0 09.00 08.45 3 0 09.00 2 0 0		Sol	Southbound				Eas	Eastbound			×	Westbound	_			
07:15 2 07:30 5 07:45 3 08:00 2 08:30 6 08:30 6 08:45 3 09:00 2 09:00 2	ი დ	5	ST	RT	s T0T	STR	L	ST	R	ם	占	ST	R	∡բ	STR	Grand Total
07:30 5 07:45 3 08:00 2 08:15 8 08:30 6 08:45 3 09:00 2	9	2	0	ဗ	∞	7	12	163	←	182	~	102	7	110	292	303
07:45 3 08:00 2 08:05 8 08:30 6 08:45 3 09:00 2		4	0	2	6	15	4	197	က	237	←	117	2	123	360	375
08:00 2 08:15 8 08:30 6 08:45 3 09:00 2	4	4	0	2	9	10	23	224	7	266	က	140	10	153	419	429
08:15 8 08:30 6 08:45 3 09:00 2	က	6	0	2	4	4	33	237	←	287	0	174	7	181	468	485
08:30 6 08:45 3 09:00 2	12	2	0	12	17	59	59	220	2	262	←	183	7	191	453	482
08:45 3 09:00 2	6	80	0	7	19	88	36	237	←	290	0	48	=	195	485	513
	9	7	0	6	16	22	30	224	7	283	←	189	13	203	486	208
	ო	7	0	9	13	16	46	234	2	302	0	228	21	249	551	267
09:00 09:15 5 0 0	ıçı	16	0	6	25	93	47	197	က	264	←	211	22	234	498	528
09:15 09:30 3 1 5	6	21	_	17	39	48	61	165	0	246	4	170	23	197	443	491
09:30 09:45 1 0 5	9	10	0	20	30	36	64	162	7	239	0	179	23	202	441	477
09:45 10:00 6 0 2	œ	15	0	56	4	49	63	139	4	223	4	204	25	233	456	505
11:30 11:45 3 0 2	ιο	20	0	31	51	26	28	132	-	200	7	206	56	234	434	490
11:45 12:00 1 0 3	4	56	0	31	22	61	22	130	2	207	-	193	59	223	430	491
12:00 12:15 0 0 0	0	10	-	27	38	38	64	135	7	218	0	209	39	249	467	505
12:15 12:30 2 2 1	9	22	0	40	62	29	46	142	7	208	0	206	59	236	44	511
12:30 12:45 2 1 2	ιo	17	-	32	20	22	45	169	_	237	-	166	56	193	430	485
12:45 13:00 3 2 0	9	15	2	20	37	42	22	138	3	214	-	160	25	186	400	442
13:00 13:15 1 0 0	-	25	0	24	49	20	21	145	0	207	0	186	19	205	412	462
13:15 13:30 1 0 5	9	23	0	23	46	25	51	151	0	217	7	195	27	224	44	493
15:00 15:15 3 0 3	9	19	0	31	20	26	42	160	7	222	0	261	24	285	202	563
15:15 15:30 2 0 4	9	4	0	30	4	20	46	178	_	233	4	316	19	339	572	622
15:30 15:45 4 0 2	9	25	_	23	49	22	4	154	4	215	—	325	22	348	563	618
15:45 16:00 2 0 4	9	19	0	25	4	20	40	175	က	235	7	364	30	396	631	681
16:00 16:15 3 2 3	80	22	0	25	47	22	4	45	7	212	←	376	30	407	619	674
16:15 16:30 2 0 2	4	59	0	23	25	26	31	174	0	216	0	451	32	483	669	755
16:30 16:45 2 1 1	4	54	_	22	47	51	31	162	_	206	0	444	33	477	683	734
16:45 17:00 1 1 1	က	24	ю	24	5	25	36	181	2	232	0	410	30	440	672	726
17:00 17:15 5 1 0	9	22	0	33	53	29	33	185	2	228	←	370	59	401	629	688
17:15 17:30 2 2 1	ιo	19	0	24	43	48	33	138	က	188	←	405	23	429	617	999
17:30 17:45 3 1 4	œ	19	-	8	38	46	56	152	က	203	7	360	17	380	583	629
17:45 18:00 4 0 3	7	19	-	54	4	5	30	143	9	194	←	308	25	334	528	629
TOTAL: 92 17 65	174	524	12	653	1189	1363	1323	5497	2	7373	36	7992	708		8740 16113	17476

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2017-Mar-17

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Ottawa

Transportation Services - Traffic Services

Work Order

34721

Start Time: 07:00 Street Total **Turning Movement Count - Cyclist Volume Report** CARLING AVE Westbound CARLING AVE @ WESTGATE SC E Eastbound WESTGATE SC E Count Date: Wednesday, June 17, 2015 Southbound Time Period 07:00 08:00 08:00 09:00 10:00 11:30 12:30 12:30 13:30 15:00 16:00 17:00 18:00 Total 16:00 17:00

Comment



Transportation Services - Traffic Services

W.O. 34721

Turning Movement Count - Heavy Vehicle Report

						CA	RLI	9	\VE	<u>@</u>	NES	TG/	¥TE	CARLING AVE @ WESTGATE SC E	ш					
Survey Date:	y Date	;;	Wed	nesd	lay, Ju	ne 17	Wednesday, June 17, 2015													
			WES	TGA	WESTGATE SC E	ш						S	RLIN	CARLING AVE						
		Northbound	puno		,	Southbound	puno				Eastbound	pun		S	Westbound	pun				
Time	Time Period	占	ST	R	νÞ	5	ST	Ä	s <u>T</u>	STR TOT	占	ST	R	파턴	占	ST	R	×٢	STR	Grand Total
07:00	08:00	0	0	0	0	0	0	0	0	0	3	27	0	30	-	40	0	41	74	11
08:00	00:60	0	0	0	0	0	0	2	7	7	4	46	0	20	0	63	0	63	113	115
00:60	10:00	0	0	0	0	~	0	←	7	7	7	47	0	54	0	99	2	89	122	124
11:30	12:30	0	0	0	0	2	0	7	7	7	80	30	0	38	0	48	2	53	91	86
12:30	13:30	0	0	0	0	4	0	က	7	7	2	39	0	44	_	39	4	4	88	92
15:00	16:00	0	0	0	0	7	0	0	7	7	7	45	0	52	0	4	8	47	66	101
16:00	17:00	0	0	0	0	~	0	0	-	-	က	32	0	35	0	38	0	38	23	74
17:00	18:00	0	0	0	0	0	0	0	0	0	2	77	0	56	0	23	—	24	20	20
Sub Total	Total	0	0	0	0	13	0	80	21	21	42	287	0	329	2	361	15	378	707	728
U-Turn	U-Turns (Heavy Vehicles)	y Ver	icles)		0				0	0				0				0	0	0
Tol	Total	0	0	0	0	13	0	8	21	21	42	287	0	329	2	361	15	378	707	728
1.00	coord obules coleide) (recent	la china								ľ	ŀ			ш	1					

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2017-Mar-1

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Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

2017-Mar-17



Work Order 34721

Turning Movement Count - Pedestrian Volume Report

		CAI	CARLING AVE	/E @ WESTGATE SC	ATE SC E		
Count Date	Count Date: Wednesday, June 17, 2015	June 17, 2015)		Start Time:	00:20
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	-	-	2	1	0	-	င
07:15 07:30	0	_	-	-	4	2	9
07:30 07:45		2	7	-	4	2	7
07:45 08:00	2	2	7	-	-	2	6
00:80 00:20	9	9	12	4	6	13	25
08:00 08:15	2	2	10	2	က	9	15
08:15 08:30	_	8	4	က	ო	9	9
08:30 08:45	2	80	10	2	2	7	17
08:45 09:00	_	က	4	4	2	9	10
00:60 00:80	6	19	28	11	13	24	52
09:00 09:15	-	4	2	2	9	8	13
09:15 09:30	2	0	2	-	0	-	က
09:30 09:45	က	4	7	-	4	ı,	12
09:45 10:00	2	2	7	2	2	7	4
09:00 10:00	11	10	21	9	15	21	42
11:30 11:45	3	4	7	4	2	9	13
11:45 12:00	2	_	9	4	2	6	15
12:00 12:15	80	6	17	4	10	41	3
12:15 12:30	6	8	12	7	10	17	59
11:30 12:30	25	17	42	19	27	46	88
12:30 12:45	-	10	11	0	7	7	18
12:45 13:00	7	7	4	9	80	41	28
13:00 13:15	က	2	80	ო	2	2	13
13:15 13:30	-	41	15	4	-	22	70
12:30 13:30	12	36	48	13	18	31	62
15:00 15:15	2	4	9	2	2	7	13
		6	15	2	4	9	21
	2	6	£	2	00	10	21
15:45 16:00	ဗ	4	7	4	7	7	18
15:00 16:00	13	26	39	10	24	34	73
16:00 16:15	2	9	8	1	8	6	17
	2	4	6	2	80	13	23
16:30 16:45		7	12	2	2	10	23
16:45 17:00	80	4	12	4	4	80	20
16:00 17:00	20	21	41	15	25	40	81
17:00 17:15	80	9	14	10	9	16	30
17:15 17:30		10	18	က	7	10	78
17:30 17:45	80	80	16	6	2	1	27
17:45 18:00	4	3	7	80	ဗ	7	18
17:00 18:00	28	27	22	30	18	48	103
Total	124	162	286	108	149	257	543

2017-Mar-17

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Ottawa

Transportation Services - Traffic Services

Work Order 34721

Turning Movement Count - 15 Min U-Turn Total Report CARLING AVE @ WESTGATE SC E

| | ı | ı | ı | ı | ı | ı | ı | ı | ı
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--|--|--|
| Total | 9 | 23 | 17 | 16 | 11 | 16 | 22 | 20 | 17
 | 20 | 11 | 17 | 6 | 15 | 13
 | 19 | 22 | 16 | 1 | 15
 | 13

 | 80

 | 13 | 17 | 12
 | 11 | 12 | 10 | 6 | 14
 | 23 | 15 | 473 |
| Westbound
U-Turn Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0 | 7
 | - | 0 | 0 | 0 | 0
 | 0

 | 0

 | 0 | 0 | 0
 | 0 | 0 | 0 | - | 0
 | 1 | 0 | 4 |
| Eastbound
U-Turn Total | 9 | 23 | 17 | 16 | 11 | 16 | 22 | 20 | 17
 | 20 | 11 | 17 | 6 | 15 | 12
 | 18 | 22 | 16 | 11 | 15
 | 13

 | 80

 | 13 | 17 | 12
 | 11 | 12 | 10 | 80 | 14
 | 22 | 15 | 469 |
| Southbound U-Turn Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0
 | 0

 | 0

 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 |
| Northbound
U-Turn Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0
 | 0

 | 0

 | 0 | 0 | 0
 | 0 | 0 | 0 | 0 | 0
 | 0 | 0 | 0 |
| riod | 07:15 | 07:30 | 07:45 | 08:00 | 08:15 | 08:30 | 08:45 | 00:60 | 09:15
 | 08:30 | 09:45 | 10:00 | 11:45 | 12:00 | 12:15
 | 12:30 | 12:45 | 13:00 | 13:15 | 13:30
 | 15:15

 | 15:30

 | 15:45 | 16:00 | 16:15
 | 16:30 | 16:45 | 17:00 | 17:15 | 17:30
 | 17:45 | 18:00 | tal |
| Time P | 00:20 | 07:15 | 02:30 | 07:45 | 08:00 | 08:15 | 08:30 | 08:45 | 00:60
 | 09:15 | 06:30 | 09:45 | 11:30 | 11:45 | 12:00
 | 12:15 | 12:30 | 12:45 | 13:00 | 13:15
 | 15:00

 | 15:15

 | 15:30 | 15:45 | 16:00
 | 16:15 | 16:30 | 16:45 | 17:00 | 17:15
 | 17:30 | 17:45 | Total |
| | Southbound Eastbound Westbound U-Turn Total U-Turn Total | riod Northbound Southbound Eastbound Westbound U-Turn Total U-Turn Total U-Turn Total 07:15 0 0 6 0 | riod Northbound Southbound U-Tum Total Southbound U-Tum Total 07:15 0 6 0 0 0 0 07:30 0 0 23 0 0 | riod Northbound Southbound Orthon Southbound Southbound Southbound U-Turn Total U-Turn U-T | riod Northbound Northbound Southbound Southbound Southbound Southbound O7:15 Eastbound Purm Total U-Turm U | riod Northbound Northbound Southbound Office (North Color) Southbound Southbound Office (North Color) Eastbound Office (North Color) Mestbound Office (North Color) 07:15 0 0 6 0 0 07:30 0 0 23 0 08:00 0 17 0 08:00 0 16 0 08:15 0 11 0 | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L-Turn Total U-Turn Total U- | riod Northbound Southbound | riod Northbound Southbound Southbound Ort.15 Southbound Ort.15 Lum Total U-Tum Total U-T | riod Northbound Northbound Southbound Or.15 Southbound Southbound Or.15 Eastbound U-Turn Total U-Tur | riod Northbound Southbound Southbound Office Southbound Southbound Southbound Office Southbound Of | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 Eastbound Or.10 Westbound Or.10 07:15 0 0 6 0 07:30 0 0 0 0 08:00 0 17 0 0 08:15 0 0 11 0 08:30 0 0 16 0 08:30 0 0 22 0 09:00 0 0 0 0 09:15 0 0 0 0 09:30 0 22 0 0 09:30 0 0 22 0 09:30 0 20 0 0 09:30 0 20 0 0 09:30 0 17 0 0 | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 Eastbound Or.10m Total U.Turn Total U.Tur | riod Northbound Southbound Ort.15 Southbound Southbound Ort.15 Eastbound Ort.10 Westbound Ort.10 07:15 0 0 6 0 07:36 0 0 23 0 07:45 0 0 17 0 08:00 0 16 0 0 08:15 0 0 16 0 08:30 0 0 16 0 08:45 0 0 16 0 09:00 0 0 17 0 09:15 0 0 0 0 09:30 0 0 0 0 09:30 0 0 0 0 09:30 0 0 0 0 09:30 0 0 0 0 09:45 0 0 0 0 0 0 0 0 0 10:00 0 0 | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 L-Turn Total | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 L-Turn Total | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 L.Turn Total U.Turn U.Tur | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 L.Turn Total L.Turn Total D.Turn | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 L.Turn Total L.Turn Total D.Turn D.Tu | riod Northbound Northbound Southbound | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 Couthbound Southbound Or.15 Couthbound Or.15 <th>riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 Couthbound Southbound Or.15 Couthbound Or.15<th>riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn /th><th>riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn /th><th>riod Northbound burn foat Southbound burn Total burn</th><th>riod Northbound Southbound Southbound Order Southbound Southbound Order Southbound Southbound Order LTurn Total International LTurn Total International Internation</th><th>riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 Lum Total Lum Tota</th><th>riod Northbound Southbound /th><th>riod Northbound Northbound Southbound /th><th>riod Northbound Jum Total U-Tum /th><th>riou Northbound bound boun</th><th>riod Worthbound bound boun</th><th>rior (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)</th></th> | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 Couthbound Southbound Or.15 Couthbound Or.15 <th>riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn /th> <th>riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn /th> <th>riod Northbound burn foat Southbound burn Total burn</th> <th>riod Northbound Southbound Southbound Order Southbound Southbound Order Southbound Southbound Order LTurn Total International LTurn Total International Internation</th> <th>riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 Lum Total Lum Tota</th> <th>riod Northbound Southbound /th> <th>riod Northbound Northbound Southbound /th> <th>riod Northbound Jum Total U-Tum /th> <th>riou Northbound bound boun</th> <th>riod Worthbound bound boun</th> <th>rior (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)</th> | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn | riod Northbound Southbound Southbound Or.15 Southbound Southbound Or.15 L.Turn Total L.Turn | riod Northbound burn foat Southbound burn Total burn | riod Northbound Southbound Southbound Order Southbound Southbound Order Southbound Southbound Order LTurn Total International LTurn Total International Internation | riod Northbound Southbound Southbound Ort.15 Southbound Southbound Ort.15 Lum Total Lum Tota | riod Northbound Southbound | riod Northbound Northbound Southbound | riod Northbound Jum Total U-Tum | riou Northbound bound boun | riod Worthbound bound boun | rior (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) |

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Public Works - Traffic Services

Turning Movement Count - Full Study Diagram

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

| | 1 | ° 27568 * **₽**↓ Device: Heavy Vehicles **ॐ ***\$ 1749 11 L, U Ł 0 0 Ţ 1 1195 ב 5468 MERIVALE RD Ł 517 t 0 0 3719 Ç 3128 3117 ٦ 3635 591 2 589 4 រា ۴ 112 N OF CARLING AVE/WESTGATE Cars \$25 52 52 Survey Date: 26-Jul-10 2 18 551 544 0 **₩** 1142 * **1**

Comments

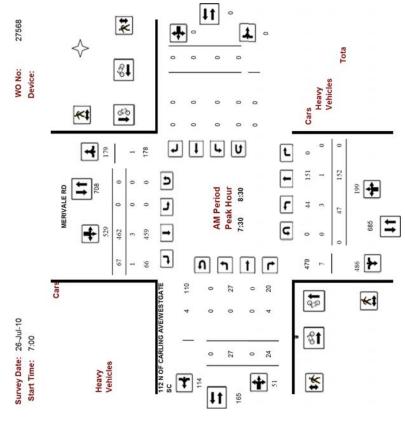
2015-Jul-06

Page 1 of 1



Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram
MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC



Comments

0

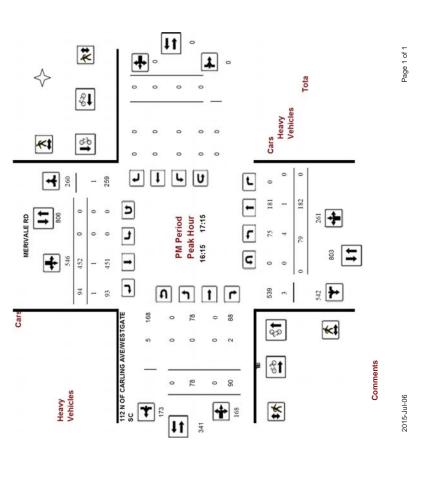
1205

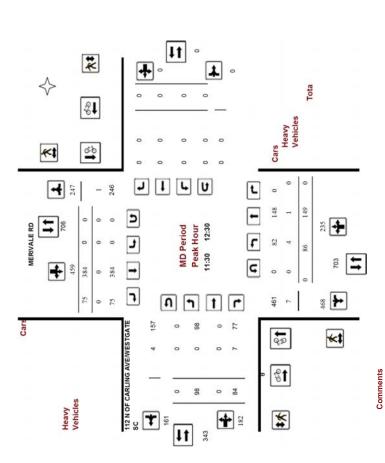
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Public Works - Traffic Services

Work Order 27568

Turning Movement Count - Full Study Summary Report MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

	MERIVALE RD @ 112 N OF CARLING AVE/WESIGALE SC	2 N OF CAR	LING AVE/W	ESIGALE	SC
Survey Date: 26-Jul-10	26-Jul-10	Total Ok	Total Observed U-Turns		AADT Factor
		Northbound: 0	0 Southbound: 0	0	1.00
		Eastbound: 0	Westbound:	0	
		Fill Study			

										5	un orany									
				MER	MERIVALE RD	2		1			112	N OF (CARUN	112 N OF CARLING AVE/WESTGATE SC	WES.	TGATE	SC			
		z	Northbound	Б		Sout	Southbound	_			East	Eastbound			We	Westbound	_			
Ь	Period	П	ST	RT	NB TOT	П	ST	RT	SB TOT	STR	ы	ST	RI	10 10	ב	ST	RT	MB TO	STR	Grand Total
7:00	8:00	14	117	0	158	0	473	28	531	689	16	0	14	30	0	0	0	0	30	719
8:00	00:6	89	156	0	224	0	420	49	469	693	40	0	33	73	0	0	0	0	73	992
00:6	10:00	73	113	0	186	0	334	74	408	594	54	0	45	66	0	0	0	0	66	693
11:30	12:30	98	149	0	235	0	384	75	429	694	86	0	84	182	0	0	0	0	182	876
12:30	13:30	18	135	0	216	0	294	105	333	615	93	0	86	191	0	0	0	0	191	908
15:00	16:00	11	172	0	249	0	401	96	497	746	72	0	95	167	0	0	0	0	167	913
16:00	17:00	70	183	0	253	0	452	08	532	785	95	0	45	187	0	0	0	0	187	972
17:00	18:00	22	180	0	235	0	370	54	424	629	76	0	06	166	0	0	0	0	166	825
To	Total	551	1205	0	1756	0	3128	591	3719	5475	544	0	551	1095	0	0	0	0	1095	6570
Equ	Equ 12Hr	765	1674	0	2439	0	4347	821	5168	7607	756	0	765	1521	0	0	0	0	1521	9128
Note:	These	values a	Note: These values are calculated by multiplying the totals by the appropriate expansion factor.	ated by	v multiply	ying the	totals b	y the a	ppropria	ate exp:	ansion f	actor.			7	1.39				
Avg 12Hr	12H	392	1674	0	2439	0	4347	821	5168	7607	756	0	392	1521	0	0	0	0	1521	9128
Note:	These	volumes	Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.	ulated	by multi	plying t	he Equi	valent	12 hr. to	tals by	the AA	DT fact	or.		-	1.00				
Avg	Avg 24Hr	1002	2192	0	3195	0	5694	1075	6770	9962	066	0	1002	1992	0	0	0	0	1992	11957

Note: These volumes are calculated by multiplying the Average Daily 12 In: totals by 12 to 24 expansion factor. 1.31

Comments:

Note: U-Turns are included in Totals.
2015-Jul-06

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Survey Date:

Public Works - Traffic Services

27568

9	Public	Public Works - Traffic Services	W.O.
2	Turning Moveme	Turning Movement Count - 15 Minute Summary Report	Report
	MERIVALE RD @ 11	MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC	ATE SC
١	26-Jul-10	Total Observed U-Turns	
		Northbound: 0 Southbound: 0	
		Eastbound: 0 Westbound: 0	
	MERIVALERD	112 N OF CARLING AVE/WESTGATE SC	GATE SC

Grand	Total	145	177	191	206	184	198	187	197	149	189	167	188	228	235	202	211	226	200	188	192	213	260	217	223	212	285	247	228	215	203	210	197	6570
STR	TOT	2	9	13	9	16	16	17	24	16	72	24	32	42	46	4	20	4	22	33	55	4	46	40	37	20	20	47	40	34	46	20	39	1095
>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	T.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westbound	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ш		10	9	e	9	9	9	_	*	9		*	23	2	9	4	05	4	12	0	25	4	9	0	Ŀ	05	05	2	0	34	9	20	39	1095
	1					-	-	2		-		13	15	18	4	19 4		4	(0	18		4	4		69			19 4	18		•			551
pun	R	2	2	7	6	00	9	÷	_	Ø	89	¥			24	=	23	30	26	=	24	26	20	23	26	24	31			22	25	22	21	0
Eastbound	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	544
	5	9	4	9	3	80	10	5	17	7	19	-	17	24	22	25	27	4	31	21	27	18	26	17	Ξ	26	19	28	22	6	21	28	18	
STR	5	140	171	178	200	168	182	170	173	133	162	143	156	186	189	158	161	182	143	149	14	169	214	177	186	162	235	200	188	184	157	160	158	5475
S	ρ	113	132	136	150	121	122	115	£	88	110	106	104	127	116	113	103	121	93	92	90	105	154	116	122	106	167	127	132	120	112	97	92	3719
ъ	R	7	Ξ	20	20	13	4	E	Ξ	4	19	22	19	21	19	19	16	34	13	27	31	16	35	28	17	49	27	23	25	19	Ξ	15	6	591
Southbound	ST	106	121	116	130	108	108	104	100	74	91	84	82	106	26	94	87	87	80	89	69	88	119	88	105	101	140	104	107	101	101	82	98	3128
S	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
z	<u>5</u>	27	39	42	20	47	09	22	62	45	52	37	52	59	73	45	28	61	20	54	51	64	09	61	64	99	89	73	99	64	45	63	63	1756
Ð	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northbound	ST	18	53	33	33	32	47	38	32	27	38	24	98	4	45	53	35	32	æ	37	35	40	4	45	49	4	99	25	37	43	32	23	52	1205
ž	占	Ф	10	Ε	Ξ	12	13	16	27	18	16	13	56	18	28	16	24	59	16	17	19	24	19	19	15	12	18	21	19	21	13	10	11	. 155
	eriod	7:15	7:30	7:45	8:00	8:15	8:30	8:45	00:6	9:15	9:30	9:42	10:00	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	
	Time Period	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	TOTAL:

