

3430 CARLING AVENUE CITY OF OTTAWA

Residential Development Transportation Impact Assessment

Step 5 – Final Report

Prepared For: Rohit Communities Ontario Inc.

March 2023



© BA Consulting Group Ltd. 45 St. Clair Avenue West, Suite 300 Toronto, ON M4V 1K9 www.bagroup.com

Certification

- 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 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 licensed or registered professional in good standing, whose field of expertise is either transportation engineering or transportation planning.

Signature of individual certifier that s/he meets the above four criteria.



Lauren O'Grady, P.Eng. Senior Transportation Engineer Lauren.OGrady@bagroup.com (416) 961-7110 ex: 143



TABLE OF CONTENTS

CITY COMMENTS (FEBRUARY 15, 2023) 1				
1.0	SCRE 1.1 1.2 1.3 1.4 1.5	Summ Trip G Locati Safety	ary of Development eneration Trigger on Triggers Triggers ning Summary	. 4 . 4 . 5 . 5
2.0	SCOP	PING		. 6
	2.1		ng and Planned Conditions	
		2.1.1	Proposed Development	
		2.1.2	Existing Conditions	
		2.1.3	Planned Conditions	
	2.2	,	Area and Time Periods	
		2.2.1	Study Area	
		2.2.2	Time Periods	
		2.2.3	Horizon Years	
	2.3	Exemp	otions Review	18
3.0	FORE	CAST	ING	19
	3.1	Develo	opment Generated Travel Demand	19
		3.1.1	Trip Generation and Mode Shares	19
		3.1.2	Trip Distribution	20
		3.1.3	Trip Assignment	20
	3.2	Backg	round Network Travel Demand	22
		3.2.1	Transportation Network Plans	22
		3.2.2	Background Growth Rate	22
		3.2.3	Other Developments	22
	3.3	Dema	nd Rationalization	22
4.0	STRA	TEGY		23
	4.1		opment Design	
		4.1.1	Design for Sustainable Modes	
		4.1.2	Circulation and Access	.23
		4.1.3	New Street Networks	.24
	4.2	Parkin	g	24



	4.2.1	Parking Supply	24
	4.2.2	Spillover Parking	24
4.3	Bound	dary Street Design	25
	4.3.1	Design Concept	25
4.4	Acces	ss Intersections Design	25
	4.4.1	Location and Design of Access	25
	4.4.2	Intersection Control	26
	4.4.3	Intersection Design	26
4.5	Trans	portation Demand Management	
	4.5.1	Context for TDM	26
	4.5.2	Need and Opportunity	26
	4.5.3	TDM Program	27
4.6	Neigh	bourhood Traffic Management	27
4.7	Trans	it	28
	4.7.1	Route Capacity	28
4.8	Revie	w of Network Concept	28
4.9	Inters	ection Design	28
	4.9.1	Intersection Control	28
	4.9.2	Intersection Design	28
			40
201011		AND CONCLUSION	40

5.0



LIST OF TABLES

Table 1	Summary of Development 4
Table 2	Trip Generation Triggers
Table 3	Location Triggers
Table 4	Safety Triggers
Table 5	Screening Summary5
Table 6	Proposed Land Uses and Land Use Codes
Table 7	Collision Data
Table 8	Carling Avenue at Moodie Drive Angle / Turning Collisions
Table 9	Exemptions Review
Table 10	Trip Generation Rates
Table 11	Modal Share Break Down – Peak Period19
Table 12	Peak Period to Peak Hour Conversion Rates
Table 13	Peak Hour Person Trips by Travel Mode20
Table 14	2022 Existing Segment Multi-Modal Level of Service
Table 15	Modal Share Break Down
Table 16	2022 Existing Intersection Operations
Table 17	2022 Existing Intersection MMLOS
Table 18	2024 Future Background Intersection Operations
Table 19	2024 Total Future Intersection Operations
Table 20	2029 Ultimate Intersection Operations

LIST OF FIGURES

Figure 1:	Site Location	. 7
Figure 2:	Site Plan	. 8
Figure 3:	Existing Lane Configuration and Traffic Control	10
Figure 4:	Study area Transit Routes and Stops	12
Figure 5:	2022 Existing Traffic Volumes	14
Figure 6:	Site Generated Traffic	21
Figure 7:	2024 Future Background Traffic Volumes	33
Figure 8:	2024 Total Future Traffic Volumes	36
Figure 9:	2029 Ultimate Traffic Volumes	39



TABLE OF APPENDICES

Appendix A: Traffic Data Appendix B: Collision Data Appendix C: Multi-Modal Level of Service Appendix D: Transportation Demand Management Checklists Appendix E: Intersection Performance Worksheets

CITY COMMENTS (FEBRUARY 15, 2023)

A Site Plan Application for 3430 Carling Avenue was submitted to the City of Ottawa in December 2022, which included a Transportation Impact Assessment, titled *3430 Carling Avenue, City of Ottawa, Step 4 Strategy* (prepared by BA Group). On February 15, 2023, the City of Ottawa provided comments pertaining to this application.

The City's transportation-related comments are included below in **bold** along with the accompanying responses prepared by BA Group in *italics*.

1. Section 2.1.1 Proposed Development The first paragraph states that the proposed development is approximately 200m east of the Carling Avenue at Moodie Drive Intersection. This is inaccurate, please correct.

The correct distance of 700m was included in the final TIA.

2. Under Table 6, the land use code should read "multi-unit high-rise".

The multi-unit high-rise LUC was included in the final TIA.

3. Section 2.1.2.1 Roads and Traffic Control

It is stated within the description of Moodie Drive that the intersection of Carling Avenue and Moodie Drive includes an eastbound left turn auxiliary lane. This is inaccurate, please correct.

The description of the geometry of the Carling Avenue at Moodie Drive intersection was revised in Section 2.1.2.1 of the final TIA.

4. Section 2.1.2.5 Traffic Volumes Include pedestrian and cycling volumes

Figure 5 was modified in the final TIA to include the pedestrian and cyclist volumes.

5. Section 2.2.3 Horizon Year

2029 Future Background Conditions must also be provided to compare against 2029 Ultimate Conditions.

The site traffic that the subject development is anticipated to generate is negligible as compared to the existing and projected volumes along Carling Avenue. In addition, the analysis for the 2029 Ultimate horizon found that the intersections are projected to operate well within acceptable thresholds. The 'worst' individual movement at all study area intersections is projected at a LOS C, which is for the northbound thru at the Carling Avenue at Moodie Drive intersection, which is not a movement that the subject development will contribute to. Furthermore, the future background horizon is typically only done for the build-out year, and not for the +5-year horizon. As such, including a 2029 Future Background horizon for the subject development will not add value nor will it conclude anything different than the horizons that were analyzed as part of this TIS.



6. Section 4.1.1 Design for Sustainable Modes

Recommend the accessible parking spaces provided on the surface include access aisles complete with curb ramps and TWSIs per Section 3.1 of the City of Ottawa Accessibility Design Standards.

The design of the accessible parking spaces on the surface is the responsibility of the project architect.

7. Section 4.2.1 Parking Supply

Please include the calculation for required accessible parking and the provided accessible parking in the body of the TIA report and on the site plan.

Section 4.2.1 of the final TIA includes the required and proposed accessible parking spaces.

Updating the site plan is the responsibility of the project architect.

8. Section 4.4.1 Location and Design of Access

Ensure the new site access is designed per City of Ottawa standard drawing SC7.1.

The design of the site access is the responsibility of the project architect.

9. Section 4.3.1 Boundary Street Design

From the site plan, landscaping plan, and civil plans, it appears that the sidewalk along the site's frontage is being reconstructed. If the sidewalk is being reconstructed, consider reconstructing the sidewalk at a width of 2.0m sidewalk with a boulevard between the sidewalk and vehicle lanes. This will improve pedestrian level of service per the City's MMLOS guidelines, and the boulevard will help facilitate snow storage.

Clarify in the design drawings that the eastbound right-turn taper for the existing west access is being removed. Ensure the new sidewalk ties-in with the existing sidewalk west of the eastbound right-turn taper. Show this on the site plan.

The sidewalk across the site frontage is not being reconstructed, but rather left in place as it currently is.

The eastbound right-turn taper for the existing west access is being removed and the sidewalk along Carling Avenue will be extended as part of the subject development. Reflecting this on the site plan is the responsibility of the project architect.

10. Section 4.5.3 TDM Program

Indicate and illustrate the location of the permanent bike repair station adjacent to the main bicycle parking area. The repair station cannot be found in the site plan or floor plans.

Please consider use of pre-paid Presto passes as an additional TDM measure.

Adding the bicycle repair stations to the site plan / floor plans is the responsibility of the project architect.



PRESTO passes were considered; however, the development is not proposing to include PRESTO passes as a means of TDM. The proposed TDM measures are included in Section 4.5 of the final TIA.

11. Traffic Signal Design

No comments for this current circulation. Traffic Signal Design Unit reserves the right to make future comments based on subsequent submissions.

If there are any future proposed changes in the existing roadway geometry that would require the installation of a pedestrian crossover (Type B or Type C), the signalization of an intersection or modifications to an existing signalized intersection, the City of Ottawa Traffic Signal Design Unit would be required to complete a traffic signal plant design and would need to be engaged in reviews during the functional design stage.

Noted.

12. Streetlighting

No comments with the TIA for this circulation. Street lighting reserves the right to make future comments based on subsequent submissions.

Future considerations as follows:

If there are any proposed changes to the existing roadway geometry, the City of Ottawa Street Light Asset Management Group is required to provide a full street light design. Upon completion of a proposed roadway geometry design changes, please submit digital Micro Station drawings with proposed roadway geometry changes to the Street Lighting Department, so that we may proceed with the detailed street light design and coordination with the Street Light maintenance provider and all necessary parties. Be advised that the applicant will be 100% responsible for all costs associated with any Street Light design as a result of the roadway geometry change.

Alterations and / or repairs are required where the existing street light plant is directly, indirectly or adversely affected by the scope of work under this circulation, due to the proposed road reconstruction process. All street light plant alterations and / or repairs must be performed by the City of Ottawa's Street Light maintenance provider.

Noted.



1.0 SCREENING

1.1 SUMMARY OF DEVELOPMENT

TABLE 1 SUMMARY OF DEVELOPMENT

Municipal Address	3430 Carling Avenue
Description of Location	South side of Carling Avenue, between Moodie Drive and Bedale Drive. Existing property includes a one-storey restaurant with surface parking.
Land Use Classification	Residential
Development Size (units)	Two buildings with a total of 186 units
Development Size (ft ²)	N/A
Number of Accesses and Locations	Existing: 2 full movements uncontrolled accesses to Carling Avenue Proposed: 1 full movements minor stop-controlled access to Carling Avenue, approximately 760m east of Moodie Drive.
Phase of Development	1 Phase
Buildout Year	2024

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

1.2 TRIP GENERATION TRIGGER

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

TABLE 2 TRIP GENERATION TRIGGERS

Land Use Type	Minimum Development Size	Triggered	
Single-Family Homes	40 units	×	
Townhomes or Apartments	90 units	\checkmark	
Office	3,500 m ²	×	
Industrial	5,000 m ²	×	
Fast-Food Restaurant / Coffee Shop	100 m ²	×	
Destination Retail	1,000 m ²	×	
Gas Station / Convenience Market	75 m ²	×	

*If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average

trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

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



1.3 LOCATION TRIGGERS

TABLE 3LOCATION TRIGGERS

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

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

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

1.4 SAFETY TRIGGERS

TABLE 4SAFETY TRIGGERS

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

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

1.5 SCREENING SUMMARY

TABLE 5 SCREENING SUMMARY

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

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



2.0 SCOPING

2.1 EXISTING AND PLANNED CONDITIONS

2.1.1 Proposed Development

Rohit Communities Ontario Inc. is preparing a Site Plan Control application for a proposed residential development in the Crystal Bay – Lakeview Park community in Ottawa. The proposed development is located at 3430 Carling Avenue, approximately 760m east of the Carling Avenue at Moodie Drive intersection. The site is bound by Carling Avenue to the north, existing residential to the west and south, and existing commercial to the east. The development includes two six-storey residential buildings, with a combined total of 186 units.

Figure 1 illustrates the location of the subject development. The subject site is currently zoned as General Mixed-Use (GM) Zone. The purpose of the GM Zone, according to the City of Ottawa's Zoning By-Law, is to:

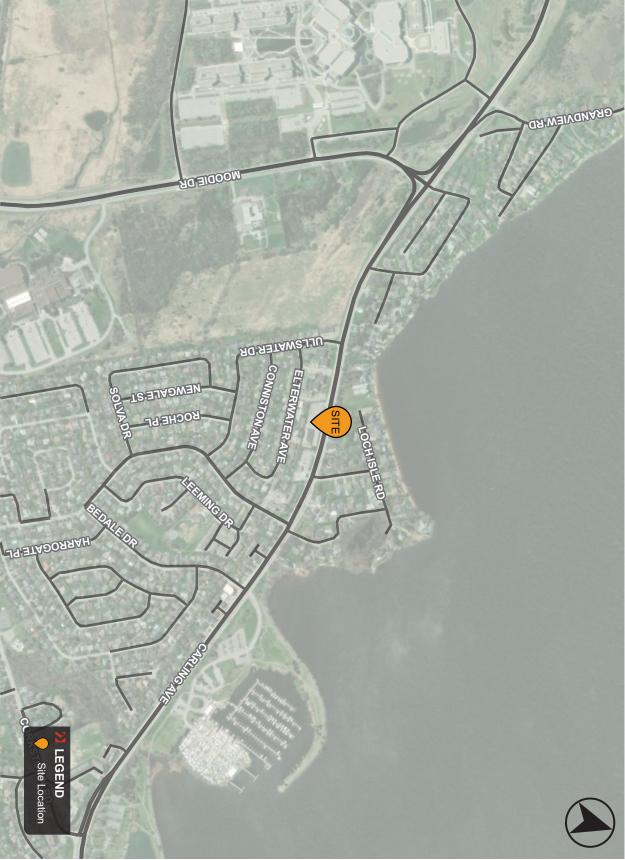
- Allow residential, commercial and institutional uses, or mixed use development in the General Urban Area and in the Upper Town, Lowertown and Sandy Hill West Character Areas of the Central Area designations of the Official Plan;
- Limit commercial uses to individual occupancies or in groupings in well defined areas such that they do not affect the development of the designated Traditional and Arterial Mainstreets as viable mixed-use areas;
- Permit the uses that are often large and serve or draw from broader areas than the surrounding community and which may generate traffic, nose or other impacts provided the anticipated impacts are adequately mitigated or otherwise addressed; and
- Impose development standards that will ensure that the uses are compatible and complement surrounding land uses.

Figure 2 includes the proposed site plan and is provided for reference.

TABLE 6 PROPOSED LAND USES AND LAND USE CODES

Land Use	Size	Land Use Code (LUC)
Residential	186 units	221 – Multifamily Housing (High- Rise)

P:\81\85\01\Graphics\Adobe\IDs\8185-01_Figures for Report_November 2022indd.indd



Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.



FIGURE 2 SITE PLAN

3430 CARLING AVENUE

2.1.2 Existing Conditions

2.1.2.1 Roads and Traffic Control

The roadways under consideration in the study area are described as follows:

Carling Avenue	Within the vicinity of the subject site, Carling Avenue is a municipal four-lane arterial roadway with a wide painted median down the centre. The posted speed limit along Carling Avenue across the frontage of the subject site is 60 km/h. A sidewalk is provided along the south side and an asphalt multi-use pathway is provided along the northside.
Moodie Drive	Within the vicinity of the subject site, Moodie Drive is a municipal four-lane arterial roadway with a painted median. The posted speed limit along Moodie Drive, within the vicinity of the subject site, is 80 km/h. A sidewalk and an on-street cycle lane is provided along the east side of Moodie Drive. Along the west side, there is a sidewalk that transitions into a multi-use pathway as well as paved shoulders. The intersection with Carling Avenue is signalized and includes a westbound left turn auxiliary lane, as well as eastbound and northbound right turn channelized lanes.
Bedale Drive	Bedale Drive is a two-lane municipal local road with a posted speed limit of 40

edale DriveBedale Drive is a two-lane municipal local road with a posted speed limit of 40
km/h. A sidewalk is provided along the east side of Bedale Drive. The
intersection with Carling Avenue is signalized with eastbound and westbound
auxiliary left turn lanes and an eastbound auxiliary right turn lane.

There are three commercial accesses to the property directly east of the subject site, on the south side of Carling Avenue. In addition, there are numerous residential driveways on the north side of Carling Avenue. All these accesses are within 200m of the subject site access.

Figure 3 illustrates the existing lane configuration and traffic control.





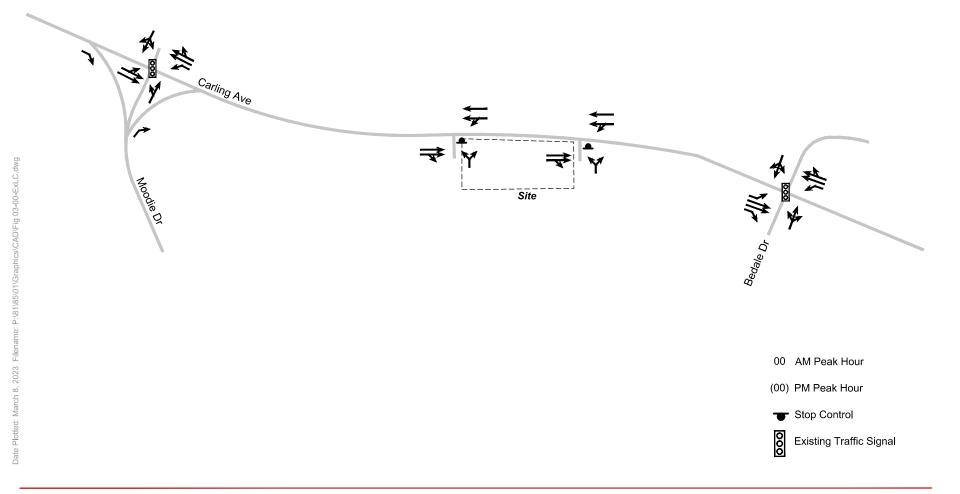


FIGURE 3 EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

3430 CARLING AVENUE

2.1.2.2 Walking and Cycling

Within the vicinity of the subject site, a sidewalk is provided along the south side of Carling Avenue and an asphalt multi-use pathway (MUP) is provided along the north side of Carling Avenue. This MUP ties into the Sir John A Macdonald Parkway that travels to Downtown Ottawa.

2.1.2.3 Transit

Transit service is currently provided in the immediate vicinity of the proposed development via the following routes:

Route 57	Route 57 is a Rapid Route that runs between Crystal Bay and Tunney's Pasture. It operates with 30-minute headways during both the weekday morning and afternoon peaks.
Route 58	Route 58 is a Local Route that runs between Crystal Bay and Lincoln Fields. It operates with 10–30-minute headways during both the weekday morning and afternoon peaks.
Route 66	Route 66 is a Local Route that runs between Kanata-Solandt and Gatineau. It operates with 15-30-minute headways during both the weekday morning and afternoon peaks.
Route 258	Route 258 is a Connexion Route that runs between Tunney's Pasture Station and Grandview. It operates once per hour during both the morning and afternoon peaks.

The subject development is situated in the middle of two transit stops along Carling Avenue that are both serviced by the two aforementioned transit routes. These transit stops are approximately 100m and 130m away from the subject development.

Figure 4 illustrates nearby transit routes and bus stop locations.



P:\81\85\01\Graphics\Adobe\IDs\8185-01_Figures for Report_November 2022indd.indd

FIGURE 4 STUDY AREA TRANSIT ROUTES AND STOPS



Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

2.1.2.4 Traffic Management Measures

No traffic management measures are currently provided in the vicinity of the subject site.

2.1.2.5 Traffic Volumes

Traffic volumes at the study area intersections were collected at both signalized study area intersections in November of 2022. These volumes were used to generate the traffic volumes at the site access location. **Figure 5** illustrates the 2022 traffic volumes at the study area intersections.

It should be noted that the traffic volumes in this report were rounded up to the nearest five vehicles.

Appendix A contains the traffic data and is provided for reference.



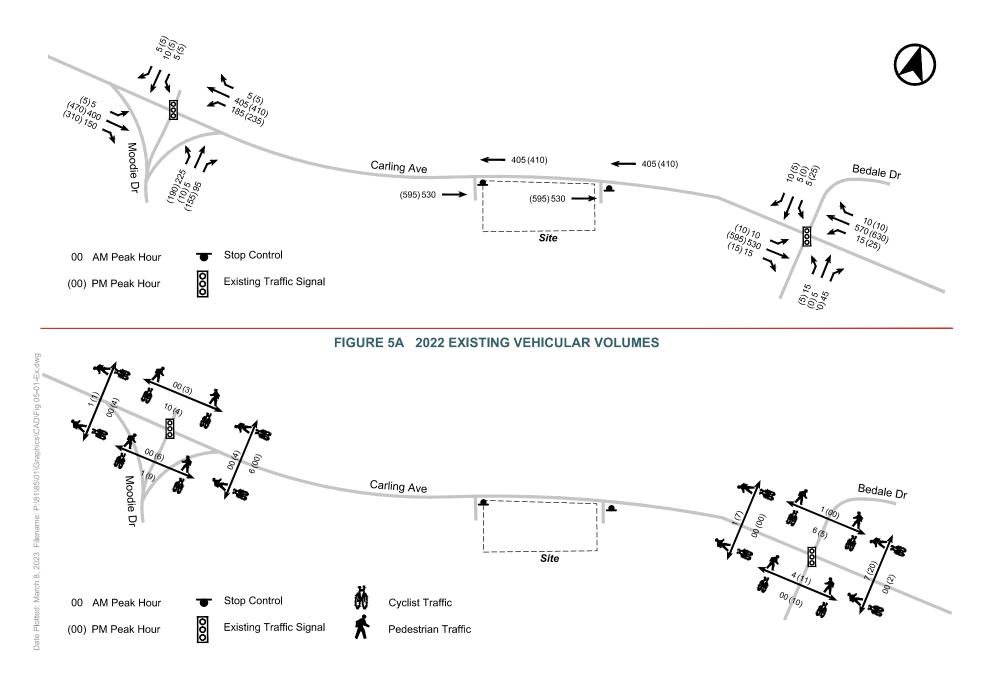


FIGURE 5B 2022 EXISTING CYCLIST AND PEDESTRIAN VOLUMES

3430 CARLING AVENUE

2.1.2.6 Collision History

Collision data was provided by the City of Ottawa for the period January 2016 to December 2020 in the vicinity of the subject site. The data was reviewed to determine if any intersections or road segments exhibited an identifiable collision pattern during the five (5) year period.