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Public Works - Traffic Services

W.O. 27568

Turning Movement Count - Heavy Vehicle Report

MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

26-Jul-10 Survey Date:

112 N OF CARLING AVE/WESTGATE SC MERIVALE RD Time Period LT 9:00 10:00 6 11:30 12:30 4 12:30 13:30 7 15:00 16:00 4 16:00 17:00 6 7:00 8:00

2015-Jul-06

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Public Works - Traffic Services

P	#	,	Put	Public Works - Traffic Services	s - Traffic	Services		Work Order
	Juan	2	Turning Movement Count - Cyclist Volume Report	ement Cou	nt - Cyclist	Volume Re	sport	27568
			MERIVALE R	MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC	F CARLING	AVE/WESTG	ATE SC	
Count	Count Date: 26-Jul-10	3-Jul-10					Start Time: 7:00	7:00
			MERIVALE RD		112 N OF C.	112 N OF CARLING AVE/WESTGATE SC	STGATE SC	
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
7:00 8:00	00:	8	9	14	0	0	0	14
8:00	00:6	7	13	20	-	0	-	21
9:00 10:00	00:0	2	3	2	-	0	-	9
11:30 12:30	2:30	9	4	10	9	-	4	14
12:30 13:30	3:30	-	7	80	3	0	3	£
15:00 16:00	9:00	9	8	6	0	-	-	10
16:00 17:00	2:00	13	6	22	е	е	9	28
17:00 18:00	8:00	6	6	18	-	0	-	19
Total		52	54	106	12	2	17	123

Note: These volumes consists of bicycles only (no mopesk or motorcycles) and ARENOT included in the Turning Movement Count Summary. 2015-Jul-06

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	F	Turning Movement Count - Pedestrian Volume Report	1	stocked to:		,	
		9	nent cot	ını - redesu	ian Volume	Report	
		MERIVALE RD	@ 112 N	OF CARLING.	MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC	TE SC	
Count Da	Count Date: 26-Jul-10					Start Time:	7:00
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
7:00 7:15	0	0	0	1	0	1	1
	0	0	0	-	0	-	-
	-	0	-	0	0	0	-
- 1	0	0	0	0	0	0	0
7:00 8:00	1	0	1	2	0	2	3
	0	0	0	0	0	0	0
		2	က	0	0	0	ဇ
		-	-	က	0	က	4
8:45 9:00	0	0	0	0	0	0	0
	1	3	4	3	0	3	7
	0	3	3	3	0	3	9
	-	-	2	0	0	0	2
		2	7	0	0	0	7
	0 0	0	0	2	0	2	2
9:00 10:00	1 0	9	7	2	0	2	12
	0 9	-	1	0	0	0	1
		0	0	0	0	0	0
		2	7	0	0	0	7
12:15 12:30	0	9	9	0	0	0	9
	0 0	6	6	0	0	0	6
		3	9	-	0	-	4
		2	2	0	0	0	2
		က	က	2	0	2	2
13:15 13:30	0 0	2	2	0	0	0	2
12:30 13:30	0 0	13	13	3	0	3	16
	0 9	2	2	1	0	1	8
15:15 15:30	1	8	4	-	0	-	2
15:30 15:45	-	-	7	-	0	-	က
15:45 16:00	0 0	-	-	0	0	0	-
5:00 16:00	0 2	7	6	3	0	3	12
16:00 16:15	5 2	2	4	-	0	1	2
16:15 16:30	0 0	3	3	0	2	2	22
16:30 16:45	0	2	2	0	0	0	2
16:45 17:00	3	0	က	0	0	0	e
16:00 17:00	5 0	7	12	,	2	3	15
17:00 17:15	1	0	-	0	0	0	-
17:15 17:30	0 (2	2	0	0	0	2
17:30 17:45	0	0	0	-	0	-	-
17:45 18:00	0 (0	0	0	0	0	0
7:00 18:00							
	-	2	8	-	0	1	4

Comment: 2015-Jul-06

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Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	21	23	19	15	0	2	0	2	82	ĺ
Non-fatal injury	7	9	1	2	0	1	0	0	20	ĺ
Non reportable	1	0	0	0	0	0	0	0	1	ĺ
Total	29	32	20	17	0	3	0	2	103	ĺ
	#2 or 28%	#1 or 31%	#3 or 19%	#4 or 17%	#7 or 0%	#5 or 3%	#7 or 0%	#6 or 2%		

80% 19% 1% 100%

CARLING AVE/MERIVALE RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	67	33,820	1825	1.09

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	14	15	12	12	0	0	0	0	53
Non-fatal injury	4	7	1	1	0	0	0	0	13
Non reportable	1	0	0	0	0	0	0	0	1
Total	19	22	13	13	0	0	0	0	67
-	28%	33%	10%	10%	0%	0%	0%	0%	<u> </u>

79% 19% 2% 100%

CARLING AVE/WESTGATE SC W

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	4	29,220	1825	0.08

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	2	1	0	0	0	0	0	4
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	2	1	0	0	0	0	0	4
	25%	50%	25%	0%	0%	0%	0%	0%	•

100% 0% 0% 100%

CARLING AVE/WESTGATE SC E

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	16	28,650	1825	0.31

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	2	5	1	3	0	1	0	1	13] {
Non-fatal injury	1	1	0	0	0	1	0	0	3	Ī
Non reportable	0	0	0	0	0	0	0	0	0	Ī
Total	3	6	1	3	0	2	0	1	16	1
	19%	38%	6%	19%	0%	13%	0%	6%		-

81% 19% 0% 100%

MERIVALE RD/WESTGATE SC

Years	Total #	24 Hr AADT	Days	Collisions/MEV
rears	Collisions	Veh Volume	Days	COIIISIONS/IVIE V
2012-2016	2	12.000	1825	0.09

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	1	0	0	0	0	0	0	0	1	5
Non-fatal injury	0	1	0	0	0	0	0	0	1	5
Non reportable	0	0	0	0	0	0	0	0	0	C
Total	1	1	0	0	0	0	0	0	2	10
	50%	50%	0%	0%	0%	0%	0%	0%		

50% 50% 0% 100%

CARLING AVE, MEATH ST to ARCHIBALD ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	1	12,210	1825	0.04

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	0	0	0	0	0	1	1	ĺ
Non-fatal injury	0	0	0	0	0	0	0	0	0	
Non reportable	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	1	1	
	0%	0%	0%	0%	0%	0%	0%	100%		•

100% 0% 0% 100% CARLING AVE, ARCHIBALD ST to WESTGATE SC W

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	1	12,210	1825	0.04

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	0	0	0	0	0	0	0	0	0
Non-fatal injury	1	0	0	0	0	0	0	0	1
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	1
	100%	0%	0%	0%	0%	0%	0%	0%	

0% 100% 0% 100%

CARLING AVE, WESTGATE SC E to WESTGATE SC W

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	2	26,410	1825	0.04

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	0	0	0	0	0	0	0	0	0
Non-fatal injury	1	0	0	1	0	0	0	0	2
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	2
	50%	0%	0%	50%	0%	0%	0%	0%	

0% 100% 0% 100%

CARLING AVE, HWY417 IC124 RAMP67 to HWY417 IC124 RAMP65

Years	Total #	24 Hr AADT	Days	Collisions/MFV
rears	Collisions	Veh Volume	Days	CONSIDERATION OF THE V
2012-2016	7	16.630	1825	0.23

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	1	5	0	0	0	0	0	7
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	1	5	0	0	0	0	0	7
	14%	14%	71%	0%	0%	0%	0%	0%	

100% 0% 0% 100%

MERIVALE RD, ISLAND PARK DR to WESTGATE SC

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	2	9,960	1825	0.11

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	0	0	0	0	1	0	0	2
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	1	0	0	2
	50%	0%	0%	0%	0%	50%	0%	0%	<u>.</u>

100% 0% 0% 100%

CARLING AVE, HWY417 IC124 RAMP65 to WESTGATE SC W

Years	Years Total # 24 Hr AAD Collisions Veh Volum		Days	Collisions/MEV
2012-2016	1	28.790	1825	0.02

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	0	0	0	0	0	0	0	1
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	1
	100%	0%	0%	0%	0%	0%	0%	0%	

100% 0% 0% 100%



City Operations - Transportation Services

Collision Details Report - Public Version

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

Location: CARLING AVE @ 73 E OF ARCHIBALD ST/WESTGATE SC

Traffic Control: Traffic signal Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2016-Oct-20, Thu,20:17	Rain	Turning movement	P.D. only	Wet	West	Making "U" turn	Passenger van	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Nov-27, Sun,10:24	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	
2013-Jan-07, Mon,13:05	Clear	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2012-Jun-19, Tue,16:52	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	

Location: CARLING AVE @ MERIVALE RD

Traffic Control: Traffic signal Total Collisions: 67

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2014-Jan-15, Wed,07:31	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Friday, July 06, 2018 Page 1 of 16

2014-Feb-14, Fri,10:23	Clear	Turning movement	P.D. only	Loose snow	West		Automobile, station wagon	Other motor vehicle
					East		Passenger van	Other motor vehicle
2014-Feb-13, Thu,09:15	Clear	Rear end	P.D. only	Dry	East	Going ahead	Passenger van	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2014-Apr-06, Sun,16:04	Clear	Angle	P.D. only	Dry	East		Automobile, station wagon	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2014-Feb-28, Fri,16:57	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2014-May-14, Wed,16:15	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2014-Aug-05, Tue,15:39	Clear	Angle	Non-fatal injury	Dry	East		Automobile, station wagon	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle
2014-Oct-03, Fri,13:08	Clear	Rear end	P.D. only	Dry	East		Automobile, station wagon	Other motor vehicle
					East	Turning right	Truck - closed	Other motor vehicle

Friday, July 06, 2018 Page 2 of 16

2014-Nov-20, Thu,17:31	Clear	Rear end	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2014-Oct-08, Wed,10:51	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2014-Aug-14, Thu,15:00	Rain	Turning movement	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2015-Apr-24, Fri,22:09	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	g Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Feb-20, Fri,13:24	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2015-Jan-05, Mon,14:09	Clear	Rear end	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Mar-02, Mon,17:53	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jul-19, Sun,17:10	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle

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					West	Turning left	Automobile, station wagon	Other motor vehicle
2015-Feb-03, Tue,16:12	Snow	Angle	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2015-Apr-07, Tue,13:30	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Turning left	Passenger van	Other motor vehicle
2015-Apr-04, Sat,23:40	Clear	Angle	P.D. only	Dry	North	Going ahead	Police vehicle	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-27, Wed,16:41	Clear	Angle	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Feb-17, Tue,13:36	Clear	Sideswipe	Non-fatal injury	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Feb-16, Tue,07:45	Snow	Rear end	P.D. only	Loose snow	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle
2016-Oct-06, Thu,11:45	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Truck and trailer	Other motor vehicle

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					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Sep-23, Fri,08:04	Clear	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Truck - closed	Other motor vehicle
2015-May-26, Tue,15:00	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-04, Mon,17:40	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Dec-09, Wed,20:15	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-17, Sun,18:01	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Aug-23, Tue,13:33	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Sep-08, Thu,23:07	Clear	Rear end	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle

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2016 Can 00 Fri 12:25	Clear	Cidoquino	D.D. only	Dmi	Courth	Changing lance	Automobile	Other meter
2016-Sep-09, Fri,13:35	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2016-Jun-03, Fri,23:03	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile,	Other motor
					South	Going ahead	station wagon Automobile, station wagon	vehicle Other motor vehicle
							otation wagon	TOTILO
2016-Dec-08, Thu,09:41	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Nov-30, Wed,19:00	Pain	Cidoquino	P.D. only	Wet	Foot	Changing lance	Automobile,	Other motor
2010-NOV-30, Wed, 19.00	Rain	Sideswipe	P.D. Offity	wei	East	Changing lanes	station wagon	vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Dec-06, Tue,13:40	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile,	Other motor
			·	·	N		station wagon	vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Dec-06, Tue,20:39	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
		_						
2013-Jan-02, Wed,17:06	Snow	Turning movement	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning left	Passenger van	Other motor vehicle

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2013-Mar-04, Mon,09:14	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Making "U" turn	Ambulance	Other motor vehicle
2013-Jun-22, Sat,15:58	Rain	Rear end	Non-fatal injury	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2013-Jun-24, Mon,13:53	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Bicycle	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Cyclist
2013-Jul-09, Tue,06:44	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2013-Jul-10, Wed,17:15	Clear	Rear end	Non-reportable	Dry	North	Going ahead	Passenger van	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2013-Aug-27, Tue,16:30	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Oct-09, Wed,08:06	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Municipal transit bus	Other motor vehicle
2013-Oct-09, Wed,17:28	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle

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					East	Stopped	Pick-up truck	Other motor vehicle
2013-Dec-16, Mon,15:00	Clear	Sideswipe	P.D. only	Loose snow	North	Turning left	Unknown	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2013-Dec-12, Thu,13:10	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2013-Dec-24, Tue,14:30	Clear	Turning movement	P.D. only	Slush	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Dec-19, Thu,13:30	Clear	Turning movement	P.D. only	Slush	East	Making "U" turn	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Jan-05, Thu,13:44	Clear	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Jan-06, Fri,11:33	Clear	Sideswipe	P.D. only	Wet	West	Turning left	Municipal transit	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Feb-09, Thu,14:00	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	g Pick-up truck	Other motor vehicle
					South	Slowing or stopping	g Pick-up truck	Other motor vehicle

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2012-Feb-29, Wed,11:30	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Turning left	Passenger van	Other motor vehicle
2012-Jan-27, Fri,17:20	Freezing Rain	Rear end	P.D. only	Slush	West	Slowing or stopping	g Pick-up truck	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2012-Aug-02, Thu,16:45	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
2012-Aug-22, Wed,07:15	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Aug-26, Sun,13:15	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Aug-17, Fri,08:45	Clear	Sideswipe	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Municipal transit bus	Other motor vehicle
2012-Jul-11, Wed,10:25	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Slowing or stopping	g Pick-up truck	Other motor vehicle
					North	Slowing or stopping	g Automobile, station wagon	Other motor vehicle

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					North	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
2012-Jul-10, Tue,12:30	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2012-Sep-08, Sat,21:35	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Aug-10, Fri,16:19	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Oct-30, Tue,19:05	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Nov-21, Wed,17:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2012-Nov-30, Fri,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
2012-Dec-21, Fri,23:32	Snow	Angle	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

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2012-Dec-30, Sun,15:54 Clear	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle
				South	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CARLING AVE @ WESTGATE SC E

Traffic Control: Traffic signal Total Collisions: 16

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jun-02, Mon,09:21	Clear	Rear end	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Pick-up truck	Other motor vehicle	
2015-Feb-04, Wed,15:15	Snow	Angle	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Skidding/sliding	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2015-May-12, Tue,10:09	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Municipal transit bus	Other motor vehicle	
2015-Sep-24, Thu,16:40	Clear	Angle	P.D. only	Dry	East	Going ahead	Passenger van	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2015-May-20, Wed,10:08	Clear	Turning movement	P.D. only	Dry	East	Turning left	Passenger van	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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2015-Jan-03, Sat,19:34	Snow	Sideswipe	P.D. only	Packed snow	South	Turning right	Municipal transit bus	Other motor vehicle
					South	Turning right	Pick-up truck	Other motor vehicle
2016-Jul-22, Fri,12:53	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Motorcycle	Skidding/sliding
2016-Oct-31, Mon,12:53	Clear	Other	P.D. only	Dry	East	Reversing	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2016-Sep-23, Fri,09:15	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jul-05, Tue,12:34	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2013-Jan-11, Fri,12:12	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2013-May-22, Wed,21:37	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Cyclist
					West S	Slowing or stopping	Bicycle	Other motor vehicle
2013-Aug-04, Sun,18:37	Clear	SMV other	P.D. only	Wet	West	Turning right	Truck and trailer	Pole (utility, power)

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2013-Jun-25, Tue,16:30	Clear	Rear end	P.D. only	Wet	East	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
_					East	Stopped	Pick-up truck	Other motor vehicle
2013-Aug-20, Tue,18:02	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
2012-Aug-28, Tue,08:16	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 btwn ARCHIBALD ST & 73 E OF ARCHIBALD ST/WESTGATE SC W

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2016-Feb-16, Tue,19:01	Snow	Rear end	Non-fatal injury	Loose snow	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE EB btwn MEATH ST & ARCHIBALD ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2012-Jan-07, Sat,19:59	Clear	Other	P.D. only	Dry	East	Going ahead	Pick-up truck	Other	
					East	Going ahead	Pick-up truck	Other motor vehicle	

Location: CARLING AVE EB btwn WESTGATE SC E & 73 E OF ARCHIBALD ST/WESTGATE SC W

Traffic Control: No control

Total Collisions: 2

Date/Day/Time Environment Impact Type Classification Surface Veh. Dir Vehicle Manoeuver Vehicle type First Event No. Ped Cond'n

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2014-Oct-23, Thu,11:46	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2012-Aug-06, Mon,08:30	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Bicycle	Other motor vehicle
					North		Automobile, station wagon	Cyclist

Location: CARLING AVE WB btwn HWY417 IC124 RAMP65 & 73 E OF ARCHIBALD ST/WESTGAT

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2012-Nov-07, Wed,19:18	Clear	Rear end	P.D. only	Dry	West	Merging	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	

Location: CARLING AVE WB btwn HWY417 IC124 RAMP67 & HWY417 IC124 RAMP65

Traffic Control: No control

Total Collisions: 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2014-Apr-28, Mon,12:43	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
2014-Sep-16, Tue,10:00	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	g Unknown	Other motor vehicle	
					West	Stopped	Passenger van	Other motor vehicle	
2016-Feb-01, Mon,08:50	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Truck - closed	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

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2013-Apr-17, Wed,17:18	Clear	Sideswipe	P.D. only	Dry	West	Merging	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Municipal transit bus	Other motor vehicle
2013-Jul-19, Fri,15:15	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Changing lanes	Automobile, station wagon	Other motor vehicle
2012-May-23, Wed,18:15	Clear	Sideswipe	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Sep-11, Tue,17:06	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Truck and trailer	Other motor vehicle

Location: MERIVALE RD @ 112 N OF CARLING AVE/WESTGATE SC

Traffic Control: Traffic signal Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2015-Sep-04, Fri,15:11	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping Pick-up truck		Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2012-Aug-10, Fri,17:58	Clear	Turning movement	Non-fatal injury	Dry	West	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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Location: MERIVALE RD btwn ISLAND PARK DR & WESTGATE SC

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Vehicle type	First Event	No. Ped
2016-Nov-20, Sun,21:25	Snow	Rear end	P.D. only	Loose sand or gravel	South	Slowing or stopping Pick-up truck	Other motor vehicle	
					South	Slowing or stopping Pick-up truck	Other motor vehicle	
2013-Jan-22, Tue,19:00	Clear	SMV other	P.D. only	Ice	South	Going ahead Automobile, station wago	Skidding/sliding	I

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Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	Y	ነ	<u> </u>	<u> </u>	7	
Fraffic Volume (vph)	27	47	160	479	67	
Future Volume (vph)	27	47	160	479	67	
Lane Group Flow (vph)	53	49	168	504	71	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4	1 01111	2	6	1 01111	
Permitted Phases	•	2	_	· ·	6	
Detector Phase	4	2	2	6	6	
Switch Phase	•	_	-	· ·	· ·	
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.5	23.8	23.8	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag	5.5	3.0	5.0	5.0	3.0	
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.0	47.2	47.2	47.2	47.2	
Actuated g/C Ratio	0.17	0.79	0.79	0.79	0.79	
v/c Ratio	0.17	0.77	0.77	0.74	0.79	
Control Delay	15.7	1.5	1.2	4.9	1.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	1.5	1.2	4.9	1.4	
LOS	В	Α	Α	Α. Α	Α	
Approach Delay	15.7		1.3	4.5	Α	
Approach LOS	В		Α	4.5 A		
Queue Length 50th (m)	2.7	1.0	3.3	22.7	0.0	
Queue Length 95th (m)	10.5	2.2	5.8	38.4	3.1	
Internal Link Dist (m)	40.8	۷.۷	88.4	58.0	3.1	
Turn Bay Length (m)	40.0	40.0	00.4	30.0	40.0	
Base Capacity (vph)	518	657	1404	1404	1209	
Starvation Cap Reductn	0	007	1404	1404	0	
Spillback Cap Reductin	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.07	0.12	0.36	0.06	
Reduced V/C Railo	0.10	0.07	0.12	0.30	0.00	
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60						
Offset: 8 (13%), Referenced to phase	2:NBTL an	d 6:SBT, St	tart of Greer	า		
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.36						
Intersection Signal Delay: 4.4				In	tersection LOS:	Α
Intersection Capacity Utilization 57.5	%				U Level of Servi	
Analysis Period (min) 15						
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Splits and Phases: 2: Merivale & V	Vestgate SC					
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Parsons Synchro 9 - Report

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Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ተተ _ጉ	ň	ተተ _ጉ	7	†	7	ሻ	†	7
Traffic Volume (vph)	801	149	623	224	197	237	26	223	208
Future Volume (vph)	801	149	623	224	197	237	26	223	208
Lane Group Flow (vph)	918	157	690	236	207	249	27	235	219
Turn Type	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	2	1	6	3	8		7	4	
Permitted Phases		6				8			4
Detector Phase	2	1	6	3	8	8	7	4	4
Switch Phase									
Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	29.0	10.4	29.0	11.3	37.7	37.7	11.3	37.7	37.7
Total Split (s)	49.0	12.0	61.0	21.0	38.0	38.0	21.0	38.0	38.0
Total Split (%)	40.8%	10.0%	50.8%	17.5%	31.7%	31.7%	17.5%	31.7%	31.7%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	1.7	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)	-2.0	-1.4	-2.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	51.7	66.5	66.5	17.0	36.6	36.6	9.8	24.5	24.5
Actuated g/C Ratio	0.43	0.55	0.55	0.14	0.30	0.30	0.08	0.20	0.20
v/c Ratio	0.44	0.49	0.26	0.98	0.38	0.40	0.20	0.65	0.53
Control Delay	22.1	20.5	14.8	105.8	35.6	5.8	55.2	47.2	16.6
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Total Delay	22.4	20.5	14.8	105.8	35.6	5.8	55.2	47.5	16.8
LOS	С	С	В	F	D	А	E	D	В
Approach Delay	22.4		15.9		48.8			33.9	
Approach LOS	С		В		D			С	
Queue Length 50th (m)	55.3	17.1	28.7	56.1	40.9	0.0	6.4	43.0	14.7
Queue Length 95th (m)	73.5	34.0	43.6	#106.3	58.1	17.7	16.1	61.5	26.6
Internal Link Dist (m)	89.4		139.3		131.8			88.4	
Turn Bay Length (m)		90.0		40.0			40.0		70.0
Base Capacity (vph)	2064	321	2673	240	553	624	240	505	513
Starvation Cap Reductn	490	0	0	0	0	0	0	41	42
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.49	0.26	0.98	0.37	0.40	0.11	0.51	0.46

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 54 (45%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 28.6

Intersection Capacity Utilization 75.0%

Intersection LOS: C 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.





Synchro 9 - Report Parsons

		۶	→	•	←	4	†	>	↓	4	
Lane Group	EBU	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		ă	ተተ _ጉ	ň	ተተ _ጉ		4		ર્ન	7	
Traffic Volume (vph)	99	100	1210	7	819	12	2	24	1	16	
Future Volume (vph)	99	100	1210	7	819	12	2	24	1	16	
Lane Group Flow (vph)	0	209	1289	7	922	0	29	0	26	17	
Turn Type	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases			2		6		8		4		
Permitted Phases	2	2		6		8		4		4	
Detector Phase	2	2	2	6	6	8	8	4	4	4	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0	
Total Split (s)	83.0	83.0	83.0	83.0	83.0	37.0	37.0	37.0	37.0	37.0	
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%	30.8%	30.8%	30.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0	
Lost Time Adjust (s)		-1.6	-1.6	-1.6	-1.6		-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)		103.4	103.4	103.4	103.4		17.0		17.0	17.0	
Actuated g/C Ratio		0.86	0.86	0.86	0.86		0.14		0.14	0.14	
v/c Ratio		0.47	0.31	0.02	0.22		0.14		0.14	0.07	
Control Delay		9.5	3.2	5.4	3.4		26.8		43.6	10.4	
Queue Delay		0.0	0.1	0.0	0.1		0.0		0.0	0.0	
Total Delay		9.5	3.2	5.4	3.5		26.8		43.6	10.4	
LOS		А	А	А	А		С		D	В	
Approach Delay			4.1		3.5		26.8		30.5		
Approach LOS			А		А		С		С		
Queue Length 50th (m)		9.4	20.3	0.3	17.2		3.2		5.7	0.0	
Queue Length 95th (m)		55.0	55.9	m1.7	m33.8		10.0		11.7	4.4	
Internal Link Dist (m)			112.0		89.4		10.8		48.4		
Turn Bay Length (m)		80.0		36.0							
Base Capacity (vph)		447	4187	300	4137		400		350	424	
Starvation Cap Reductn		0	1140	0	1572		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		0.47	0.42	0.02	0.36		0.07		0.07	0.04	
Intersection Summary											

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 4.6 Intersection Capacity Utilization 71.8% Analysis Period (min) 15

Intersection LOS: A ICU Level of Service C

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

Splits and Phases: 4: Carling & Westgate SC E



Parsons Synchro 9 - Report

	-	•	>			
Lane Group	EBT	WBT	SBL			
Lane Configurations	ተተተ	ተተጉ	W			
Traffic Volume (vph)	1019	1085	13			
Future Volume (vph)	1019	1085	13			
Lane Group Flow (vph)	1073	1156	34			
Furn Type	NA	NA	Prot			
Protected Phases	2	6	4			
Permitted Phases	2	U	-			
Detector Phase	2	6	4			
Switch Phase	Z	0	4			
	10.0	10.0	10.0			
Minimum Initial (s)	10.0	10.0	10.0			
Minimum Split (s)	24.0	48.3	37.1			
Fotal Split (s)	83.0	83.0	37.0			
Total Split (%)	69.2%	69.2%	30.8%			
/ellow Time (s)	3.7	3.7	3.0			
All-Red Time (s)	1.6	1.6	3.1			
Lost Time Adjust (s)	0.0	0.0	0.0			
Total Lost Time (s)	5.3	5.3	6.1			
_ead/Lag						
_ead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None			
Act Effct Green (s)	107.2	107.2	10.0			
Actuated g/C Ratio	0.89	0.89	0.08			
//c Ratio	0.25	0.27	0.22			
Control Delay	1.8	0.7	32.6			
Queue Delay	0.0	0.1	0.0			
Total Delay	1.8	0.8	32.6			
_OS	Α	A	С			
Approach Delay	1.8	0.8	32.6			
Approach LOS	А	A	C			
Queue Length 50th (m)	16.4	3.1	3.1			
Queue Length 95th (m)	19.6	4.2	13.2			
nternal Link Dist (m)	32.6	112.0	92.7			
Furn Bay Length (m)	32.0	112.0	72.1			
Base Capacity (vph)	1250	4341	429			
	4350					
Starvation Cap Reductn	0	1256	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	0.25	0.37	0.08			
ntersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 38 (32%), Referenced to phase	2:EBT ar	d 6:WBT. S	tart of Green			
Natural Cycle: 90	, _,_ U U	0.1101, 0	tall of Order			
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.27						
ntersection Signal Delay: 1.7				Intersection LOS: A		
ntersection Signal Delay. 1.7 ntersection Capacity Utilization 40.3%				ICU Level of Service A		
Analysis Period (min) 15)			ICO LEVELOI SELVICE A		
Splits and Phases: 5: Carling & Wes	sigate SC	VV			13	
→ Ø2 (R)					Ø 4	
83 s					37 s	
← _{a∈ (n)}						
Ø6 (R)						
83 s						

Parsons Synchro 9 - Report

	•	←	•	<u>†</u>	 	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተጉ	*		^	7
Traffic Volume (vph)	203	1561	280	319	401	360
Future Volume (vph)	203	1561	280	319	401	360
Lane Group Flow (vph)	214	1907	295	336	422	379
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6	-	8	-	•	4
Detector Phase	6	6	3	8	4	4
Switch Phase					'	
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	58.0	58.0	24.0	62.0	38.0	38.0
Total Split (%)	48.3%	48.3%	20.0%	51.7%	31.7%	31.7%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	٠.٠	Lead	7.0	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	57.4	57.4	54.6	54.6	31.5	31.5
Actuated g/C Ratio	0.48	0.48	0.46	0.46	0.26	0.26
v/c Ratio	0.46	0.46	0.40	0.40	0.20	0.20
Control Delay	18.7	31.9	21.3	15.5	38.8	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	31.9	21.3	15.5	38.8	51.0
LOS	10.7 B	31.9 C	21.3 C	15.5 B	30.0 D	31.0 D
Approach Delay	В	30.5	C	18.2	44.6	U
11						
Approach LOS	14.9	C 146.0	49.5	B 57.1	D 42.8	65.7
Queue Length 50th (m)						
Queue Length 95th (m)	22.4	168.3	m70.8	m79.8	57.8	#113.6
Internal Link Dist (m)	40.0	110.3		152.2	73.8	22.0
Turn Bay Length (m)	40.0	2270	440	0/0	0/0	22.0
Base Capacity (vph)	1564	2270	449	862	960	472
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.84	0.66	0.39	0.44	0.80

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 31.5

Intersection Capacity Utilization 97.8%

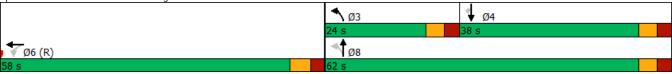
Intersection LOS: C ICU Level of Service F

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: 6: Kirkwood & Carling WB



Synchro 9 - Report Parsons

	۶	→	•	<u>†</u>	<i>></i>	/	
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	*	444	7	^	7	*	†
Traffic Volume (vph)	187	2036	422	384	398	473	222
Future Volume (vph)	187	2036	422	384	398	473	222
Lane Group Flow (vph)	177	2163	444	404	419	498	234
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases	1 Cilli	2	T CITII	8	I CIIII	7	4
Permitted Phases	2	2	2	U	8	4	7
Detector Phase	2	2	2	8	8	7	4
Switch Phase	2		2	U	U	,	7
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	58.0	58.0	58.0	38.0	38.0	24.0	62.0
Total Split (%)	48.3%	48.3%	48.3%	31.7%	31.7%	20.0%	51.7%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	4.0	4.0	Lag	Lag	Lead	4.0
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	54.0	54.0	54.0	34.0	34.0	58.0	58.0
Actuated g/C Ratio	0.45	0.45	0.45	0.28	0.28	0.48	0.48
v/c Ratio	0.43	1.04	0.45	0.20	0.26	1.03	0.46
Control Delay	22.1	65.3	9.1	36.6	81.2	81.1	21.6
,	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	22.1	65.3	9.1	36.6	81.2	81.1	21.6
Total Delay LOS					81.2 F		
	С	E	A	D	F	F	C
Approach Delay		53.6		59.3			62.1
Approach LOS	20.7	D	17 5	E	07.0	11/1	E
Queue Length 50th (m)	29.6	~214.1	17.5	40.7	97.8	~116.1	38.8
Queue Length 95th (m)	48.2	#244.6	46.7	55.4	#160.8	#190.5	71.4
Internal Link Dist (m)	40.0	161.6		158.6	00.0		152.2
Turn Bay Length (m)	40.0	0074	000	0/0	90.0	400	0/0
Base Capacity (vph)	655	2071	820	960	429	482	862
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	0.27	1.04	0.54	0.42	0.98	1.03	0.27

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 110

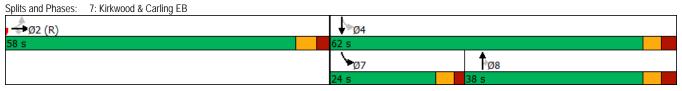
Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.04 Intersection Signal Delay: 56.1

Intersection LOS: E ICU Level of Service F

Intersection Capacity Utilization 97.8% 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.



Synchro 9 - Report Parsons

Lane Group

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Lane Group Flow (vph)

Sign Control

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 0.0% Analysis Period (min) 15

ICU Level of Service A

Parsons Synchro 9 - Report

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Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	Y	NDE 1	<u>NB1</u>		JDR *	
Traffic Volume (vph)	78	79	192	4 70	94	
Future Volume (vph)	78	79	192	470	94	
Lane Group Flow (vph)	177	83	202	495	99	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4	. 51111	2	6	. 51111	
Permitted Phases		2	_		6	
Detector Phase	4	2	2	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	24.0	24.0	24.0	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.8	42.1	42.1	42.1	42.1	
Actuated g/C Ratio	0.18	0.70	0.70	0.70	0.70	
v/c Ratio	0.48	0.14	0.16	0.40	0.09	
Control Delay	15.6	1.8	1.5	6.7	1.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	1.8	1.5	6.7	1.6	
LOS	В	Α	Α	Α	Α	
Approach Delay	15.6		1.6	5.8		
Approach LOS	В		Α	А		
Queue Length 50th (m)	8.0	1.6	3.9	22.1	0.0	
Queue Length 95th (m)	21.5	m2.9	5.7	46.0	4.5	
Internal Link Dist (m)	28.7		87.9	55.1		
Turn Bay Length (m)		40.0			40.0	
Base Capacity (vph)	564	576	1252	1252	1094	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	8	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.14	0.16	0.40	0.09	
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60						
Offset: 27 (45%), Referenced to phas	e 2:NBTL a	nd 6:SBT, S	Start of Gree	en		
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.48						
Intersection Signal Delay: 6.3					tersection LC	
Intersection Capacity Utilization 59.19	%			IC	U Level of Se	ervice B
Analysis Period (min) 15						

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

Parsons Synchro 9 - Report

Care Configurations Care		→	•	←	4	†	<i>></i>	/	↓	4
friaffic Volume (vph) 860 349 1434 176 204 185 51 276 188 ciruture Volume (vph) 860 349 1434 176 204 185 51 276 188 cane Group Flow (vph) 1025 367 1551 185 215 195 54 291 198 curn Type NA pm+pt NA Prot NA Perm Prot NA Perm crotected Phases 2 1 6 3 8 8 7 4 4 efemilited Phases 2 1 6 3 8 8 7 4 4 detector Phase 2 1 6 3 8 8 7 4 4 detector Phase 2 1 6 3 8 8 7 4 4 detector Phase 2 1 1 20 1 1 4 <th>Lane Group</th> <th>EBT</th> <th>WBL</th> <th>WBT</th> <th>NBL</th> <th>NBT</th> <th>NBR</th> <th>SBL</th> <th>SBT</th> <th>SBR</th>	Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
friaffic Volume (vph) 860 349 1434 176 204 185 51 276 188 ciruture Volume (vph) 860 349 1434 176 204 185 51 276 188 cane Group Flow (vph) 1025 367 1551 185 215 195 54 291 198 curn Type NA pm+pt NA Prot NA Perm Prot NA Perm crotected Phases 2 1 6 3 8 8 7 4 4 efemilited Phases 2 1 6 3 8 8 7 4 4 detector Phase 2 1 6 3 8 8 7 4 4 detector Phase 2 1 6 3 8 8 7 4 4 detector Phase 2 1 1 20 1 1 3 <td>Lane Configurations</td> <td>ተቀሴ</td> <td>*</td> <td>ተቀኄ</td> <td>7</td> <td>*</td> <td>7</td> <td>7</td> <td>*</td> <td>7</td>	Lane Configurations	ተ ቀሴ	*	ተ ቀኄ	7	*	7	7	*	7
Age Cane Group Flow (vph) 1025 367 1551 185 215 195 54 291 198	Traffic Volume (vph)						185	51		
Turn Type	Future Volume (vph)	860	349	1434	176	204	185	51	276	188
Turn Type	Lane Group Flow (vph)	1025	367	1551	185	215	195	54	291	198
Protected Phases 2 1 6 3 8 7 4 Permitted Phases 6 8 8 7 4 4 Permitted Phases 2 1 1 6 3 8 8 7 4 4 Permitted Phases 2 1 1 6 3 8 8 7 4 4 Permitted Phase 2 1 1 6 3 8 8 7 4 4 Permitted Phase 3 8 7 4 4 4 Permitted Phase 4 7 4 4 4 Permitted Phase 5 8 7 8 7 4 4 8 Permitted Phase 6 8 8 7 8 7 4 4 8 Permitted Phase 6 8 8 8 7 8 7 4 4 8 Permitted Phase 6 8 8 8 7 8 7 4 4 8 Permitted Phase 6 8 8 8 7 8 7 4 4 8 Permitted Phase 6 8 8 8 7 8 7 4 4 8 Permitted Phase 8 8 8 7 8 7 4 4 8 Permitted Phase 8 8 8 7 8 7 8 4 8 Permitted Phase 8 8 8 7 8 8 8 7 8 8 Permitted Phase 8 8 8 7 8 8 8 8 7 8 8 Permitted Phase 8 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Turn Type	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Detector Phase 2	Protected Phases	2		6	3	8		7	4	
Switch Phase Allinimum Initial (s) 10.0 5.0 10.0 5.0 10.0 5.0 10.0 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 31.7%	Permitted Phases		6				8			4
Alinimum Initial (s) 10.0 5.0 10.0 5.0 10.0 10.0 5.0 10.0 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 37.7 31.7%	Detector Phase	2	1	6	3	8	8	7	4	4
Minimum Split (s) 29.0 10.4 29.0 11.3 37.7 37.7 11.3 37.7 37.7 Total Split (s) 42.0 20.0 62.0 20.0 38.0 38.0 20.0 38.3 33.3	Switch Phase									
Total Split (s)	Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Total Split (%) 35.0% 16.7% 51.7% 16.7% 31.7% 16.7% 31.3 33.3 33.3 33.3 33.3 33.3 33.3 33.4 34.2 34.2 31.7 2.7 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.28 Yes Yes Yes Yes Yes Yes Yes Yes<	Minimum Split (s)	29.0	10.4	29.0	11.3	37.7	37.7	11.3	37.7	37.7
Total Split (%) 35.0% 16.7% 51.7% 16.7% 31.7% 31.7% 16.7% 31.7% 31.7% 31.7% (ellow Time (s) 3.7 3.7 3.7 3.3 3.3 3.3 3.3 3.3 3.3 3.3	Total Split (s)	42.0	20.0	62.0	20.0	38.0	38.0	20.0	38.0	38.0
All-Red Time (s) 2.3 1.7 2.3 3.0 3.4 3.4 3.0 3.4 3.4 3.0 3.4 4.0 st Time Adjust (s) -2.0 -1.4 -2.0 -2.3 -2.7 -2.7 -2.3 -2.7 -2.7 -2.3 -2.7 -2.7 rotal Lost Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Total Split (%)	35.0%	16.7%	51.7%	16.7%	31.7%	31.7%	16.7%	31.7%	31.7%
All-Red Time (s) 2.3 1.7 2.3 3.0 3.4 3.4 3.0 3.4 3.4 3.0 3.4 3.4 3.5 3.5	Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
August A	All-Red Time (s)	2.3	1.7	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lead/Lag Lag Lead Lead Lag	Lost Time Adjust (s)	-2.0	-1.4	-2.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7
Lead-Lag Optimize? Yes	Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
None	Lead/Lag	Lag	Lead		Lead	Lag	Lag	Lead	Lag	Lag
Act Effet Green (s) 38.0 64.7 64.7 15.8 34.2 34.2 11.5 27.5 27.5 Actuated g/C Ratio 0.32 0.54 0.54 0.13 0.28 0.28 0.10 0.23 0.23 0.26 Ratio 0.68 0.93 0.59 0.83 0.42 0.35 0.33 0.71 0.45 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Actuated g/C Ratio 0.32 0.54 0.54 0.13 0.28 0.28 0.10 0.23 0.23 0.26 0.10 0.23 0.23 0.26 0.10 0.26 0.28 0.10 0.28 0.28 0.10 0.28 0.28 0.10 0.28 0.28 0.10 0.23 0.28	Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
I/c Ratio 0.68 0.93 0.59 0.83 0.42 0.35 0.33 0.71 0.45 Control Delay 32.8 62.2 20.7 79.8 38.2 6.3 55.4 47.1 13.8 Queue Delay 2.0 0.0 0.1 0.0 0.0 0.0 0.9 0.0 Total Delay 34.8 62.2 20.8 79.8 38.2 6.3 55.4 48.0 13.8 OS C E C E D A E D B Approach Delay 34.8 28.7 40.7 36.3	Act Effct Green (s)	38.0	64.7	64.7	15.8	34.2	34.2	11.5	27.5	27.5
Control Delay 32.8 62.2 20.7 79.8 38.2 6.3 55.4 47.1 13.8	Actuated g/C Ratio	0.32	0.54	0.54	0.13	0.28	0.28	0.10	0.23	0.23
Queue Delay 2.0 0.0 0.1 0.0 0.0 0.0 0.0 0.9 0.0 Fotal Delay 34.8 62.2 20.8 79.8 38.2 6.3 55.4 48.0 13.8 Approach Delay 34.8 28.7 40.7 36.3 36.3 Approach LOS C C C D D D Queue Length 50th (m) 76.8 67.1 88.4 43.0 41.9 0.0 12.5 52.0 11.3 Queue Length 95th (m) 88.8 #147.0 114.6 #80.4 63.1 16.8 25.6 68.2 24.9 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0	v/c Ratio	0.68	0.93	0.59	0.83	0.42	0.35	0.33	0.71	0.45
Starvation Cap Reductn Start Sta	Control Delay	32.8	62.2	20.7	79.8	38.2	6.3	55.4	47.1	13.8
COS C E C E D A E D B A A A A A A A A A A A A A A A A A A	Queue Delay	2.0	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0
Approach Delay 34.8 28.7 40.7 36.3 Approach LOS C C C D D D Queue Length 50th (m) 76.8 67.1 88.4 43.0 41.9 0.0 12.5 52.0 11.3 Queue Length 95th (m) 88.8 #147.0 114.6 #80.4 63.1 16.8 25.6 68.2 24.9 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 70.0 Gase Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0	Total Delay	34.8	62.2	20.8	79.8	38.2	6.3	55.4	48.0	13.8
Approach LOS C C D D D Queue Length 50th (m) 76.8 67.1 88.4 43.0 41.9 0.0 12.5 52.0 11.3 Queue Length 95th (m) 88.8 #147.0 114.6 #80.4 63.1 16.8 25.6 68.2 24.9 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 70.0 Gase Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0	LOS		Е		E		Α	E		В
Dueue Length 50th (m) 76.8 67.1 88.4 43.0 41.9 0.0 12.5 52.0 11.3 Dueue Length 95th (m) 88.8 #147.0 114.6 #80.4 63.1 16.8 25.6 68.2 24.9 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 40.0 70.0 Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 6tarvation Cap Reductn 325 0 0 0 0 0 0 0 0 0 5torage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0	Approach Delay	34.8		28.7		40.7			36.3	
Queue Length 95th (m) 88.8 #147.0 114.6 #80.4 63.1 16.8 25.6 68.2 24.9 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 40.0 70.0 Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0	Approach LOS	С		С		D			D	
Internal Link Dist (m) 81.2 139.3 110.3 87.9 Furn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Queue Length 50th (m)			88.4	43.0	41.9	0.0			
Furn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Queue Length 95th (m)	88.8	#147.0	114.6	#80.4	63.1	16.8	25.6	68.2	24.9
Base Capacity (vph) 1515 395 2611 226 523 565 226 505 510 Starvation Cap Reductn 325 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Internal Link Dist (m)	81.2		139.3		110.3			87.9	
Starvation Cap Reductn 325 0 0 0 0 0 0 62 0 Spillback Cap Reductn 0 0 193 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Turn Bay Length (m)							40.0		
Spillback Cap Reductn 0 0 193 0 0 0 0 0 5 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0	Base Capacity (vph)		395	2611	226	523	565	226	505	510
Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Starvation Cap Reductn	325	0	0	0	0	0	0	62	0
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0	Spillback Cap Reductn	0	0	193	0	0	0	0	0	5
	Storage Cap Reductn	0		-	0	-	-	0	-	-
Reduced v/c Ratio 0.86 0.93 0.64 0.82 0.41 0.35 0.24 0.66 0.39	Reduced v/c Ratio	0.86	0.93	0.64	0.82	0.41	0.35	0.24	0.66	0.39

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 33.0

Intersection Capacity Utilization 84.7% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service E

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale & Carling



Synchro 9 - Report Parsons

	•	۶	→	•	•	4	†	/	↓	4	
Lane Group	EBU	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		Ž,	↑ ↑₽	1	^		4		4	7	
Traffic Volume (vph)	70	155	700	7	1764	10	5	110	1	70	
Future Volume (vph)	70	155	700	7	1764	10	5	110	1	70	
Lane Group Flow (vph)	0	237	750	7	1977	0	29	0	117	74	
Turn Type	pm+pt	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases	5	5	2		6		8		4		
Permitted Phases	2	2		6		8		4		4	
Detector Phase	5	5	2	6	6	8	8	4	4	4	
Switch Phase											
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0	
Total Split (s)	24.0	24.0	83.0	59.0	59.0	37.0	37.0	37.0	37.0	37.0	
Total Split (%)	20.0%	20.0%	69.2%	49.2%	49.2%	30.8%	30.8%	30.8%	30.8%	30.8%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0	
Lost Time Adjust (s)		-1.6	-1.6	-1.6	-1.6		-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lead/Lag	Lead	Lead		Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes						
Recall Mode	None	None	C-Max	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)		91.0	91.0	70.4	70.4		21.0		21.0	21.0	
Actuated g/C Ratio		0.76	0.76	0.59	0.59		0.18		0.18	0.18	
v/c Ratio		0.81	0.20	0.02	0.70		0.11		0.54	0.23	
Control Delay		60.1	2.4	8.1	11.5		25.1		53.0	9.6	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay		60.1	2.4	8.1	11.5		25.1		53.0	9.6	
LOS		Ε	Α	Α	В		С		D	Α	
Approach Delay			16.3		11.5		25.1		36.2		
Approach LOS			В		В		С		D		
Queue Length 50th (m)		34.7	7.2	0.3	35.5		3.2		25.8	0.0	
Queue Length 95th (m)		#75.1	9.6	m0.8	180.6		10.2		39.2	11.1	
Internal Link Dist (m)			113.0		81.2		26.4		38.7		
Turn Bay Length (m)		70.0		36.0							
Base Capacity (vph)		342	3675	360	2819		407		337	454	
Starvation Cap Reductn		0	0	0	0		0		0	0	
Spillback Cap Reductn		0	239	0	0		0		0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	
Reduced v/c Ratio		0.69	0.22	0.02	0.70		0.07		0.35	0.16	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 14.6

Intersection Capacity Utilization 100.0%

Intersection LOS: B ICU Level of Service G

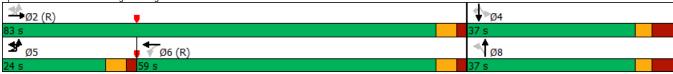
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Carling & Westgate SC E



Synchro 9 - Report Parsons

Background 2020 PM 5: Carling/Carling EB & Westgate SC W

	→	←	/		
Lane Group	EBT	WBT	SBL		
Lane Configurations	ተተተ	ተተኩ	W		
Traffic Volume (vph)	832	1711	25		
Future Volume (vph)	832	1711	25		
Lane Group Flow (vph)	876	1808	68		
Turn Type	NA	NA	Prot		
Protected Phases	2	6	4		
Permitted Phases					
Detector Phase	2	6	4		
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0		
Minimum Split (s)	24.1	42.3	37.1		
Total Split (s)	83.0	83.0	37.0		
Total Split (%)	69.2%	69.2%	30.8%		
Yellow Time (s)	3.7	3.7	3.0		
All-Red Time (s)	1.6	1.6	3.1		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3	6.1		
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	None		
Act Effct Green (s)	102.2	102.2	10.7		
Actuated g/C Ratio	0.85	0.85	0.09		
v/c Ratio	0.21	0.44	0.41		
Control Delay	1.4	1.0	42.3		
Queue Delay	0.0	0.1	0.0		
Total Delay	1.4	1.0	42.3		
LOS	Α	Α	D		
Approach Delay	1.4	1.0	42.3		
Approach LOS	А	Α	D		
Queue Length 50th (m)	6.6	4.7	9.7		
Queue Length 95th (m)	m10.7	13.2	23.5		
Internal Link Dist (m)	42.6	113.0	40.2		
Turn Bay Length (m)					
Base Capacity (vph)	4148	4144	431		
Starvation Cap Reductn	0	557	0		
Spillback Cap Reductn	0	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	0.21	0.50	0.16		
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 120					
Offset: 107 (89%), Referenced to ph	nase 2:EBT a	nd 6:WBT.	Start of Green		
Natural Cycle: 80					
Control Type: Actuated-Coordinated	j				
Maximum v/c Ratio: 0.44					
Intersection Signal Delay: 2.2				Intersection LOS: A	
Intersection Capacity Utilization 52.9	9%			ICU Level of Service A	
Analysis Period (min) 15					
m Volume for 95th percentile queu	ue is metered	by upstream	m signal.		