Table 7 includes the collision summary for the study area intersections as well as the segment of Carling

 Avenue across the frontage of the subject development.

		Carling at Moodie	Carling at Bedale	Carling, between Sunny Brae and Ullswater (across the frontage of the subject site)
	Property Damage Only	20	2	3
Classification	Non-Fatal Injury	8	3	1
	Fatal Injury	1	0	0
	Rear End	6	1	3
	Angle / Turning	15	2	1
Collision Type	Sideswipe	2	0	0
	Single Motor Vehicle	5	2	0
	Other	1	0	0
	Other motor vehicle	23	2	4
	Ran off road	1	0	0
Event	Cyclist	1	1	0
Event	Pedestrian	0	1	0
	Animal	3	0	0
	Pole (utility, power)	1	1	0

TABLE 7 COLLISION DATA

Per the data above, the Carling Avenue at Moodie Drive experienced the majority of the collisions between the years 2016 and 2020. Upon further review, the angle / turning collision type were the most prevalent, encompassing over 50% of the total collisions at this location. These collisions were further reviewed to determine if there are any discernable patterns. It should also be noted that the fatal injury that occurred at this intersection involved an angle / turning collision type. **Table 8** below further breaks down the angle / turning collision types at the Carling Avenue at Moodie Drive intersection.



TABLE 8 CARLING AVENUE AT MOODIE DRIVE ANGLE / TURNING COLLISIONS

		Carling at Moodie
Francisco ant	Clear	14
Environment	Snow	1
	Dry	11
Surface Conditions	Wet	3
	Loose Snow	1
Turning	Eastbound – Turning Left	5
Vehicle Direction	Westbound – Turning Left	10

Per the data above, the vast majority of the collisions occurred during clear environmental conditions (93%) and on dry surface conditions (73%). However, it is noted that the majority (67%) of the collisions at this location occurred between westbound left turning vehicles and eastbound through vehicles. Upon reviewing the signal timing plans, it was found that the westbound left turn phase is permissive / protected, which may be a contributing factor to the collisions. The City may wish to explore modifying the westbound left turn phase to be fully protected.

Appendix B contains the collision data and is provided for reference.

2.1.3 Planned Conditions

2.1.3.1 Road Network Modifications

Per the City of Ottawa's 2013 Transportation Master Plan, there is one transportation improvement project that is currently planned within the vicinity of the subject development, which is Stage 2 of the City's Light Rail Transit. This will extend the LRT from Tunney's Pasture Station to Moodie Drive. Stage 2 is currently under construction and is scheduled to be in operation by the end of 2026. The Moodie Station is located approximately 2km away from the subject development.

2.1.3.2 Future Background Developments

Per the City of Ottawa's Development Applications website, there is one development scheduled to occur within the vicinity of the subject site, as outlined below.

3368 Carling Avenue

This development is located at the southeast quadrant of the Carling Avenue at Bedale Drive intersection. It is planned to include one residential building containing 15 residential units. Per the Transportation Impact Assessment prepared by Stantec in 2016, the development is anticipated to generate 8 and 9 two-way vehicle trips during the AM and PM peak hours, respectively. As this volume is negligible compared to the traffic volumes along Carling Avenue, it was not considered in the subject analysis.



2.2 STUDY AREA AND TIME PERIODS

2.2.1 Study Area

The proposed study area is limited to the following intersections:

- 1. Carling Avenue at Moodie Drive;
- 2. Carling Avenue at Bedale Drive; and
- 3. Carling Avenue at Site Access.

2.2.2 Time Periods

The scope of the transportation assessment proposes the following analysis time periods:

- 1. Weekday AM peak hour of roadway; and
- 2. Weekday PM peak hour of roadway.

2.2.3 Horizon Years

The scope of the transportation assessment proposes the following horizon years:

- 1. 2022 Existing Conditions;
- 2. 2024 Future Background Conditions;
- 3. 2024 Total Future Conditions (site build-out); and
- 4. 2029 Ultimate Conditions (5 years beyond build-out).



2.3 EXEMPTIONS REVIEW

Table 9 summarizes the Exemptions Review table from the City of Ottawa's 2017 Transportation Impact Assessment Guidelines.

TABLE 9EXEMPTIONS REVIEW

Module	Element	Exemption Consideration	Exempted?
Design Review	Component		
4.1	4.1.2 Circulation and Access	Only required for site plans	No
Development Design	4.1.3 New Street Networks	Only required for plans of subdivision	Yes
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	No
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Yes
Network Impact	Component		•
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and / or students on location at any given time	No
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Yes
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	Yes
4.9 Intersection Design	All Elements	Not required if site generation trigger is not met.	No



3.0 FORECASTING

3.1 DEVELOPMENT GENERATED TRAVEL DEMAND

3.1.1 Trip Generation and Mode Shares

The City of Ottawa's *TRANS Trip Generation Manual* (October 2020) was used to forecast trip generation for the proposed development. Land use code 221 – Multifamily Housing (high-rise) was thought to be the most representative of the proposed site. As there is one access serving both proposed residential buildings, the total number of units was combined for the trip generation, distribution, and assignment purposes. It should be noted that the below analysis was completed using a previous version of the site plan that included 198 residential units. The latest version of the site plan that corresponds with this submission includes 186 residential units. However, the analysis was not revised as the change is deemed negligible and the below analysis represents a more conservative approach.

Table 10 outlines the trip generation rates that were used.

TABLE 10 TRIP GENERATION RATES

Land Use	Units AM Peak Hour		PM Peak Hour	
Person Trip Rates				
221 – Multi Unit (High-Rise)	198	0.80	0.90	
Person Trips				
221 – Multi Unit (High-Rise)	198	158	178	

Pre the above table, the proposed development is anticipated to generate 158 and 178 person trips during the AM and PM peak hours, respectively. Using the modal splits for High-Rise Multifamily Housing from the *TRANS Trip Generation Manual*, the person trips were distributed across the various modes of transportation, as outlined in **Table 11** below.

TABLE 11 MODAL SHARE BREAK DOWN – PEAK PERIOD

Travel Mode	AM Peak Period		PM Peak Period		
	Mode Share	Trips	Mode Share	Trips	
Auto Drive	40%	63	40%	71	
Auto Passenger	12%	19	15%	27	
Transit	38%	60	33%	58	
Cycling	2%	3	1%	2	
Walking	8%	13	11%	20	

These peak period trips were then converted to peak hour trips using the conversion rates obtained from the *TRANS Trip Generation Manual*. **Table 12** below outlines these conversion factors.



Travel Mode	AM Conversion Rate	PM Conversion Rate
Auto Driver	0.48	0.44
Auto Passenger	0.31	0.29
Transit	0.55	0.47
Cycling	0.58	0.48
Walking	0.58	0.52

Using the conversion rates from **Table 12** above, the trips per modal share were calculated based on the AM and PM peak hours, as can be seen in **Table 13** below. The inbound / outbound splits were taken to be 31% / 69% for the AM peak hour and 58% / 42% for the PM peak hour, per the *Trans Trip Generation Manual*.

Travel Mode		AM Peak Hour		PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Auto Driver	9	18	27	22	13	35
Auto Passenger	2	3	5	5	3	8
Transit	10	19	29	19	11	30
Cycling	1	1	2	1	0	1
Walking	2	4	6	7	4	11
Total Person Trips	24	45	69	54	31	85

TABLE 13 PEAK HOUR PERSON TRIPS BY TRAVEL MODE

3.1.2 Trip Distribution

The distribution of traffic to / from the proposed development was based on the 2011 OD Survey (Ottawa Inner Area). The site generated traffic was distributed as 10% to / from the west (via Carling Avenue), 65% to / from the South (via Moodie Drive) and 25% to / from the east (via Carling Avenue).

3.1.3 Trip Assignment

Using the distribution from **Section 3.1.2** above, the site trips were assigned to the proposed site access accordingly and are shown in **Figure 6**. It should be noted that the traffic volumes were rounded up to the nearest five vehicles.





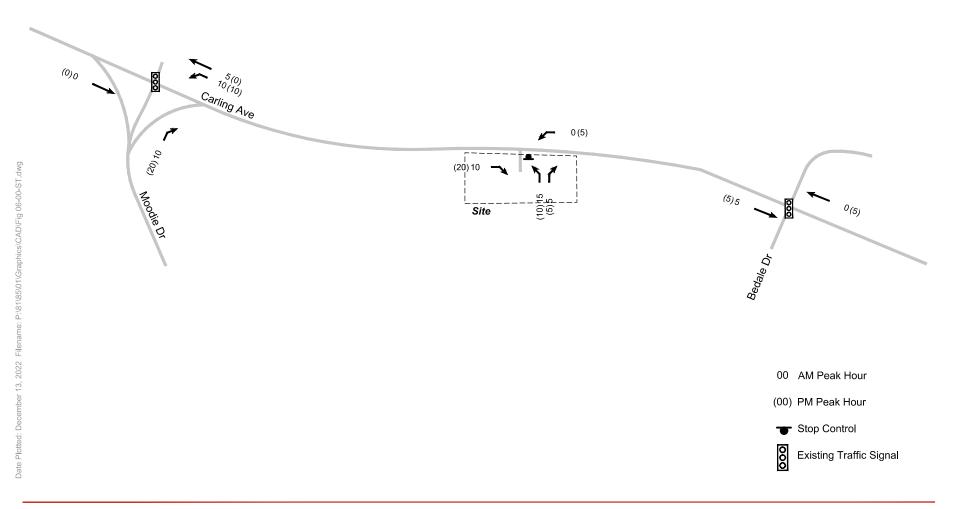


FIGURE 6 SITE GENERATED TRAFFIC

3430 CARLING AVENUE

3.2 BACKGROUND NETWORK TRAVEL DEMAND

3.2.1 Transportation Network Plans

As outlined in **Section 2.1.3.1**, there are no road infrastructure projects that are included in the City's 2013 TMP within the vicinity of the subject site.

3.2.2 Background Growth Rate

Traffic along Carling Avenue is not anticipated to increase significantly within the study horizon years. As such, an annual growth rate of 2% was applied to the movements along both Carling Avenue and Moodie Drive.

3.2.3 Other Developments

As outlined in **Section 2.1.3.2**, there is one nearby development scheduled to occur, however, as this development is anticipated to have a negligible impact on the transportation environment, it was not considered in the subject analysis.

3.3 DEMAND RATIONALIZATION

Demand rationalization is not needed along Carling Avenue as the existing and projected volumes can easily be accommodated on the transportation network, as seen in **Section 4.0** below.



4.0 STRATEGY

4.1 DEVELOPMENT DESIGN

4.1.1 Design for Sustainable Modes

Bicycle Facilities: a total of 194 bicycle parking spaces will be provided for the proposed development.

The westerly building includes a bicycle storage room that contains 54 bicycle parking spaces on the ground floor, in the southeastern corner of the building. To access this room, there is a door on the eastern façade of the building that leads directly to it. There is also a bicycle rack along the southern façade of this building that includes bicycle parking for up to 4 bicycles.

The easterly building includes a bicycle storage room that contains 40 bicycle parking spaces on the ground floor, in the southwestern corner of the building. To access this room, there is a door on the western façade of the building that leads directly to it. There is also a bicycle rack along the southern façade of this building that includes bicycle parking for up to 4 bicycles.

There are also two bicycle storage rooms in the underground parking garage, one per level. On the P1 level, there are 51 proposed bicycle parking spaces and on the P2 level there are 41 proposed bicycle parking spaces.

Pedestrian Facilities: Pedestrian connections will be provided that will connect each proposed building to the existing sidewalk along Carling Avenue.

Transit Facilities: Transit stops for OC Transpo routes 58 and 258 are located along Carling Avenue, approximately 120m from the subject site.

Parking Areas: A total of 284 vehicle parking spaces will be provided for the proposed development. The underground parking garage includes 247 resident vehicle parking spaces and 21 visitor parking spaces. In addition, there will be 16 visitor parking spaces at grade along the southern façade of the buildings. Included in the aforementioned vehicle parking spaces is 4 accessible parking spaces. These will be located both in the underground parking garage (2) as well as on the surface (2) along the south side of the building.

4.1.2 Circulation and Access

One site access (site driveway) is proposed to serve both residential buildings, in the approximate location of the existing easterly site access to the property, along Carling Avenue. This access will be a full movements access with stop control along the minor approach (i.e., the site access approach). This site driveway will lead to the garbage pick up, central to the site, the visitor parking at the south side of the site, as well as the ramp that will lead down to the underground parking garage.

The garbage areas will be located within the two buildings, adjacent to the proposed internal drive aisle. Garbage trucks will enter the site, collect the garbage from the westerly building, proceed south to turn around on site, and then head north on the internal drive aisle to pick up the garbage from the easterly building. The truck will then exit the site to Carling Avenue at the proposed site access.



4.1.3 New Street Networks

Exempt during Screening and Scoping.

4.2 PARKING

4.2.1 Parking Supply

Auto Parking

As per Schedule 1A of the City of Ottawa's Official Plan, the subject site is located within Area C: Suburban Area. Based on this designation, the City of Ottawa's Zoning By-Law 2008-250 (Section 101 and 102) was reviewed to determine the minimum parking space requirement for the proposed development. The minimum resident vehicular parking space rate for mid-high rise apartment buildings is 1.2 per dwelling unit. As such, the 186 residential units require 224 residential vehicular parking spaces. The proposed development includes 247 residential vehicular parking spaces, which meets this By-Law requirement.

As per Section 101 (1) of the By-Law, for buildings within Area C, in addition to the parking required under Section 101, off-street visitor parking must be provided for dwelling units at the rate set out in Table 101 (By-Law 2016-249). As such, 0.2 visitor parking spaces are required per dwelling unit for the subject development. Thus, 37 visitor vehicular parking spaces are required. The proposed development includes 37 visitor vehicular parking spaces.

As per Section 111 of the By-Law, when the capacity of the parking area is between 200-299, the minimum number of spaces that need to be reserved for persons with disabilities is 3. The proposed development includes a total of 4 accessible parking spaces (2 on the surface and 2 underground), thus meeting the by-law requirements.

Section 4.1.1 includes a detailed summary of where these auto vehicle parking spaces are located on site.

Bicycle Parking

As per Table 111A in Section 111 of the By-Law, for an apartment building, a minimum of 0.5 bicycle parking spaces are required for each dwelling unit. The 186 dwelling units require 93 bicycle parking spaces. The proposed development includes 194 bicycle parking spaces, which meets this By-Law requirement.

4.2.2 Spillover Parking

The City of Ottawa's Zoning By-Law requires a total of 261 (224 resident + 37 visitor) parking spaces while the ITE Parking Generation Manual, 5th Edition, suggests a parking supply of 244 spots. The subject development includes 284 parking spaces in total, thus, the parking supply based on both guidelines is not 15% below the demand. As such, this module can be exempt.



4.3 BOUNDARY STREET DESIGN

4.3.1 Design Concept

A multi-modal level of service analysis was performed along the segment of Carling Avenue across the frontage of the subject site. As the subject site is located in the General Urban Area, it is subject to a PLOS target of C, a BLOS target of D, a TLOS target of D, and a TkLOS target of D.

The segment of Carling Avenue across the subject site currently operates with a PLOS of F, which does not meet the desired target of C. This is due to the lack of boulevard between the sidewalk and roadway. To meet the PLOS target of C, the sidewalk would need to be widened to 2.0m and a boulevard would need to be provided with a minimum width of 2.0m.

The segment also does not meet the BLOS target of D across the frontage of the subject site due to lack of cycling facilities. To meet the BLOS target, curbside bike lanes with a width between 1.2m - 1.5m would need to be implemented.

The segment of Carling Avenue across the frontage of the subject site currently meets the TLOS and TkLOS targets.

 Table 14 below outlines the existing segment MMLOS results.

Appendix C contains the detailed MMLOS analysis.

	Carling Avenue (across site frontage)		
	Target	Existing	
PLOS	С	F	
BLOS	D	F	
TLOS	D	D	
TkLOS	D	D	

TABLE 14 2022 EXISTING SEGMENT MULTI-MODAL LEVEL OF SERVICE

4.4 ACCESS INTERSECTIONS DESIGN

4.4.1 Location and Design of Access

The subject development is planned to feature one access will be located in the approximate same location as the existing easterly access to the subject site. This access will be roughly 290m west of the Carling Avenue at Crystal Beach Drive intersection. This access will be a 6.7m wide full movements access and will be stop-controlled along the minor approach (i.e., the site access approach). It will lead to the surface visitor parking lot along the south façade of the building as well as the underground parking garage.



4.4.2 Intersection Control

The site access will be a low-volume driveway, and thus, will operate as a full movements minor stop-controlled intersection along the site access approach.

4.4.3 Intersection Design

Section 4.9.2 contains the detailed intersection and MMLOS analyses under all horizons.

4.5 TRANSPORTATION DEMAND MANAGEMENT

4.5.1 Context for TDM

The subject site is not located within a Design Priority Area nor a Transit-Oriented Development zone, as prescribed by the City of Ottawa's Official Plan. As such, modal shares were taken from the City of Ottawa's *TRANS Trip Generation Manual* (October 2020). The mode shares for the Bayshore / Cedarview District are outlined in **Table 15** below.

TABLE 15 MODAL SHARE BREAK DOWN

Travel Mode	AM Peak Period	PM Peak Period	
	Mode Share	Mode Share	
Auto Drive	40%	40%	
Auto Passenger	12%	15%	
Transit	38%	33%	
Cycling	2%	1%	
Walking	8%	11%	

As outlined in **Section 4.2.1**, the development will be providing sufficient resident and visitor vehicle parking spaces to meet the applicable Zoning By-Laws.

4.5.2 Need and Opportunity

Although the proposed development will meet the Zoning By-Law requirements in terms of vehicle parking spaces, the modal share targets set forth by the City suggest that some Transportation Demand Management (TDM) measures need to be considered. By incorporating some TDM measures, the subject site will help to contribute to the City's overall goal of reducing the reliance on the automobile as the primary source of transportation.



4.5.3 TDM Program

The City of Ottawa's TDM checklists were used in the development of design supportive and additional TDM measures.

As part of the TDM Supportive Development Design and Infrastructure Checklist, the following features have been considered:

- Locate building close to the street and do not locate parking areas between the street and the building entrances.
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops / stations.
- Locate building doors and windows to ensure visibility from public sidewalks and building entrances.
- Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances.
- Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments differentiate pedestrian areas from vehicle areas.
- Make sidewalks and open space easily accessible through features such as gradual grade transitions, depressed curbs at street corners.
- Provide links to the existing or planned network of public sidewalks.
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops.
- Provide bicycle parking in highly visible and lighted areas and sheltered from the weather wherever possible.
- Provide the number of bicycle parking spaces identified for various land uses in different parts of Ottawa.
- Ensure that bicycle parking spaces and access aisles meet minimum dimensions.
- 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, or bicycle lockers.
- Provide a permanent bike repair station adjacent to the main bicycle parking area. There are two proposed bicycle repair stations located with each of the two bicycle parking areas (one per building).
- Provide a designated area for carpool drivers to drop off or pick up passengers without using fire lanes or other no-stopping zones. [the proposed site will have surface visitor parking areas that can be used for pick-up and drop-off.]
- Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for.

As part of the TDM Measures Checklist, the development is also proposing to unbundle the parking cost from purchase price.

Appendix D contains the TDM Checklists.

4.6 NEIGHBOURHOOD TRAFFIC MANAGEMENT

Exempted during Screening and Scoping.



4.7 TRANSIT

4.7.1 Route Capacity

There are two transit routes along Carling Avenue, both with transit stops within 150m of the subject development. Based on the OC Transpo schedule, at these transit stops, there are approximately 15 buses during the AM peak period (6:00 - 9:00) and 17 buses during the PM peak period (15:00 - 18:00). Standard buses in OC Transpo's vehicle fleet have seated capacities of 36 to 55 seats depending on the transit bus manufacturer, which is equivalent to a capacity of 540 - 825 passengers during the AM peak period and 612 - 935 passengers during the PM peak hour.

Based on information provided by OC Transpo, the transit ridership on these two bus routes in the vicinity of the subject site amount to 10 transit users during each peak period. This accounts for 1% - 2% of the transit capacity during each of the peak periods. Thus, there is a plethora of residual capacity on these two bus routes at the location of the subject site.

The forecasted transit trips for the proposed development are 60 AM peak period trips and 58 PM peak period trips. As such, the forecasted transit trips for the proposed development accounts for roughly 7% - 11% and 6% - 9% of transit capacity during the AM and PM peak periods, respectively. Based on the residual capacity of the existing transit routes in the vicinity of the subject site, the projected transit trips can be accommodated on the existing OC Transpo bus routes.

4.8 **REVIEW OF NETWORK CONCEPT**

Exempted during Screening and Scoping.

4.9 INTERSECTION DESIGN

4.9.1 Intersection Control

The existing intersection control will be maintained as the default control for all study area intersections under all horizons. The existing signal timing plans for the Carling Avenue at Moodie Drive and Carling Avenue at Bedale Drive intersections were obtained from the City of Ottawa and were used in the analysis.

4.9.2 Intersection Design

4.9.2.1 2022 Existing Conditions

Figure 5 illustrates 2022 Existing AM and PM peak hour volumes at the study area intersections.

Intersection Capacity Analysis

Table 16 summarizes the results of the Synchro analysis under 2022 existing conditions. Both existing signalized intersections currently operate within the acceptable thresholds with residual capacity remaining. As such, no intersection modifications are required.

Appendix E contains details intersection performance worksheets.