Splits and Phases: 5: Carling/Carling EB & Westgate SC W →ø2 (R) Ø6 (R)

Parsons Synchro 9 - Report

	√	←	•	†	+	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተጉ	ሻ	*	† †	7
Traffic Volume (vph)	216	2504	227	567	520	410
Future Volume (vph)	216	2504	227	567	520	410
Lane Group Flow (vph)	227	2968	239	597	547	432
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases	. 3.111	6	3	8	4	. 5
Permitted Phases	6		8			4
Detector Phase	6	6	3	8	4	4
Switch Phase					•	
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	67.0	67.0	20.0	53.0	33.0	33.0
Total Split (%)	55.8%	55.8%	16.7%	44.2%	27.5%	27.5%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	7.0	٠.٠	Lead	٠.٠	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	63.0	63.0	49.0	49.0	29.5	29.5
Actuated g/C Ratio	0.52	0.52	0.41	0.41	0.25	0.25
v/c Ratio	0.32	1.19	0.74	0.41	0.25	1.05
Control Delay	8.9	112.8	35.6	41.2	45.3	94.2
Queue Delay	0.9	0.0	0.0	8.2	0.0	0.0
Total Delay	8.9	112.8	35.6	49.4	45.3	94.2
LOS	0.7 A	F	33.0 D	47.4 D	45.5 D	74.2 F
Approach Delay	А	105.4	U	45.5	66.9	
Approach LOS		103.4 F		43.3 D	00.7 E	
Queue Length 50th (m)	9.3	~313.0	47.2	142.5	61.6	~96.0
Queue Length 95th (m)	11.2	#340.1	#69.5	#188.5	80.6	#158.3
Internal Link Dist (m)	11.2	113.3	#07.3	144.7	73.8	#130.3
Turn Bay Length (m)	40.0	113.3		144.7	73.0	22.0
Base Capacity (vph)	1715	2497	330	728	832	411
Starvation Cap Reductn	0	2497	330	102	032	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.19	0.72	0.95	0.66	1.05
Reduced WC Railo	0.13	1.19	0.72	0.90	0.00	1.05

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.19 Intersection Signal Delay: 87.9

Intersection LOS: F ICU Level of Service H

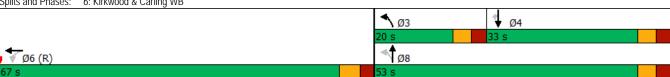
Intersection Capacity Utilization 112.1% Analysis Period (min) 15

- 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.

Splits and Phases: 6: Kirkwood & Carling WB



	۶	→	•	†	<i>></i>	/	
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	*	444	7	^	7	*	
Traffic Volume (vph)	419	1347	405	341	306	423	312
Future Volume (vph)	419	1347	405	341	306	423	312
Lane Group Flow (vph)	392	1467	426	359	322	445	328
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2		2		8	4	
Detector Phase	2	2	2	8	8	7	4
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	61.0	61.0	61.0	29.0	29.0	30.0	59.0
Total Split (%)	50.8%	50.8%	50.8%	24.2%	24.2%	25.0%	49.2%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	57.0	57.0	57.0	25.0	25.0	55.0	55.0
Actuated g/C Ratio	0.48	0.48	0.48	0.21	0.21	0.46	0.46
v/c Ratio	0.57	0.67	0.50	0.51	1.02	0.88	0.40
Control Delay	26.7	26.2	6.8	45.0	102.8	30.7	9.2
Queue Delay	0.5	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	26.4	6.8	45.0	102.8	30.7	9.2
LOS	C	C	A	D	F	C	A
Approach Delay	<u> </u>	22.9	,,	72.3	'		21.6
Approach LOS		C		E			C
Queue Length 50th (m)	75.1	100.5	11.7	39.7	~80.4	83.3	6.4
Queue Length 95th (m)	110.9	117.9	35.4	54.8	#136.2	#124.0	46.0
Internal Link Dist (m)	110.7	161.6	33.4	158.6	# 130.Z	# 12 T.O	144.7
Turn Bay Length (m)	40.0	101.0		130.0	90.0		177.7
Base Capacity (vph)	691	2182	855	706	316	506	817
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	71	149	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.72	0.50	0.51	1.02	0.88	0.40
roducou vo radio	0.00	0.72	0.00	0.01	1.02	0.00	0.40

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 31.6

Intersection Capacity Utilization 112.1%

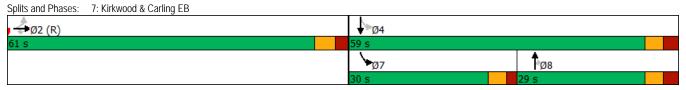
Intersection LOS: C ICU Level of Service H

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.



	→	*_
Lane Group	EBT	WBR
Lane Configurations	ተተተ	777
Traffic Volume (vph)	1075	1868
Future Volume (vph)	1075	1868
Lane Group Flow (vph)	1132	1966
Sign Control	Free	
Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilizatio	n 49.3%	
Analysis Period (min) 15		



	٠	4	†	↓	4	
Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	¥	ሻ	†	†	7	
Fraffic Volume (vph)	27	47	167	501	67	
Future Volume (vph)	27	47	167	501	67	
Lane Group Flow (vph)	53	49	176	527	71	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4		2	6		
Permitted Phases		2			6	
Detector Phase	4	2	2	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.5	23.8	23.8	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag	0.0	0.0	0.0	0.0	0.0	
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.0	47.2	47.2	47.2	47.2	
Actuated g/C Ratio	0.17	0.79	0.79	0.79	0.79	
v/c Ratio	0.18	0.08	0.13	0.38	0.06	
Control Delay	15.7	1.2	1.0	5.1	1.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	1.2	1.0	5.1	1.4	
LOS	В	А	A	Α	Α	
Approach Delay	15.7		1.0	4.6		
Approach LOS	В		Α	Α		
Queue Length 50th (m)	2.7	0.2	0.8	24.2	0.0	
Queue Length 95th (m)	10.5	1.9	5.0	40.7	3.1	
Internal Link Dist (m)	40.8		88.4	58.0		
Turn Bay Length (m)		40.0			40.0	
Base Capacity (vph)	518	636	1404	1404	1209	
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	0.10	0.08	0.13	0.38	0.06	
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60						
Offset: 8 (13%), Referenced to phase	se 2:NBTL an	d 6:SBT, St	tart of Greer	1		
Natural Cycle: 60						
Control Type: Actuated-Coordinated	d					
Maximum v/c Ratio: 0.38						
Intersection Signal Delay: 4.4					tersection LOS	
Intersection Capacity Utilization 58.	8%			IC	U Level of Ser	vice B
Analysis Period (min) 15						
Splits and Phases: 2: Merivale &	Westgate SC					
1 Ø2 (R)						→ _Ø
						y)·
36 s						24 s
▼ Ø6 (R)						- 1
7 DO (K)						

	-	•	•	•	•	4	†	~	/	Ţ	4	
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	^	7	7	^	7	7	†	7	7	*	7	
Traffic Volume (vph)	857	71	149	662	32	224	206	237	26	234	208	
Future Volume (vph)	857	71	149	662	32	224	206	237	26	234	208	
Lane Group Flow (vph)	902	75	157	697	34	236	217	249	27	246	219	
Turn Type	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	2		1	6		3	8		7	4		
Permitted Phases		2	6		6			8			4	
Detector Phase	2	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	29.0	29.0	10.4	29.0	29.0	11.3	37.7	37.7	11.3	37.7	37.7	
Total Split (s)	49.0	49.0	12.0	61.0	61.0	21.0	38.0	38.0	21.0	38.0	38.0	
Total Split (%)	40.8%	40.8%	10.0%	50.8%	50.8%	17.5%	31.7%	31.7%	17.5%	31.7%	31.7%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4	
Lost Time Adjust (s)	-2.0	0.0	-1.4	-2.0	0.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7	
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	50.8	48.8	66.0	66.0	64.0	17.0	37.2	37.2	9.8	25.0	25.0	
Actuated g/C Ratio	0.42	0.41	0.55	0.55	0.53	0.14	0.31	0.31	0.08	0.21	0.21	
v/c Ratio	0.63	0.12	0.55	0.37	0.04	0.98	0.39	0.40	0.20	0.66	0.54	
Control Delay	25.9	1.6	23.5	17.0	0.1	105.8	35.5	5.8	55.2	47.3	17.7	
Queue Delay	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	
Total Delay	26.7	1.6	23.5	17.0	0.1	105.8	35.5	5.8	55.2	47.6	17.9	
LOS	С	Α	С	В	Α	F	D	Α	E	D	В	
Approach Delay	24.8			17.5			48.6			34.8		
Approach LOS	С			В			D			С		
Queue Length 50th (m)	88.7	0.4	17.4	46.3	0.0	56.1	42.8	0.0	6.4	45.6	15.8	
Queue Length 95th (m)	118.5	4.5	#36.6	70.5	0.0	#106.3	60.9	17.7	16.1	64.5	27.7	
Internal Link Dist (m)	89.4			139.3			131.8			88.4		
Turn Bay Length (m)		25.0	90.0		25.0	40.0			40.0		70.0	
Base Capacity (vph)	1436	642	287	1863	782	240	558	627	240	505	504	
Starvation Cap Reductn	249	0	0	0	0	0	0	0	0	44	38	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.76	0.12	0.55	0.37	0.04	0.98	0.39	0.40	0.11	0.53	0.47	

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 54 (45%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 29.7

Intersection Capacity Utilization 81.1%

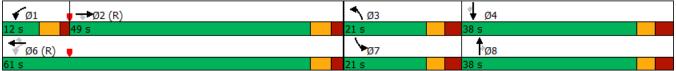
Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale & Carling



		•	-	•	•	←	•	4	†	>	↓	4
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		ă	^	7	ሻ	^	7		4		ર્ન	7
Traffic Volume (vph)	99	100	1295	14	7	868	57	12	2	24	1	16
Future Volume (vph)	99	100	1295	14	7	868	57	12	2	24	1	16
Lane Group Flow (vph)	0	209	1363	15	7	914	60	0	29	0	26	17
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases			2			6			8		4	
Permitted Phases	2	2		2	6		6	8		4		4
Detector Phase	2	2	2	2	6	6	6	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.6	-1.6	0.0	-1.6	-1.6	0.0		-3.0		-3.0	-3.0
Total Lost Time (s)		4.0	4.0	5.6	4.0	4.0	5.6		4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		103.4	103.4	102.4	103.4	103.4	102.4		17.0		17.0	17.0
Actuated g/C Ratio		0.86	0.86	0.85	0.86	0.86	0.85		0.14		0.14	0.14
v/c Ratio		0.46	0.47	0.01	0.03	0.31	0.05		0.14		0.14	0.07
Control Delay		8.7	4.3	0.2	5.3	3.7	2.3		26.8		43.6	10.4
Queue Delay		0.0	0.1	0.0	0.0	0.1	0.0		0.0		0.0	0.0
Total Delay		8.7	4.3	0.2	5.3	3.8	2.3		26.8		43.6	10.4
LOS		Α	Α	Α	А	Α	Α		С		D	Е
Approach Delay			4.9			3.7			26.8		30.5	
Approach LOS			А			А			С		С	
Queue Length 50th (m)		9.4	32.4	0.0	0.3	28.7	1.0		3.2		5.7	0.0
Queue Length 95th (m)		53.3	108.1	m0.2	m1.2	m48.6	m3.6		10.0		11.7	4.4
Internal Link Dist (m)			112.0			89.4			10.8		48.4	
Turn Bay Length (m)		100.0		25.0	45.0		25.0					
Base Capacity (vph)		457	2921	1253	275	2921	1199		400		350	424
Starvation Cap Reductn		0	315	0	0	790	0		0		0	C
Spillback Cap Reductn		0	275	0	0	0	0		0		0	C
Storage Cap Reductn		0	0	0	0	0	0		0		0	C
Reduced v/c Ratio		0.46	0.52	0.01	0.03	0.43	0.05		0.07		0.07	0.04
Intersection Summary												

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 5.1 Intersection Capacity Utilization 79.0% Analysis Period (min) 15

Intersection LOS: A ICU Level of Service D

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

Splits and Phases: 4: Carling & Westgate SC E



	→	←	•	/		
Lane Group	EBT	WBT	WBR	SBL		
Lane Configurations	<u> </u>	↑ ↑	WDK 7	JDL W		
Traffic Volume (vph)	TT 1090	1154	13	13		
Future Volume (vph)	1090	1154	13	13		
Lane Group Flow (vph)	1147	1215	14	34		
Turn Type	NA	NA	Perm	Prot		
Protected Phases	2	6	I CIIII	4		
Permitted Phases		U	6	4		
Detector Phase	2	6	6	4		
Switch Phase		U	U	7		
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	24.0	48.3	48.3	37.1		
Total Split (s)	83.0	83.0	83.0	37.1		
Total Split (%)	69.2%	69.2%	69.2%	30.8%		
Yellow Time (s)	3.7	3.7	3.7	3.0		
All-Red Time (s)	1.6	1.6	1.6	3.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3	5.3	6.1		
. ,	ე.3	ე.3	0.3	0.1		
Lead/Lag Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None		
Recall Mode Act Effct Green (s)	107.2	107.2	107.2	10.0		
. ,	0.89	0.89	0.89	0.08		
Actuated g/C Ratio v/c Ratio		0.89		0.08		
	0.38 2.4		0.01	32.6		
Control Delay		1.1	0.1			
Queue Delay	0.0	0.1	0.0	0.0		
Total Delay LOS	2.4	1.2	0.1	32.6		
	Α	A	А	C		
Approach LOS	2.4	1.2		32.6		
Approach LOS	A	A	0.1	C		
Queue Length 50th (m)	29.7	4.6	0.1	3.1		
Queue Length 95th (m)	36.5	6.4	m0.1	13.2		
Internal Link Dist (m)	32.6	112.0	05.0	92.7		
Turn Bay Length (m)	200-	000=	25.0	105		
Base Capacity (vph)	3027	3027	1355	429		
Starvation Cap Reductn	0	366	0	0		
Spillback Cap Reductn	80	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.39	0.46	0.01	0.08		
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 38 (32%), Referenced to ph	ase 2:EBT an	d 6:WBT_S	tart of Green	1		
Natural Cycle: 90	2 un		0. 0.001			
Control Type: Actuated-Coordinate	ed					
Maximum v/c Ratio: 0.40	-					
Intersection Signal Delay: 2.2				Int	tersection LOS: A	
Intersection Capacity Utilization 51.	5%				U Level of Service A	
Analysis Period (min) 15				10	S LOVOI OI OOI VIOC A	
m Volume for 95th percentile que	eue is metered	by upstream	m signal			

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

	•	←	1	†	 	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተኈ	*	*	^	1
Traffic Volume (vph)	203	1651	280	339	424	360
Future Volume (vph)	203	1651	280	339	424	360
Lane Group Flow (vph)	214	2002	295	357	446	379
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases	i Cilli	6	3	8	4	I CIIII
Permitted Phases	6		8	0	7	4
Detector Phase	6	6	3	8	4	4
Switch Phase	0	- 0	- 3	0	-7	7
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	58.0	58.0	24.0	62.0	38.0	38.0
Total Split (%)	48.3%	48.3%	20.0%	51.7%	31.7%	31.7%
Yellow Time (s)	3.7	3.7	3.3	3.3	31.7%	3.3
All-Red Time (s)	2.6	2.6	3.3 2.7	3.3 2.7	3.3 2.7	3.3 2.7
` '	-2.3	2.6 -2.3	-2. <i>1</i>	-2.0	-2.0	-2.0
Lost Time Adjust (s)						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?		0.11	Yes	5.	Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	57.4	57.4	54.6	54.6	31.5	31.5
Actuated g/C Ratio	0.48	0.48	0.46	0.46	0.26	0.26
v/c Ratio	0.14	0.88	0.69	0.44	0.50	0.85
Control Delay	18.7	34.2	21.2	15.3	39.3	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	34.2	21.2	15.3	39.3	51.0
LOS	В	С	С	В	D	D
Approach Delay		32.7		18.0	44.7	
Approach LOS		С		В	D	
Queue Length 50th (m)	14.9	158.7	48.9	60.5	45.6	65.7
Queue Length 95th (m)	22.4	#187.4	m70.0	m83.5	61.1	#113.6
Internal Link Dist (m)		110.3		152.2	73.8	
Turn Bay Length (m)	40.0					22.0
Base Capacity (vph)	1564	2272	439	862	960	472
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.88	0.67	0.41	0.46	0.80
reduced we read	0.11	0.00	0.07	0.11	0.10	0.00

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 32.8

Intersection Capacity Utilization 100.5%

Intersection LOS: C ICU Level of Service G

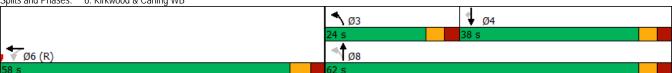
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Kirkwood & Carling WB



	۶	→	•	<u>†</u>	<i>></i>	/	+
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	7	414	7	^	7	*	†
Traffic Volume (vph)	212	2183	422	407	398	473	250
Future Volume (vph)	212	2183	422	407	398	473	250
Lane Group Flow (vph)	201	2320	444	428	419	498	263
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2		2		8	4	
Detector Phase	2	2	2	8	8	7	4
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	58.0	58.0	58.0	38.0	38.0	24.0	62.0
Total Split (%)	48.3%	48.3%	48.3%	31.7%	31.7%	20.0%	51.7%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	54.0	54.0	54.0	34.0	34.0	58.0	58.0
Actuated g/C Ratio	0.45	0.45	0.45	0.28	0.28	0.48	0.48
v/c Ratio	0.31	1.12	0.55	0.45	0.98	1.06	0.31
Control Delay	22.7	93.3	10.2	37.1	81.2	88.3	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	93.3	10.2	37.1	81.2	88.3	22.6
LOS	С	F	В	D	F	F	С
Approach Delay		76.1		58.9			65.6
Approach LOS		Е		Е			Е
Queue Length 50th (m)	34.4	~243.9	21.8	43.5	97.8	~119.8	44.7
Queue Length 95th (m)	54.7	#274.1	51.8	58.7	#160.8	#193.9	79.4
Internal Link Dist (m)		161.6		158.6			152.2
Turn Bay Length (m)	40.0				90.0		
Base Capacity (vph)	655	2071	808	960	429	471	862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	1.12	0.55	0.45	0.98	1.06	0.31
Storage Cap Reductn Reduced v/c Ratio							

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.12

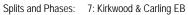
Intersection Signal Delay: 71.2 Intersection Capacity Utilization 100.5% Analysis Period (min) 15

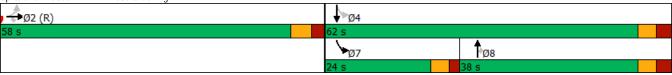
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.





Intersection LOS: E

ICU Level of Service G

Lane Group

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Lane Group Flow (vph)

Sign Control

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 0.0% Analysis Period (min) 15

ICU Level of Service A

	•	•	†	+	4	
Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	¥	*	†	†	7	
Traffic Volume (vph)	78	79	200	491	94	
Future Volume (vph)	78	79	200	491	94	
Lane Group Flow (vph)	177	83	211	517	99	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4		2	6		
Permitted Phases		2			6	
Detector Phase	4	2	2	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	24.0	24.0	24.0	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.8	42.1	42.1	42.1	42.1	
Actuated g/C Ratio	0.18	0.70	0.70	0.70	0.70	
v/c Ratio	0.48	0.15	0.17	0.41	0.09	
Control Delay	15.6	1.8	1.4	6.9	1.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	1.8	1.4	6.9	1.6	
LOS	В	Α	А	А	Α	
Approach Delay	15.6		1.5	6.0		
Approach LOS	В		Α	Α		
Queue Length 50th (m)	8.0	0.7	1.8	23.5	0.0	
Queue Length 95th (m)	21.5	2.1	4.4	48.8	4.5	
Internal Link Dist (m)	28.7		87.9	55.1		
Turn Bay Length (m)		40.0			40.0	
Base Capacity (vph)	564	557	1252	1252	1094	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	14	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.15	0.17	0.42	0.09	
Intersection Summary						
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60	0 NDTI -		2116-0			
Offset: 27 (45%), Referenced to pha	ise 2:NBTL a	ina 6:581, 3	Start of Gree	en		
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.48						
Intersection Signal Delay: 6.4					tersection LC	
Intersection Capacity Utilization 60.3	3%			IC	U Level of S	ervice B
Analysis Period (min) 15						
Splits and Phases: 2: Merivale & V	westgate SC	,				
						س فرا
@2 (R)						- (/1/1
Ø2 (R)						Ø4
Ø2 (R) 36 s						24 s

	→	•	•	•	•	4	†	~	/	↓	4	
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	^	7	, T	^	7	7	†	7	7	^	7	
Traffic Volume (vph)	923	114	349	1538	40	176	206	185	51	288	188	
Future Volume (vph)	923	114	349	1538	40	176	206	185	51	288	188	
Lane Group Flow (vph)	972	120	367	1619	42	185	217	195	54	303	198	
Turn Type	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	2		1	6		3	8		7	4		
Permitted Phases		2	6		6			8			4	
Detector Phase	2	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	29.0	29.0	10.4	29.0	29.0	11.3	37.7	37.7	11.3	37.7	37.7	
Total Split (s)	42.0	42.0	20.0	62.0	62.0	20.0	38.0	38.0	20.0	38.0	38.0	
Total Split (%)	35.0%	35.0%	16.7%	51.7%	51.7%	16.7%	31.7%	31.7%	16.7%	31.7%	31.7%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4	
Lost Time Adjust (s)	-2.0	0.0	-1.4	-2.0	0.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7	
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	38.0	36.0	64.1	64.1	62.1	15.8	34.8	34.8	11.5	28.1	28.1	
Actuated g/C Ratio	0.32	0.30	0.53	0.53	0.52	0.13	0.29	0.29	0.10	0.23	0.23	
v/c Ratio	0.91	0.23	0.98	0.89	0.06	0.83	0.42	0.35	0.33	0.73	0.44	
Control Delay	46.5	3.7	77.4	33.8	0.1	79.8	37.7	6.3	55.2	47.3	13.5	
Queue Delay	43.3	0.0	0.0	20.9	0.0	0.0	0.0	0.0	0.0	1.0	0.0	
Total Delay	89.8	3.7	77.4	54.7	0.1	79.8	37.7	6.3	55.2	48.3	13.5	
LOS	F	Α	Ε	D	Α	Ε	D	Α	Ε	D	В	
Approach Delay	80.3			57.7			40.5			36.6		
Approach LOS	F			Е			D			D		
Queue Length 50th (m)	121.4	0.3	~76.6	176.0	0.0	43.0	41.9	0.0	12.6	53.8	11.4	
Queue Length 95th (m)	#154.1	9.0	#153.4	#248.7	0.0	#80.4	63.9	16.8	25.6	70.4	24.7	
Internal Link Dist (m)	81.2			139.3			110.3			87.9		
Turn Bay Length (m)		25.0	90.0		25.0	40.0			40.0		70.0	
Base Capacity (vph)	1073	518	374	1810	763	226	527	568	226	505	510	
Starvation Cap Reductn	183	0	0	0	0	0	0	0	0	63	0	
Spillback Cap Reductn	0	0	0	248	0	0	0	0	0	0	9	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.09	0.23	0.98	1.04	0.06	0.82	0.41	0.34	0.24	0.69	0.40	

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 15 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 58.3

Intersection Capacity Utilization 91.6% Analysis Period (min) 15

Intersection LOS: E ICU Level of Service F

- 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.