Intersection	In	tersection Control	LOS	v/c	Delay	Queue 95 th (m)
	EB	Left / Through	A (A)	0.24 (0.30)	15.7 (14.4)	50 (51)
		Right	A (A)	0.10 (0.22)	14.4 (14.1)	13 (17)
Carling Avenue at	WB	Left	A (A)	0.30 (0.41)	8.3 (6.8)	34 (34)
Moodie		Through / Right	A (A)	0.19 (0.19)	7.9 (5.9)	34 (27)
Drive	NB	Left / Through	C (B)	0.76 (0.69)	54.3 (41.6)	77 (55)
(Signalized)		Right	A (A)	0.07 (0.11)	36.2 (30.0)	12 (14)
(Signalized)	SB	Left / Through / Right	A (A)	0.04 (0.03)	35.9 (29.3)	8 (6)
	Overall		A (A)	0.44 (0.50)	20.0 (15.9)	()
	EB	Left	A (A)	0.02 (0.02)	3.0 (2.4)	3 (3)
		Through	A (A)	0.22 (0.24)	3.6 (3.0)	28 (32)
Carling		Right	A (A)	0.01 (0.01)	2.9 (2.4)	1 (1)
Avenue at Bedale Drive	WB	Left	A (A)	0.03 (0.05)	3.0 (2.6)	4 (5)
		Through / Right	A (A)	0.25 (0.25)	3.7 (3.1)	31 (34)
(Signalized)	NB	Left / Through / Right	A (A)	0.12 (0.02)	26.6 (27.7)	10 (5)
	SB	Left / Through / Right	A (A)	0.06 (0.02)	26.3 (27.7)	5 (5)
	Overall		A (A)	0.22 (0.22)	5.2 (4.2)	()

TABLE 16 2022 Existing Intersection Operations

Multi-Modal Level of Service Analysis – Intersections

A multi-modal level of service assessment was performed on the two signalized intersections under 2022 existing conditions. The same targets were used as previously outlined in **Section 4.3.1**. **Table 17** below includes the results from the assessment.

Carling Avenue at Moodie Drive

The Carling Avenue at Moodie Drive intersection currently does not meet the PLOS target due to the number of lanes pedestrians have to cross on the west and east legs of the intersection. To meet the PLOS target of C, the number of lanes would need to be reduced in the east and west directions to four lanes total and the northbound and southbound left turns would need to be protected. Making these modifications to the intersections would have a negative impact on the vehicular level of service. The PM peak experiences the majority of the pedestrian activity at this intersection, and it was found that there are roughly 14 pedestrians who use this intersection during the PM peak hour. Thus, it is not recommended to make the geometric modifications to this intersection to meet the PLOS target of C.



29

The Carling Avenue at Moodie Drive intersection also does not currently meet the BLOS target of D due to the lack of cycling facilities. The majority of the intersection approaches require cyclists to operate in mixed traffic. This, coupled with the high speeds of the roads leads to the BLOS of F. To meet the BLOS target, cycling facilities would need to be implemented in the form of either separated facilities or curbside bicycle lanes with appropriate cross-rides at the intersection.

The Carling Avenue at Moodie Drive intersection also does not currently meet the TLOS target of D due to the delays experienced on the south leg of the intersection. This leg of the intersection would need to see the delays reduced to under 30 seconds to meet the TLOS target of D. To reduce the delay to this leg of the intersection, the total cycle length of the intersection could be reduced, however, it is noted that as this intersection is coordinated, changing the cycle length may have an impact on the surrounding signalized intersections.

The Carling Avenue at Moodie Drive intersection currently meets both the TkLOS and VLOS targets.

Carling Avenue at Bedale Drive

The Carling Avenue at Bedale Drive intersection currently does not meet the PLOS target due to the number of lanes pedestrians have to cross on the west and east legs of the intersection. To meet the PLOS target of C, the number of lanes would need to be reduced in the east and west directions to four lanes total and the northbound and southbound left turns would need to be protected. Making these modifications to the intersections would have a negative impact on the vehicular level of service. The PM peak experiences the majority of the pedestrian activity at this intersection, and it was found that there are roughly 38 pedestrians who use this intersection during the PM peak hour. This is likely due to the Nepean Sailing Club / Andrew Hayden Park, which are two significant destinations within the community. As this is an existing condition, the City may wish to monitor this intersection and make the appropriate adjustments to improve the PLOS at this location.

The Carling Avenue at Bedale intersection also does not currently meet the BLOS target of D due to the lack of cycling facilities. The majority of the intersection approaches require cyclists to operate in mixed traffic. This, coupled with the high speeds of the roads leads to the BLOS of F. To meet the BLOS target, cycling facilities would need to be implemented in the form of either separated facilities or curbside bicycle lanes with appropriate cross-rides at the intersection.

The Carling Avenue at Bedale Drive intersection currently meets both the TLOS and VLOS under existing conditions.

As trucks are not permitted on the north or south legs of this intersection, there is no need for them to make turning movements at this intersection, and thus, the TkLOS is not applicable.

Appendix C contains the detailed MMLOS analysis.



TABLE 17 2022 EXISTING INTERSECTION MMLOS

Interse	ection	PLOS	BLOS	TLOS	TkLOS	VLOS
Carling	Existing	F	F	F	А	А
Avenue & Moodie Drive	Target	С	D	D	D	D
Carling	Existing	F	F	В		А
Avenue & Bedale Drive	Target	С	D	D	N/A	D

4.9.2.2 2024 Future Background Conditions

Figure 7 illustrates 2024 Future Background AM and PM peak hour volumes at the study area intersections. It should be noted that the traffic volumes were rounded up to the nearest five vehicles.

Intersection Capacity Analysis

Table 18 summarizes the results of the Synchro analysis under 2024 future background conditions. Both intersections are projected to continue to operate within the acceptable thresholds with residual capacity remaining. Due to the negligible background growth rate that was applied, and the lack of background developments occurring in the vicinity of the subject site, the results of the 2024 future background analysis are similar to those of the 2022 existing conditions analysis.

Appendix E contains details intersection performance worksheets.



31

Intersection	Inte	ersection Control	LOS	v/c	Delay	Queue 95 th (m)
	EB	Left	A (A)	0.25 (0.30)	16.8 (15.5)	51 (52)
		Right	A (A)	0.10 (0.22)	15.3 (15.0)	13 (17)
Carling Avenue at	WB	Left	A (A)	0.31 (0.41)	9.0 (7.5)	35 (34)
Moodie Drive		Through/Right	A (A)	0.19 (0.19)	8.7 (6.6)	35 (27)
Drive	NB	Through	C (C)	0.81 (0.76)	60.7 (47.9)	79 (57)
(Signalized)		Right	A (A)	0.07 (0.11)	37.4 (31.5)	12 (14)
(Signalized)	SB	Left/Through/Right	A (A)	0.08 (0.07)	37.6 (31.1)	12 (9)
	Overall		A (A)	0.46 (0.52)	22.0 (17.6)	()
	EB	Left	A (A)	0.03 (0.03)	3.5 (2.9)	4 (4)
		Through	A (A)	0.23 (0.24)	4.2 (3.6)	30 (33)
Carling		Right	A (A)	0.01 (0.01)	3.4 (2.8)	1 (1)
Avenue at Bedale Drive	WB	Left	A (A)	0.04 (0.05)	3.5 (3.0)	4 (6)
		Right	A (A)	0.25 (0.26)	4.3 (3.7)	32 (36)
(Signalized)	NB	Left/Through/Right	A (A)	0.19 (0.04)	28.9 (29.7)	12 (7)
	SB Left/Through/Right		A (A)	0.14 (0.03)	28.6 (29.6)	8 (6)
	Overall		A (A)	0.24 (0.23)	6.3 (5.0)	()

TABLE 18 2024 FUTURE BACKGROUND INTERSECTION OPERATIONS

Multi-Modal Level of Service Analysis – Intersections

No changes to the multi-modal level of service analysis as compared to the 2022 existing conditions.



32

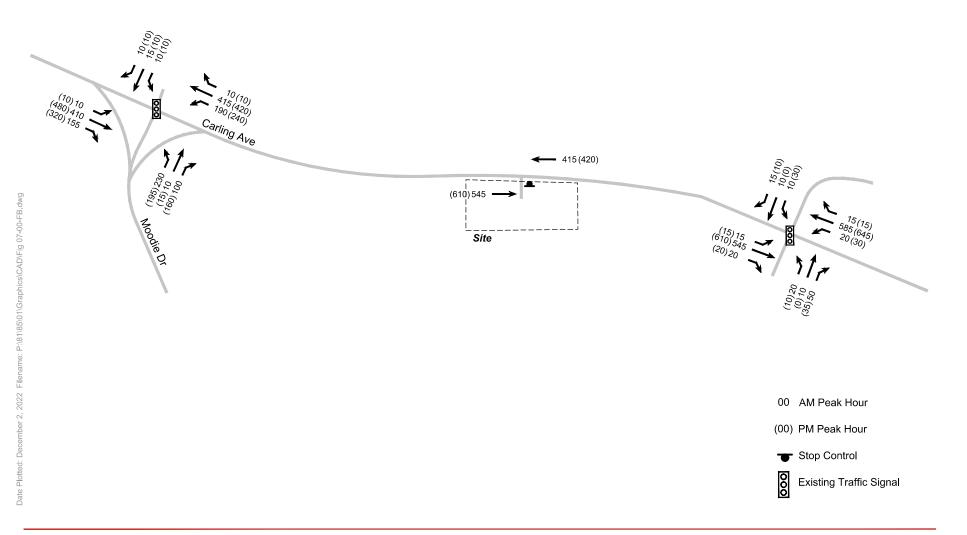


FIGURE 7 2024 FUTURE BACKGROUND TRAFFIC VOLUMES

3430 CARLING AVENUE

4.9.2.3 2024 Total Future Conditions

Figure 8 illustrates 2024 Total Future AM and PM peak hour volumes at the study area intersections. It should be noted that the traffic volumes were rounded up to the nearest five vehicles.

Intersection Capacity Analysis

Table 19 summarizes the results of the Synchro analysis under 2024 total future conditions. All study area intersections are projected to operate within the acceptable thresholds with residual capacity remaining. The addition of the proposed development is anticipated to have a negligible impact on the operations of the two existing intersections. The future site access intersection is anticipated to operate with minimal delays under 2024 total future conditions.

Appendix E contains details intersection performance worksheets.

TABLE 192024 TOTAL FUTURE INTERSECTION OPERATIONS

Intersection	Inte	ersection Control	LOS	v/c	Delay	Queue 95 th (m)
	EB	Left	A (A)	0.25 (0.30)	16.9 (15.7)	52 (52)
		Right	A (A)	0.10 (0.22)	15.4 (15.2)	13 (17)
Carling	WB	Left	A (A)	0.32 (0.43)	9.0 (7.6)	37 (37)
Avenue at Moodie Drive		Through/Right	A (A)	0.19 (0.19)	8.6 (6.6)	37 (27)
	NB	Through	C (C)	0.81 (0.76)	61.4 (47.9)	79 (57)
(Signalized)		Right	A (A)	0.08 (0.12)	37.6 (31.6)	13 (15)
	SB	Left/Through/Right	A (A)	0.08 (0.07)	37.6 (31.1)	12 (9)
	Overall		A (A)	0.47 (0.53)	22.1 (17.8)	()
	EB	Left	A (A)	0.03 (0.03)	3.5 (2.9)	4 (4)
		Through	A (A)	0.23 (0.24)	4.2 (3.6)	30 (34)
Carling		Right	A (A)	0.01 (0.01)	3.4 (2.8)	1 (1)
Avenue at Bedale Drive	WB	Left	A (A)	0.04 (0.05)	3.5 (3.0)	4 (6)
		Right	A (A)	0.25 (0.26)	4.3 (3.7)	33 (37)
(Signalized)	NB	Left/Through/Right	A (A)	0.19 (0.07)	28.9 (29.8)	12 (7)
	SB	Left/Through/Right	A (A)	0.14 (0.04)	28.6 (29.7)	8 (7)
	Overall		A (A)	0.24 (0.24)	6.3 (5.1)	()
	EB Through		A (A)	0.21 (0.24)	0.0 (0.0)	0 (0)



		Right	A (A)	0.11 (0.13)	0.0 (0.0)	0 (0)
Carling Avenue at	WB	Through/Left	A (A)	0.00 (0.01)	0.0 (0.4)	0 (0)
Site Access		Through	A (A)	0.16 (0.16)	0.0 (0.0)	0 (0)
(Unsignalized)	NB	Left /Right	A (A)	0.05 (0.04)	14.5 (15.0)	1 (1)
	Overall		A (A)	()	0.4 (0.4)	()

Multi-Modal Level of Service Analysis – Intersections

No changes to the multi-modal level of service analysis as compared to the 2022 existing conditions.



35

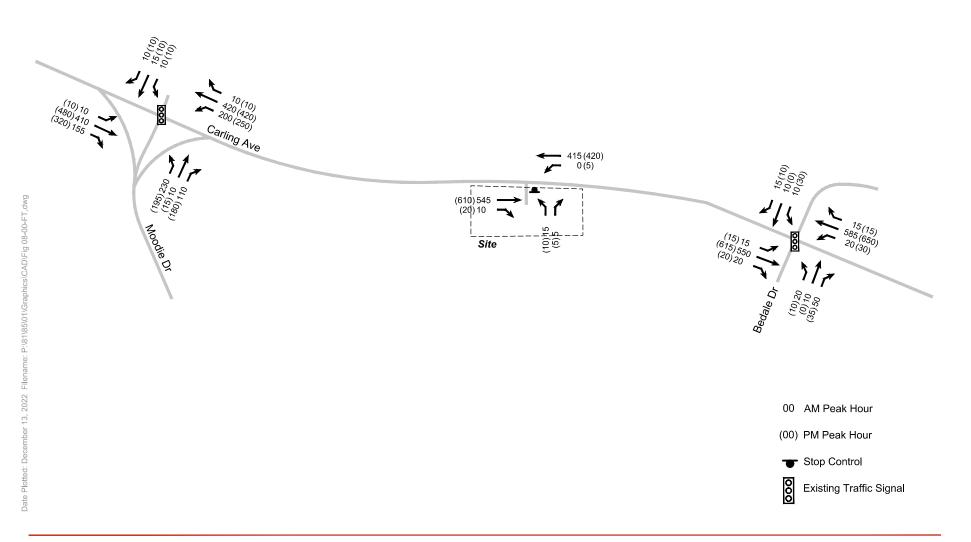


FIGURE 8 2024 TOTAL FUTURE TRAFFIC VOLUMES

3430 CARLING AVENUE

4.9.2.4 2029 Ultimate Conditions

Figure 9 illustrates 2029 Ultimate AM and PM peak hour volumes at the study area intersections. It should be noted that the traffic volumes were rounded up to the nearest five vehicles.

Intersection Capacity Analysis

Table 20 summarizes the results of the Synchro analysis under 2024 ultimate conditions. All study area intersections are projected to operate within the acceptable thresholds with residual capacity remaining.

Appendix E contains details intersection performance worksheets.

TABLE 20 2029 ULTIMATE INTERSECTION OPERATIONS

Intersection	Inte	ersection Control	LOS	v/c	Delay	Queue 95 th (m)
	EB	Left	A (A)	0.27 (0.33)	18.4 (16.7)	57 (57)
		Right	A (A)	0.11 (0.23)	16.7 (16.0)	14 (18)
	WB	Left	A (A)	0.35 (0.47)	9.9 (8.1)	40 (39)
Carling Avenue at		Through/Right	A (A)	0.20 (0.20)	9.4 (6.9)	39 (29)
Moodie Drive	NB	Through	C (C)	0.82 (0.77)	60.2 (48.5)	83 (58)
Drive		Right	A (A)	0.08 (0.13)	36.3 (31.1)	13 (15)
	SB	Left/Through/Right	A (A)	0.08 (0.06)	36.3 (30.6)	12 (9)
	Overall		A (A)	0.50 (0.57)	22.7 (18.3)	()
	EB	Left	A (A)	0.03 (0.03)	3.5 (2.9)	4 (4)
		Through	A (A)	0.24 (0.26)	4.2 (3.6)	31 (35)
		Right	A (A)	0.01 (0.01)	3.4 (2.8)	1 (1)
Carling	WB	Left	A (A)	0.04 (0.06)	3.5 (3.1)	4 (6)
Avenue at Bedale Drive		Right	A (A)	0.26 (0.28)	4.3 (3.7)	35 (39)
	NB	Left/Through/Right	A (A)	0.18 (0.07)	28.8 (29.8)	12 (7)
	SB	Left/Through/Right	A (A)	0.10 (0.04)	28.3 (29.7)	8 (7)
	Overall		A (A)	0.25 (0.25)	6.3 (5.1)	()
Carling	EB	Through	A (A)	0.22 (0.25)	0.0 (0.0)	0 (0)
Avenue at		Right	A (A)	0.12 (0.14)	0.0 (0.0)	0 (0)
Site Access	WB	Through/Left	A (A)	0.01 (0.01)	0.3 (0.7)	0 (0)



37

-	Overall		A (A)	()	0.4 (0.4)	()
	NB	Left /Right	A (A)	0.07 (0.06)	15.0 (15.5)	1 (1)
		Through	A (A)	0.17 (0.17)	0.0 (0.0)	0 (0)

Multi-Modal Level of Service Analysis – Intersections

No changes to the multi-modal level of service analysis as compared to the 2022 existing conditions.



38

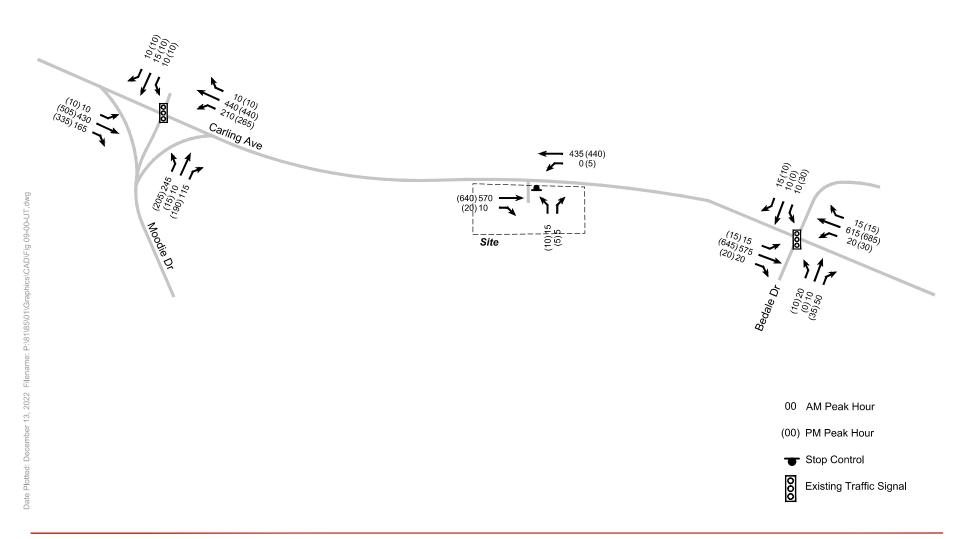


FIGURE 9 2029 ULTIMATE TRAFFIC VOLUMES

3430 CARLING AVENUE

5.0 SUMMARY AND CONCLUSION

The proposed development is located at 3430 Carling Avenue in the City of Ottawa's west end. The development consists of two six-storey residential towers, with a combined total of 186 units. The two buildings will share one access off Carling Avenue, which will lead to an internal driveway located between the two buildings. This driveway will access the underground parking garage, which will be shared between the two buildings.

The development includes 247 residential vehicle parking spaces which will all be located within the parking garage. The development will also include 21 visitor parking spaces within the garage and 16 visitor parking spaces at grade. In total, the development will include 4 accessible parking spaces, two in the underground garage for residents and 2 in the surface parking lot for visitors. It is noted that the development is anticipated to meet the Zoning By-Law requirements for both resident and visitor vehicle parking.

The development includes 194 bicycle parking spaces spread out across the site. There are two bicycle storage rooms located on the ground floor of each building. There are also two bicycle storage rooms in the underground parking garage, one on P1 and one on P2. In addition, there are 8 outdoor bicycle racks located on the southern facades of the buildings, next to the visitor parking spaces. It is noted that the development is anticipated to meet the Zoning By-Law requirements for bicycle parking.

The MMLOS analysis found that the segment of Carling Avenue across the frontage of the subject site does not currently meet the Pedestrian nor Bicycle level of service targets due to the existing cross-section of the road. To meet the Pedestrian level of service target, there would need to be a 2.0m boulevard constructed and the sidewalk would need to be widened to 2.0m. To meet the Bicycle level of service target, curbside bike lanes with a width between 1.2m - 1.5m would need to be implemented. Note that the segment MMLOS is not anticipated to change in the future with the addition of the subject development.

Currently, the study area intersections operate within acceptable thresholds and no improvements are recommended to supplement the existing conditions.

The Carling Avenue at Moodie Drive intersection currently does not meet the Pedestrian, Bicycle, nor Transit level of service targets due to size of the intersection, the lack of bicycle facilities, and the delays experienced at this location. The improvements required to meet the MMLOS targets include reducing the number of lanes along Moodie, protecting the left turns, adding bicycle facilities in the form of separated cycle tracks or curbside bike lanes with cross-rides, and reducing the cycle length to reduce the delays. However, it is recognized that implementing these measures may be detrimental to the vehicular level of service at this location.

The Carling Avenue at Bedale Drive intersection currently does not meet the Pedestrian nor Bicycle level of service targets due to the number of lanes along Carling Avenue as well as the lack of cycling facilities. To meet the targets, the number of lanes on Carling Avenue would need to be reduced, the northbound and southbound left turn phases would need to be protected, and cycling facilities would need to be implemented. However, it is recognized that implementing these measures may result in a detriment to the vehicular level of service at this location.

The subject development is anticipated to generate 27 and 35 two-way auto trips during the AM and PM peak hours, respectively. The impact of the proposed subject development on the surrounding transportation



environment is anticipated to be negligible. The study area intersections are projected to continue to operate within acceptable thresholds under all study horizons.

The development is also anticipated to generate 60 and 58 two-way peak period transit trips. As the current transit ridership on the surrounding transit routes is very low (i.e., 1-2% of available capacity), the transit trips that the subject development is projected to generate will be able to be accommodated on the existing transit network.

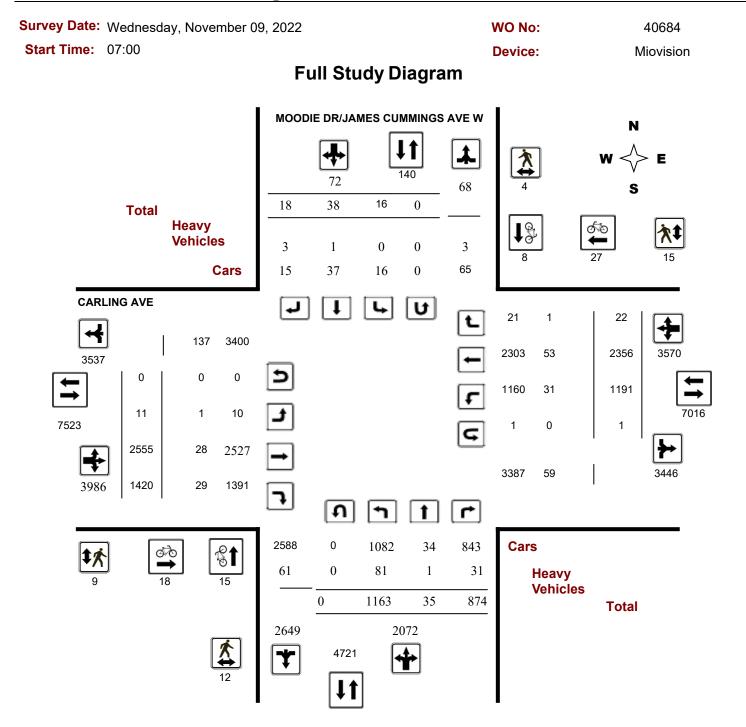
Overall, the subject development will have a negligible impact on the surrounding transportation environment, and thus, the development is recommended to proceed from a transportation perspective.



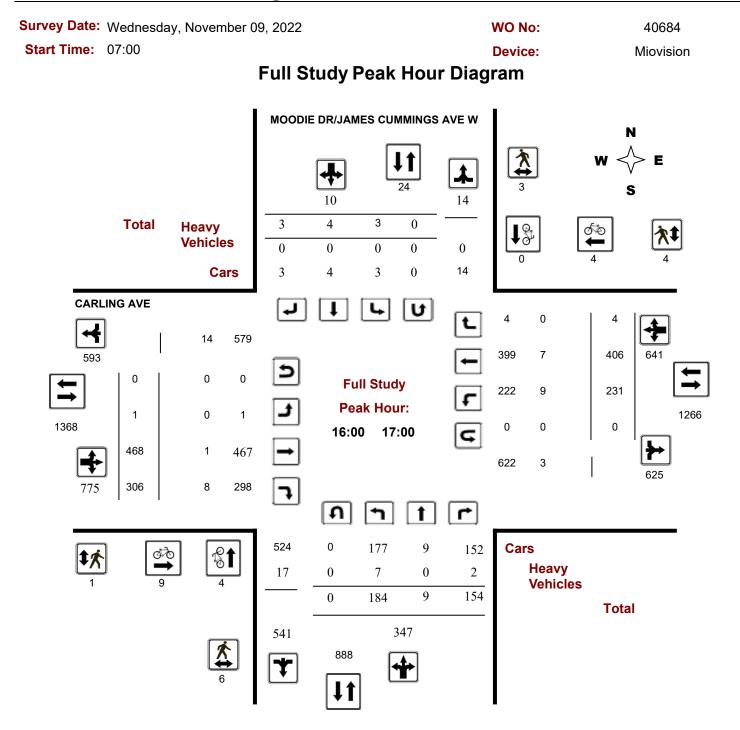
APPENDIX A: TRAFFIC DATA













Turning Movement Count - Peak Hour Diagram CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

Survey Date: Wednesday, November 09, 2022 WO No: **Start Time:** 07:00 **Device:** Miovision MOODIE DR/JAMES CUMMINGS AVE W Ν ☆ Е * S Heavy **Vehicles** Cars CARLING AVE U Ļ t Ļ Ł **AM Period** → **Peak Hour** Ģ 08:00 09:00 ₩ ₽ F Ļ **ค**| t Cars ØÒ **\$** Heavy **Vehicles** Total **★** +

Comments



Turning Movement Count - Peak Hour Diagram CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

Survey Date: Wednesday, November 09, 2022 WO No: **Start Time:** 07:00 **Device:** Miovision MOODIE DR/JAMES CUMMINGS AVE W Ν ☆ Е S Heavy бÒ **Vehicles** n Cars CARLING AVE U Ļ t Ļ Ł ¥ **MD** Period \rightarrow **Peak Hour** Ģ 11:45 12:45 ₩ ♣ F **r** f l h t Cars ØÒ 沐 Heavy **Vehicles** Total × *

Comments



Turning Movement Count - Peak Hour Diagram CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

Survey Date: Wednesday, November 09, 2022 WO No: **Start Time:** 07:00 **Device:** Miovision MOODIE DR/JAMES CUMMINGS AVE W Ν ☆ lt Е ⇒ S Heavy бÒ **Vehicles** n Cars CARLING AVE U Ļ t Ļ Ł ¥ **PM Period** → **Peak Hour** Ģ 16:00 17:00 ┢ ₽ F **r** f l t Cars ₫Ò **\$** Heavy **Vehicles** Total **★** *

Comments



Survey D	ate: M	/edne	sday,	Novem	nber 09	9, 2022	2					WO N	No:			40	684		
Start Tin	ne: 0 [°]	7:00										Devi	ce:			Mio	vision		
				F	ull S	Stud	ν Sι	ımma	rv (8	HR	Sta	ndar	d)						
Survey Da	ate: \	Nedne	esday,	Nover			J					Turns	- /					T Facto	or
		2022					Ν	lorthbound				hbound:	0					11400	
							I	Eastbound	l: 0		Wes	tbound:	1				.90		
	MOOI		R/JAN	IES CU	JMMIN	IGS A	/E W					CAR	LING	AVE					
	Noi	rthbou	nd		Sou	uthbou	ind			E	astbou	und		V	Vestbou	und			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Granc Tota
07:00 08:00	178	2	74	254	2	3	0	5	259	2	367	108	477	156	274	1	431	908	1167
08:00 09:00	225	1	95	321	4	7	2	13	334	1	397	150	548	181	402	1	584	1132	1466
09:00 10:00	170	4	67	241	0	7	0	7	248	1	215	108	324	114	259	3	376	700	948
11:30 12:30	106	5	105	216	1	3	5	9	225	3	188	132	323	98	168	1	267	590	815
12:30 13:30	92	6	96	194	1	5	1	7	201	1	193	117	311	120	195	3	318	629	830
15:00 16:00	120	4	151	275	3	6	6	15	290	2	326	242	570	153	319	6	478	1048	1338
16:00 17:00	184	9	154	347	3	4	3	10	357	1	468	306	775	231	406	4	641	1416	1773
17:00 18:00	88	4	132	224	2	3	1	6	230	0	401	257	658	138	333	3	474	1132	1362
Sub Total	1163	35	874	2072	16	38	18	72	2144	11	2555	1420	3986	1191	2356	22	3569	7555	9699
U Turns				0				0	0				0				1	1	1
Total	1163	35	874	2072	16	38	18	72	2144	11	2555	1420	3986	1191	2356	22	3570	7556	9700
EQ 12Hr Note: These \	1617 (aluos a)	49	1215	2880	22	53 totals b	25 v tho at	100	2980	15 on fact	3551	1974	5541	1655 1.39	3275	31	4962	10503	13483
AVG 12Hr	1455 //	44	1094	2592	20 alvinath	62	29	90 2 hr. tatala	2682	14 • • • • • •	3196	1777	4987	1490	2948	28	4466	9453	12135
Note: These N		are cal		by multip					by the l					.90					
AVG 24Hr	1906	58	1433	3396	26	81	38	118	3513	18	4187	2328	6533	1952	3862	37	5850	12383	15897
Note: These \	/olumes	are calo	culated	by multip	olying th	e Avera	ige Dail	ly 12 hr. to	tals by ²	12 to 24	4 expan	sion facto	or.	1.31					

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



Survey Date: Wednesday, November 09, 2022 WO No:														4	0684				
Start Time	: 07	2:00											Dev	ice:			Mic	ovisior	n
						F	ull S	Stud	v 15	5 Mi	nute	Inc	rem	ente	s				
	мо	ODIE	E DR/J		s cui			, iuu	y 10		inate								
			-	VE W															
	No	orthbou	und		Sc	outhbou	Ind			E	astbour	nd		We	estbour	nd			
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	37	1	14	52	0	0	0	0	52	1	57	19	77	30	69	0	99	176	228
07:15 07:30	30	1	22	53	1	2	0	3	56	0	70	33	103	40	68	1	109	212	268
07:30 07:45	48	0	25	73	0	1	0	1	74	0	122	20	142	40	68	0	108	250	324
07:45 08:00	63	0	13	76	1	0	0	1	77	1	118	36	155	46	69	0	115	270	347
08:00 08:15	45	0	32	77	0	3	1	4	81	0	130	36	166	48	86	0	134	300	381
08:15 08:30	54	1	14	69	0	1	0	1	70	0	94	39	133	38	97	0	135	268	338
08:30 08:45																			
08:45 09:00	65	0	24	89	2	3	1	6	95	1	65	43	109	48	119	0	167	276	371
09:00 09:15	61	0	15	76	0	2	0	2	78	0	71	28	99	30	68	1	100	199	277
09:15 09:30	48	1	20	69	0	2	0	2	71	1	57	36	94	43	90	2	135	229	300
09:30 09:45	27	1	13	41	0	2	0	2	43	0	44	21	65	15	61	0	76	141	184
09:45 10:00	34	2	19	55	0	1	0	1	56	0	43	23	66	26	40	0	66	132	188
11:30 11:45	26	1	26	53	0	0	1	1	54	0	46	35	81	21	38	0	59	140	194
11:45 12:00	27	0	29	56	1	1	3	5	61	1	47	31	79	24	49	0	73	152	213
12:00 12:15	29	2	21	52	0	1	0	1	53	1	58	35	94	23	34	1	58	152	205
12:15 12:30	24	2	29	55	0	1	1	2	57	1	37	31	69	30	47	0	77	146	203
12:30 12:45	19	0	25	44	0	1	0	1	45	1	45	40	86	30	56	0	86	172	217
12:45 13:00	26	2	24	52	0	1	0	1	53	0	50	23	73	25	48	0	73	146	199
13:00 13:15	17	2	21	40	0	2	0	2	42	0	52	34	86	35	47	1	83	169	211
13:15 13:30	30	2	26	58	1	1	1	3	61	0	46	20	66	30	44	2	76	142	203
15:00 15:15	30	2	38	70	2	2	1	5	75	1	82	82	165	34	50	2	86	251	326
15:15 15:30	30	0	38	68	0	1	0	1	69	1	100	45	146	41	64	0	105	251	320
15:30 15:45	34	0	40	74	1	3	2	6	80	0	76	58	134	46	100	4	150	284	364
15:45 16:00	26	2	35	63	0	0	3	3	66	0	68	57	125	32	105	0	137	262	328
16:00 16:15	28	1	42	71	0	1	1	2	73	0	122	84	206	42	105	0	147	353	426
16:15 16:30	43	3	45	91	1	0	0	1	92	0	108	87	195	69	96	2	167	362	454
16:30 16:45	61	3	34	98	1	1	1	3	101	1	128	64	193	58	116	0	174	367	468
16:45 17:00	52	2	33	87	1	2	1	4	91	0	110	71	181	62	89	2	153	334	425
17:00 17:15	24	1	36	61	0	1	1	2	63	0	124	85	209	48	94	1	143	352	415
17:15 17:30	27	1	32	60	1	0	0	1	61	0	120	77	197	39	78	1	118	315	376
17:30 17:45	19	0	36	55	1	1	0	2	57	0	80	64	144	31	74	1	106	250	307
17:45 18:00	18	2	28	48	0	1	0	1	49	0	77	31	108	20	87	0	107	215	264
Total:	1163	35	874	2072	16	38	18	72	2144	11	2555	1420	3986	1191	2356	22	3570	7556	9,700

Note: U-Turns are included in Totals.



Survey Dat	e: Wednesda	y, November 09	, 2022		WO No:		40684
Start Time	: 07:00				Device:	I	Viovision
	MOODIE DR	JAMES CUMM	Full Study	Cyclist V	Olume CARLING AVE		
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 07:15	0	0	0	0	1	1	1
07:15 07:30	0	1	1	1	2	3	4
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	0	0	0	1	1	2	2
08:00 08:15	0	4	4	1	5	6	10
08:15 08:30	0	0	0	0	3	3	3
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	2	2	0	2	2	4
09:00 09:15	0	0	0	0	1	1	1
09:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	2	2	2
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	1	0	1	0	0	0	1
12:30 12:45	0	0	0	1	0	1	1
12:45 13:00	2	0	2	1	0	1	3
13:00 13:15	4	0	4	0	1	1	5
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	4	1	5	0	2	2	7
15:15 15:30	0	0	0	1	0	1	1
15:30 15:45	0	0	0	0	1	1	1
15:45 16:00	0	0	0	1	0	1	1
16:00 16:15	2	0	2	5	0	5	7
16:15 16:30	1	0	1	1	3	4	5
16:30 16:45	0	0	0	0	1	1	1
16:45 17:00	1	0	1	3	0	3	4
17:00 17:15	0	0	0	1	0	1	1
17:15 17:30	0	0	0	1	0	1	1
17:30 17:45	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	2	2	2
Total	15	8	23	18	27	45	68



Survey Da	te: Wednesda	y, November 09, 2	022		WO No:		40684
Start Tim	e: 07:00				Device:		Miovision
		F	ull Study	y Pedestria			
	MOOD	IE DR/JAMES CU	-	y reuestital	CARLING AVE		
	WOOD	AVE W			CARLING AVE		
	NB Approach	SB Approach		EB Approach	WB Approach		
Time Period	(E or W Crossing)	(E or W Crossing)	Total		(N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	0	0	0	0	0
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	0	0	0	0	1	1	1
08:00 08:15	0	0	0	0	0	0	0
08:15 08:30	0	0	0	1	0	1	1
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	0	0	0
09:00 09:15	0	1	1	1	0	1	2
09:15 09:30	3	0	3	0	3	3	6
09:30 09:45	1	0	1	0	1	1	2
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	1	0	1	2	1	3	4
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	2	0	2	2
13:00 13:15	0	0	0	0	0	0	0
13:15 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	1	0	1	1	1	2	3
15:30 15:45	0	0	0	0	0	0	0
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	2	2	0	0	0	2
16:15 16:30	2	0	2	1	2	3	5
16:30 16:45	0	1	1	0	0	0	1
16:45 17:00	4	0	4	0	2	2	6
17:00 17:15	0	0	0	0	2	2	2
17:15 17:30	0	0	0	0	2	2	2
17:30 17:45	0	0	0	0	0	0	0
17:45 18:00	0	0	0	1	0	1	1
Total	12	4	16	9	15	24	40



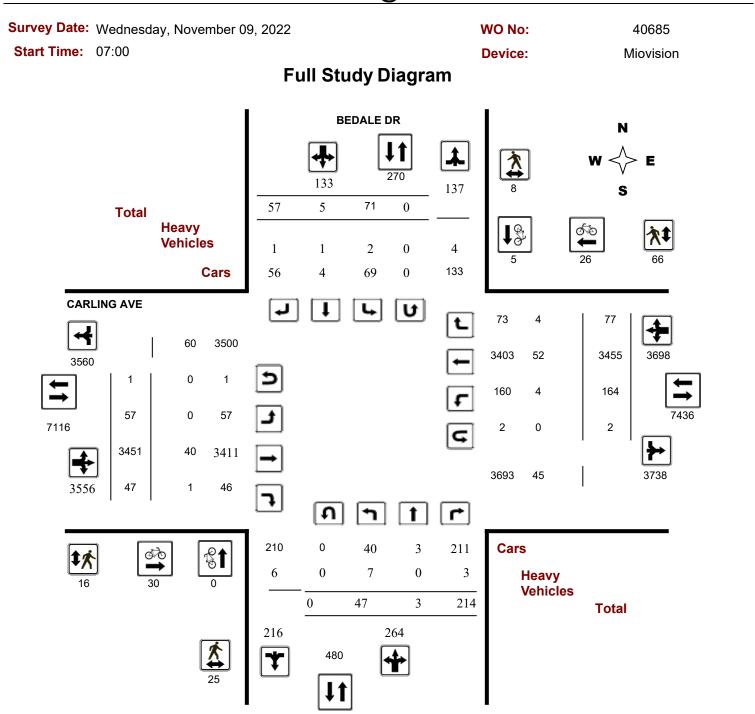
Survey Date	Survey Date: Wednesday, November 09, 2022 WO No: 40684																		
Start Time	: 07	7:00											Dev	ice:			Mio	ovisior	า
						E		Stud		21/1	Val	nicle							
					~ ~			Juu	упе	avy	vei								
	MO	ODIE	E DR/J			VIIVIIN	65					CAR	LING	AVE					
	No	orthboi				outhbou	Ind			F	astbour	hd		W	estbour	hd			
				Ν				S	STR				Е				w	STR	Grand
Time Period	LT	ST	RT	тот	LT	ST	RT	TOT	тот	LT	ST	RT	тот	LT	ST	RT	тот	тот	Total
07:00 07:15	4	0	0	4	0	0	0	1	5	1	1	0	7	0	1	0	2	9	7
07:15 07:30	4	0	1	5	0	0	0	1	6	0	1	0	5	0	0	1	3	8	7
07:30 07:45	4	0	2	7	0	0	0	0	7	0	1	0	6	1	1	0	5	11	9
07:45 08:00	3	0	1	4	0	0	0	0	4	0	1	0	4	0	0	0	2	6	5
08:00 08:15	7	0	2	10	0	0	1	1	11	0	1	0	12	1	3	0	7	19	15
08:15 08:30	4	0	1	5	0	0	0	0	5	0	2	0	7	0	1	0	4	11	8
08:30 08:45	2	0	0	2	0	0	0	0	2	0	3	0	8	0	3	0	6	14	8
08:45 09:00	7	0	1	10	0	0	0	0	10	0	2	0	11	2	2	0	7	18	14
09:00 09:15	4	0	2	9	0	1	0	1	10	0	3	0	9	2	2	0	9	18	14
09:15 09:30	6	0	2	9	0	0	0	0	9	0	0	0	7	1	1	0	4	11	10
09:30 09:45	2	0	1	3	0	0	0	0	3	0	0	0	6	0	4	0	5	11	7
09:45 10:00	5	1	2	11	0	0	0	1	12	0	0	2	7	1	0	0	3	10	11
11:30 11:45	1	0	0	5	0	0	0	0	5	0	3	3	9	1	2	0	6	15	10
11:45 12:00	2	0	1	4	0	0	1	1	5	0	0	1	6	0	2	0	3	9	7
12:00 12:15	3	0	0	6	0	0	0	0	6	0	0	2	7	1	2	0	3	10	8
12:15 12:30	1	0	1	4	0	0	0	0	4	0	0	1	2	1	0	0	2	4	4
12:30 12:45	1	0	0	2	0	0	0	0	2	0	1	1	5	0	2	0	3	8	5
12:45 13:00	2	0	1	3	0	0	0	0	3	0	1	0	3	0	0	0	2	5	4
13:00 13:15	4	0	1	9	0	0	0	0	9	0	0	2	8	2	2	0	5	13	11
13:15 13:30	1	0	2	5	0	0	0	0	5	0	1	0	4	2	2	0	7	11	8
15:00 15:15	0	0	1	3	0	0	1	1	4	0	2	0	4	2	1	0	6	10	7
15:15 15:30	2	0	1	8	0	0	0	0	8	0	2	2	9	3	3	0	9	18	13
15:30 15:45	0	0	2	2	0	0	0	0	2	0	0	0	5	0	5	0	7	12	7
15:45 16:00	1	0	2	6	0	0	0	0	6	0	1	3	7	0	2	0	5	12	9
16:00 16:15	1	0	0	4	0	0	0	0	4	0	0	3	6	0	2	0	2	8	6
16:15 16:30	1	0	1	9	0	0	0	0	9	0	0	3	5	4	1	0	6	11	10
16:30 16:45	4	0	0	7	0	0	0	0	7	0	0	2	9	1	3	0	4	13	10
16:45 17:00	1	0	1	6	0	0	0	0	6	0	1	0	3	4	1	0	7	10	8
17:00 17:15	2	0	1	6	0	0	0	0	6	0	0	1	6	2	3	0	6	12	9
17:15 17:30	1	0	0	3	0	0	0	0	3	0	1	2	4	0	0	0	1	5	4
17:30 17:45	1	0	1	2	0	0	0	0	2	0	0	0	2	0	1	0	2	4	3
17:45 18:00	0	0	0	1	0	0	0	0	1	0	0	1	2	0	1	0	1	3	2
Total: None	81	1	31	174	0	1	3	7	181	1	28	29	195	31	53	1	144	339	260

November 14, 2022

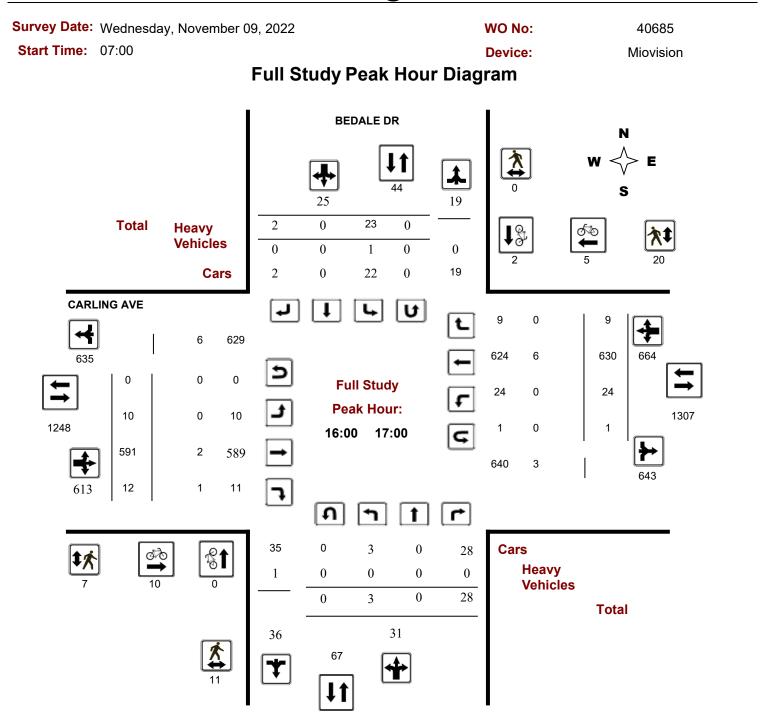


	07:00 Time Peri 07:00 07:15 07:30		Full Si ODIE DR/JAMES AVE W Northbound U-Turn Total		nute U-Turn	RLING AVE	Miovision
	07:00 07:15	od	ODIE DR/JAMES AVE W Northbound	CUMMINGS Southbound	CAF	RLING AVE	
	07:00 07:15	od	ODIE DR/JAMES AVE W Northbound	CUMMINGS Southbound	CAF	RLING AVE	
	07:00 07:15	od	AVE W Northbound	Southbound			
	07:15	07:15	• • • • • • • • •		U-Turn Total	Westbound U-Turn Total	Total
	07:15	07.15					
		01.10	0	0	0	0	0
	07:30	07:30	0	0	0	0	0
		07:45	0	0	0	0	0
	07:45	08:00	0	0	0	0	0
	00:80	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	09:00	0	0	0	0	0
	09:00	09:15	0	0	0	1	1
C	09:15	09:30	0	0	0	0	0
	09:30	09:45	0	0	0	0	0
)9:45	10:00	0	0	0	0	0
1	11:30	11:45	0	0	0	0	0
1	11:45	12:00	0	0	0	0	0
1	12:00	12:15	0	0	0	0	0
1	12:15	12:30	0	0	0	0	0
1	12:30	12:45	0	0	0	0	0
	12:45	13:00	0	0	0	0	0
1	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
		. 5.00		~	0	•	•