		•	→	•	•	←	•	4	†	\	↓	1
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		ă	† †	7	*	^	7		4		4	7
Traffic Volume (vph)	70	155	749	12	7	1890	114	10	5	110	1	70
Future Volume (vph)	70	155	749	12	7	1890	114	10	5	110	1	70
Lane Group Flow (vph)	0	237	788	13	7	1989	120	0	29	0	117	74
Turn Type	pm+pt	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	5	2			6			8		4	
Permitted Phases	2	2		2	6		6	8		4		4
Detector Phase	5	5	2	2	6	6	6	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0
Total Split (s)	24.0	24.0	83.0	83.0	59.0	59.0	59.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	20.0%	20.0%	69.2%	69.2%	49.2%	49.2%	49.2%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.6	-1.6	0.0	-1.6	-1.6	0.0		-3.0		-3.0	-3.0
Total Lost Time (s)		4.0	4.0	5.6	4.0	4.0	5.6		4.0		4.0	4.0
Lead/Lag	Lead	Lead			Lag	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes					
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		91.0	91.0	89.4	70.4	70.4	68.8		21.0		21.0	21.0
Actuated g/C Ratio		0.76	0.76	0.74	0.59	0.59	0.57		0.18		0.18	0.18
v/c Ratio		0.81	0.31	0.01	0.02	1.00	0.14		0.11		0.54	0.23
Control Delay		60.1	2.6	0.0	8.7	30.6	1.5		25.1		53.0	9.6
Queue Delay		0.0	0.1	0.0	0.0	0.5	0.0		0.0		0.0	0.0
Total Delay		60.1	2.7	0.0	8.7	31.0	1.5		25.1		53.0	9.6
LOS		Е	Α	Α	Α	С	Α		С		D	А
Approach Delay			15.8			29.3			25.1		36.2	
Approach LOS			В			С			С		D	
Queue Length 50th (m)		35.4	11.0	0.0	0.3	~51.5	0.4		3.2		25.8	0.0
Queue Length 95th (m)		#74.5	14.1	m0.0	m0.6	#350.7	m1.0		10.2		39.2	11.1
Internal Link Dist (m)			113.0			81.2			26.4		38.7	
Turn Bay Length (m)		100.0		25.0	45.0		25.0					
Base Capacity (vph)		342	2569	1020	359	1987	829		407		337	454
Starvation Cap Reductn		0	758	0	0	4	0		0		0	0
Spillback Cap Reductn		0	726	0	0	0	0		2		0	0
Storage Cap Reductn		0	0	0	0	0	0		0		0	0
Reduced v/c Ratio		0.69	0.44	0.01	0.02	1.00	0.14		0.07		0.35	0.16

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

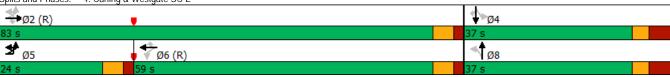
Intersection Signal Delay: 25.5

Intersection Capacity Utilization 116.4%

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: 4: Carling & Westgate SC E



Intersection LOS: C

ICU Level of Service H

	→	+	•	\
Lane Group	EBT	WBT	WBR	SBL
				JDL W
Lane Configurations	^	^	7	
Traffic Volume (vph)	891	1833	7	25
Future Volume (vph)	891	1833	7	25
Lane Group Flow (vph)	938	1929	7	68
Turn Type	NA	NA	Perm	Prot
Protected Phases	2	6	,	4
Permitted Phases	-		6	
Detector Phase	2	6	6	4
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	24.1	42.3	42.3	37.1
Total Split (s)	83.0	83.0	83.0	37.0
Total Split (%)	69.2%	69.2%	69.2%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.0
All-Red Time (s)	1.6	1.6	1.6	3.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	6.1
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	C-Max	C-Max	C-Max	None
Act Effct Green (s)	102.0	102.0	102.0	10.9
Actuated g/C Ratio	0.85	0.85	0.85	0.09
v/c Ratio	0.33	0.67	0.03	0.42
Control Delay	1.6	5.8	1.0	46.2
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	1.6	6.0	1.0	46.2
LOS	1.0 A	0.0 A	1.0 A	40.2 D
Approach Delay	1.6	6.0	A	46.2
	1.6 A			46.2 D
Approach LOS		A	0.1	
Queue Length 50th (m)	11.7	12.3	0.1	11.1
Queue Length 95th (m)	m18.2	m53.7	m0.1	24.9
Internal Link Dist (m)	42.6	113.0		40.2
Turn Bay Length (m)			25.0	
Base Capacity (vph)	2882	2882	1290	427
Starvation Cap Reductn	0	294	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.75	0.01	0.16
Intersection Summary				
Cycle Length: 120				
Actuated Cycle Length: 120	1.FDT	mal / JAIDT	Charl of C	
Offset: 107 (89%), Referenced to ph	ase 2:EBT a	ana 6:WBT, I	Start of Gree	en
Natural Cycle: 100				
Control Type: Actuated-Coordinated				
Maximum v/c Ratio: 0.67				
Intersection Signal Delay: 5.5				In
Intersection Capacity Utilization 71.3	%			IC
Analysis Period (min) 15				
m Volume for 95th percentile queu	e is metered	l by upstream	m signal	

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

	•	←	1	†	+	1
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተቡ	ሻ	1	† †	7
Traffic Volume (vph)	216	2680	227	602	551	410
Future Volume (vph)	216	2680	227	602	551	410
Lane Group Flow (vph)	227	3153	239	634	580	432
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6		8			4
Detector Phase	6	6	3	8	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	67.0	67.0	20.0	53.0	33.0	33.0
Total Split (%)	55.8%	55.8%	16.7%	44.2%	27.5%	27.5%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	63.0	63.0	49.0	49.0	29.4	29.4
Actuated g/C Ratio	0.52	0.52	0.41	0.41	0.24	0.24
v/c Ratio	0.13	1.26	0.76	0.87	0.70	1.05
Control Delay	10.2	144.8	38.0	45.9	46.6	94.5
Queue Delay	0.0	0.0	0.0	17.4	0.0	0.0
Total Delay	10.2	144.8	38.0	63.3	46.6	94.5
LOS	В	F	D	E	D	F
Approach Delay		135.8		56.3	67.1	
Approach LOS		F		E	E	
Queue Length 50th (m)	8.9	~347.1	47.4	153.4	66.1	~96.0
Queue Length 95th (m)	17.0	#373.2	m#73.8	#207.3	85.9	#158.3
Internal Link Dist (m)		113.3	111111 7 010	144.7	73.8	# 10010
Turn Bay Length (m)	40.0	11010			70.0	22.0
Base Capacity (vph)	1715	2499	319	728	831	411
Starvation Cap Reductn	0	0	0	100	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.26	0.75	1.01	0.70	1.05
rougou vio ratio	0.13	1.20	0.75	1.01	0.70	1.00

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 39 (33%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 109.4

Intersection Capacity Utilization 115.6%

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.



Intersection LOS: F

ICU Level of Service H

	۶	→	•	†	~	/	+
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	ች	414	7	^	1	*	1
Traffic Volume (vph)	419	1439	405	362	306	423	312
Future Volume (vph)	419	1439	405	362	306	423	312
Lane Group Flow (vph)	392	1564	426	381	322	445	328
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2		2		8	4	
Detector Phase	2	2	2	8	8	7	4
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	61.0	61.0	61.0	29.0	29.0	30.0	59.0
Total Split (%)	50.8%	50.8%	50.8%	24.2%	24.2%	25.0%	49.2%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	57.0	57.0	57.0	25.0	25.0	55.0	55.0
Actuated g/C Ratio	0.48	0.48	0.48	0.21	0.21	0.46	0.46
v/c Ratio	0.57	0.72	0.50	0.54	1.02	0.90	0.40
Control Delay	26.7	27.4	6.8	45.7	102.8	32.6	9.1
Queue Delay	1.1	0.6	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	28.0	6.8	45.7	102.8	32.6	9.1
LOS	С	С	Α	D	F	С	Α
Approach Delay		24.2		71.8			22.6
Approach LOS		С		Е			С
Queue Length 50th (m)	75.1	110.7	11.7	42.4	~80.4	88.5	12.0
Queue Length 95th (m)	110.9	129.1	35.4	58.1	#136.2	#128.6	24.6
Internal Link Dist (m)		161.6		158.6			144.7
Turn Bay Length (m)	40.0				90.0		
Base Capacity (vph)	691	2182	855	706	316	497	817
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	125	263	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.82	0.50	0.54	1.02	0.90	0.40
	3.37	0.02	0.00	0.01		0.73	00

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 32.5

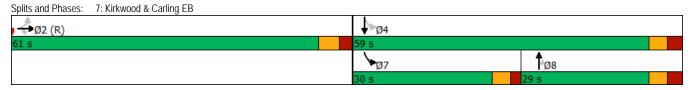
Intersection Capacity Utilization 115.6%

Analysis Period (min) 15

ICU Level of Service H

- 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.



Intersection LOS: C

Background 2025 PM 10: Carling EB/Carling & Carling WB

	-	*_
Lane Group	EBT	WBR
Lane Configurations	^	77
Traffic Volume (vph)	1075	1868
Future Volume (vph)	1075	1868
Lane Group Flow (vph)	1132	1966
Sign Control	Free	
Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 7	72.3%	
Analysis Period (min) 15		



Multi-Modal Level of Service - Intersections Form

Consultant	
Scenario	
Comments	

Projec
Date

Westgate SC - Phase 1	
1309 Carling Ave	
Nov. 08, 2018	

Unlocked Rows for Replicating

										· · · · · · · · · · · · · · · · · · ·			
	INTERSECTIONS			nd Merivale				Vestgate SC E				l Westgate SC W	
	Crossing Side		SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Lanes Median	4 No Median - 2.4 m	3 No Median - 2.4 m	7 No Median - 2.4 m	6 Median > 2.4 m	4 No Median - 2.4 m	0 - 2 No Median - 2.4 m	7 No Median - 2.4 m	7 No Median - 2.4 m	0 - 2 No Median - 2.4 m		6 No Median - 2.4 m	6 No Median - 2.4 m
	Conflicting Left Turns	No left turn / Prohib.	Protected	Protected	Protected	Protected/ Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.		No left turn / Prohib.	Permissive
	Conflicting Right Turns	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	No right turn
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed		RTOR allowed	RTOR prohibited
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No	No		No	No
rian	Right Turn Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel		No Channel	No Right Turn
St	Corner Radius	10-15m	10-15m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m		5-10m	No Right Turn
Pedestrian	Crosswalk Type	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement		Textured/coloured pavement	Textured/coloured pavement
	PETSI Score	64	90	16	37	57	89	8	8	97		32	41
	Ped. Exposure to Traffic LoS	С	Α	F	E	D	В	F	F	Α	•	E	E
	Cycle Length	1											
	Effective Walk Time												
	Average Pedestrian Delay												
	Pedestrian Delay LoS	-	-	-	-	-	-	-	-				-
	Level of Complex	С	Α	F	Е	D	В	F	F	Α	-	E	Е
	Level of Service		I	F			I	F				E	
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Bicycle Lane Arrangement on Approach	Pocket Bike Lane	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic		Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	Right Turn Lane Configuration	≤ 50 m Introduced right turn lane	Not Applicable	≤ 50 m	Not Applicable	≤ 50 m	≤ 50 m	Not Applicable	Not Applicable	≤ 50 m		Not Applicable	Not Applicable
	Right Turning Speed	≤ 25 km/h	Not Applicable	≤ 25 km/h	Not Applicable	≤ 25 km/h	≤ 25 km/h	Not Applicable	Not Applicable	≤ 25 km/h		Not Applicable	Not Applicable
Φ	Cyclist relative to RT motorists	В	Not Applicable	D	Not Applicable	D	D	Not Applicable	Not Applicable	D	-	Not Applicable	Not Applicable
ō	Separated or Mixed Traffic	Separated	Separated	Mixed Traffic	Separated	Mixed Traffic	Mixed Traffic	Separated	Separated	Mixed Traffic	-	Separated	Separated
Bicycle	Left Turn Approach	1 lane crossed	1 lane crossed	≥ 2 lanes crossed		No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed			
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h		≤ 40 km/h	≤ 40 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≤ 40 km/h			
	Left Turning Cyclist	D	D	F	-	В	В	F	F	В	•	•	-
		D	D	F	-	D	D	F	F	D	-	-	-
	Level of Service			F			1	F				D	
#	Average Signal Delay		≤ 40 sec	≤ 30 sec	≤ 20 sec			≤ 10 sec	≤ 20 sec			≤ 10 sec	≤ 10 sec
sus		-	E	D	С	-	-	В	С	-	-	В	В
Transit	Level of Service			E				C				В	
	Effective Corner Radius	> 15 m	> 15 m	> 15 m	> 15 m	> 15 m	> 15 m	> 15 m	> 15 m	< 10 m		< 10 m	
Truck	Number of Receiving Lanes on Departure from Intersection	≥2	1	≥2	≥2	≥2	1	≥ 2	≥ 2	≥ 2		1	
2		Α	С	Α	Α	Α	С	Α	Α	D	-	F	-
	Level of Service			С				C				F	
0	Volume to Capacity Ratio												
Auto	Level of Service			-				-				-	

	Merivale and W	rivale and Westgate SC			Carling and	Kirkwood N		Carling and Kirkwood S			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
3 Median > 2.4 m	3 No Median - 2.4 m		3 No Median - 2.4 m	6 No Modian 2.4 m	4 No Modian 2.4 m	4 No Median - 2.4 m	3 No Modian 2.4 m	4 No Median - 2.4 m	5 No Median - 2.4 m		5 No Median - 2.4 m
Permissive	No left turn / Prohib.		Permissive	No left turn / Prohib.	Permissive	No left turn / Prohib.	Protected/ Permissive	Permissive	No left turn / Prohib.		Permissive
Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control		Permissive or yield control
RTOR allowed	RTOR allowed		RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR prohibited		RTOR allowed
No	No		No	No	No	No	No	No	No		No
No Channel	No Channel		No Channel	No Channel	No Right Turn	No Channel	No Right Turn	No Right Turn	No Channel		Smart Channel
10-15m	10-15m		10-15m	10-15m	No Right Turn	10-15m	No Right Turn	No Right Turn	5-10m		15-25m
Textured/coloured pavement	Textured/coloured pavement		Textured/coloured pavement	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings
73	81		73	28	71	61	83	74	52		44
С	В		С	F	С	С	В	С	D	-	E
-					-	-		-		-	
С	В		С	F	С	С	В	С	D	_	Е
	C			F				E			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pocket Bike Lane	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Pocket Bike Lane
≤ 50 m Introduced right turn lane	Not Applicable		≤ 50 m	≤ 50 m	≤ 50 m	≤ 50 m	≤ 50 m	> 50 m	≤ 50 m		Bike lane shifts to the left of right turn
>25 to 30 km/h	Not Applicable		≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h		>25 to 30 km/h
С	Not Applicable	<u> </u>	D	D	D Mixed Traffic	D	D	F Mixed Traffic	D Mixed Traffic	-	F
Separated	Separated	•	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	•	Separated
	1 lane crossed		No lane crossed	No lane crossed		One lane crossed		One lane crossed			≥ 2 lanes crossed
	> 50 to < 60 km/h		≤ 40 km/h	> 50 to < 60 km/h		> 50 to < 60 km/h		> 50 to < 60 km/h			> 50 to < 60 km/h
-	D		D B	D	<u> </u>	E	-	E F			F
				В				-			
	D					E			F	-	
	> 40 sec						> 40 sec			> 40 sec	
-	F	<u> </u>	-	-	-	-	F	-	-	F	-
	F					F			F	=	
> 15 m			> 15 m	< 10 m		> 15 m			< 10 m		> 15 m
1			1	≥2		≥ 2			≥ 2		≥2
С		-	С	D	-	Α	-	-	D	-	Α
	С					D)	
						-					

Multi-Modal Level of Service - Segments Form

Consultant	Parsons	Project	Westgate SC - Phase 1
Scenario	Existing/Future (upto 2025)		1309 Carling Ave
Comments		Date	Sept. 11, 2018

SEGMENTS		Street A	Carling Existing	Merivale	Section 3
	Sidewalk Width Bouleyard Width		≥ 2 m 0.5 - 2 m	Existing ≥ 2 m > 2 m	3
	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	
Pedestrian	Operating Speed On-Street Parking		> 30 to 50 km/h no	> 50 to 60 km/h no	
est	Exposure to Traffic PLoS	-	С	С	-
eď	Effective Sidewalk Width				
<u> </u>	Pedestrian Volume				
	Crowding PLoS		-	-	-
	Level of Service		-	-	-
	Type of Cycling Facility		Curbside Bike Lane	Curbside Bike Lane	
	Number of Travel Lanes		≥ 3 each direction	≤ 1 each direction	
	Operating Speed		>50 to 70 km/h	>50 to 70 km/h	
	# of Lanes & Operating Speed LoS		D	С	-
Bicycle	Bike Lane (+ Parking Lane) Width		≥ 1.8 m	≥ 1.8 m	
<u>ک</u>	Bike Lane Width LoS	-	Α	Α	-
ä	Bike Lane Blockages		Rare	Rare	
	Blockage LoS Median Refuge Width (no median = < 1.8 m)		Α	Α	-
	No. of Lanes at Unsignalized Crossing				
	Sidestreet Operating Speed				
	Unsignalized Crossing - Lowest LoS		-	-	-
	Level of Service		-	-	-
#	Facility Type		Mixed Traffic	Mixed Traffic	
ansit	Friction or Ratio Transit:Posted Speed	D	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	
T _E	Level of Service		D	D	
	Truck Lane Width		≤ 3.3 m	≤ 3.3 m	
Ž Ž	Travel Lanes per Direction	D	> 1	1	
Truck	Level of Service		С	D	-
Auto	Level of Service	Not Applic	cable		



TDM-Supportive Development Design and Infrastructure Checklist:

Residential Developments (multi-family or condominium)

Legend The Official Plan or Zoning By-law provides related guidance that must be followed BASIC The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	1.	WALKING & CYCLING: ROUTES	
	1.1	Building location & access points	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	✓
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	
	1.2	Facilities for walking & cycling	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)	
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official Plan policy 4.3.12)	

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and onroad cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	lacksquare
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	
	1.3	Amenities for walking & cycling	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references			
	2.	WALKING & CYCLING: END-OF-TRIP FACILITY	TIES			
	2.1	Bicycle parking				
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)				
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see Zoning By-law Section 111)				
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see Zoning By-law Section 111)				
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists				
	2.2	Secure bicycle parking				
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)				
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multifamily residential developments				
	2.3	Bicycle repair station				
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)				
	3.	TRANSIT				
	3.1	Customer amenities				
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	N/A			
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	N/A			
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	□ N/A			

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	4.	RIDESHARING	
	4.1	Pick-up & drop-off facilities	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	
	5.	CARSHARING & BIKESHARING	
	5.1	Carshare parking spaces	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses (see Zoning By-law Section 94)	N/A
	5.2	Bikeshare station location	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	
	6.	PARKING	
	6.1	Number of parking spaces	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)	
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111)	
	6.2	Separate long-term & short-term parking areas	_
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	

TDM Measures Checklist:

Non-Residential Developments (office, institutional, retail or industrial)

BASIC The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance The measure is one of the most dependably effective tools to encourage the use of sustainable modes

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	1.	TDM PROGRAM MANAGEMENT	
	1.1	Program coordinator	
BASIC	★ 1.1.1	Designate an internal coordinator, or contract with an external coordinator	
	1.2	Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
	2.	WALKING AND CYCLING	
	2.1	Information on walking/cycling routes & destin	ations
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances	
	2.2	Bicycle skills training	
		Commuter travel	
BETTER	★ 2.2.1	Offer on-site cycling courses for commuters, or subsidize off-site courses	
	2.3	Valet bike parking	
		Visitor travel	;
BETTER	2.3.1	Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	

		TDM	measures: Non-residential developments	Check if proposed & add descriptions
		3.	TRANSIT	
		3.1	Transit information	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances	
BASIC		3.1.2	Provide online links to OC Transpo and STO information	
BETTER		3.1.3	Provide real-time arrival information display at entrances	
		3.2	Transit fare incentives	
			Commuter travel	
BETTER		3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	
BETTER	*	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	
			Visitor travel	
BETTER		3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	
		3.3	Enhanced public transit service	
			Commuter travel	
BETTER		3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	
			Visitor travel	
BETTER		3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	
		3.4	Private transit service	
			Commuter travel	
BETTER		3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	
			Visitor travel	
BETTER		3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	4.	RIDESHARING	
	4.1	Ridematching service Commuter travel	
BASIC	★ 4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	
	4.2	Carpool parking price incentives Commuter travel	
BETTER	4.2.1	Provide discounts on parking costs for registered carpools	
	4.3	Vanpool service	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	
	5.	CARSHARING & BIKESHARING	
	5.1	Bikeshare stations & memberships	
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	
	5.2	Carshare vehicles & memberships	
		Commuter travel	
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	
	6.	PARKING	
	6.1	Priced parking	
		Commuter travel	
BASIC	★ 6.1.1	Charge for long-term parking (daily, weekly, monthly)	
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	
		Visitor travel	
BETTER	6.1.3	Charge for short-term parking (hourly)	

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	7.	TDM MARKETING & COMMUNICATIONS	
	7.1	Multimodal travel information	
- Curron	744	Commuter travel	
BASIC ★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	
		Visitor travel	
BETTER *	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	
	7.2	Personalized trip planning	
		Commuter travel	
BETTER ★	7.2.1	Offer personalized trip planning to new/relocating employees	
	7.3	Promotions	
		Commuter travel	
BETTER	7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	
	8.	OTHER INCENTIVES & AMENITIES	
	8.1	Emergency ride home	
		Commuter travel	
BETTER ★	8.1.1	Provide emergency ride home service to non-driving commuters	
	8.2	Alternative work arrangements	
		Commuter travel	
BASIC *	8.2.1	Encourage flexible work hours	
BETTER	8.2.2	Encourage compressed workweeks	
BETTER 🖈	8.2.3	Encourage telework	
	8.3	Local business travel options	
		Commuter travel	
BASIC ★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	
	8.4	Commuter incentives	
		Commuter travel	
BETTER	8.4.1	Offer employees a taxable, mode-neutral commuting allowance	
	8.5	On-site amenities	
		Commuter travel	
BETTER		Provide on-site amenities/services to minimize	П

TDM Measures Checklist:

Residential Developments (multi-family, condominium or subdivision)

The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance The measure is one of the most dependably effective tools to encourage the use of sustainable modes

	TDM	measures: Residential developments	Check if proposed & add descriptions
	1.	TDM PROGRAM MANAGEMENT	
	1.1	Program coordinator	
BASIC	★ 1.1.1	Designate an internal coordinator, or contract with an external coordinator	
	1.2	Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
	2.	WALKING AND CYCLING	
	2.1	Information on walking/cycling routes & des	tinations
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances (multi-family, condominium)	☐ Not at this time, but a possibility to display in the future.
	2.2	Bicycle skills training	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	

		TDM	measures: Residential developments	Check if proposed & add descriptions
		3.	TRANSIT	
		3.1	Transit information	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances (multi-family, condominium)	Possibly, the lobby will have screens but the content has yet to be decided.
BETTER		3.1.2	Provide real-time arrival information display at entrances (multi-family, condominium)	
		3.2	Transit fare incentives	
BASIC	*	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	
		3.3	Enhanced public transit service	
BETTER	*	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels (subdivision)	
		3.4	Private transit service	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	
		4.	CARSHARING & BIKESHARING	
		4.1	Bikeshare stations & memberships	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (<i>multi-family</i>)	
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized (multi-family)	
		4.2	Carshare vehicles & memberships	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	
		5.	PARKING	
		5.1	Priced parking	
BASIC	*	5.1.1	Unbundle parking cost from purchase price (condominium)	□ N/A
BASIC	*	5.1.2	Unbundle parking cost from monthly rent (multi-family)	X

	TDM	measures: Residential developments	Check if proposed & add descriptions
	6.	TDM MARKETING & COMMUNICATIONS	
	6.1	Multimodal travel information	
BASIC	6.1.1	Provide a multimodal travel option information package to new residents	X
	6.2	Personalized trip planning	
BETTER 🖈	6.2.1	Offer personalized trip planning to new residents	



2: Merivale & Westgate Si	۶	1	†	↓	4		
Lane Group	EBL	NBL	NBT	SBT	SBR		
Lane Configurations	Y	ሻ	<u> </u>	<u> </u>	7		
Traffic Volume (vph)	31	48	160	479	68		
Future Volume (vph)	31	48	160	479	68		
Lane Group Flow (vph)	62	51	168	504	72		
Turn Type	Prot	Perm	NA	NA	Perm		
Protected Phases	4		2	6	,		
Permitted Phases	4	2	2	,	6		
Detector Phase Switch Phase	4	2	2	6	6		
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		
Minimum Split (s)	23.5	23.8	23.8	35.8	35.8		
Total Split (s)	28.0	72.0	72.0	72.0	72.0		
Total Split (%)	28.0%	72.0%	72.0%	72.0%	72.0%		
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8		
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		
Act Effct Green (s)	10.2	82.7	82.7	82.7	82.7		
Actuated g/C Ratio	0.10	0.83	0.83	0.83	0.83		
v/c Ratio	0.32	0.07	0.11	0.34	0.06		
Control Delay	30.4	0.9	0.7	3.6	0.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay LOS	30.4 C	0.9 A	0.7 A	3.6 A	0.7 A		
Approach Delay	30.4	А	0.8	3.3	А		
Approach LOS	C		Α	3.5 A			
Queue Length 50th (m)	6.0	0.2	0.8	22.7	0.0		
Queue Length 95th (m)	18.0	1.3	3.1	35.9	2.5		
Internal Link Dist (m)	40.8		88.4	58.0			
Turn Bay Length (m)		40.0			40.0		
Base Capacity (vph)	388	691	1476	1476	1267		
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	0.16	0.07	0.11	0.34	0.06		
Intersection Summary							
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 35 (35%), Referenced to pha	ase 2:NBTL a	nd 6:SBT.	Start of Gree	en			
Natural Cycle: 60	300 E. 15 1 E G		olari or oroi	J.,			
Control Type: Actuated-Coordinated	t						
Maximum v/c Ratio: 0.34							
Intersection Signal Delay: 4.6				Int	tersection LOS	: A	
Intersection Capacity Utilization 57.	5%			IC	U Level of Ser	vice B	
Analysis Period (min) 15							
Culting and Dhanner O. Markeda O.	Mtt- 60						
Splits and Phases: 2: Merivale &	vvesigate SC	•					
√ Ø2 (R)							
72 S							
∮ Ø6 (R)							

Lane Configurations		→	•	←	4	†	/	/	↓	4
Traffic Volume (vph)	Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph) 805	Lane Configurations	ተ ተጌ	7	ተ ቀኄ	7	*	7	7	*	7
Lane Group Flow (vph) 922 157 691 236 208 249 27 239 219 Turn Type NA pm+pt NA pm+pt NA Perrot NA Perm NA Perm Prot NA Perm NA Perm Permitted Phases 2 1 6 3 8 8 7 4 4 Detector Phase 2 1 6 3 8 8 7 4 4 Wishich Phase 8 10.0 5.0 10.0 5.0 10.0	Traffic Volume (vph)						237			
Turn Type	Future Volume (vph)	805	149	624	224	198	237	26	227	208
Turn Type	Lane Group Flow (vph)	922	157	691	236	208	249	27	239	219
Protected Phases	Turn Type	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Detector Phase 2	Protected Phases	2		6	3	8		7	4	
Switch Phase Minimum Initial (s) 10.0 5.0 10.0 5.0 10.0 5.0 10.0 5.0 10.0 5.0 10.0 10.0 5.0 10.0 20.0 10.0 10.0 10.0 37.7	Permitted Phases		6				8			4
Minimum Initial (s) 10.0 5.0 10.0 5.0 10.0 10.0 5.0 10.0 37.7	Detector Phase	2	1	6	3	8	8	7	4	4
Minimum Split (s) 29.0 10.4 29.0 11.3 37.7 37.7 11.3 37.7 37.7 Total Split (s) 30.3 11.0 41.3 21.0 47.4 47.4 11.3 37.7 37.7 Total Split (%) 30.3% 11.0 41.3% 21.0% 47.4% 47.4% 11.3% 37.7 37.7 Vellow Time (s) 3.7 3.7 3.7 3.3	Switch Phase									
Minimum Split (s) 29.0 10.4 29.0 11.3 37.7 37.7 11.3 37.7 37.7 Total Split (s) 30.3 11.0 41.3 21.0 47.4 47.4 11.3 37.7 37.7 Total Split (%) 30.3% 11.0% 41.3% 21.0% 47.4% 47.4% 11.3% 37.7 37.7 Vellow Time (s) 3.7 3.7 3.3	Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Total Split (s) 30.3 11.0 41.3 21.0 47.4 47.4 11.3 37.7 37.7 Total Split (%) 30.3% 11.0% 41.3% 21.0% 47.4% 47.4% 11.3% 37.7% 37.7% Yellow Time (s) 3.7 3.7 3.7 3.3	Minimum Split (s)	29.0	10.4						37.7	37.7
Total Split (%) 30.3% 11.0% 41.3% 21.0% 47.4% 47.4% 11.3% 37.7% 37.7% Yellow Time (s) 3.7 3.7 3.7 3.3 3.4 4.0 4.0	Total Split (s)		11.0	41.3	21.0	47.4	47.4	11.3	37.7	37.7
All-Red Time (s) 2.3 1.7 2.3 3.0 3.4 3.4 3.0 3.4 3.4 Lost Time Adjust (s) -2.0 -1.4 -2.0 -2.3 -2.7 -2.7 -2.7 -2.3 -2.7 -2.7 Total Lost Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Total Split (%)									
All-Red Time (s)	Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
Total Lost Time (s) 4.0	All-Red Time (s)		1.7	2.3		3.4	3.4	3.0	3.4	3.4
Lead/Lag Lag Lag Lead <	Lost Time Adjust (s)	-2.0	-1.4	-2.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7
Lead-Lag Optimize? Yes	Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode C-Max None C-Max None	Lead/Lag	Lead	Lag		Lag	Lead	Lead	Lag	Lead	Lead
Act Effct Green (s) 34.4 45.4 45.4 19.9 36.3 36.3 13.7 22.7 22.7 Actuated g/C Ratio 0.34 0.45 0.45 0.20 0.36 0.36 0.14 0.23 0.23 v/c Ratio 0.56 0.63 0.32 0.70 0.32 0.36 0.12 0.59 0.43 Control Delay 27.9 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1 Queue Delay 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Actuated g/C Ratio O.34 O.45 O.45 O.20 O.36 O.36 O.36 O.14 O.23 O.23 O.20 V/c Ratio O.56 O.63 O.32 O.70 O.32 O.36 O.12 O.59 O.43 Control Delay 27.9 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1 Oueue Delay O.2 O.0 O.0 O.0 O.0 O.0 O.0 O.0	Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio 0.56 0.63 0.32 0.70 0.32 0.36 0.12 0.59 0.43 Control Delay 27.9 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1 Queue Delay 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 28.1 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1 LOS C D B D C A C D A Approach Delay 28.1 23.4 26.6 21.4 21.4 22.4 26.6 21.4 22.4 22.6 21.4 22.4 22.6 22.4 22.9 0.0 5.1 32.4 0.0 22.6 22.9 0.0 5.1 32.4 0.0 22.6 22.9 0.0 5.1 32.4 0.0 22.6 22.9 0.0 5.1 32.4 0.0 32.4 40.0 </td <td>Act Effct Green (s)</td> <td>34.4</td> <td>45.4</td> <td>45.4</td> <td>19.9</td> <td>36.3</td> <td>36.3</td> <td>13.7</td> <td>22.7</td> <td>22.7</td>	Act Effct Green (s)	34.4	45.4	45.4	19.9	36.3	36.3	13.7	22.7	22.7
Control Delay 27.9 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1 Queue Delay 0.2 0.0 </td <td>Actuated g/C Ratio</td> <td>0.34</td> <td>0.45</td> <td>0.45</td> <td>0.20</td> <td>0.36</td> <td>0.36</td> <td>0.14</td> <td>0.23</td> <td>0.23</td>	Actuated g/C Ratio	0.34	0.45	0.45	0.20	0.36	0.36	0.14	0.23	0.23
Queue Delay 0.2 0.0 <th< td=""><td>v/c Ratio</td><td>0.56</td><td>0.63</td><td>0.32</td><td>0.70</td><td>0.32</td><td>0.36</td><td>0.12</td><td>0.59</td><td>0.43</td></th<>	v/c Ratio	0.56	0.63	0.32	0.70	0.32	0.36	0.12	0.59	0.43
Total Delay 28.1 42.8 19.0 49.8 25.9 5.1 33.4 35.9 4.1	Control Delay	27.9	42.8	19.0	49.8	25.9	5.1	33.4	35.9	4.1
LOS C D B D C A C D A Approach Delay 28.1 23.4 26.6 21.4 21.4 21.4 21.4 22.4 22.6 21.4 22.4 22.4 22.9 <t< td=""><td>Queue Delay</td><td>0.2</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></t<>	Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach Delay 28.1 23.4 26.6 21.4 Approach LOS C C C C C C Queue Length 50th (m) 28.6 18.2 30.6 41.5 22.9 0.0 5.1 32.4 0.0 Queue Length 95th (m) 78.4 #42.6 45.0 #83.1 48.7 16.0 12.0 39.3 7.5 Internal Link Dist (m) 89.4 139.3 131.8 88.4 Turn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0	Total Delay	28.1	42.8	19.0	49.8	25.9	5.1	33.4	35.9	4.1
Approach LOS C C C C C Queue Length 50th (m) 28.6 18.2 30.6 41.5 22.9 0.0 5.1 32.4 0.0 Queue Length 95th (m) 78.4 #42.6 45.0 #83.1 48.7 16.0 12.0 39.3 7.5 Internal Link Dist (m) 89.4 139.3 131.8 88.4 Turn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0	LOS		D	В	D		Α	С		Α
Queue Length 50th (m) 28.6 18.2 30.6 41.5 22.9 0.0 5.1 32.4 0.0 Queue Length 95th (m) 78.4 #42.6 45.0 #83.1 48.7 16.0 12.0 39.3 7.5 Internal Link Dist (m) 89.4 139.3 131.8 88.4 Turn Bay Length (m) 90.0 40.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0	Approach Delay	28.1		23.4		26.6			21.4	
Queue Length 95th (m) 78.4 #42.6 45.0 #83.1 48.7 16.0 12.0 39.3 7.5 Internal Link Dist (m) 89.4 139.3 131.8 88.4 Turn Bay Length (m) 90.0 40.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0	Approach LOS	С		С		С			С	
Internal Link Dist (m) 89.4 139.3 131.8 88.4 Turn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0	Queue Length 50th (m)	28.6			41.5		0.0	5.1		
Turn Bay Length (m) 90.0 40.0 40.0 70.0 Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0	Queue Length 95th (m)	78.4	#42.6	45.0	#83.1	48.7	16.0	12.0	39.3	7.5
Base Capacity (vph) 1652 249 2191 341 790 787 232 601 648 Starvation Cap Reductn 150 0 <td>Internal Link Dist (m)</td> <td>89.4</td> <td></td> <td>139.3</td> <td></td> <td>131.8</td> <td></td> <td></td> <td>88.4</td> <td></td>	Internal Link Dist (m)	89.4		139.3		131.8			88.4	
Starvation Cap Reductn 150 0 <td>Turn Bay Length (m)</td> <td></td> <td>90.0</td> <td></td> <td>40.0</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Turn Bay Length (m)		90.0		40.0					
Spillback Cap Reductn 0 0 0 0 0 0 0 0	Base Capacity (vph)	1652	249	2191	341	790	787	232	601	648
	Starvation Cap Reductn	150	0	0	0	0	0	0	0	0
	Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
	Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio 0.61 0.63 0.32 0.69 0.26 0.32 0.12 0.40 0.34	Reduced v/c Ratio	0.61	0.63	0.32	0.69	0.26	0.32	0.12	0.40	0.34

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 84 (84%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.70

Intersection Signal Delay: 25.3 Intersection Capacity Utilization 75.1%

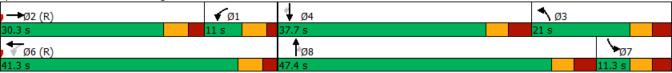
Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale & Carling



	•	۶	→	•	•	4	†	/	+	4	
Lane Group	EBU	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		N.	↑ ↑₽	, N	^		4		4	7	
Traffic Volume (vph)	99	108	1210	7	819	12	2	28	1	43	
Future Volume (vph)	99	108	1210	7	819	12	2	28	1	43	
Lane Group Flow (vph)	0	218	1289	7	988	0	29	0	30	45	
Turn Type	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases			2		6		8		4		
Permitted Phases	2	2		6		8		4		4	
Detector Phase	2	2	2	6	6	8	8	4	4	4	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0	
Total Split (s)	63.0	63.0	63.0	63.0	63.0	37.0	37.0	37.0	37.0	37.0	
Total Split (%)	63.0%	63.0%	63.0%	63.0%	63.0%	37.0%	37.0%	37.0%	37.0%	37.0%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0	
Lost Time Adjust (s)		-1.6	-1.6	-1.6	-1.6		-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)		79.2	79.2	79.2	79.2		17.0		17.0	17.0	
Actuated g/C Ratio		0.79	0.79	0.79	0.79		0.17		0.17	0.17	
v/c Ratio		0.58	0.33	0.03	0.26		0.11		0.14	0.16	
Control Delay		21.6	7.8	6.1	5.6		20.8		33.4	9.8	
Queue Delay		0.0	0.2	0.0	0.1		0.0		0.0	0.0	
Total Delay		21.6	8.0	6.1	5.8		20.8		33.4	9.8	
LOS		С	Α	Α	Α		С		С	Α	
Approach Delay			10.0		5.8		20.8		19.3		
Approach LOS			Α		Α		С		В		
Queue Length 50th (m)		27.2	33.4	0.3	18.2		2.6		5.3	0.0	
Queue Length 95th (m)		#77.6	79.3	m1.6	69.4		8.1		10.4	7.4	
Internal Link Dist (m)			112.0		89.4		10.8		48.4		
Turn Bay Length (m)		70.0		36.0							
Base Capacity (vph)		378	3850	271	3761		485		431	519	
Starvation Cap Reductn		0	1345	0	1497		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		0.58	0.51	0.03	0.44		0.06		0.07	0.09	

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.7

Intersection Capacity Utilization 73.9%

Intersection LOS: A ICU Level of Service D

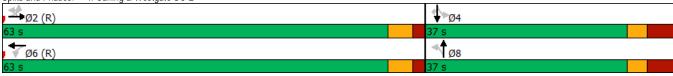
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Carling & Westgate SC E



	→	•	>
Lane Group	EBT	WBT	SBL
Lane Configurations	↑ ↑↑	ተተኈ	Y
Traffic Volume (vph)	1027	1112	13
Future Volume (vph)	1027	1112	13
Lane Group Flow (vph)	1027	1185	34
Turn Type	NA	NA	Prot
Protected Phases	2	6	4
Permitted Phases			
Detector Phase	2	6	4
Switch Phase			
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	24.0	48.3	37.1
Total Split (s)	62.0	62.0	38.0
Total Split (%)	62.0%	62.0%	38.0%
Yellow Time (s)	3.7	3.7	3.0
All-Red Time (s)	1.6	1.6	3.1
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	6.1
Lead/Lag	0.0	0.0	5.1
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	87.2	87.2	10.0
Actuated g/C Ratio	0.87	0.87	0.10
v/c Ratio	0.25	0.28	0.19
Control Delay	1.0	3.9	26.5
Queue Delay	0.0	0.1	0.0
Total Delay	1.0	4.0	26.5
LOS	Α	4.0 A	20.5 C
Approach Delay	1.0	4.0	26.5
Approach LOS	Α	Α.	20.5 C
Queue Length 50th (m)	8.2	13.9	2.5
Queue Length 95th (m)	m7.7	59.4	11.6
Internal Link Dist (m)	32.6	112.0	92.7
Turn Bay Length (m)	32.0	112.0	72.1
Base Capacity (vph)	4245	4237	527
Starvation Cap Reductn	4243	1627	0
Spillback Cap Reductin	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.45	0.06
	0.25	0.40	0.00
Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 60 (60%), Referenced to phase	se 2:EBT an	d 6:WBT, S	tart of Green
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 2.9			
Intersection Capacity Utilization 40.89	%		
Analysis Period (min) 15			
m Volume for 95th percentile queue	e is metered	by upstream	m signal.

Splits and Phases: 5: Carling & Westgate SC W



	•	←	•	<u></u>	 	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	77	ተተጉ	*	*	^	7
Traffic Volume (vph)	215	1576	280	319	402	360
Future Volume (vph)	215	1576	280	319	402	360
Lane Group Flow (vph)	226	1925	295	336	423	379
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6		8			4
Detector Phase	6	6	3	8	4	4
Switch Phase	Ū			Ū	•	•
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	51.0	51.0	17.0	49.0	32.0	32.0
Total Split (%)	51.0%	51.0%	17.0%	49.0%	32.0%	32.0%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	٠.٠	Lag	7.0	Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	50.7	50.7	41.3	41.3	26.9	26.9
Actuated g/C Ratio	0.51	0.51	0.41	0.41	0.27	0.27
v/c Ratio	0.31	0.80	0.41	0.41	0.27	0.27
Control Delay	12.1	19.3	23.8	11.4	32.2	39.9
· · · · · · · · · · · · · · · · · · ·	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay Total Delay	12.1	19.3	23.8	11.4	32.2	39.9
LOS		19.3 B	23.8 C		32.2 C	
	В		C	B		D
Approach Delay		18.6		17.2	35.9	
Approach LOS	0.4	В	00.0	В	D	F0 (
Queue Length 50th (m)	9.1	69.2	20.9	24.0	35.4	50.6
Queue Length 95th (m)	22.7	129.5	m29.1	m31.6	49.5	#95.7
Internal Link Dist (m)	40.0	346.9		152.2	73.8	00.0
Turn Bay Length (m)	40.0	0.440	400	000	0.40	22.0
Base Capacity (vph)	1659	2412	438	802	949	481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.80	0.67	0.42	0.45	0.79

Cycle Length: 100

Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 22.2

Intersection Capacity Utilization 98.6%

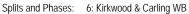
Intersection LOS: C ICU Level of Service F

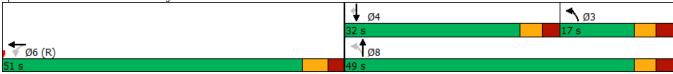
Analysis Period (min) 15

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.





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Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	75	414	7	^	7	*	1
Traffic Volume (vph)	187	2040	422	384	399	484	224
Future Volume (vph)	187	2040	422	384	399	484	224
Lane Group Flow (vph)	177	2167	444	404	420	509	236
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2		2		8	4	
Detector Phase	2	2	2	8	8	7	4
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	48.8	48.8	48.8	30.0	30.0	21.2	51.2
Total Split (%)	48.8%	48.8%	48.8%	30.0%	30.0%	21.2%	51.2%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lead	Lead	Lag	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	44.8	44.8	44.8	26.0	26.0	47.2	47.2
Actuated g/C Ratio	0.45	0.45	0.45	0.26	0.26	0.47	0.47
v/c Ratio	0.27	1.05	0.52	0.46	1.07	0.99	0.28
Control Delay	18.8	62.9	5.7	33.1	101.1	68.0	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	62.9	5.7	33.1	101.1	68.0	12.8
LOS	В	E	Α	С	F	E	В
Approach Delay		51.0		67.8			50.5
Approach LOS		D		Е			D
Queue Length 50th (m)	24.4	~178.5	7.1	34.6	~90.4	79.9	19.7
Queue Length 95th (m)	41.2	#209.3	28.4	48.7	#147.1	#143.7	53.0
Internal Link Dist (m)		164.7		158.6			152.2
Turn Bay Length (m)	40.0				90.0		
Base Capacity (vph)	652	2062	855	881	394	512	842
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	0.27	1.05	0.52	0.46	1.07	0.99	0.28
	0.27	5	0.02	0.10		0.,,	0.20

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 19 (19%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.07 Intersection Signal Delay: 54.1

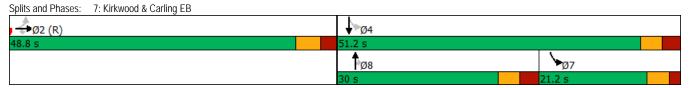
Intersection LOS: D ICU Level of Service F

Intersection Capacity Utilization 98.6% 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.



10: Carling EB/Carling & Carling WB

	→	*_
Lane Group	EBT	WBR
Lane Configurations	ተተተ	777
Traffic Volume (vph)	1093	1114
Future Volume (vph)	1093	1114
Lane Group Flow (vph)	1151	1173
Sign Control	Free	
Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 3	30.8%	
Analysis Period (min) 15		

2: Merivale & Westgate S						
	•	4	†	↓	4	
Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	¥	i i	<u> </u>		7	
Traffic Volume (vph)	82	84	192	470	99	
Future Volume (vph)	82	84	192	470	99	
Lane Group Flow (vph)	185	88	202	495	104	
Turn Type	Perm	Perm	NA	NA	Perm	
Protected Phases			2	6		
Permitted Phases	4	2			6	
Detector Phase	4	2	2	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.5	24.0	24.0	35.8	35.8	
Total Split (s)	36.0	74.0	74.0	74.0	74.0	
Total Split (%)	32.7%	67.3%	67.3%	67.3%	67.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	15.2	83.5	83.5	83.5	83.5	
Actuated g/C Ratio	0.14	0.76	0.76	0.76	0.76	
v/c Ratio	0.69	0.14	0.15	0.37	0.09	
Control Delay	45.2	1.4	1.1	5.8	1.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.2	1.4	1.1	5.8	1.1	
LOS	D	А	Α	А	А	
Approach Delay	45.3		1.2	5.0		
Approach LOS	D		Α	Α		
Queue Length 50th (m)	27.6	0.9	2.0	28.9	0.0	
Queue Length 95th (m)	47.7	m2.0	3.8	56.0	4.6	
Internal Link Dist (m)	28.7		87.9	55.1		
Turn Bay Length (m)		40.0			40.0	
Base Capacity (vph)	486	620	1354	1354	1177	
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	0.38	0.14	0.15	0.37	0.09	
Intersection Summary						
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 90 (82%), Referenced to ph	ase 2:NBTL a	ind 6:SBT, S	Start of Gree	en		
Natural Cycle: 60						
Control Type: Actuated-Coordinate	ed .					
Maximum v/c Ratio: 0.69						
Intersection Signal Delay: 10.9				In	tersection LO	S: B
Intersection Capacity Utilization 59.	.6%				U Level of Se	
Analysis Period (min) 15						

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

	→	•	←	•	†	~	/	+	4
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ተተኈ	*	ተተጉ	*	†	7	*	*	7
Traffic Volume (vph)	864	349	1439	176	209	185	51	281	188
Future Volume (vph)	864	349	1439	176	209	185	51	281	188
Lane Group Flow (vph)	1029	367	1557	185	220	195	54	296	198
Turn Type	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	2	1	6	3	8		7	4	
Permitted Phases		6				8			4
Detector Phase	2	1	6	3	8	8	7	4	4
Switch Phase									
Minimum Initial (s)	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	29.0	10.4	29.0	11.3	37.7	37.7	11.3	37.7	37.7
Total Split (s)	30.1	25.0	55.1	17.2	41.7	41.7	13.2	37.7	37.7
Total Split (%)	27.4%	22.7%	50.1%	15.6%	37.9%	37.9%	12.0%	34.3%	34.3%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	1.7	2.3	3.0	3.4	3.4	3.0	3.4	3.4
Lost Time Adjust (s)	-2.0	-1.4	-2.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	33.3	58.3	58.3	13.2	33.1	33.1	8.9	26.5	26.5
Actuated g/C Ratio	0.30	0.53	0.53	0.12	0.30	0.30	0.08	0.24	0.24
v/c Ratio	0.71	0.90	0.61	0.91	0.41	0.34	0.39	0.69	0.42
Control Delay	26.9	62.6	19.9	92.5	33.1	5.5	61.4	39.6	7.7
Queue Delay	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	27.8	62.6	20.0	92.5	33.1	5.5	61.4	40.3	7.7
LOS	С	Е	С	F	С	Α	E	D	Α
Approach Delay	27.8		28.1		42.4			30.6	
Approach LOS	С		С		D			С	
Queue Length 50th (m)	48.2	56.9	81.7	39.8	38.7	0.0	11.1	50.4	2.6
Queue Length 95th (m)	#100.8	#116.9	110.2	#80.7	55.5	14.7	23.9	54.1	12.5
Internal Link Dist (m)	81.2		139.3		110.3			87.9	
Turn Bay Length (m)		90.0		40.0			40.0		70.0
Base Capacity (vph)	1452	409	2569	203	611	628	141	546	554
Starvation Cap Reductn	185	0	0	0	0	0	0	68	0
Spillback Cap Reductn	0	0	127	0	0	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.90	0.64	0.91	0.36	0.31	0.38	0.62	0.36