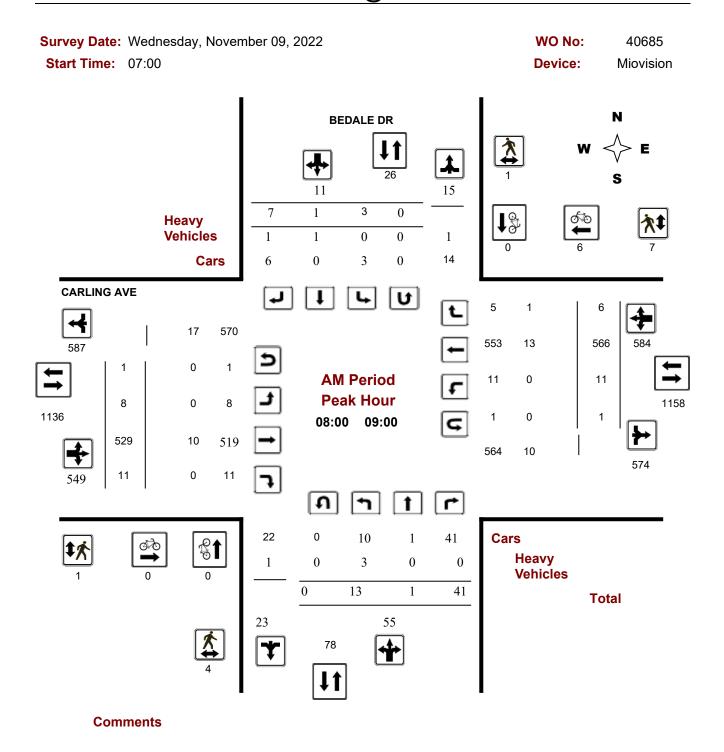






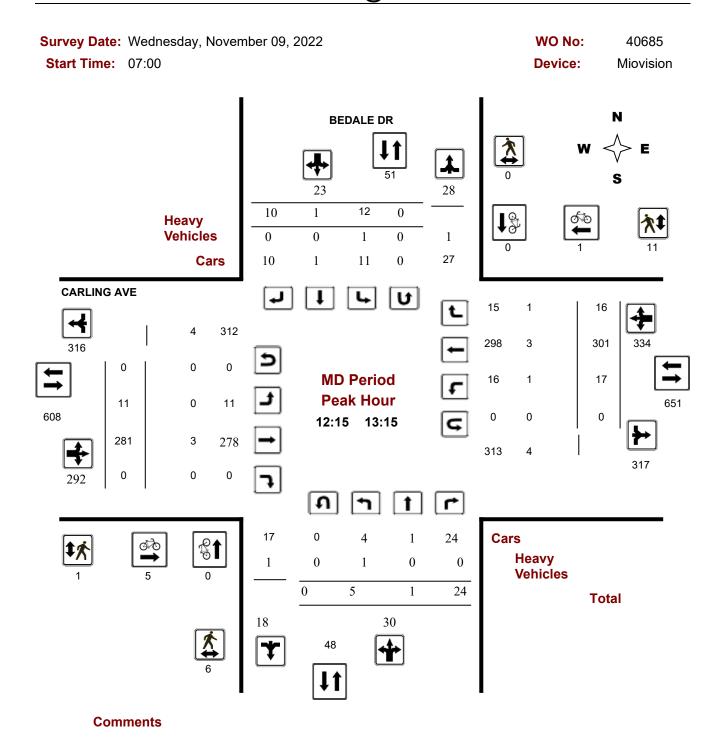


Turning Movement Count - Peak Hour Diagram CARLING AVE @ BEDALE DR



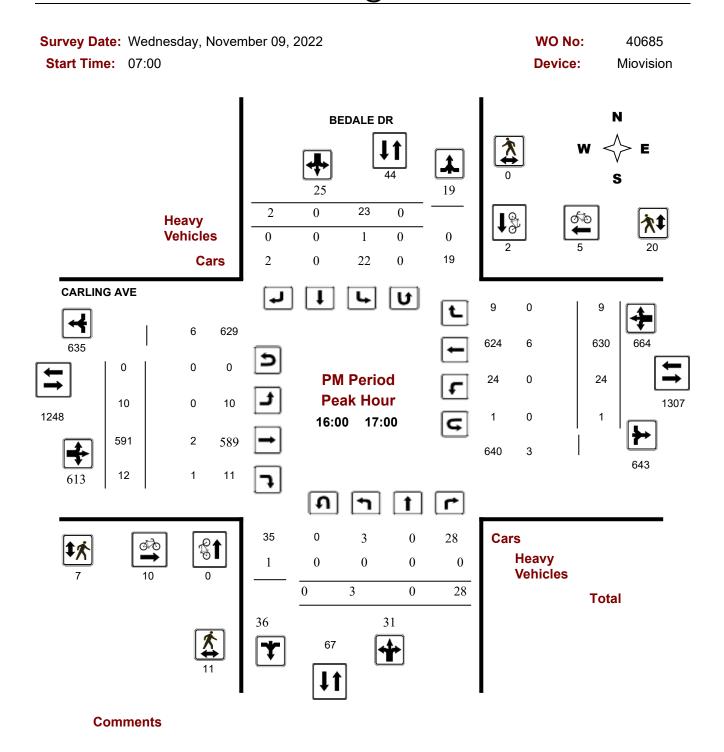


Turning Movement Count - Peak Hour Diagram CARLING AVE @ BEDALE DR





Turning Movement Count - Peak Hour Diagram CARLING AVE @ BEDALE DR





Survey Dat	e: W	ednes	sday,	Novem	ber 09	9, 2022	2					NO I	No:			40	685		
Start Time	: 07	2:00										Devi	ce:			Miov	/ision		
				F	ull S	Stud	γ Sι	umma	ry (8	HR	Sta	ndar	d)						
Survey Date	e: V	Vedne	sday,	Nover			-		otal O								AAD	T Facto	or
	2	022					Ν	lorthbound				nbound:	0						
							I	Eastbound	d: 1		West	bound:	2				.90		
			BE	DALE I	DR							CAR	LING	i AVE					
	Nor	thbour	nd		Sou	ıthbou	nd			E	astbou	Ind		V	/estboi	und			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Gran Tota
07:00 08:00	7	0	37	44	1	0	3	4	48	1	446	4	451	8	388	7	403	854	90
08:00 09:00	13	1	41	55	3	1	7	11	66	8	529	11	548	11	566	6	583	1131	119
09:00 10:00	5	0	22	27	6	0	3	9	36	1	299	1	301	13	367	7	387	688	72
11:30 12:30	4	1	22	27	10	1	7	18	45	13	298	4	315	17	258	7	282	597	64
12:30 13:30	4	0	23	27	10	1	11	22	49	8	279	1	288	15	305	21	341	629	67
15:00 16:00	6	1	23	30	9	1	16	26	56	7	500	8	515	38	491	16	545	1060	111
16:00 17:00	3	0	28	31	23	0	2	25	56	10	591	12	613	24	630	9	663	1276	133
17:00 18:00	5	0	18	23	9	1	8	18	41	9	509	6	524	38	450	4	492	1016	105
Sub Total	47	3	214	264	71	5	57	133	397	57	3451	47	3555	164	3455	77	3696	7251	764
U Turns				0				0	0				1				2	3	3
Total	47	3	214	264	71	5	57	133	397	57	3451	47	3556	164	3455	77	3698	7254	765
EQ 12Hr lote: These val	65 lues ar	4 e calcul	297 ated by	367 / multiply	99 ving the	7 totals b	79 y the a	185 ppropriate	552 expansi	79 on fact	4797 or.	65	4943	228 1.39	4802	107	5140	10083	1063
AVG 12Hr	58	4	267	330	89	8	93	166	497	71	4317	58	4449	205	4322	96	4626	9075	957
lote: These vol	lumes a	are calc		by multip		e Equiv								.90					
AVG 24Hr	76	5	350	432	117	10	122	217	651	93	5655	76	5828	269	5662	126	6060	11888	1253
								ly 12 hr. to						1.31					

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



Survey Dat	e: W	edne	sday,	Nove	mber	09, 20	022						wo	No:			4	0685	
Start Time	: 07	2:00											Devi	ce:			Mie	ovisior	n
						E	ull S	tud	v 1!	5 Mi	nute	Inc	rem	ente	s				
			BEL	ALE	DR	• •		- Cuu	,				RLING						
	NL	orthbo				outhbou	nd			-	astbour				estbour	d			
				N				S	STR	_			Е				w	STR	Grand
Time Period	LT	ST	RT	тот	LT	ST	RT	тот	тот	LT	ST	RT	тот	LT	ST	RT	тот	тот	Total
07:00 07:15	0	0	8	8	1	0	0	1	9	1	71	0	72	0	91	0	91	163	172
07:15 07:30	3	0	10	13	0	0	1	1	14	0	99	1	100	2	99	2	103	203	217
07:30 07:45	1	0	11	12	0	0	0	0	12	0	144	2	146	2	101	2	105	251	263
07:45 08:00	3	0	8	11	0	0	2	2	13	0	132	1	133	4	97	3	104	237	250
08:00 08:15	2	0	9	11	0	1	0	1	12	3	161	3	168	3	121	2	126	294	306
08:15 08:30	2	0	4	6	2	0	6	8	14	2	143	0	145	2	137	1	140	285	299
08:30 08:45	3	0	11	14	1	0	1	2	16	0	123	3	126	2	137	2	141	267	283
08:45 09:00	6	1	17	24	0	0	0	0	24	3	102	5	110	4	171	1	177	287	311
09:00 09:15	0	0	9	9	1	0	0	1	10	0	86	0	86	3	103	3	109	195	205
09:15 09:30	0	0	4	4	1	0	0	1	5	0	80	1	81	5	126	1	132	213	218
09:30 09:45	1	0	6	7	3	0	2	5	12	0	67	0	67	0	77	3	80	147	159
09:45 10:00	4	0	3	7	1	0	1	2	9	1	66	0	67	5	61	0	66	133	142
11:30 11:45	1	0	11	12	6	0	1	7	19	2	77	0	79	3	53	2	58	137	156
11:45 12:00	2	0	3	5	2	1	0	3	8	4	80	2	86	5	75	1	81	167	175
12:00 12:15	0	0	3	3	0	0	3	3	6	3	82	2	87	3	59	2	64	151	157
12:15 12:30	1	1	5	7	2	0	3	5	12	4	59	0	63	6	71	2	79	142	154
12:30 12:45	1	0	7	8	2	0	1	3	11	4	74	0	78	3	92	6	101	179	190
12:45 13:00	1	0	5	6	3	1	3	7	13	0	74	0	74	5	66	7	78	152	165
13:00 13:15	2	0	7	9	5	0	3	8	17	3	74	0	77	3	72	1	76	153	170
13:15 13:30	0	0	4	4	0	0	4	4	8	1	57	1	59	4	75	7	86	145	153
15:00 15:15	3	0	10	13	4	1	4	9	22	0	134	2	136	7	89	3	99	235	257
15:15 15:30	0	0	4	4	2	0	3	5	9	2	149	2	153	13	108	6	127	280	289
15:30 15:45	0	0	2	2	2	0	5	7	9	1	115	1	117	11	153	5	169	286	295
15:45 16:00	3	1	7	11	1	0	4	5	16	4	102	3	109	7	141	2	150	259	275
16:00 16:15	1	0	8	9	3	0	1	4	13	3	152	2	157	5	148	4	157	314	327
16:15 16:30	2	0	5	7	9	0	0	9	16	1	157	1	159	5	149	2	156	315	331
16:30 16:45	0	0	10	10	4	0	0	4	14	2	144	4	150	2	179	0	181	331	345
16:45 17:00	0	0	5	5	7	0	1	8	13	4	138	5	147	12	154	3	170	317	330
17:00 17:15	1	0	5	6	4	0	1	5	11	1	133	3	137	11	132	0	143	280	291
17:15 17:30	1	0	7	8	2	0	5	7	15	1	159	2	162	8	107	1	116	278	293
17:30 17:45	1	0	4	5	2	1	1	4	9	3	117	1	121	11	106	2	119	240	249
17:45 18:00	2	0	2	4	1	0	1	2	6	4	100	0	104	8	105	1	114	218	224
Total:	47	3	214	264	71	5	57	133	397	57	3451	47	3556	164	3455	77	3698	7254	7,651

Note: U-Turns are included in Totals.



Survey Dat	e: Wednesda	y, November 09	, 2022		WO No:		40685
Start Time	: 07:00				Device:	Ν	liovision
			Full Study	Cvclist V	olume		
		BEDALE DR	· · · · · · · · · · · · · · · · · · ·	J =	CARLING AVE		
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 07:15	0	0	0	0	1	1	1
07:15 07:30	0	0	0	0	1	1	1
07:30 07:45	0	0	0	0	0	0	0
07:45 08:00	0	0	0	1	2	3	3
08:00 08:15	0	0	0	0	3	3	3
08:15 08:30	0	0	0	0	1	1	1
08:30 08:45	0	0	0	0	0	0	0
08:45 09:00	0	0	0	0	2	2	2
09:00 09:15	0	0	0	2	1	3	3
09:15 09:30	0	0	0	2	0	2	2
09:30 09:45	0	0	0	0	0	0	0
09:45 10:00	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	1	1	1
12:00 12:15	0	0	0	0	0	0	0
12:15 12:30	0	0	0	0	0	0	0
12:30 12:45	0	0	0	0	0	0	0
12:45 13:00	0	0	0	3	0	3	3
13:00 13:15	0	0	0	2	1	3	3
13:15 13:30	0	0	0	1	1	2	2
15:00 15:15	0	0	0	2	2	4	4
15:15 15:30	0	0	0	1	0	1	1
15:30 15:45	0	0	0	1	1	2	2
15:45 16:00	0	0	0	0	0	0	0
16:00 16:15	0	0	0	1	0	1	1
16:15 16:30	0	1	1	4	1	5	6
16:30 16:45	0	0	0	2	3	5	5
16:45 17:00	0	1	1	3	1	4	5
17:00 17:15	0	2	2	2	2	4	6
17:15 17:30	0	1	1	0	0	0	1
17:30 17:45	0	0	0	2	0	2	2
17:45 18:00	0	0	0	1	2	3	3
Total	0	5	5	30	26	56	61



Survey Dat	te: Wednesda	y, November 09, 2	022		WO No:		40685
Start Time	e: 07:00				Device:		Miovision
		F	ull Stud	ly Pedestria	n Volume		
		BEDALE DR			CARLING AVE		
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	0	1	1	1
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	0	1	1	0	1	1	2
07:45 08:00	0	1	1	0	2	2	3
08:00 08:15	1	0	1	0	3	3	4
08:15 08:30	3	0	3	0	2	2	5
8:30 08:45	0	0	0	0	2	2	2
8:45 09:00	0	1	1	1	0	1	2
09:00 09:15	0	0	0	0	2	2	2
9:15 09:30	0	0	0	0	0	0	0
09:30 09:45	0	1	1	0	0	0	1
9:45 10:00	1	1	2	1	1	2	4
1:30 11:45	0	0	0	0	0	0	0
11:45 12:00	0	0	0	0	0	0	0
12:00 12:15	0	1	1	0	5	5	6
2:15 12:30	3	0	3	0	7	7	10
2:30 12:45	2	0	2	0	3	3	5
12:45 13:00	1	0	1	1	0	1	2
13:00 13:15	0	0	0	0	1	1	1
13:15 13:30	0	0	0	1	2	3	3
5:00 15:15	0	0	0	0	3	3	3
5:15 15:30	0	0	0	0	0	0	0
5:30 15:45	2	0	2	3	0	3	5
5:45 16:00	0	0	0	0	3	3	3
6:00 16:15	0	0	0	0	0	0	0
6:15 16:30	3	0	3	4	7	11	14
6:30 16:45	1	0	1	3	4	7	8
6:45 17:00	7	0	7	0	9	9	16
7:00 17:15	1	0	1	0	5	5	6
7:15 17:30	0	1	1	1	3	4	5
7:30 17:45	0	1	1	0	0	0	1
7:45 18:00	0	0	0	1	0	1	1
Total	25	8	33	16	66	82	115



Survey Date	e: W	ednes	sday,	Nove	mber	09, 20	022						wo	No:			4	0685	
Start Time	: 07	2:00											Devi	ice:			Mio	ovisior	า
						F	ull S	Stud	v He	avv	Veł	nicle	es						
			BEC	ALE	DR	-			,	J				AVE					
	No	orthbou				uthbou	ind			F	astbour				estbour	nd			
Time Deried				Ν				S	STR				Е				w	STR	Grand
Time Period	LT	ST	RT	тот	LT	ST	RT	тот	тот	LT	ST	RT	тот	LT	ST	RT	тот	тот	Total
07:00 07:15	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	2	4	2
07:15 07:30	1	0	1	2	0	0	0	0	2	0	1	0	2	0	0	0	2	4	3
07:30 07:45	0	0	0	0	0	0	0	0	0	0	2	0	3	0	1	0	3	6	3
07:45 08:00	0	0	0	0	0	0	0	1	1	0	1	0	2	0	1	1	3	5	3
08:00 08:15	1	0	0	2	0	1	0	2	4	0	3	0	6	0	2	1	6	12	8
08:15 08:30	0	0	0	0	0	0	1	1	1	0	3	0	8	0	4	0	7	15	8
08:30 08:45	0	0	0	0	0	0	0	0	0	0	2	0	5	0	3	0	5	10	5
08:45 09:00	2	0	0	2	0	0	0	0	2	0	2	0	8	0	4	0	6	14	8
09:00 09:15	0	0	0	1	0	0	0	0	1	0	4	0	5	1	1	0	6	11	6
09:15 09:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1
09:30 09:45	0	0	0	0	0	0	0	0	0	0	1	0	4	0	3	0	4	8	4
09:45 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 11:45	0	0	0	0	0	0	0	0	0	0	3	0	4	0	1	0	4	8	4
11:45 12:00	0	0	1	2	0	0	0	0	2	0	0	0	3	1	3	0	5	8	5
12:00 12:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	4	2
12:15 12:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1
12:30 12:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1
12:45 13:00	0	0	0	1	0	0	0	0	1	0	2	0	2	1	0	0	3	5	3
13:00 13:15	1	0	0	1	1	0	0	2	3	0	1	0	3	0	1	1	4	7	5
13:15 13:30	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	4	8	4
15:00 15:15	2	0	1	3	0	0	0	0	3	0	2	0	6	0	2	0	5	11	7
15:15 15:30	0	0	0	1	0	0	0	1	2	0	4	0	8	1	4	1	10	18	10
15:30 15:45	0	0	0	0	0	0	0	0	0	0	3	0	7	0	4	0	7	14	7
15:45 16:00	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	2	4	2
16:00 16:15	0	0	0	1	0	0	0	0	1	0	1	1	3	0	1	0	2	5	3
16:15 16:30	0	0	0	0	1	0	0	1	1	0	1	0	2	0	1	0	3	5	3
16:30 16:45	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	6	3
16:45 17:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	1
17:00 17:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	4	2
17:15 17:30	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	2	1
17:30 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total: None	7	0	3	16	2	1	1	8	24	0	40	1	101	4	52	4	105	206	115



ne: 07:00		mber 09, 2022		De		Mieviele	
ile. 07.00					vice:	Miovisio	
			tudy 15 Mir				
		BEDALE	DR	CA			
Time	Period	Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total	
07:00	07:15	0	0	0	0	0	
07:15	07:30	0	0	0	0	0	
07:30	07:45	0	0	0	0	0	
07:45	08:00	0	0	0	0	0	
08:00	08:15	0	0	1	0	1	
08:15	08:30	0	0	0	0	0	
08:30	08:45	0	0	0	0	0	
08:45	09:00	0	0	0	1	1	
09:00	09:15	0	0	0	0	0	
09:15	09:30	0	0	0	0	0	
09:30	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	1	1	
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	
Т	otal	0	0	1	2	3	

Traffic Signal Timing

City of Ottawa, Public Works Department

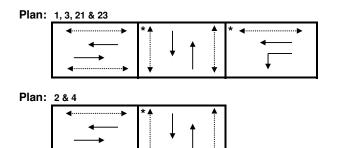
Traffic Signal Operations Unit

Intersection:	Main: Carling	Side: Moodie
Controller:	3200 A	TSD: 5646
Author:	Matthew Anderson	Date: 10-Nov-22

Existing Timing Plans⁺

	Plan				Ped Minimum Time					
	AM Peak	Off Peak	PM Peak	Night	AM Rush	AM Heavy	Walk	DW	A+R	
	1	2	3	4	21	23				
Cycle	100	90	100	70	120	130				
Offset	100	Х	100	Х	0	0				
EB Thru	37	45	40	35	40	40	7	16	3.7+1.9	
WB Thru	52	45	65	35	55	55	7	16	3.7+1.9	
NB Thru	48	45	35	35	65	75	7	18	3.7+2.3	
SB Thru	48	45	35	35	65	75	7	18	3.7+2.3	
WB Left	15	-	25	-	15	15	-	-	3.7+1.9	

Phasing Sequence[‡]