Cycle Length: 110

Actuated Cycle Length: 110
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.5

Intersection Capacity Utilization 85.0%

Intersection LOS: C ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale & Carling



		۶	-	•	←	•	†	>	ļ	4	
Lane Group	EBU	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		Ä	↑ ↑₽	7	ተተ _ጉ		4		4	7	
Traffic Volume (vph)	70	188	699	7	1763	10	5	115	1	96	
Future Volume (vph)	70	188	699	7	1763	10	5	115	1	96	
Lane Group Flow (vph)	0	272	749	7	1982	0	29	0	122	101	
Turn Type	pm+pt	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases	5	5	2		6		8		4		
Permitted Phases	2	2		6		8		4		4	
Detector Phase	5	5	2	6	6	8	8	4	4	4	
Switch Phase											
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0	
Total Split (s)	25.0	25.0	73.0	48.0	48.0	37.0	37.0	37.0	37.0	37.0	
Total Split (%)	22.7%	22.7%	66.4%	43.6%	43.6%	33.6%	33.6%	33.6%	33.6%	33.6%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0	
Lost Time Adjust (s)		-1.6	-1.6	-1.6	-1.6		-3.0		-3.0	-3.0	
Total Lost Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lead/Lag	Lag	Lag		Lead	Lead						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes						
Recall Mode	None	None	C-Max	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)		81.3	81.3	56.3	56.3		20.7		20.7	20.7	
Actuated g/C Ratio		0.74	0.74	0.51	0.51		0.19		0.19	0.19	
v/c Ratio		0.70	0.21	0.02	0.81		0.10		0.53	0.28	
Control Delay		43.9	2.7	11.4	16.0		22.0		46.9	8.3	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay		43.9	2.7	11.4	16.0		22.0		46.9	8.3	
LOS		D	Α	В	В		С		D	Α	
Approach Delay			13.7		15.9		22.0		29.4		
Approach LOS			В		В		С		С		
Queue Length 50th (m)		43.2	5.7	0.4	47.5		2.9		24.3	0.0	
Queue Length 95th (m)		#77.4	10.4	m1.0	#190.1		9.2		36.5	11.9	
Internal Link Dist (m)			113.0		81.2		26.4		38.7		
Turn Bay Length (m)		70.0		36.0							
Base Capacity (vph)		388	3583	309	2459		444		369	508	
Starvation Cap Reductn		0	0	0	0		0		0	0	
Spillback Cap Reductn		0	102	0	0		0		0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	
Reduced v/c Ratio		0.70	0.22	0.02	0.81		0.07		0.33	0.20	

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 7 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 16.2

Intersection Capacity Utilization 102.2%

Intersection LOS: B ICU Level of Service G

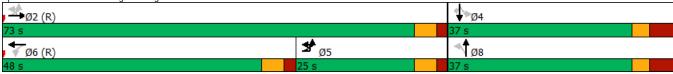
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Carling & Westgate SC E



	→	+	/		
Lane Group	EBT	WBT	SBL		
ane Configurations	↑ ↑↑	1	₩.		
Fraffic Volume (vph)	864	1736	25		
Future Volume (vph)	864	1736	25		
Lane Group Flow (vph)	909	1834	68		
Turn Type	NA	NA	Prot		
Protected Phases	2	6	4		
Permitted Phases					
Detector Phase	2	6	4		
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0		
Minimum Split (s)	24.1	42.3	37.1		
Total Split (s)	71.0	71.0	39.0		
Total Split (%)	64.5%	64.5%	35.5%		
Yellow Time (s)	3.7	3.7	3.0		
All-Red Time (s)	1.6	1.6	3.1		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3	6.1		
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	None		
Act Effct Green (s)	92.2	92.2	10.7		
Actuated g/C Ratio	0.84	0.84	0.10		
v/c Ratio	0.22	0.45	0.40		
Control Delay	3.6	0.5	42.8		
Queue Delay	0.0	0.2	0.0		
Total Delay	3.6	0.7	42.8		
LOS	A	A	D		
Approach Delay	3.6	0.7	42.8		
Approach LOS	A	A	D		
Queue Length 50th (m)	22.2	1.4	10.5		
Queue Length 95th (m)	29.5	4.6	23.6		
Internal Link Dist (m)	42.6	113.0	40.2		
Turn Bay Length (m)	4004	4077	101		
Base Capacity (vph)	4081	4077	491		
Starvation Cap Reductn	0	1155	0		
Spillback Cap Reductn	0	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	0.22	0.63	0.14		
Intersection Summary					
Cycle Length: 110					
Actuated Cycle Length: 110					
Offset: 18 (16%), Referenced to phase	se 2:EBT an	d 6:WBT, S	tart of Green		
Natural Cycle: 80					
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.45					
Intersection Signal Delay: 2.7				Intersection LOS: A	
Intersection Capacity Utilization 53.4	%			ICU Level of Service A	
Analysis Period (min) 15					
, mayere r erred (mm), re					
Splits and Phases: 5: Carling/Carli	ina EB & We	stgate SC \	N		
	g === =				
) → Ø2 (R)					
71 s					3
←					
ø6 (R)					

	•	←	•	<u>†</u>	+	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተኈ	*	*	† †	7
Traffic Volume (vph)	234	2518	227	567	522	410
Future Volume (vph)	234	2518	227	567	522	410
Lane Group Flow (vph)	246	2985	239	597	549	432
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6	-	8	-	•	4
Detector Phase	6	6	3	8	4	4
Switch Phase					'	
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	68.0	68.0	12.0	42.0	30.0	30.0
Total Split (%)	61.8%	61.8%	10.9%	38.2%	27.3%	27.3%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	7.0	٠.٠	Lead	т.0	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	64.0	64.0	38.0	38.0	26.0	26.0
Actuated g/C Ratio	0.58	04.0	0.35	0.35	0.24	0.24
v/c Ratio	0.38	1.08	1.08	0.33	0.24	1.06
Control Delay	5.4	57.1	108.2	47.1	43.4	95.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	95.5
Total Delay	5.4	57.1	108.2	47.1	43.4	95.5
LOS		57.1 E	100.2 F	47.1 D	43.4 D	95.5 F
Approach Delay	A	53.2	Г	64.6	66.3	Г
11		55.2 D				
Approach LOS	5.7	~263.5	~44.5	E 85.7	E 56.8	~86.4
Queue Length 50th (m)						
Queue Length 95th (m)	8.4	#282.7	m#76.8	#186.1	75.4	#147.0
Internal Link Dist (m)	40.0	113.3		144.7	73.8	22.0
Turn Bay Length (m)	40.0	27/0	222	/1/	001	22.0
Base Capacity (vph)	1902	2769	222	616	801	406
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.08	1.08	0.97	0.69	1.06

Cycle Length: 110

Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 57.6

Intersection Capacity Utilization 112.4%

Intersection LOS: E ICU Level of Service H

Analysis Period (min) 15

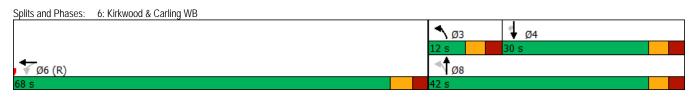
Volume exceeds capacity, queue is theoretically infinite.

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.



	•	-	•	†	~	>	Ţ
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	*	414	7	† †	7	75	†
Traffic Volume (vph)	419	1365	405	341	308	441	314
Future Volume (vph)	419	1365	405	341	308	441	314
Lane Group Flow (vph)	392	1486	426	359	324	464	331
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2	_	2	_	8	4	·
Detector Phase	2	2	2	8	8	7	4
Switch Phase	_	_	_	_	_	•	•
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	48.0	48.0	48.0	36.0	36.0	26.0	62.0
Total Split (%)	43.6%	43.6%	43.6%	32.7%	32.7%	23.6%	56.4%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lead	Lead	Lag	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	46.9	46.9	46.9	29.1	29.1	55.1	55.1
Actuated g/C Ratio	0.43	0.43	0.43	0.26	0.26	0.50	0.50
v/c Ratio	0.63	0.76	0.51	0.40	0.81	0.80	0.37
Control Delay	31.6	30.7	5.7	34.1	53.8	26.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	30.7	5.7	34.2	53.8	26.0	7.7
LOS	C	С	A	C	D	C	Α
Approach Delay		26.2	,,	43.5	, ,		18.4
Approach LOS		C		D			В
Queue Length 50th (m)	79.0	107.9	4.8	32.1	62.6	44.9	14.5
Queue Length 95th (m)	119.1	128.1	27.0	45.0	#96.3	#79.8	23.0
Internal Link Dist (m)		161.6	27.10	158.6	# 7 G.G		144.7
Turn Bay Length (m)	40.0	101.0		100.0	90.0		
Base Capacity (vph)	620	1956	834	986	441	588	940
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	50	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.76	0.51	0.38	0.73	0.79	0.35
Intersection Summary							

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 60 (55%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

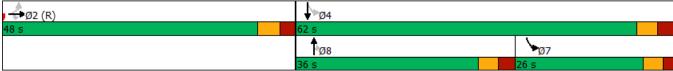
Intersection Signal Delay: 27.7 Intersection Capacity Utilization 112.4% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service H

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

Queue shown is maximum after two cycles.

Splits and Phases: 7: Kirkwood & Carling EB



	→	*_
Lane Group	EBT	WBR
Lane Configurations	ተተተ	777
Traffic Volume (vph)	1001	1868
Future Volume (vph)	1001	1868
Lane Group Flow (vph)	1054	1966
Sign Control	Free	
Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 49	.3%	
Analysis Period (min) 15		



	۶	•	†	 	4	
Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	Y	ኘ	<u> </u>		7	
Traffic Volume (vph)	31	48	167	501	68	
Future Volume (vph)	31	48	167	501	68	
Lane Group Flow (vph)	62	51	176	527	72	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4	T CITII	2	6	1 Gilli	
Permitted Phases	•	2	_		6	
Detector Phase	4	2	2	6	6	
Switch Phase	•	=	-		ŭ	
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	23.5	23.8	23.8	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag	5.5	5.0	5.0	5.0	5.0	
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.0	47.2	47.2	47.2	47.2	
` ,	0.17	0.79	0.79	0.79	0.79	
Actuated g/C Ratio v/c Ratio	0.17	0.79	0.79	0.79	0.79	
	15.8		0.13	5.1	1.4	
Control Delay		0.8				
Queue Delay	0.0 15.8	0.0	0.0	0.0	0.0	
Total Delay			0.7	5.1	1.4	
LOS Approach Dolov	B 15.0	А	A	A	А	
Approach LOS	15.8		0.7	4.6		
Approach LOS	В		A	Α	0.0	
Queue Length 50th (m)	3.1	0.2	0.8	24.2	0.0	
Queue Length 95th (m)	11.7	0.8	2.0	40.7	3.1	
Internal Link Dist (m)	40.8		88.4	58.0		
Turn Bay Length (m)	500	40.0			40.0	
Base Capacity (vph)	522	636	1404	1404	1209	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.08	0.13	0.38	0.06	
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60						
Offset: 13 (22%), Referenced to ph	aco 2 MDTL a	nd 4.CDT (Start of Crac	n n		
	iase z.indil a	11u 0.3D1, .	Start of Gree	en e		
Natural Cycle: 60	۵.					
Control Type: Actuated-Coordinate	a					
Maximum v/c Ratio: 0.38				, .		OC 4
Intersection Signal Delay: 4.4	00/				tersection LO	
Intersection Capacity Utilization 58.	.8%			IC	U Level of S	ervice B
Analysis Period (min) 15						
Splits and Phases: 2: Merivale &	Westgate SC					
1 Ø2 (R)						-
						2.4
36 S						24
∮ Ø6 (R)						
26.0						

	→	*	•	•	•	4	†	~	/	Ţ	4	
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	^	7	ň	† †	7	*	<u></u>	7	ň	<u></u>	7	
Traffic Volume (vph)	861	71	149	663	32	224	207	237	26	238	208	
Future Volume (vph)	861	71	149	663	32	224	207	237	26	238	208	
Lane Group Flow (vph)	906	75	157	698	34	236	218	249	27	251	219	
Turn Type	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	2		1	6		3	8		7	4		
Permitted Phases		2	6		6			8			4	
Detector Phase	2	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	29.0	29.0	10.4	29.0	29.0	11.3	37.7	37.7	11.3	37.7	37.7	
Total Split (s)	49.0	49.0	12.0	61.0	61.0	21.0	38.0	38.0	21.0	38.0	38.0	
Total Split (%)	40.8%	40.8%	10.0%	50.8%	50.8%	17.5%	31.7%	31.7%	17.5%	31.7%	31.7%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4	
Lost Time Adjust (s)	-2.0	0.0	-1.4	-2.0	0.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7	
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	50.6	48.6	65.7	65.7	63.7	17.0	37.4	37.4	9.8	25.3	25.3	
Actuated g/C Ratio	0.42	0.40	0.55	0.55	0.53	0.14	0.31	0.31	0.08	0.21	0.21	
v/c Ratio	0.63	0.12	0.56	0.38	0.04	0.98	0.39	0.40	0.20	0.67	0.54	
Control Delay	25.4	0.5	24.1	17.1	0.1	105.8	35.3	5.7	51.3	47.3	17.2	
Queue Delay	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	
Total Delay	26.2	0.5	24.1	17.1	0.1	105.8	35.3	5.7	51.3	47.7	17.4	
LOS	С	Α	С	В	Α	F	D	Α	D	D	В	
Approach Delay	24.2			17.7			48.5			34.5		
Approach LOS	С			В			D			С		
Queue Length 50th (m)	89.0	0.3	17.5	46.7	0.0	56.1	42.9	0.0	6.2	45.0	15.7	
Queue Length 95th (m)	67.4	0.0	#37.3	70.5	0.0	#106.3	61.1	17.7	15.6	57.6	28.5	
Internal Link Dist (m)	89.4			139.3			131.8			88.4		
Turn Bay Length (m)		25.0	90.0		25.0	40.0			40.0		70.0	
Base Capacity (vph)	1430	640	282	1855	779	240	561	629	240	505	504	
Starvation Cap Reductn	245	0	0	0	0	0	0	0	0	46	33	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.76	0.12	0.56	0.38	0.04	0.98	0.39	0.40	0.11	0.55	0.46	

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 29.6

Intersection Capacity Utilization 81.3%

Intersection LOS: C 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: Merivale & Carling



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Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		Ä	^	7	, T	^	7		4		4	7
Traffic Volume (vph)	99	108	1295	14	7	868	58	12	2	28	1	43
Future Volume (vph)	99	108	1295	14	7	868	58	12	2	28	1	43
Lane Group Flow (vph)	0	218	1363	15	7	914	61	0	29	0	30	45
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases			2			6			8		4	
Permitted Phases	2	2		2	6		6	8		4		4
Detector Phase	2	2	2	2	6	6	6	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.6	23.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0
Total Split (s)	83.0	83.0	83.0	83.0	83.0	83.0	83.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.6	-1.6	0.0	-1.6	-1.6	0.0		-3.0		-3.0	-3.0
Total Lost Time (s)		4.0	4.0	5.6	4.0	4.0	5.6		4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		99.2	99.2	97.9	99.2	99.2	97.9		17.0		17.0	17.0
Actuated g/C Ratio		0.83	0.83	0.82	0.83	0.83	0.82		0.14		0.14	0.14
v/c Ratio		0.50	0.49	0.01	0.03	0.33	0.05		0.14		0.16	0.18
Control Delay		10.4	4.9	0.2	2.6	2.1	0.7		26.8		44.2	12.4
Queue Delay		0.0	0.1	0.0	0.0	0.2	0.0		0.0		0.0	0.0
Total Delay		10.4	4.9	0.2	2.6	2.3	0.7		26.8		44.2	12.4
LOS		В	Α	Α	Α	Α	Α		С		D	В
Approach Delay			5.6			2.2			26.8		25.1	
Approach LOS			Α			Α			С		С	
Queue Length 50th (m)		9.5	31.1	0.0	0.0	8.2	0.3		3.2		6.6	0.0
Queue Length 95th (m)		42.2	108.1	m0.2	m0.5	m19.3	m0.4		10.0		12.9	8.9
Internal Link Dist (m)			112.0			89.4			10.8		48.4	
Turn Bay Length (m)		100.0		25.0	45.0		25.0					
Base Capacity (vph)		434	2802	1199	259	2802	1148		403		353	439
Starvation Cap Reductn		0	313	0	0	882	0		0		0	0
Spillback Cap Reductn		0	157	0	0	0	0		0		0	0
Storage Cap Reductn		0	0	0	0	0	0		0		0	0
Reduced v/c Ratio		0.50	0.55	0.01	0.03	0.48	0.05		0.07		0.08	0.10

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 108 (90%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Capacity Utilization 79.4%
Analysis Period (min) 15

Intersection LOS: A ICU Level of Service D

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

Splits and Phases: 4: Carling & Westgate SC E



	→	+	4	<u> </u>		
Lane Group	EBT	WBT	WBR	SBL		
			WBR	SBL		
Lane Configurations	^	^				
Traffic Volume (vph) Future Volume (vph)	1098 1098	1181 1181	13 13	13 13		
				34		
Lane Group Flow (vph)	1156	1243	14			
Turn Type	NA	NA	Perm	Prot		
Protected Phases	2	6	,	4		
Permitted Phases	0	,	6			
Detector Phase	2	6	6	4		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	24.0	48.3	48.3	37.1		
Total Split (s)	83.0	83.0	83.0	37.0		
Total Split (%)	69.2%	69.2%	69.2%	30.8%		
Yellow Time (s)	3.7	3.7	3.7	3.0		
All-Red Time (s)	1.6	1.6	1.6	3.1		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3	5.3	6.1		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None		
Act Effct Green (s)	107.2	107.2	107.2	10.0		
Actuated g/C Ratio	0.89	0.89	0.89	0.08		
v/c Ratio	0.38	0.41	0.01	0.22		
Control Delay	2.4	1.1	0.2	32.6		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	2.4	1.1	0.0	32.6		
LOS	Α	A	Α	C		
Approach Delay	2.4	1.1	/ \	32.6		
Approach LOS	Α.4	Α		32.0 C		
Queue Length 50th (m)	30.0	5.2	0.0	3.1		
Queue Length 95th (m)	36.7	8.8	m0.2	13.2		
Internal Link Dist (m)	32.6	112.0	1110.2	92.7		
Turn Bay Length (m)	32.0	112.0	25.0	72.1		
Base Capacity (vph)	3027	3027	1355	429		
			1355	429		
Starvation Cap Reductn	0	343	0			
Spillback Cap Reductn	80	0		0		
Storage Cap Reductn	0 20	0 4/	0	0		
Reduced v/c Ratio	0.39	0.46	0.01	0.08		
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 119 (99%), Referenced to pha	ise 2:EBT a	ind 6:WBT,	Start of Gree	en		
Natural Cycle: 90						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.41						
Intersection Signal Delay: 2.1				Ir	ntersection LOS: A	
Intersection Capacity Utilization 52.39	%				CU Level of Service A	
Analysis Period (min) 15						

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

Splits and Phases: 5: Carling & Westgate SC W →ø2 (R) Ø6 (R)

	•	←	•	<u>†</u>	 	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	77	ተተጉ	*		† †	7
Traffic Volume (vph)	215	1666	280	339	425	360
Future Volume (vph)	215	1666	280	339	425	360
Lane Group Flow (vph)	226	2020	295	357	447	379
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6	-	8	-	•	4
Detector Phase	6	6	3	8	4	4
Switch Phase					'	
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	58.0	58.0	24.0	62.0	38.0	38.0
Total Split (%)	48.3%	48.3%	20.0%	51.7%	31.7%	31.7%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	٠.٠	Lag	٦.٠	Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	63.2	63.2	48.8	48.8	31.5	31.5
Actuated g/C Ratio	0.53	0.53	0.41	0.41	0.26	0.26
v/c Ratio	0.33	0.55	0.41	0.41	0.50	0.20
Control Delay	16.2	27.7	43.0	27.9	39.3	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	27.7	43.0	27.9	39.3	51.0
LOS	10.2 B	21.1 C	43.0 D	21.9 C	39.3 D	51.0 D
Approach Delay	В	26.6	U	34.7	44.7	U
11				34.7 C		
Approach LOS	13.8	C 141.1	31.6	38.5	D 45.7	65.7
Queue Length 50th (m)						
Queue Length 95th (m)	23.5	#198.4	m39.1	m46.3	61.2	#113.6
Internal Link Dist (m)	40.0	110.3		152.2	73.8	22.0
Turn Bay Length (m)	40.0	2407	470	0/0	0/0	22.0
Base Capacity (vph)	1719	2496	472	862	960	472
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.81	0.63	0.41	0.47	0.80

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 16 (13%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 32.0 Intersection Capacity Utilization 100.8%

Intersection LOS: C ICU Level of Service G

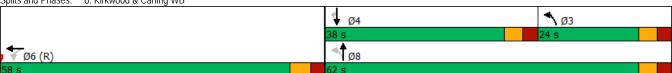
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Kirkwood & Carling WB



	۶	→	•	†	<i>></i>	/	
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	*	414	7	^	7	*	1
Traffic Volume (vph)	187	2187	422	407	399	484	252
Future Volume (vph)	187	2187	422	407	399	484	252
Lane Group Flow (vph)	177	2322	444	428	420	509	265
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		2		8		7	4
Permitted Phases	2		2		8	4	
Detector Phase	2	2	2	8	8	7	4
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	58.0	58.0	58.0	38.0	38.0	24.0	62.0
Total Split (%)	48.3%	48.3%	48.3%	31.7%	31.7%	20.0%	51.7%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	54.0	54.0	54.0	34.0	34.0	58.0	58.0
Actuated g/C Ratio	0.45	0.45	0.45	0.28	0.28	0.48	0.48
v/c Ratio	0.27	1.12	0.55	0.45	0.98	1.08	0.31
Control Delay	22.1	93.7	10.2	37.1	81.8	86.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	93.7	10.2	37.1	81.8	86.9	13.7
LOS	С	F	В	D	F	F	В
Approach Delay		76.8		59.2			61.8
Approach LOS		Е		Е			Е
Queue Length 50th (m)	29.6	~244.3	21.8	43.5	98.1	~123.0	22.8
Queue Length 95th (m)	48.2	#274.3	51.8	58.7	#161.8	#204.6	32.6
Internal Link Dist (m)		161.6		158.6			152.2
Turn Bay Length (m)	40.0				90.0		
Base Capacity (vph)	655	2071	808	960	429	471	862
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	0.27	1.12	0.55	0.45	0.98	1.08	0.31

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 16 (13%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.12

Intersection Signal Delay: 71.0
Intersection Capacity Utilization 100.8%
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.