Schedule

Weekday			Weeker	d
Time	Plan		Time	Plan
0:15	4	-	0:15	4
6:30	1	-		
7:30	21	_		
7:50	23	-		
9:20	1	_		
9:30	2	-		
15:00	3	_		
19:00	2	_		
21:30	4			

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

Pedestrian signal

Cost is \$64.16 (\$54.12 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

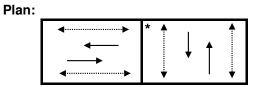
Traffic Signal Operations Unit

Intersection:	Main:	Carling	Side:	Bedale	
Controller:	ATC 3		TSD:	6070	
Author:	Matthew	Anderson	Date:	10-Nov-2022	

Existing Timing Plans[†]

	Plan					Ped Minimum Time				
	AM Peak	Off Peak	PM Peak	Evening	Weekend	Nite	Walk	DW	A+R	
	1	2	3	4	5	9				
Cycle	75	60	75	60	60	Free				
Offset	7	6	7	6	6	-				
EB Thru	43	28	43	28	28	max=55.6	7	13	3.7+1.9	
WB Thru	43	28	43	28	28	max=55.6	7	13	3.7+1.9	
NB Thru	32	32	32	32	32	max=41.1	9	16	3.3+2.8	
SB Thru	32	32	32	32	32	max=41.1	9	16	3.3+2.8	

Phasing Sequence[‡]



Schedule

Weekday		Weeken	d
Time	Plan	Time	Plan
0:15	9	0:15	9
6:30	1	8:00	2
9:30	2	9:00	5
15:00	3	17:00	2
18:00	2	22:00	4
22:00	4	22:30	9
22:30	9		

Notes

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

 $\ddagger:$ Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄····· Pedestrian signal

Cost is \$61.16 (\$54.12 + HST)

APPENDIX B: COLLISION DATA





Traffic Control: Tra	ffic signal						Total Collisions:	5	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Feb-16, Thu,08:54	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-02, Tue,12:45	Clear	Angle	Non-fatal injury	Packed snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Snow plow	Other motor vehicle	
2019-Aug-14, Wed,16:14	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Cyclist	
2019-Dec-02, Mon,00:10	Clear	SMV other	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Pole (utility, power)	0
2019-Dec-09, Mon,19:00	Rain	SMV other	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Pedestrian	1
Location: CARLIN	NG AVE @ M	OODIE DR/JAMES	CUMMINGS AVE	W					
Traffic Control: Tra	ffic signal						Total Collisions:	29	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jan-20, Wed,13:21	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Apr-19, Tue,17:35	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Nov-24, Thu,20:03	Clear	SMV other	P.D. only	Slush	East	Going ahead	Automobile, station wagon	Animal - wild	0
2017-Jan-13, Fri,17:03	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-17, Fri,16:43	Clear	Angle	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-22, Wed,05:15	Clear	SMV other	P.D. only	Wet	West	Turning left	Pick-up truck	Animal - wild	0
0047 M 00 T 40 47	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
2017-May-02, Tue,12:47	Clear	running movement	Non latar injury	2.9		. .	,		-



Traffic Control: Tra	ffic signal						Total Collisions:	29	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2017-Aug-24, Thu,20:30	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0
2017-Sep-09, Sat,14:15	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-24, Fri,16:57	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-27, Mon,09:02	Clear	Rear end	P.D. only	Dry	North	Going ahead	Construction equipment	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-12, Tue,09:15	Snow	Rear end	P.D. only	Slush	West	Going ahead	Passenger van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Feb-14, Wed, 18:01	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-31, Thu,09:00	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-30, Sun,01:05	Clear	SMV other	P.D. only	Wet	North	Turning right	Automobile, station wagon	Pole (utility, power)	0
2018-Nov-23, Fri,12:08	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2019-Jan-18, Fri,07:23	Snow	Turning movement	Non-fatal injury	Loose snow	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Feb-08, Fri,11:38	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-21, Tue,08:34	Clear	Sideswipe	Non-fatal injury	Dry	West	Pulling away from shoulder or curb	Bicycle	Other motor vehicle	0
					West	Overtaking	Automobile, station wagon	Cyclist	



Traffic Control: Tra	ffic signal						Total Collisions:	29	
ate/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2019-Jul-15, Mon,20:52	Clear	Turning movement	Fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Motorcycle	Other motor vehicle	
2019-Jul-19, Fri,18:19	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-24, Sat,13:35	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-18, Fri,12:00	Clear	SMV other	P.D. only	Dry	North	Turning right	Automobile, station wagon	Ran off road	0
2020-Jan-27, Mon,17:57	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Jan-28, Tue,06:35	Clear	Rear end	P.D. only	lce	South	Turning left	Pick-up truck	Other motor vehicle	0
					South	Turning left	Passenger van	Other motor vehicle	
2020-Feb-20, Thu,23:07	Clear	Other	P.D. only	Dry	South	Reversing	Snow plow	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2020-Jul-02, Thu,23:30	Clear	Rear end	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Jul-28, Tue,12:41	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Sep-30, Wed,15:49	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
ocation: CARLIN	NG AVE @ RO	OCKY POINT RD							
Traffic Control: Sto	p sign						Total Collisions:	1	
ate/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped



	•	OCKY POINT RD							
Traffic Control: Stop	p sign						Total Collisions:	1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2017-Jan-05, Thu,07:56	Snow	Angle	P.D. only	Slush	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Snow plow	Other motor vehicle	
Location: CARLIN	NG AVE btwn	BEDALE DR & HA	RBOUR LANDING	G PRIV					
Traffic Control: No	control						Total Collisions:	1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2019-Aug-15, Thu,09:08	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
Location: CARLIN	NG AVE btwn	CRYSTAL BEACH	DR & SUNNY BF	RAE AVE					
Traffic Control: No	control						Total Collisions:	1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2019-Jan-21, Mon,12:13	Drifting Snow	Turning movement	P.D. only	Packed snow	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
Location: CARLIN	NG AVE btwn	JAMES CUMMING	S AVE & MOODI	E DR					
Traffic Control: No	control						Total Collisions:	5	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2016-Jul-30, Sat,05:29	Clear	SMV other	P.D. only	Dry	West	Going ahead	Pick-up truck	Ran off road	0
2016-Aug-15, Mon,16:55	Clear	Other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Debris falling off vehicle	0
					East	Going ahead	Car and trailer	Other	
2016-Sep-26, Mon,08:44	Clear	Sideswipe	Non-fatal injury	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-28, Tue,16:05	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0
2017-Dec-05, Tue, 17:24	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0



Location: CARLI	NG AVE btwn	JAMES CUMMII	NGS AVE & ULLSW	ATER DR					
Traffic Control: No	control						Total Collisions:	: 1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2020-May-05, Tue,00:30	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	0
Location: CARLI	NG AVE btwn	MOODIE DR &	TURN LANE						
Traffic Control: No	control						Total Collisions:	: 1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2020-Aug-31, Mon,06:23	Clear	SMV other	P.D. only	Dry	West	Going ahead	Pick-up truck	Animal - wild	0
Location: CARLI	NG AVE btwn	SUNNY BRAE A	VE & ULLSWATER	DR					
Traffic Control: No	control						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-Feb-16, Tue,07:38	Snow	Rear end	P.D. only	Slush	West	Slowing or stoppin	g Pick-up truck	Other motor vehicle	0
					West	Turning left	Pick-up truck	Other motor vehicle	
2016-May-12, Thu,10:30	Clear	Angle	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Sep-12, Mon,07:40	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stoppin	g Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stoppin	g Truck - tractor	Other motor vehicle	
2017-Jun-14, Wed,13:35	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
Location: ULLSV	VATER DR @	CARLING AVE							
Traffic Control: Sto	op sign						Total Collisions:	: 1	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2016-Oct-07, Fri,14:50	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Delivery van	Other motor vehicle	

APPENDIX C: MULTI-MODAL LEVEL OF SERVICE



Multi-Modal Level of Service - Segments Form

Consultant Scenario Comments	BA Group 2022 Existing Conditions		Project Date	3430 Carling 01-Dec-22	
SEGMENTS		LOS	Carling Avenue Across Frontage	Section 2	Sectio 3
Pedestrian	Sidewalk Width Boulevard Width Avg Daily Curb Lane Traffic Volume Operating Speed On-Street Parking Exposure to Traffic PLoS Level of Service	F	1.8 m < 0.5 m > 3000 > 50 to 60 km/h no F	-	-
Bicycle	Type of Cycling Facility Number of Travel Lanes Operating Speed # of Lanes & Operating Speed LoS Bike Lane (+ Parking Lane) Width Bike Lane Blockages Bike Lane Blockages Blockage LoS Level of Service	F	Mixed Traffic 4-5 lanes total ≥ 60 km/h F ≥ 1.2 to <1.5 m C Rare A F		- -
Transit	Facility Type Friction or Ratio Transit:Posted Speed Level of Service	D	Mixed Traffic Vt/Vp ≥ 0.8 D	-	-
Truck	Truck Lane Width Travel Lanes per Direction Level of Service	D	≤ 3.2 m > 1 D	-	-
Auto	Level of Service		Not Applica	ble	

____ on

Multi-Modal Level of Service - Intersections Form

Consultant Scenario Comments BA Group 2022 Existing Conditions

Project Date 3430 Carling Avenue 01-Dec-22

						l			
	INTERSECTIONS		Carling	& Moodie			Carling	& Bedale	
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Lanes	0 - 2	4	6	6	0 - 2	0 - 2	5	6
	Median	No Median - 2.4 m	No Median - 2.4 m Protected/	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	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
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No
ian	Right Turn Channel	No Channel	Conventional with Receiving Lane	No Channel	Conventional with Receiving Lane	No Channel	No Channel	No Channel	No Channel
sti	Corner Radius	10-15m	>25m	10-15m	>25m	5-10m	10-15m	5-10m	5-10m
Pedestrian	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
	PETSI Score	85	51	20	18	86	85	38	21
	Ped. Exposure to Traffic LoS	В	D	F	F	В	В	E	F
	Cycle Length	130	130	130	130	75	75	75	75
	Effective Walk Time	18	18	12	12	24	24	10	10
	Average Pedestrian Delay	48	48	54	54	17	17	28	28
	Pedestrian Delay LoS	E	E	E	E	В	B	C	С
	Level of Service	E	E	F	F	В	В	E	F
				F				F	
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank></blank>		> 50 m		> 50 m				≤ 50 m
	Dedicated Right Turning Speed	≤ 25 km/h	≤ 25 km/h	Not Applicable	≤ 25 km/h				≤ 25 km/h
<u>0</u>	Cyclist Through Movement		F	Not Applicable	F			Not Applicable	D
;, Xc	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Separated	Mixed Traffic	Mixed Traffic	Mixed Traffic	Separated	Mixed Traffic
Bicycle	Left Turn Approach	No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	С	С	F	F	В	В	F	F
		С	F	F	F	В	В	F	F
	Level of Service			F				F	
÷	Average Signal Delay		> 40 sec	≤ 10 sec	≤ 20 sec			≤ 10 sec	≤ 10 sec
IS		-	F	В	С	-	-	В	В
Transit	Level of Service			F			I	В	
	Effective Corner Radius		> 15 m		> 15 m				
uck	Number of Receiving Lanes on Departure from Intersection		≥2		≥2				
Truc		-	Α	-	Α	-	-	•	-
	Level of Service			Α				-	
0	Volume to Capacity Ratio		0.0	0 - 0.60			0.0 -	0.60	
Auto	Level of Service			Α				Α	

APPENDIX D: TRANSPORTATION DEMAND MANAGEMENT CHECKLISTS



TDM-Supportive Development Design and Infrastructure Checklist:

Residential Developments (multi-family or condominium)

	Legend
REQUIRED	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
BETTER	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	$\mathbf{\nabla}$
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)	□ N/A
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 <i>(see Official</i> <i>Plan policy 4.3.12)</i>	

	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)	\checkmark
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)	√Z
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 on- road 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	$\mathbf{\nabla}$
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 FACILI	TIES
	2.1	Bicycle parking	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible <i>(see Official Plan policy 4.3.6)</i>	\checkmark
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)	\checkmark
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 <i>(see Zoning By-law Section 111)</i>	\checkmark
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)	\checkmark
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family 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)	\checkmark
	3.	TRANSIT	
	3.1	Customer amenities	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	
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	
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	

	TDM-s	upportive 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 <i>(see Zoning By-law Section 94)</i>	
	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 <i>(see Zoning By-law</i> <i>Section 104)</i>	
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 <i>(see Zoning By-law Section 111)</i>	
	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:

Residential Developments (multi-family, condominium or subdivision)

Legend

C The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER 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)	
	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)	
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 <i>(subdivision)</i>	
	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 <i>(multi-family)</i>	
	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)	\bigtriangledown
BASIC ★	5.1.2	Unbundle parking cost from monthly rent (multi-family)	

	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	
	6.2	Personalized trip planning	
BETTER ★	6.2.1	Offer personalized trip planning to new residents	

APPENDIX E: INTERSECTION PERFORMANCE WORKSHEETS



Queues 1: Moodie Drive & Carling Avenue

۶ $\mathbf{\hat{z}}$. ۰. • ŧ 1 1 T 1 4 Lane Group EBT EBR NBT SBR Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl) **41** 400 **†î**→ **↔** 10 10 150 150 225 5 5 185 5 5 QF 400 185 405 5 225 1800 1800 0.0 0.0 0 0 1800 0.0 1800 1800 1800 125.0 75.0 1800 1800 1800 0.0 1800 0.0 1800 1800 0.0 Storage Length (m) Storage Lanes 1 0 Taper Length (m) Lane Util. Factor 0.95 0.95 1.00 1.00 0.95 0.95 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor 1.00 1.00 0.99 1.00 0.966 0.988 1537 0.933 0.850 0.998 0.850 Fit Protected Satd. Flow (prot) Fit Permitted Satd. Flow (perm) 0.999 3388 0.951 0.950 1712 0.450 0.953 1547 3383 (1608 0.716 0 3225 1547 811 3383 1469 (0 0 1207 0 1451 Right Turn on Red Satd. Flow (RTOR) Yes 156 Yes Yes 99 Yes 5 1 Satd. How (RTOR) Link Speed (k/h) Link Distance (m) Travel Time (s) Confl. Peds. (#/hr) Confl. Bikes (#/hr) 60 80 253.2 15.2 674.7 40.5 209.4 9.4 72.7 5.2 Peak Hour Factor Peak Hour Factor Heavy Vehicles (%) Adj. Flow (vph) Shared Lane Traffic (%) Lane Group Flow (vph) Turn Type Protected Phases Pormitted Phases 0% 2% 417 0% 156 1% 193 2% 422 0% 8% 234 0% 5 4% 99 0% 0% 10 50% 0 Perm 422 156 193 NA Perm pm+pt 193 427 NA 0 Perm 239 NA 99 Perm 0 20 NA (Perm 2 Permitted Phases Detector Phase 2 2 6 8 Δ Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s)
 10.0
 10.0
 10.0
 5.0
 10.0

 28.6
 28.6
 28.6
 10.6
 28.6

 44.0
 44.0
 25.0
 69.0

 33.8%
 33.8%
 19.2%
 53.1%

 3.7
 3.7
 3.7
 3.7
 3.7

 10.0
 10.0
 10.0
 10.0
 10.0

 31.0
 31.0
 31.0
 31.0
 31.0
 31.0

 61.0
 61.0
 61.0
 61.0
 61.0
 61.0

 46.9%
 46.9%
 46.9%
 46.9%
 46.9%
 3.7
 3.7
 3.7
 33.8% Total Split (%) 46.9% Yellow Time (s) All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s) 1.9 1.9 1.9 1.9 2.3 2.3 2.3 2.3 19 -1.6 -1.6 -1.6 -2.0 -2.0 4.0 -2.0 -1.6 4.0 4.0 4.0 Lead/Lag Lead-Lag Optimize Recall Mode Act Effct Green (s) 4.0 4.0 4.0 4.0 4.0 Lag Lag Lag Lead Yes Yes Yes Yes C-Min C-Min C-Min None C-Min 71.1 71.1 88.0 88.0 None 34.0 None None None 34.0 34.0 Actuated g/C Ratio v/c Ratio 0.55 0.24 0.55 0.17 0.68 0.68 0.30 0.19 0.26 0.76 0.26 0.26 0.05 Control Delay Queue Delay Total Delay LOS 17.9 0.0 3.7 0.0 10.4 0.0 58.4 0.0 6.7 0.0 25.7 0.0 9.0 0.0 58.4 6.7 3.7 10.4 9.0 17.9 25.7 A А

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022 CS

Synchro 11 Report Page 1

12-01-2022

	≯		\mathbf{N}	1	-		1	1	r	1	Ŧ	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Approach Delay		14.1			9.5			43.3			25.7	
Approach LOS		В			A			D			С	
Queue Length 50th (m)		28.3	0.0	16.6	19.5			56.5	0.0		2.9	
Queue Length 95th (m)		50.2	12.7	34.0	34.3			77.0	11.8		8.2	
Internal Link Dist (m)		229.2			650.7			185.4			48.7	
Turn Bay Length (m)			125.0	75.0								
Base Capacity (vph)		1763	916	694	2289			529	699		639	
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		0.24	0.17	0.28	0.19			0.45	0.14		0.03	
Intersection Summary												
	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 0 (0%), Referenced t	o phase 2:	EBTL and	d 6:WBTL	, Start of	Green							
Natural Cycle: 75												
Control Type: Actuated-Coo	rdinated											
Maximum v/c Ratio: 0.76												
Intersection Signal Delay: 18					tersection							
Intersection Capacity Utilizal	tion 53.9%			IC	CU Level o	of Service	A					
Analysis Period (min) 15												

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022

HCM Unsignalized Intersection Capacity Analysis

2: Site West & Carling Avenue

Moveme

Queues

Synchro 11 Report Page 2

12-01-2022

HCM Signalized Intersection Capacity Analysis 12-01-2022 1: Moodie Drive & Carling Avenue ۶ + ٩. t Ť. 1 • ۴ 1 EB1 Movement NBT SBE SBT Lane Configurations Traffic Volume (vph) 4 → 10 5 10 5 1800 1800 185 185 22! 22! 400 150 405 Future Volume (vph) Ideal Flow (vphpl) 5 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 Total Lost time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes Frt 0.95 1.00 1.00 0.95 1.00 1.00 1.00 1.00 0.97 1.00 1.00 1.00 1.00 1.00 0.85 1.00 1.00 Fit Protected Satd. Flow (prot) 1.00 1.00 1547 0.95 1712 1.00 0.95 0.99 3389 3384 607 46 1535 Flt Permitted 0.95 1.00 0.45 1.00 0.72 1.00 0.93 3224 0.96 417 Satd. Flow (perm) 1547 810 1451 3384 207 146/ Peak-hour factor, PHF Adj. Flow (vph) RTOR Reduction (vph) Lane Group Flow (vph) 0.96 0.96 0.96 156 0.96 0.96 0.96 0.96 0.96 71 85 0 239 73 4 16 0 0 193 0 427 0 422 26 Confl. Peds. (#/hr) Confl. Bikes (#/hr) Heavy Vehicles (%) Turn Type Protected Phases 0% 2% NA 0% 4% 0% NA 50% Perm Perm pm+pf 2 6 8 4 Permitted Phases 2 8 4 Permitted Phases Actuated Green, G (s) Effective Green, g (s) Actuated g/C Ratio Clearance Time (s) Vehicle Extension (s) Lane Grn Can (vrh) 69.5 69.5 86.4 86.4 71 1 71.1 88.0 88.0 32.0 34.0 32.0 34.0 32.0
 69.5
 69.5
 86.4

 71.1
 71.1
 88.0

 0.55
 0.55
 0.68

 5.6
 5.6
 5.6

 3.0
 3.0
 3.0

 1763
 846
 637
 34.0 0.26 0.26 6.0 0.68 0.26 3.0 383 3.0 379 Lane Grp Cap (vph) v/s Ratio Prot c0.03 0.13 0.13 0.06 c0.17 0.24 0.10 0.30 0.19 15.4 14.1 8.0 7.8 1.00 1.00 1.00 1.00 /s Ratio Perm c0.20 0.76 0.07 44.2 36.1 1.00 1.00 0.01 0.04 35.8 1.00 v/c Ratio Uniform Delay, d1 Progression Factor Incremental Delay, d2 0.1 14.4 Delay (s) 15.7 8.3 7.9 54.3 36.2 35.9 Level of Service В A D Approach Delay (s) Approach LOS 15.3 8.0 49.0 35.9 Intersection Summary HCM 2000 Level of Service HCM 2000 Control Delay HCM 2000 Volume to Capacity ratio 20.0 0.44 В Actuated Cycle Length (s) Intersection Capacity Utilization Analysis Period (min) c Critical Lane Group Sum of lost time (s) ICU Level of Service 130.0 53.9% 15

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022 CS

Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h) 405 405 T ⊮ 530 530 Sign Control Free Free Grade 0% 0% Grade Peak Hour Factor Hourly flow rate (vph) Pedestrians Lane Width (m) Walking Speed (m/s) Porcent Blockage 0% 0.95 0.95 0.95 0.95 426 0.95 0.95 Percent Blockage Right turn flare (veh) Median type Median storage veh) None None Upstream signal (m) pX, platoon unblocked 558 279 vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 558 771 279 6.8 6.9 tC, single (s) tC, 2 stage (s) 4.1 3.5 3.3 100 100 337 718 tF (s) p0 queue free % cM capacity (veh/h) 2.2 100 Direction, Lane # WB 1 EB 1 NB 1 EB 2 WB 2 Volume Total Volume Left Volume Right 372 0 140 0 0
 1700
 1009
 1700

 0.11
 0.00
 0.17
 1700 0.22 1700 cSH cSH Volume to Capacity Queue Length 95th (m) 0.0 0.0 0.0 0.0 0.0 Control Delay (s) Lane LOS Approach Delay (s) Approach LOS 0.0 0.0 0.0 A Intersection Summary Average Delay Intersection Capacity Utilization Analysis Period (min) Average Del 18.8% ICU Level of Service Α

-

1 1

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022

HCM Unsignalized Intersection Capacity Analysis 3: Site East & Carling Avenue

	-	\rightarrow	1	-	•	1
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	≜t ≽			-۠	Y	
Traffic Volume (veh/h)	530	0	0	405	0	0
Future Volume (Veh/h)	530	0	0	405	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25
Hourly flow rate (vph)	2120	0	0	1620	0	0
Pedestrians	2120		Ŭ	1020	Ū	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median type Median storage veh)	ivone			NUNE		
Upstream signal (m)						
pX, platoon unblocked			0400		0000	4000
vC, conflicting volume			2120		2930	1060
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2120		2930	1060
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			261		12	224
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1413	707	540	1080	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	261	1700	1700	
Volume to Capacity	0.83	0.42	0.00	0.64	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	0.0	0.0	0.0	0.0	0.0 A	
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	0.0		0.0		0.0 A	
	_				~	_
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utiliza	ation		18.8%	IC	CU Level	of Service
Analysis Period (min)			15			

4. Deciale Drive &	oannig	/										
	۶		$\mathbf{\hat{z}}$	4	-	×	•	Ť	1	1	Ŧ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	ሻ	^	1	ሻ	≜ †}⊳			\$			\$	
Traffic Volume (vph)	10	530	15	15	570	10	15	5	45	5	5	1
Future Volume (vph)	10	530	15	15	570	10	15	5	45	5	5	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		0.
Storage Lanes	1		1	1		0	0		0	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Ped Bike Factor	1.00		0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.998			0.907			0.932	
Fit Protected	0.950			0.950				0.988			0.988	
Satd. Flow (prot)	1729	3424	1547	1729	3375	0	0	1527	0	0	1259	
Flt Permitted	0.420			0.446		-	-	0.933	-	-	0.932	
Satd. Flow (perm)	764	3424	1505	809	3375	0	0	1442	0	0	1186	
Right Turn on Red		0.24	Yes	000	00.0	Yes	5	2	Yes	0		Ye
Satd. Flow (RTOR)			45		3	.03		47	100		10	10
Link Speed (k/h)		60	40		60			40			40	
Link Distance (m)		456.6			117.8			75.2			83.5	
Travel Time (s)		27.4			7.1			6.8			7.5	
Confl. Peds. (#/hr)	1	21.4	4	4	7.1	1	1	0.0	7	7	1.5	
Confl. Bikes (#/hr)			4	4					1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9
Heavy Vehicles (%)	0.30	1%	0.30	0.30	2%	16%	23%	0.50	0.30	0.50	100%	14
Adj. Flow (vph)	10	552	16	16	594	10%	23%	5	47	5	100 %	14
Shared Lane Traffic (%)	10	002	10	10	094	10	10	5	47	5	5	
Lane Group Flow (vph)	10	552	16	16	604	0	0	68	0	0	20	
Turn Type	Perm	NA NA	Perm	Perm	NA	U	Perm	NA	U	Perm	NA	
Protected Phases	Perm	NA 2	Perm	Perm	NA 6		Perm	NA 8		Perm	NA 4	
		2			0		0	0			4	
Permitted Phases	2		2	6	0		8	0		4		
Detector Phase	2	2	2	6	6		8	8		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	
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	
Total Split (s)	43.0	43.0	43.0	43.0	43.0		32.0	32.0		32.0	32.0	
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%		42.7%	42.7%		42.7%	42.7%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6			-2.1			-2.1	
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-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	56.3	56.3	56.3	56.3	56.3			14.7			14.7	
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.75			0.20			0.20	
v/c Ratio	0.02	0.21	0.01	0.03	0.24			0.21			0.08	
Control Delay	5.5	4.7	0.5	5.5	4.8			12.0			15.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	5.5	4.7	0.5	5.5	4.8			12.0			15.9	
LOS	A	A	A	A	A			В			В	

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022 CS

Synchro 11 Report Page 5

12-01-2022

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022 CS

Queues

4: Bedale Drive & Carling Avenue/Carling

Synchro 11 Report Page 6

12-01-2022

	٠		~	/	+		•	÷.	*	~	1	1	
	-					-)	1	1		•	-	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Approach Delay		4.6			4.8			12.0			15.9		
Approach LOS		A			A			В			В		
Queue Length 50th (m)	0.3	10.3	0.0	0.5	11.4			2.6			1.2		
Queue Length 95th (m)	2.5	28.3	0.6	3.5	31.2			9.9			5.3		
Internal Link Dist (m)		432.6			93.8			51.2			59.5		
Turn Bay Length (m)	30.0		15.0	30.0									
Base Capacity (vph)	573	2571	1141	607	2535			567			449		
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	0.02	0.21	0.01	0.03	0.24			0.12			0.04		
Intersection Summary													
Area Type:	Other												
Cycle Length: 75													
Actuated Cycle Length: 75													
Offset: 7 (9%), Referenced t	o phase 2:	EBTL and	6:WBTL	., Start of	Green								
Natural Cycle: 55													
Control Type: Actuated-Coo	rdinated												
Maximum v/c Ratio: 0.24													
Intersection Signal Delay: 5.					tersectior								
Intersection Capacity Utiliza	tion 43.7%			IC	U Level o	of Service	A						
Analysis Period (min) 15													
Splits and Phases: 4: Bed	ale Drive 8	& Carling	Avenue/C	arling									
						- L -	Ø4						
🕈 Ø2 (R)													

HCM Signalized Intersection Capacity Analysis 4: Bedale Drive & Carling Avenue/Carling

Movement ane Configurations Traffic Volume (vph) Tuture Volume (vph) deal Flow (vphp) Total Lost time (s) ane Ulli. Factor "rpb, ped/bikes "rpb, ped/bikes "rt	EBL 10 10 1800 4.0 1.00 1.00	EBT ** 530 530 1800 4.0	EBR 15 15 1800	WBL 15	← WBT	WBR	1	T.	M	1	Ŧ	~
Lane Configurations Traffic Volume (vph) Future Volume (vph) deal Flow (vphpl) Total Lost time (s) Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	10 10 1800 4.0 1.00 1.00	↑↑ 530 530 1800 4.0	15 15	1 5		WBR						
Traffic Volume (vph) Future Volume (vph) deal Flow (vphpl) Total Lost time (s) Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	10 10 1800 4.0 1.00 1.00	530 530 1800 4.0	15 15	15	Å 1.		NBL	NBT	NBR	SBL	SBT	SB
Future Volume (vph) (deal Flow (vphpl) Total Lost time (s) Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	10 1800 4.0 1.00 1.00	530 1800 4.0	15					\$			\$	
Ideal Flow (vphpl) Total Lost time (s) Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	1800 4.0 1.00 1.00	1800 4.0			570	10	15	5	45	5	5	1
Total Lost time (s) Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	4.0 1.00 1.00	4.0	1800	15	570	10	15	5	45	5	5	1
Lane Util. Factor Frpb, ped/bikes Flpb, ped/bikes	1.00 1.00			1800	1800	1800	1800	1800	1800	1800	1800	180
Frpb, ped/bikes Flpb, ped/bikes	1.00		4.0	4.0	4.0			4.0			4.0	
Flpb, ped/bikes		0.95	1.00	1.00	0.95			1.00			1.00	
		1.00	0.97	1.00	1.00			0.99			0.99	
Frt	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
	1.00	1.00	0.85	1.00	1.00			0.91			0.93	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1728	3424	1505	1723	3373			1527			1255	
Fit Permitted	0.42	1.00	1.00	0.45	1.00			0.93			0.93	
Satd. Flow (perm)	764	3424	1505	808	3373			1441			1184	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9
Adj. Flow (vph)	10	552	16	16	594	10	16	5	47	5	5	1
RTOR Reduction (vph)	0	0	4	0	1	0	0	39	0	0	8	
Lane Group Flow (vph)	10	552	12	16	603	0	0	29	0	0	12	
Confl. Peds. (#/hr)	1		4	4		1	1		7	7		
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	0%	1%	0%	0%	2%	16%	23%	0%	0%	0%	100%	14
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1 Ontil	2	1 0/111	1 0/111	6		1 01111	8		1 01111	4	
Permitted Phases	2	2	2	6	0		8	0		4	-	
Actuated Green, G (s)	52.7	52.7	52.7	52.7	52.7		0	10.6		4	10.6	
Effective Green, g (s)	54.3	54.3	54.3	54.3	54.3			12.7			12.7	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72			0.17			0.17	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	553	2478	1089	584	2442			244			200	
/s Ratio Prot	555	0.16	1009	004	c0.18			244			200	
/s Ratio Prot	0.01	0.10	0.01	0.02	CU. 10			c0.02			0.01	
	0.01	0.22	0.01	0.02	0.25			0.12			0.06	
//c Ratio				2.9				26.4				
Uniform Delay, d1	2.9	3.4 1.00	2.9 1.00	1.00	3.5 1.00			26.4			26.1 1.00	
Progression Factor	1.00											
ncremental Delay, d2	0.1	0.2	0.0	0.1	0.2			0.2			0.1	
Delay (s)	3.0	3.6	2.9	3.0	3.7			26.6			26.3 C	
Level of Service	A	A	A	A	A			С				
Approach Delay (s)		3.6			3.7			26.6			26.3	
Approach LOS		A			A			С			С	
Intersection Summary												
HCM 2000 Control Delay			5.2	H	CM 2000	Level of \$	Service		Α			
HCM 2000 Volume to Capacity	y ratio		0.22									
Actuated Cycle Length (s)			75.0	Si	um of lost	time (s)			8.0			
ntersection Capacity Utilizatio	n		43.7%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

3430 Carling Avenue 2022 Existing AM Peak 3:27 pm 12-01-2022 CS

Synchro 11 Report Page 3

3430 Carling Avenue 2022 Existing PM Peak 3:25 pm 12-01-2022 CS

12-01-2022

Future Volume (vph)	5	470	310	235	410	5	190	10	155	5	5	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.96	1.00	1.00			1.00	0.97		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)		3456	1463	1675	3417			1688	1493		1698	
Flt Permitted		0.95	1.00	0.40	1.00			0.73	1.00		0.91	
Satd. Flow (perm)		3290	1463	702	3417			1284	1493		1575	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	495	326	247	432	5	200	11	163	5	5	5
RTOR Reduction (vph)	0	0	159	0	1	0	0	0	124	0	4	0
Lane Group Flow (vph)	0	500	167	247	436	0	0	211	39	0	11	0
Confl. Peds. (#/hr)	3		6	6		3	1		4	4		1
Confl. Bikes (#/hr)			4						9			4
Heavy Vehicles (%)	0%	0%	2%	3%	1%	0%	3%	0%	1%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)		49.7	49.7	66.7	66.7			21.7	21.7		21.7	
Effective Green, g (s)		51.3	51.3	68.3	68.3			23.7	23.7		23.7	
Actuated g/C Ratio		0.51	0.51	0.68	0.68			0.24	0.24		0.24	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1687	750	605	2333			304	353		373	
v/s Ratio Prot				c0.05	0.13							
v/s Ratio Perm		0.15	0.11	c0.23				c0.16	0.03		0.01	
v/c Ratio		0.30	0.22	0.41	0.19			0.69	0.11		0.03	
Uniform Delay, d1		14.0	13.4	6.4	5.8			34.8	29.9		29.3	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.7	0.5	0.2			6.7	0.1		0.0	
Delay (s)		14.4	14.1	6.8	5.9			41.6	30.0		29.3	
Level of Service		В	В	A	A			D	С		С	
Approach Delay (s)		14.3			6.3			36.5			29.3	
Approach LOS		В			A			D			С	
Intersection Summary												
HCM 2000 Control Delay			15.9	Н	CM 2000	Level of	Service		В			_
HCM 2000 Volume to Capa	city ratio		0.50									
Actuated Cycle Length (s)			100.0			t time (s)			12.0			
Intersection Capacity Utiliza	tion		67.0%	IC	CU Level	of Service	3		С			
Analysis Period (min)			15									
c Critical Lane Group												

	۶	-	\mathbf{r}	*	+	•	1	1	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	
Lane Configurations		4 ₽	7	1	≜ †₽			ا ً	7	
Traffic Volume (vph)	5	470	310	235	410	5	190	10	155	
Future Volume (vph)	5	470	310	235	410	5	190	10	155	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00	
Frpb, ped/bikes		1.00	0.96	1.00	1.00			1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00	

HCM Signalized Intersection Capacity Analysis 1: Moodie Drive & Carling Avenue

3430 Carling Avenue 2022 Existing PM Peak 3:25 pm 12-01-2022 CS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		-¢†	1	٦	Aî≱			ب ا	1		4	
Traffic Volume (vph)	5	470	310	235	410	5	190	10	155	5	5	
Future Volume (vph)	5	470	310	235	410	5	190	10	155	5	5	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Storage Length (m)	0.0		125.0	75.0		0.0	0.0		0.0	0.0		
Storage Lanes	0		1	1		0	0		1	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00	0.96	1.00	1.00			1.00	0.98		0.99	
Frt			0.850		0.998				0.850		0.955	
Fit Protected				0.950				0.955			0.984	
Satd. Flow (prot)	0	3458	1517	1679	3416	0	0	1690	1532	0	1701	
Fit Permitted		0.951		0.398				0.726			0.912	
Satd. Flow (perm)	0	3288	1461	700	3416	0	0	1283	1496	0	1575	
Right Turn on Red			Yes			Yes			Yes			
Satd. Flow (RTOR)			326		2				163		5	
Link Speed (k/h)		60			60			80			50	
Link Distance (m)		253.2			674.7			209.4			65.8	
Travel Time (s)		15.2			40.5			9.4			4.7	
Confl. Peds. (#/hr)	3		6	6		3	1		4	4		
Confl. Bikes (#/hr)	-		4	-		-			9			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	2%	3%	1%	0%	3%	0%	1%	0%	0%	
Adj. Flow (vph)	5	495	326	247	432	5	200	11	163	5	5	
Shared Lane Traffic (%)	Ŭ	100	020	2.0	102		200		100	0		
Lane Group Flow (vph)	0	500	326	247	437	0	0	211	163	0	15	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	
Median Width(m)	Lon	3.7	rugin	Lon	3.7	rugite	LOIL	0.0	rugin	Lon	0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		4.0			4.0			4.0			4.0	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
Turning Speed (k/h)	24	1.00	1.00	24	1.00	14	24	1.00	1.00	24	1.00	
Number of Detectors	1	2	1	1	2	14	1	2	14	1	2	
Detector Template	Left	Thru	Right	Left	Thru			Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		0.0	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m) Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		0.0	1.8	6.1	6.1	1.8	
	CI+Ex	CI+Ex	CI+Ex	CI+Ex	1.8 CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	1.8 CI+Ex	
Detector 1 Type	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

-۰.

≮ \mathbf{i}

Ť

Ť

•

Synchro 11 Report Page 1

12-01-2022

~

SBR

5

ŧ

SBT

4 5

1 \$

Queues

1: Moodie Drive & Carling Avenue

۶

-

EBT EBR 470 310 5 470 310 1800 1800 1800 0.0 125.0 0.9 1 0.9 1 0.9 1 0.9 1 1800 1800 125.0 1900 125.0 10.9 1 10.9

Detector Phase 2 2 1 6 8 8 8 4 4 Minimum Initial (s) 10.0		۶	-	\mathbf{r}	1	+	۰.	•	Ť	~	1	1	*
Detector Phase 2 2 2 1 6 8 8 8 4 4 Winnum, Initial (s) 10.0	ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
Minimum Initial (s) 10.0 <th< td=""><td>Detector Phase</td><td>2</td><td>2</td><td>2</td><td>1</td><td>6</td><td></td><td>8</td><td>8</td><td>8</td><td>4</td><td>4</td><td></td></th<>	Detector Phase	2	2	2	1	6		8	8	8	4	4	
Minimum Spit (s) 28.6 28.6 28.6 28.6 28.6 31.0 31.0 31.0 31.0 31.0 31.0 13.0 13.0	Switch Phase					-		-	-	-			
Minimum Spit (s) 28.6 28.6 28.6 28.6 28.6 31.0 31.0 31.0 31.0 31.0 31.0 13.0 13.0	Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Total Spin (1) 40.0 40.0 40.0 25.0 65.0 35.0	Vinimum Split (s)	28.6	28.6	28.6	10.6	28.6		31.0	31.0	31.0	31.0	31.0	
Total Sp(%) 40.0% 40.0% 40.0% 37.0		40.0	40.0	40.0	25.0	65.0		35.0	35.0	35.0	35.0	35.0	
relew 3.7 <t< td=""><td></td><td>40.0%</td><td>40.0%</td><td>40.0%</td><td>25.0%</td><td>65.0%</td><td></td><td>35.0%</td><td>35.0%</td><td>35.0%</td><td>35.0%</td><td>35.0%</td><td></td></t<>		40.0%	40.0%	40.0%	25.0%	65.0%		35.0%	35.0%	35.0%	35.0%	35.0%	
Lost Time Adjubit (s) -1.6 -1.6 -1.6 -1.6 -2.0 -2.0 -2.0 -2.0 Total Lost Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7	
ford Loss Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 sadd ag Optimize? Ves Ves Ves Ves Ves Ves secall Mode C-Min C-Min None	All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.3	2.3	2.3	2.3	2.3	
Lag	Lost Time Adjust (s)		-1.6	-1.6	-1.6	-1.6			-2.0	-2.0		-2.0	
ead-Lag Optimize? Yes Yes Yes Yes Yes Acal Mode CMin C-Min C-Min None C-Min None None None None None None None Non	Total Lost Time (s)		4.0	4.0	4.0	4.0			4.0	4.0		4.0	
ead-Lag Optimize? Yes		Lag	Lag	Lag	Lead								
Becall Mode C-Min C-Min None C-Min None													
Advalated giC Relio 0.51 0.51 0.68 0.68 0.724 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.	Recall Mode	C-Min	C-Min	C-Min	None	C-Min		None	None	None	None	None	
ic Ratio 0.30 0.36 0.41 0.19 0.69 0.34 0.04 Zoritol Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Zoritol Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Zoritol Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Zoritol Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Approach LOS A A A C C C C Jacue Length Stift (m) 27.6 0.0 1.5.7 1.4 C 0.0 1.5 Zueue Length Stift (m) 27.0 0.0 1.5.7 1.4.2 37.5 0.0 1.5 Zueue Length Stift (m) 27.0 0.0 1.5.7 1.4.2 37.5 0.0 1.5 Zueue Length Stift (m) 27.0 0.0 0.0 0.0 0.5 0.0 1.5 Zueue Length Stift (m) 12.0 7.5.0 3.6 2.4.4 41.8 1.6 Zisardon Cap Reduch 0 0 0 0 0 0 0 Starge Cap Reduch 0 0	Act Effct Green (s)		51.3	51.3	68.3	68.3			23.7	23.7		23.7	
/c Raio 0.30 0.36 0.41 0.19 0.69 0.34 0.04 Data Delay 16.6 3.6 9.1 6.8 462 6.2 204 Data Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Data Delay 16.6 3.6 9.1 6.8 462 6.2 204 Data Delay 16.6 3.6 9.1 6.8 462 6.2 204 Data Delay 16.6 3.6 9.1 6.8 462 6.2 204 Data Delay 11.4 7.6 2.8 2.0 Data Delay 11.4 7.6 2.8 1.0 Data Delay 11.4 7.6 0.0 15.7 1.0 Data Delay 10.0 15.7 1.0 Data Data Delay 10.0 15.7 1.0 Data Delay 10.0 15.7 1.0 Data Delay 10.0 15.7 1.0 Data Delay 10.0 15.7 1.0 Data Delay 10.0 15.7 15.7 15.7 15.7 15.7 15.7 15.7 15.7	Actuated g/C Ratio												
Cantral Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Devene Delay 16.6 3.6 9.1 6.8 46.2 6.2 20.4 Loss B A A A D 0 0.0	//c Ratio												
Daves Delay 0.0 <t< td=""><td>Control Delay</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Control Delay												
Total Delay' 16.6 3.6 9.1 6.8 462 62 20.4 CS 8 A A A D A C Approach Delay 11.4 7.6 28.8 20.4 Approach LOS 8 A A C C C Log 20.4 C C C C C C C C C C C C C C C C C C C													
OS B A A A A A C D A C C Approach Delsy 11.4 7.6 28.8 20.4 Approach Delsy 11.4 7.6 28.8 20.4 Approach DOS B A C C C C Daves Length 55h (m) 51.0 16.8 33.6 26.5 55.2 13.5 5.8 Daves Length 55h (m) 51.0 16.8 33.6 26.5 55.2 13.5 5.8 Javab Length (m) 168.5 125.0 75.0 - 41.8 Virabel Length (m) 168.5 30.7 0.0 0 <td></td>													
Approach LOS B A C C C Davae Length 50th (m) 27.6 0.0 15.7 14.2 37.5 0.0 1.5 Davae Length 50th (m) 27.6 0.0 15.7 14.2 37.5 0.0 1.5 Davae Length 50th (m) 51.0 16.8 33.6 26.5 55.2 13.5 5.8 Internal Link Diet (m) 22.9 2 650.7 165.4 41.8 Sae Capacity (vph) 1658 907 683 2.94.3 401 580 495 Starvation Cap Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 Sitrage Capa Reductin 0 0 0 0 0 0 Sitrage Capa Reductin 0 0 Sitrage Ca	OS												
Approach LOS B A C C C Approach LOS B A C C C C Devel Leigh 50h (m) 510 16.8 33.6 26.5 55.2 13.5 5.8 Daves Leigh 50h (m) 510 16.8 33.6 26.5 55.2 13.5 5.8 Jumbey Leigh 50h (m) 125.0 75.0 185.4 41.8 41.8 Jumbey Leigh 50h (m) 1685 907 683 2343 401 580 495 Javardon Cap Reduch 0	Approach Delay		11.4			7.6			28.8			20.4	
Dueue Length S0h (m) 27.6 0.0 15.7 14.2 37.5 0.0 1.5 Dueue Length S0h (m) 51.0 16.8 33.6 26.5 55.2 13.5 5.8 nternal Link Dist (m) 229.2 650.7 185.4 41.8 fum Bay Length (m) 125.0 75.0													
Durue Length 95h (m) 51.0 16.8 33.6 26.5 55.2 13.5 5.8 Hume Bulk Diel 100 29.2 650.7 185.4 41.8 Saee Gaasily (wph) 1665 907 85.4 41.8 Saee Gaasily (wph) 1665 907 88.4 41.8 Saee Gaasily (wph) 1665 907 88.3 244.3 401 580 495 Starvation Cap Reducth 0 <td< td=""><td></td><td></td><td></td><td>0.0</td><td>15.7</td><td></td><td></td><td></td><td></td><td>0.0</td><td></td><td></td><td></td></td<>				0.0	15.7					0.0			
nternal Luño Dist (m) 229.2 660.7 185.4 41.8 (m Bay Length (m) 125.0 75.0 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity (rkh) 1685 907 683 2343 401 580 495 Base Capacity Ulization 67.0% Intersection LOS: B Intersection Signal Delay: 13.6 Intersection LOS: B Intersection Signal Delay: 13.6 Intersection LOS: B Intersection Signal Delay: 13.6 Intersection LOS: B Intersection Cost 15.7 Min 15 Splits and Phases: 1: Moodle Drive & Carting Avenue													
Turn Bay Length (m) 125.0 75.0 Sae Qaacity (vph) 1685 907 983 243 401 580 495 Starvation Cap Reductin 0 0 0 0 0 0 0 Starvation Cap Reductin 0 0 0 0 0 0 0 0 0 Starvation Cap Reductin 0 <													
ase Cagacity (vph) 1665 907 683 2243 401 580 495 Sinvation Cap Reductin 0 0 0 0 0 0 0 0 Spitback Cap Reductin 0 0 0 0 0 0 0 0 Spitback Cap Reductin 0 0 0 0 0 0 0 0 Sinvage Cap Reductin 0 0 0 0 0 0 0 0 Intersection Summary tea Type: Other Vycle Length: 100 Votated Cycle Length: 100 Votated Cycle Length: 100 Statust OCycle Intersection LOS: B Intersection Signal Delay: 13.6 Intersection LOS: B Intersection Signal Delay: 14.6 Intersection LOS			220.2	125.0	75.0	000.1			100.1			11.0	
Starvation Cap Reductin 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			1685			2343			401	580		495	
Spillback (2a) Reduch 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	
Storage Cap Reductin 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	
Description 0.30 0.36 0.19 0.53 0.28 0.03 Intersection Summary						0							
Area Type: Other Optice Length: 100 Kausted O Cycle Length: 100 Kausted O Cycle Length: 100 Other	Reduced v/c Ratio		0.30	0.36	0.36	0.19			0.53	0.28		0.03	
Area Type: Other Optice Length: 100 Kausted O Cycle Length: 100 Kausted O Cycle Length: 100 Other	ntersection Summary												_
Syde Length: 100 Katuated Cycle Length: 100 Statu O(%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Vatural Cycle: 75 Control Type: Actuated-Coordinated Maximum Vic Ratic: 0.69 Intersection Space Delay: 1.3 6 Intersection Capacity Utilization 67.0% ICU Level of Service C Analysis Pared (min) 15 Splits and Phases: 1: Moodie Drive & Carting Avenue ✓ 01 ✓ 01 ✓ 01 ✓ 04 25 5 0 0 0 0 0 0 0 0 0 0 0 0 0		Other											
Advalated GydeL Langth:: 100 Shet: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Vatural Gyde: 75 Sontrol Type: Actuated-Coordinated Maximum vic Ratio: 0.69 Intersection Signal Delay: 1.36 Intersection Capedopt Utilization 67.0% ICU Level of Service C Splits and Phases: 1: Moodie Drive & Carting Avenue													
Diffest: 0 (%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Valural Cycle: 75 Control Type: Actuated-Coordinated Valuration Vice Ratio: 0.69 Intersection Capacity Utilization 67.0% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 1: Moodie Drive & Carting Avenue ✓ © 1 ✓ © 1 ✓ © 25 0 0 0 0 0 0 0 0 0 0 0 0 0		0											
Valural Cycle: 75 Oritor Type: Actuated-Coordinated Warimum vic Ratio: 0.69 Intersection Signal Delay: 13.6 Intersection LOS: 8 Intersection LOS: 9 Intersection LOS: 9 I			2:EBTL a	nd 6:WB	TL. Start	of Green							
Control Type: Actuated-Coordinated Maximum vic Ratio: 0.69 Intersection Signal Delay: 13.6 Intersection LOS: B Intersection Capacity Utilization 67.0% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 1: Moodie Drive & Carting Avenue													
ntersection Signal Delay: 13.6 Intersection LOS: B Intersection Capacity Utilization 67.0% ICU Level of Service C Analysis Period (mn) 15 Splits and Phases: 1: Moodie Drive & Carting Avenue ✓ 01 ↓ ↓ 22 (R) ↓ 04 Zs ↓ 04		ordinated											
Intersection Capacity Utilization 67.0% ICU Level of Service C Analysis Period (min) 15 Splits and Phases: 1: Moodie Drive & Carting Avenue	Maximum v/c Ratio: 0.69												
Analysis Period (min) 15 Splits and Phases: 1: Moodie Drive & Carling Avenue ✓ 01	ntersection Signal Delay:	13.6			Ir	ntersection	1 LOS: B						
Analysis Period (min) 15 Splits and Phases: 1: Moodie Drive & Carling Avenue ✓ 01	ntersection Capacity Utiliz	ation 67.0	%		10	CU Level	of Servic	еC					
	Analysis Period (min) 15												
25 s 40 s	Splits and Phases: 1: Me	odie Drive	e & Carlir	ig Avenu	е								
25 s 40 s	1.		A										
√ σε (R) 55 s 35 s 55 s 55 s 55 s 55 s 55 s 55 s	235	40	9										
1 35 e	V Ø6 (R)							14	Tøs				
	55 s							35	s				