Intersection LOS: E ICU Level of Service G

10: Carling EB/Carling & Carling WB

Lane Group

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Lane Group Flow (vph)

Sign Control

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 0.0% Analysis Period (min) 15 ICU Level of Service A

	۶	4	†	+	4	
Lane Group	EBL	NBL	NBT	SBT	SBR	
Lane Configurations	₩.	i i i	<u>NB1</u>		7	
Traffic Volume (vph)	82	84	200	491	99	
Future Volume (vph)	82	84	200	491	99	
Lane Group Flow (vph)	185	88	211	517	104	
Turn Type	Prot	Perm	NA	NA	Perm	
Protected Phases	4		2	6		
Permitted Phases		2			6	
Detector Phase	4	2	2	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	24.0	24.0	24.0	35.8	35.8	
Total Split (s)	24.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.8	5.8	5.8	5.8	
Lead/Lag						
Lead-Lag Optimize?	N.I.	C 1.4	0.14	0.14	C 14-	
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)	10.9	37.8	37.8	37.8	37.8	
Actuated g/C Ratio v/c Ratio	0.18 0.49	0.63	0.63	0.63	0.63	
Control Delay	15.7	0.18 2.9	0.19 2.5	0.46 7.8	0.10 1.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	2.9	2.5	7.8	1.6	
LOS	13.7 B	2.9 A	2.5 A	7.0 A	1.0 A	
Approach Delay	15.7	A	2.6	6.8	A	
Approach LOS	13.7 B		2.0 A	Α		
Queue Length 50th (m)	8.5	0.7	1.7	23.5	0.0	
Queue Length 95th (m)	22.0	1.6	3.1	49.6	4.7	
Internal Link Dist (m)	28.7	1.0	87.9	55.1	7.7	
Turn Bay Length (m)	20.7	40.0	07.7	55.1	40.0	
Base Capacity (vph)	567	486	1122	1122	993	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	11	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.18	0.19	0.47	0.10	
	0.00	01.10	0117	0117	0.10	
Intersection Summary						
Cycle Length: 60						
Actuated Cycle Length: 60						
Offset: 6 (10%), Referenced to pha	ase 2:NBTL an	d 6:SB1, Si	tart of Greer	1		
Natural Cycle: 60						
Control Type: Actuated-Coordinate	ed					
Maximum v/c Ratio: 0.49						
Intersection Signal Delay: 7.1					tersection LO	
Intersection Capacity Utilization 60).7%			IC	U Level of Se	rvice B
Analysis Period (min) 15						
Splits and Phases: 2: Merivale 8	& Westgate SC	,				
1 Ø2 (R)						^
36 s						24 s
4						24 5
∮ Ø6 (R)						
26.0						

Lane Configurations		→	•	•	-	•	4	†	~	/	↓	4	
Traffic Volume (vph) 927 114 349 1543 40 176 218 185 51 292 188 Elane Group Flow (vph) 927 114 349 1543 40 176 218 185 51 292 188 Lane Group Flow (vph) 976 120 367 1624 42 185 229 195 54 307 198 Turn Type NA Perm pm+pt NA Perm Prot NA Perm Prot NA Perm Prot NA Perm Protected Phases 2 1 6 6 8 8 7 4 4 Detector Phases 2 2 1 1 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lane Group		EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Traffic Volume (vph) 927 114 349 1543 40 176 218 185 51 292 188 Elane Group Flow (vph) 927 114 349 1543 40 176 218 185 51 292 188 Lane Group Flow (vph) 976 120 367 1624 42 185 229 195 54 307 198 Turn Type NA Perm pm+pt NA Perm Prot NA Perm Prot NA Perm Prot NA Perm Protected Phases 2 1 6 6 8 8 7 4 4 Detector Phases 2 2 1 1 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 2 2 1 1 6 6 6 3 8 8 7 4 4 4 Detector Phase 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lane Configurations	44	7	7	^	7	76	*	7	7	†	7	
Lane Group Flow (viph) Profected Phases Permited Phases Permit	Traffic Volume (vph)	927	114	349		40	176		185	51		188	
Turn Type	Future Volume (vph)	927	114	349	1543	40	176	218	185	51	292	188	
Protected Phases 2 1 1 6 3 8 7 4 Permitted Phases 2 2 6 6 6 8 8 7 4 Detector Phase 2 2 2 1 1 6 6 6 3 8 8 7 4 Switch Phase 2 2 2 1 1 6 6 6 3 8 8 7 4 Switch Phase 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 4 4 4 Switch Phase 8 7 8 7 8 8 8 7 4 4 4 Switch Phase 8 7 8 7 8 8 8 7 4 4 4 Switch Phase 8 7 8 7 8 8 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 7 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 8 7 8 7 4 4 4 Switch Phase 9 8 8 8 8 7 4 4 4 Switch Phase 9 8 8 8 7 8 7 8 7 8 9 8 8 8 7 7 8 7 8 7	Lane Group Flow (vph)	976	120	367	1624	42	185	229	195	54	307	198	
Permitted Phases 2	Turn Type	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Detector Phase 2 2 1 6 6 3 8 8 7 4 4	Protected Phases	2		1	6		3	8		7	4		
Switch Phase	Permitted Phases		2	6		6			8			4	
Minimum Initial (s) 10.0 10.0 5.0 10.0 10.0 5.0 10.0 37.7 <td>Detector Phase</td> <td>2</td> <td>2</td> <td>1</td> <td>6</td> <td>6</td> <td>3</td> <td>8</td> <td>8</td> <td>7</td> <td>4</td> <td>4</td> <td></td>	Detector Phase	2	2	1	6	6	3	8	8	7	4	4	
Minimum Split (s)	Switch Phase												
Total Split (s)	Minimum Initial (s)			5.0	10.0	10.0	5.0	10.0		5.0	10.0	10.0	
Total Split (%) 33.0% 33.0% 20.8% 53.8% 53.8% 14.8% 34.8% 34.8% 11.3% 31.4% 31.4% Yellow Time (s) 3.7 3.7 3.7 3.7 3.7 3.3 3.3 3.3 3.3 3.3	Minimum Split (s)	29.0	29.0	10.4	29.0	29.0	11.3	37.7	37.7	11.3	37.7	37.7	
Yellow Time (s) 3.7 3.7 3.7 3.7 3.7 3.3 3.4 3.6 2.7 2.7	Total Split (s)	39.6	39.6	25.0	64.6	64.6	17.7	41.8	41.8	13.6	37.7	37.7	
All-Red Time (s)	Total Split (%)	33.0%	33.0%	20.8%	53.8%	53.8%	14.8%	34.8%	34.8%	11.3%	31.4%	31.4%	
Lost Time Adjust (s)	Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3	
Total Lost Time (s)	All-Red Time (s)	2.3	2.3	1.7	2.3	2.3	3.0	3.4	3.4	3.0	3.4	3.4	
Lead/Lag Lead Lag Lead Lag	Lost Time Adjust (s)	-2.0	0.0	-1.4	-2.0	0.0	-2.3	-2.7	-2.7	-2.3	-2.7	-2.7	
Lead-Lag Optimize? Yes	Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0	
Recall Mode C-Max C-Max None C-Max None	Lead/Lag	Lead	Lead	Lag			Lead	Lag	Lag	Lead	Lag	Lag	
Act Effct Green (s) 41.1 39.1 66.1 66.1 64.1 13.7 35.1 35.1 9.3 28.2 28.2 Actuated g/C Ratio 0.34 0.33 0.55 0.55 0.53 0.11 0.29 0.29 0.08 0.24 0.24 v/c Ratio 0.84 0.22 1.00 0.87 0.05 0.96 0.44 0.35 0.42 0.73 0.44 Control Delay 34.5 1.4 90.7 30.7 0.1 108.1 37.5 6.0 59.9 46.8 13.0 Queue Delay 15.2 0.0 0.0 12.7 0.0 0.0 0.0 0.0 1.1 0.7 Total Delay 49.7 1.4 90.7 43.4 0.1 108.1 37.5 6.0 59.9 48.0 13.8 LOS D A F D A F D A F D A E D B Approach LOS D D D D D D D D <	Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Actuated g/C Ratio O.34 O.33 O.55 O.55 O.53 O.11 O.29 O.29 O.08 O.24 O.24 O.24 O.24 O.27 O.44 O.24 O.44 O.45 O.44 Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None		
v/c Ratio 0.84 0.22 1.00 0.87 0.05 0.96 0.44 0.35 0.42 0.73 0.44 Control Delay 34.5 1.4 90.7 30.7 0.1 108.1 37.5 6.0 59.9 46.8 13.0 Queue Delay 15.2 0.0 0.0 12.7 0.0 0.0 0.0 0.0 0.0 1.1 0.7 Total Delay 49.7 1.4 90.7 43.4 0.1 108.1 37.5 6.0 59.9 48.0 13.8 LOS D A F D A F D A E D B Approach LOS D	Act Effct Green (s)	41.1	39.1	66.1	66.1	64.1	13.7	35.1	35.1	9.3	28.2	28.2	
Control Delay 34.5 1.4 90.7 30.7 0.1 108.1 37.5 6.0 59.9 46.8 13.0 Queue Delay 15.2 0.0 0.0 12.7 0.0 0.0 0.0 0.0 0.0 0.0 1.1 0.7 Total Delay 49.7 1.4 90.7 43.4 0.1 108.1 37.5 6.0 59.9 48.0 13.8 LOS D A F D A F D A E D B Approach Delay 44.4 51.1 48.9 37.0 D D D D D D D D D D D D D D D D D D D	Actuated g/C Ratio	0.34	0.33	0.55	0.55	0.53	0.11	0.29	0.29	0.08	0.24	0.24	
Queue Delay 15.2 0.0 0.0 12.7 0.0 0.0 0.0 0.0 0.0 1.1 0.7 Total Delay 49.7 1.4 90.7 43.4 0.1 108.1 37.5 6.0 59.9 48.0 13.8 LOS D A F D A F D A E D B Approach LOS D <	v/c Ratio	0.84	0.22	1.00	0.87	0.05	0.96	0.44	0.35	0.42	0.73	0.44	
Total Delay 49.7 1.4 90.7 43.4 0.1 108.1 37.5 6.0 59.9 48.0 13.8 LOS D A F D A F D A E D B Approach Delay 44.4 51.1 48.9 37.0 37.0 37.0 37.0 37.0 48.9 37.0 37.0 48.0 44.0 44.7 0.0 12.6 55.5 10.9 40.0 44.0 44.7 0.0 12.6 55.5 10.9 40.0 44.0 44.7 0.0 12.6 55.5 10.9 40.0 40.0 70.0 24.2 10.9 40.0 40.0 70.0 24.2 10.0 40.0 70.0 24.2 10.0 10.0 40.0 70.0 70.0 88.3 64.9 16.2 26.0 73.0 24.2 10.0 10.0 40.0 70.0 40.0 70.0 70.0 88.3 64.9 16.2 26.0<	Control Delay	34.5	1.4	90.7	30.7	0.1	108.1	37.5	6.0	59.9	46.8	13.0	
LOS D A F D A F D A E D B Approach Delay 44.4 51.1 48.9 37.0 37.0 37.0 37.0 48.9 37.0 37.0 48.0 48.9 37.0 48.0 51.1 48.9 37.0 48.0 51.0 48.0 44.0 44.7 0.0 12.6 55.5 10.9 25.0 40.0 44.0 44.7 0.0 12.6 55.5 10.9 24.2 10.0 488.3 64.9 16.2 26.0 73.0 24.2 10.0 10.0 10.0 10.0 24.2 10.0 10.0 10.0 10.0 10.0 24.2 10.0<	Queue Delay	15.2	0.0	0.0	12.7	0.0	0.0	0.0	0.0	0.0	1.1	0.7	
Approach Delay 44.4 51.1 48.9 37.0 Approach LOS D D D D D Queue Length 50th (m) 115.7 0.3 ~70.0 169.8 0.0 44.0 44.7 0.0 12.6 55.5 10.9 Queue Length 95th (m) #154.8 0.9 #135.5 #240.3 0.0 #88.3 64.9 16.2 26.0 73.0 24.2 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Total Delay	49.7	1.4	90.7	43.4	0.1	108.1	37.5	6.0	59.9	48.0	13.8	
Approach LOS D D D 44.0 44.7 0.0 12.6 55.5 10.9 Queue Length 95th (m) 115.7 0.3 ~70.0 169.8 0.0 44.0 44.7 0.0 12.6 55.5 10.9 Queue Length 95th (m) #154.8 0.9 #135.5 #240.3 0.0 #88.3 64.9 16.2 26.0 73.0 24.2 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LOS	D	Α	F	D	Α	F	D	А	Е	D	В	
Queue Length 50th (m) 115.7 0.3 ~70.0 169.8 0.0 44.0 44.7 0.0 12.6 55.5 10.9 Queue Length 95th (m) #154.8 0.9 #135.5 #240.3 0.0 #88.3 64.9 16.2 26.0 73.0 24.2 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0	Approach Delay	44.4			51.1			48.9			37.0		
Queue Length 95th (m) #154.8 0.9 #135.5 #240.3 0.0 #88.3 64.9 16.2 26.0 73.0 24.2 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0	Approach LOS	D			D			D			D		
Queue Length 95th (m) #154.8 0.9 #135.5 #240.3 0.0 #88.3 64.9 16.2 26.0 73.0 24.2 Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 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	Queue Length 50th (m)	115.7	0.3	~70.0	169.8	0.0	44.0	44.7	0.0	12.6	55.5	10.9	
Internal Link Dist (m) 81.2 139.3 110.3 87.9 Turn Bay Length (m) 25.0 90.0 25.0 40.0 40.0 70.0 Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 <td>Queue Length 95th (m)</td> <td>#154.8</td> <td>0.9</td> <td>#135.5</td> <td>#240.3</td> <td>0.0</td> <td>#88.3</td> <td>64.9</td> <td>16.2</td> <td>26.0</td> <td></td> <td>24.2</td> <td></td>	Queue Length 95th (m)	#154.8	0.9	#135.5	#240.3	0.0	#88.3	64.9	16.2	26.0		24.2	
Base Capacity (vph) 1160 554 367 1866 784 193 562 593 135 501 510 Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 <td< td=""><td>Internal Link Dist (m)</td><td>81.2</td><td></td><td></td><td>139.3</td><td></td><td></td><td>110.3</td><td></td><td></td><td>87.9</td><td></td><td></td></td<>	Internal Link Dist (m)	81.2			139.3			110.3			87.9		
Starvation Cap Reductn 191 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 0 0 257 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0	Turn Bay Length (m)		25.0	90.0		25.0	40.0			40.0		70.0	
Starvation Cap Reductn 191 0 0 0 0 0 0 0 0 63 0 Spillback Cap Reductn 0 0 0 257 0 0 0 0 0 0 0 118 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0	Base Capacity (vph)	1160	554	367	1866	784	193	562	593	135	501	510	
Storage Cap Reductn 0 0 0 0 0 0 0 0 0	Starvation Cap Reductn	191	0	0	0	0	0	0	0	0	63	0	
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0	Spillback Cap Reductn	0	0	0	257	0	0	0	0	0	0	118	
	Storage Cap Reductn	0	0	0	0	0	0	0		0	0		
Reduced V/C Railo 1.01 0.22 1.00 1.01 0.05 0.96 0.41 0.33 0.40 0.70 0.51	Reduced v/c Ratio	1.01	0.22	1.00	1.01	0.05	0.96	0.41	0.33	0.40	0.70	0.51	

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 92 (77%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 47.2

Intersection Capacity Utilization 91.8%

Intersection LOS: D 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.

Splits and Phases: 3: Merivale & Carling



		•	→	•	•	←	•	4	†	-	↓	1
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		Ä	^	7	ň	^	7		4		ર્ન	7
Traffic Volume (vph)	70	188	748	12	7	1889	120	10	5	115	1	96
Future Volume (vph)	70	188	748	12	7	1889	120	10	5	115	1	96
Lane Group Flow (vph)	0	272	787	13	7	1988	126	0	29	0	122	101
Turn Type	pm+pt	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	5	2			6			8		4	
Permitted Phases	2	2		2	6		6	8		4		4
Detector Phase	5	5	2	2	6	6	6	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.6	10.6	23.6	23.6	23.6	23.6	23.6	37.0	37.0	37.0	37.0	37.0
Total Split (s)	24.0	24.0	83.0	83.0	59.0	59.0	59.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	20.0%	20.0%	69.2%	69.2%	49.2%	49.2%	49.2%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)		-1.6	-1.6	0.0	-1.6	-1.6	0.0		-3.0		-3.0	-3.0
Total Lost Time (s)		4.0	4.0	5.6	4.0	4.0	5.6		4.0		4.0	4.0
Lead/Lag	Lag	Lag			Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes					
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		90.7	90.7	89.1	66.7	66.7	65.1		21.3		21.3	21.3
Actuated g/C Ratio		0.76	0.76	0.74	0.56	0.56	0.54		0.18		0.18	0.18
v/c Ratio		0.80	0.31	0.01	0.02	1.06	0.16		0.11		0.56	0.30
Control Delay		59.7	3.6	0.3	12.3	51.2	3.9		25.0		53.4	9.2
Queue Delay		0.0	0.1	0.0	0.0	1.1	0.0		0.0		0.1	0.0
Total Delay		59.7	3.7	0.3	12.3	52.3	3.9		25.0		53.6	9.2
LOS		E	Α	Α	В	D	Α		С		D	Α
Approach Delay			17.9			49.3			25.0		33.5	
Approach LOS			В			D			С		С	
Queue Length 50th (m)		48.5	6.6	0.0	0.3	~267.4	0.4		3.2		26.8	0.0
Queue Length 95th (m)		#93.0	62.0	m0.4	m0.8	m#350.3	m2.8		10.2		40.8	13.0
Internal Link Dist (m)			113.0			81.2			26.4		38.7	
Turn Bay Length (m)		100.0		25.0	45.0		25.0					
Base Capacity (vph)		342	2561	1017	319	1883	789		407		337	473
Starvation Cap Reductn		0	753	0	0	5	0		0		0	0
Spillback Cap Reductn		0	305	0	0	0	0		23		19	0
Storage Cap Reductn		0	0	0	0	0	0		0		0	0
Reduced v/c Ratio		0.80	0.44	0.01	0.02	1.06	0.16		0.08		0.38	0.21

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 96 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

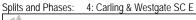
Intersection Signal Delay: 38.3

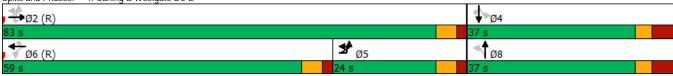
Intersection Capacity Utilization 118.4%

Intersection LOS: D ICU Level of Service H

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.





		+	•	<u> </u>		
Lana Craun	EDT	WDT	WDD			
Lane Group	EBT	WBT	WBR	SBL		
Lane Configurations	^	^	7	¥		
Traffic Volume (vph)	923	1858	7	25		
Future Volume (vph)	923	1858	7	25		
Lane Group Flow (vph)	972	1956	7	68		
Turn Type	NA	NA	Perm	Prot		
Protected Phases	2	6		4		
Permitted Phases			6			
Detector Phase	2	6	6	4		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	24.1	42.3	42.3	37.1		
Total Split (s)	82.9	82.9	82.9	37.1		
Total Split (%)	69.1%	69.1%	69.1%	30.9%		
Yellow Time (s)	3.7	3.7	3.7	3.0		
All-Red Time (s)	1.6	1.6	1.6	3.1		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.3	5.3	5.3	6.1		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None		
Act Effct Green (s)	102.0	102.0	102.0	10.9		
Actuated g/C Ratio	0.85	0.85	0.85	0.09		
v/c Ratio	0.34	0.68	0.01	0.42		
Control Delay	3.1	3.9	0.3	46.8		
Queue Delay	0.0	0.4	0.0	0.0		
Total Delay	3.1	4.4	0.3	46.8		
LOS	A	A	A	D		
Approach Delay	3.1	4.4	/\	46.8		
Approach LOS	Α	Α.		70.0 D		
Queue Length 50th (m)	27.5	5.2	0.0	11.3		
Queue Length 95th (m)	50.1	m27.2	m0.0	25.1		
Internal Link Dist (m)	42.6	113.0	1110.0	40.2		
Turn Bay Length (m)	42.0	113.0	25.0	40.2		
Base Capacity (vph)	2881	2881	1289	427		
Starvation Cap Reductn	2881	419	1289	427		
	0	419	0	0		
Spillback Cap Reductn						
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.34	0.79	0.01	0.16		
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 95 (79%), Referenced to phase	se 2:EBT an	d 6:WBT, S	tart of Green	1		
Natural Cycle: 100						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.68						
Intersection Signal Delay: 4.9				Ir	ntersection LOS: A	
Intersection Capacity Utilization 72.0	%			IC	CU Level of Service C	
Analysis Period (min) 15						

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

	•	←	•	<u>†</u>	+	4
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ተተኈ	*	*	^	7
Traffic Volume (vph)	234	2694	227	602	553	410
Future Volume (vph)	234	2694	227	602	553	410
Lane Group Flow (vph)	246	3170	239	634	582	432
Turn Type	Perm	NA	pm+pt	NA	NA	Perm
Protected Phases		6	3	8	4	
Permitted Phases	6	_	8	-	•	4
Detector Phase	6	6	3	8	4	4
Switch Phase					'	
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	35.3	35.3	11.0	29.0	29.0	29.0
Total Split (s)	78.0	78.0	11.0	42.0	31.0	31.0
Total Split (%)	65.0%	65.0%	9.2%	35.0%	25.8%	25.8%
Yellow Time (s)	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.6	2.6	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	-2.3	-2.3	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	4.0	Lead	4.0	Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	Ped	Ped	Ped
Act Effct Green (s)	74.0	74.0	38.0	38.0	27.0	27.0
Actuated g/C Ratio	0.62	0.62	0.32	0.32	0.22	0.22
v/c Ratio	0.62	1.08	1.37	1.12	0.22	1.12
Control Delay	6.2	58.6	226.5	98.3	51.1	1.12
· · · · · J						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	58.6	226.5	98.3	51.1	119.1
LOS	A	E	F	F	D	F
Approach Delay		54.8		133.4	80.1	
Approach LOS		D		F	F	
Queue Length 50th (m)	5.8	~305.4	~56.8	~175.7	67.9	~101.3
Queue Length 95th (m)	13.6	#328.0	m#104.3	#231.6	88.2	#163.5
Internal Link Dist (m)		113.3		144.7	73.8	
Turn Bay Length (m)	40.0					22.0
Base Capacity (vph)	2015	2934	174	564	762	384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.08	1.37	1.12	0.76	1.13

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 6:WBTL, Start of Green Natural Cycle: 120

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.37

Intersection Signal Delay: 72.6

Intersection Capacity Utilization 116.0%

Intersection LOS: E ICU Level of Service H

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: 6: Kirkwood & Carling WB



	•	→	•	†	~	/	+
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	*	441>	7	^	7	*	
Traffic Volume (vph)	419	1457	405	362	308	441	338
Future Volume (vph)	419	1457	405	362	308	441	338
Lane Group Flow (vph)	392	1583	426	381	324	464	356
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases	TOTTI	2	T CITI	8	T CITII	7	4
Permitted Phases	2	_	2	Ū	8	4	•
Detector Phase	2	2	2	8	8	7	4
Switch Phase	_	_	_	Ū	U	,	•
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	29.2	29.2	29.2	26.1	26.1	10.1	26.1
Total Split (s)	54.0	54.0	54.0	37.0	37.0	29.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	30.8%	30.8%	24.2%	55.0%
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.5	2.5	2.5	2.8	2.8	1.8	2.8
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.1	-2.1	-1.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	4.0	٦.٥	7.0	Lead	Lead	Lag	7.0
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	52.7	52.7	52.7	30.6	30.6	59.3	59.3
Actuated g/C Ratio	0.44	0.44	0.44	0.26	0.26	0.49	0.49
v/c Ratio	0.44	0.78	0.51	0.20	0.20	0.83	0.40
Control Delay	31.9	33.0	7.0	38.8	61.7	28.1	7.6
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	31.9	33.0	7.0	39.1	61.7	28.1	7.6
LOS	C C	33.0 C	7.0 A	J7.1	61.7 E	20.1 C	7.0 A
Approach Delay	C	28.2		49.5	L	C	19.2
Approach LOS		20.2 C		47.3 D			17.2 B
Queue Length 50th (m)	84.3	126.6	9.7	38.6	70.5	54.4	17.1
Queue Length 95th (m)	124.5	147.5	35.1	52.8	#111.9	#94.0	m21.0
Internal Link Dist (m)	124.5	161.6	33.1	158.6	#111.7	#94.0	144.7
Turn Bay Length (m)	40.0	101.0		100.0	90.0		144.7
Base Capacity (vph)	639	2019	829	932	417	572	921
	039	2019	029	932	0	0	921
Starvation Cap Reductn	0	0	0	155	0	0	0
Spillback Cap Reductn	0	0	0	155	0	0	0
Storage Cap Reductn Reduced v/c Ratio	0.61	0.78	0.51	0.49	0.78	0.81	0.39
Reduced V/C Rallo	0.01	0.78	0.51	0.49	U./8	0.81	0.39

Cycle Length: 120

Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.1

Intersection Capacity Utilization 116.0%

Intersection LOS: C ICU Level of Service H

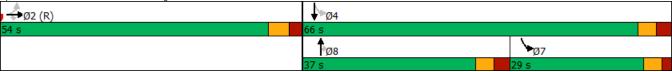
Analysis Period (min) 15

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: 7: Kirkwood & Carling EB



10: Carling EB/Carling & Carling WB

	→	*_
Lane Group	EBT	WBR
Lane Configurations	† †	77
Traffic Volume (vph)	1075	1868
Future Volume (vph)	1075	1868
Lane Group Flow (vph)	1132	1966
Sign Control	Free	
Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 72	2.3%	
Analysis Period (min) 15		