HCM Unsignalized Intersection Capacity Analysis
2: Site West & Carling Avenue

12-01-2022

~

ţ

	-	\mathbf{r}	1	+	1	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
ane Configurations	≜ t≽			≜ î≽	Y		
Traffic Volume (veh/h)	595	0	0	410	0	0	
uture Volume (Veh/h)	595	0	0	410	0	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	626	0.00	0.00	432	0.00	0	
Pedestrians	020	0	0	402	0	0	
ane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median type Median storage veh)	INOULG			NOULS			
Jpstream signal (m)							
Dystream signal (m) DX, platoon unblocked							
/C, conflicting volume			626		842	313	
			626		842	313	
/C1, stage 1 conf vol							
/C2, stage 2 conf vol							
/Cu, unblocked vol			626		842	313	
C, single (s)			4.1		6.8	6.9	
C, 2 stage (s)							
F (s)			2.2		3.5	3.3	
0 queue free %			100		100	100	
cM capacity (veh/h)			952		303	683	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1		
/olume Total	417	209	144	288	0		
/olume Left	0	0	0	0	0		
/olume Right	0	0	0	0	0		
SH	1700	1700	952	1700	1700		
/olume to Capacity	0.25	0.12	0.00	0.17	0.00		
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0	0.0	0.0		
ane LOS	0.0	5.0	5.0	5.0	A		
Approach Delay (s)	0.0		0.0		0.0		
Approach LOS	0.0		5.0		A		
ntersection Summary							
Average Delay			0.0				
ntersection Capacity Utiliz	ation		20.7%	IC	U Level	of Service	A
Analysis Period (min)			15	10			

HCM Unsignalized Intersection Capacity Analysis 3: Site East & Carling Avenue

HCM Unsignalized 3: Site East & Carl				,	,		12-	01-202
	-	\mathbf{i}	1	+	•	~		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	ŧ₽			-¢†	Y			
Traffic Volume (veh/h)	595	0	0	410	0	0		
Future Volume (Veh/h)	595	0	0	410	0	0		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25		
Hourly flow rate (vph)	2380	0	0	1640	0	0		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume			2380		3200	1190		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			2380		3200 6.8	1190 6.9		
tC, single (s)			4.1		0.8	6.9		
tC, 2 stage (s)			0.0		2.5	0.0		
tF (s) p0 queue free %			2.2		3.5 100	3.3 100		
			206		8	183		
cM capacity (veh/h)			206		-	183		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1			
Volume Total	1587	793	547	1093	0			
Volume Left	0	0	0	0	0			
Volume Right	0	0	0	0	0			
cSH	1700	1700	206	1700	1700			
Volume to Capacity	0.93	0.47	0.00	0.64	0.00			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0			
Lane LOS					A			
Approach Delay (s)	0.0		0.0		0.0			
Approach LOS					A			
Intersection Summary								
Average Delay			0.0					
ntersection Capacity Utiliz	ation		20.7%	IC	U Level	of Service	A	
Analysis Period (min)			15					

3430 Carling Avenue	2022 Existing PM Peak 3:25 pm 12-01-2022	
CS		

Synchro 11 Report Page 5	
i ago o	

4: Bedale Drive &												
	>	-	\rightarrow	1	-	•	1	1	1	- >	÷	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBI
Detector Phase	2	2	2	6	6		8	8		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	
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	
Total Split (s)	43.0	43.0	43.0	43.0	43.0		32.0	32.0		32.0	32.0	
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%		42.7%	42.7%		42.7%	42.7%	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6			-2.1			-2.1	
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-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Act Effct Green (s)	60.3	60.3	60.3	60.3	60.3			14.7			14.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.80			0.20			0.20	
v/c Ratio	0.02	0.22	0.01	0.04	0.24			0.11			0.11	
Control Delay	5.5	4.2	0.3	5.3	4.3			7.9			7.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	5.5	4.2	0.3	5.3	4.3			7.9			7.0	
LOS	A	A	A	A	A			A			A	
Approach Delay		4.2			4.3			7.9			7.0	
Approach LOS	0.3	A	0.0	0.8	A 12.7			A 0.0			A 0.0	
Queue Length 50th (m)	2.5				34.2						4.5	
Queue Length 95th (m) Internal Link Dist (m)	2.5	31.6 432.6	0.5	4.9	34.2 93.8			5.4 51.2			4.5	
Turn Bay Length (m)	30.0	432.0	15.0	30.0	93.0			51.Z			59.5	
Base Capacity (vph)	582	2782	1115	609	2776			581			499	
Starvation Cap Reductn	0	2/02	0	003	2110			0			499	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.02	0.22	0.01	0.04	0.24			0.06			0.06	
	0.02	0.22	0.01	0.04	0.24			0.00			0.00	
Intersection Summary												
	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced	l to phase	2:EBTL a	and 6:WE	TL, Start	of Green							
Natural Cycle: 55												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.24												
Intersection Signal Delay:					ntersection							
Intersection Capacity Utiliz	ation 45.6	%		N N	CU Level	of Servic	eΑ					
Analysis Period (min) 15												
Splits and Phases: 4: Be	edale Drive	e & Carlir	ig Avenu	e/Carling		- · ·						
402 (R)						4	Ø4					
43 s	_	_	_	_		32 s	2.	_		_		
+-							Ø8					
🕺 Ø6 (R)												

3430 Carling Avenue 2022 Existing PM Peak 3:25 pm 12-01-202	2
CS	

4: Bedale Drive & C					4	4		*		、 、	1	
	/	-	•	¥			٩	Ť	1	*	÷	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	S
Lane Configurations	ិ	† †	1	1	† î≽			4			4	
Traffic Volume (vph)	10	595	15	25	630	10	5	0	30	25	0	
Future Volume (vph)	10	595	15	25	630	10 1800	5	0	30	25 1800	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800		1800	1800	1800		1800	- 18
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		
Storage Lanes	1 7.5		1	1 7.5		0	0 7.5		0	0 7.5		
Taper Length (m)		0.95			0.05	0.05						1
Lane Util. Factor Ped Bike Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	
			0.96	0.99							0.98	
Frt			0.850	0.050	0.998			0.884			0.978	
Fit Protected	0.950	0450	4400	0.950	0450	0	0		0	0	0.960	
Satd. Flow (prot)	1729	3458	1432	1729	3450	0	U	1547	U	U	1648	
Fit Permitted	0.398	0450	4075	0.419	2450	0	0	0.960	0	0	0.755	
Satd. Flow (perm)	724	3458	1375	757	3450	0	0	1494	0	0	1275	۰,
Right Turn on Red			Yes			Yes		20	Yes		20	`
Satd. Flow (RTOR)			45		3			38			38	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		456.6			117.8			75.2			83.5	
Travel Time (s)		27.4			7.1			6.8			7.5	
Confl. Peds. (#/hr)			11	11			7		20	20		
Confl. Bikes (#/hr)						2			10			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	
Adj. Flow (vph)	10	613	15	26	649	10	5	0	31	26	0	
Shared Lane Traffic (%)					050							
Lane Group Flow (vph)	10	613	15	26	659	0	0	36	0	0	31	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	-
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	R
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1
Turning Speed (k/h)	24		14	24		14	24		14	24		
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		

3430	Carling.	Avenue	2022	E
CS	-			

Synchro 11 Report Page 6

4: Bedale Drive &	Carling	Avenu	ue/Car	ling							12-0	1-2022
	۶	-	\mathbf{i}	1	+	۰.	1	Ť	1	5	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	<u>۲</u>	- † †	7	٦	† ₽			4			4	
Traffic Volume (vph)	10	595	15	25	630	10	5	0	30	25	0	
Future Volume (vph)	10	595	15	25	630	10	5	0	30	25	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Total Lost time (s) Lane Util, Factor	4.0	4.0	4.0	4.0	4.0 0.95			4.0			4.0	
	1.00	1.00	0.96	1.00	1.00			0.96			1.00	
Frpb, ped/bikes Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00			1.00			0.98	
Fipb, ped/bikes Fit	1.00	1.00	0.85	1.00	1.00			0.88			0.98	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.00			0.96	
Satd. Flow (prot)	1729	3458	1375	1714	3449			1532			1621	
Flt Permitted	0.40	1.00	1.00	0.42	1.00			0.96			0.75	
Satd. Flow (perm)	724	3458	1375	756	3449			1481			1275	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.9
Adi, Flow (vph)	10	613	15	26	649	10	5	0	31	26	0	-
RTOR Reduction (vph)	0	0	4	0	1	0	0	31	0	0	27	(
Lane Group Flow (vph)	10	613	11	26	658	0	0	5	0	0	4	(
Confl. Peds. (#/hr)			11	11			7		20	20		, i
Confl. Bikes (#/hr)						2			10			5
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	54.7	54.7	54.7	54.7	54.7			8.6			8.6	
Effective Green, g (s)	56.3	56.3	56.3	56.3	56.3			10.7			10.7	
Actuated g/C Ratio Clearance Time (s)	0.75	0.75	0.75	0.75	0.75			0.14			0.14	
Vehicle Extension (s)	3.0	3.0	3.0	5.6	3.0			3.0			3.0	
Lane Grp Cap (vph)	543	2595	1032	567	2589			211			181	
v/s Ratio Prot	545	0.18	1032	307	c0.19			211			101	
v/s Ratio Perm	0.01	0.10	0.01	0.03	00.13			0.00			c0.00	
v/c Ratio	0.01	0.24	0.01	0.05	0.25			0.00			0.02	
Uniform Delay, d1	2.4	2.8	2.4	2.4	2.9			27.7			27.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.2	0.2			0.0			0.1	
Delay (s)	2.4	3.0	2.4	2.6	3.1			27.7			27.7	
Level of Service	А	A	А	А	А			С			С	
Approach Delay (s)		3.0			3.1			27.7			27.7	
Approach LOS		Α			A			С			С	
Intersection Summary												
HCM 2000 Control Delay			4.2	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	acity ratio		0.22		0111 2000	2010.01	0011100					
Actuated Cycle Length (s)	,		75.0	S	um of los	time (s)			8.0			
Intersection Capacity Utilization	ation		45.6%	IC	U Level	of Service	е		А			
Analysis Period (min)			15									
c Critical Lane Group												

3430 Carling Avenue 2024 Future Background AM Peak 3:29 pm 12-01-2022 CS

Synchro 11 Report Page 3

3430 Carling Avenue 2024 Future Background AM Peak 3:29 pm 12-01-2022 CS

Intersection Summary Average Delay Intersection Capacity Utilization Analysis Period (min)

0.0 19.2%

ICU Level of Service

Α

iueai riuw (vpripi)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Fit Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3388	1547	1712	3378			1611	1468		1500	
Flt Permitted		0.94	1.00	0.45	1.00			0.71	1.00		0.90	
Satd. Flow (perm)		3197	1547	809	3378			1197	1468		1370	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	410	155	190	415	10	230	10	100	10	15	1(
RTOR Reduction (vph)	0	0	73	0	1	0	0	0	75	0	8	(
Lane Group Flow (vph)	0	420	82	190	424	0	0	240	25	0	27	(
Confl. Peds. (#/hr)							1					1
Confl. Bikes (#/hr)						6			1			10
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	8%	0%	4%	0%	0%	50%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)		69.1	69.1	86.1	86.1			32.3	32.3		32.3	
Effective Green, g (s)		69.1	69.1	86.1	86.1			32.3	32.3		32.3	
Actuated g/C Ratio		0.53	0.53	0.66	0.66			0.25	0.25		0.25	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Gro Cap (vph)		1699	822	614	2237			297	364		340	
v/s Ratio Prot				c0.03	0.13							
v/s Ratio Perm		0.13	0.05	c0.18				c0.20	0.02		0.02	
v/c Ratio		0.25	0.10	0.31	0.19			0.81	0.07		0.08	
Uniform Delay, d1		16.4	15.1	8.7	8.5			45.9	37.3		37.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.3	0.2	0.3	0.2			14.8	0.1		0.1	
Delay (s)		16.8	15.3	9.0	8.7			60.7	37.4		37.6	
Level of Service		В	В	A	A			E	D		D	
Approach Delay (s)		16.4			8.8			53.9			37.6	
Approach LOS		В			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.0	H	ICM 2000	l evel of S	Service		Ć			
HCM 2000 Volume to Capacity	ratio		0.46		2000							
Actuated Cycle Length (s)			130.0	S	um of los	t time (s)			17.2			
Intersection Capacity Utilization	1		59.7%			of Service			В			
Analysis Period (min)			15		20101							

3430 Carling Avenue 202 CS	4 Future Ba	ckground	I AM Pea	k 3:29 pr	n 12-01-2	2022				Sy	nchro 11	Report Page 1
HCM Signalized I 1: Moodie & Carli		ion Ca	ipacity	Analy	rsis 🗲	•	•	Ť	~	*	12-0	11-2022
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		412	1	3	≜ î,			4	1		4	
Traffic Volume (vph)	10	410	155	190	415	10	230	10	100	10	15	10
Future Volume (vph)	10	410	155	190	415	10	230	10	100	10	15	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Fit Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3388	1547	1712	3378			1611	1468		1500	
Flt Permitted		0.94	1.00	0.45	1.00			0.71	1.00		0.90	
Satd. Flow (perm)		3197	1547	809	3378				1468		1370	

	≯	-	\mathbf{r}	*	-	•	1	t.	1	- `	Ŧ	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
ane Configurations		- 4î≜	1	3	≜ †}			et et	1		4	
Traffic Volume (vph)	10	410	155	190	415	10	230	10	100	10	15	
Future Volume (vph)	10	410	155	190	415	10	230	10	100	10	15	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	18
Storage Length (m)	0.0		125.0	75.0		0.0	0.0		0.0	0.0		(
Storage Lanes	0		1	1		0	0		1	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.
Ped Bike Factor					1.00			1.00	0.99		0.99	
Frt			0.850		0.996				0.850		0.961	
Fit Protected		0.999		0.950				0.954			0.986	
Satd. Flow (prot)	0	3388	1547	1712	3376	0	0	1613	1488	0	1501	
Flt Permitted	-	0.943		0.449		-	-	0.709		-	0.901	
Satd. Flow (perm)	0	3198	1547	809	3376	0	0	1197	1469	0	1371	
Right Turn on Red	Ŭ	0100	Yes	000	0010	Yes		1101	Yes		107.1	Y
Satd. Flow (RTOR)			155		3	100			100		10	
Link Speed (k/h)		60	100		60			80	100		50	
Link Distance (m)		253.2			802.9			206.2			72.7	
Travel Time (s)		15.2			48.2			9.3			5.2	
Confl. Peds. (#/hr)		10.2			40.2		1	5.5			0.2	
Confl. Bikes (#/hr)						6			1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	8%	0%	4%	0%	0%	50
Adj. Flow (vph)	10	410	155	190	415	10	230	10	100	10	15	JU
Shared Lane Traffic (%)	10	410	100	150	415	10	200	10	100	10	10	
Lane Group Flow (vph)	0	420	155	190	425	0	0	240	100	0	35	
Enter Blocked Intersection	No	420 No	No	No	42J No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Ric
Median Width(m)	Leit	3.7	Right	Leit	3.7	ruyni	Len	0.0	rtight	Leit	0.0	NI
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		4.0			4.0			4.0			4.0	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.
Turning Speed (k/h)	24	1.00	1.00	24	1.00	1.00	24	1.00	1.00	24	1.00	1.1
Number of Detectors	24	2	14	24	2	14	24	2	14	24	2	
Detector Template	Left	Thru	Right	Left	Thru			Thru	Right	Left	Thru	
	6.1	30.5	6.1	6.1	30.5		0.0	30.5	6.1	6.1	30.5	
Leading Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Trailing Detector (m) Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		0.0	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel	UI+EX	UI+EX	CI+EX	UI+EX	UI+EX		UI+EX	UI+EX	UI+EX	CI+EX	CI+EX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s) Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	0.0	28.7	0.0	0.0	28.7		0.0	28.7	0.0	0.0	28.7	
					20.7						20.7	
Detector 2 Size(m)		1.8						1.8				
Detector 2 Type Detector 2 Channel		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	Deer	0.0	D		0.0		Deer	0.0	Deer	Due	0.0 NA	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA 4	
Protected Phases	2	2	2	1	6		8	8	8	4	4	
Permitted Phases												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase	40.0	40.0	40.0	5.0	40.0		40.0	40.0	40.0	40.0	40.0	
Minimum Initial (s) Minimum Split (s)	10.0 28.6	10.0 28.6	10.0 28.6	5.0 10.6	10.0 28.6		10.0 31.0	10.0 31.0	10.0 31.0	10.0 31.0	10.0 31.0	
Total Split (s)	44.0	44.0	44.0	26.0	70.0		60.0	60.0	60.0	60.0	60.0	
Total Split (%)	33.8%	33.8%	33.8%	20.0%	53.8%		46.2%	46.2%	46.2%	46.2%	46.2%	
Maximum Green (s)	38.4	38.4	38.4	20.4	64.4		54.0	54.0	54.0	54.0	54.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0	0.0 5.6	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s) Lead/Lag	Lag	5.6 Lag	Lag	5.6 Lead	5.6			6.0	6.0		6.0	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	16.0 5	16.0 5	16.0 5		16.0 5		18.0 5	18.0 5	18.0 5	18.0 5	18.0 5	
Pedestrian Calls (#/hr) Act Effct Green (s)	J	69.1	69.1	86.1	86.1		5	32.3	32.3	5	32.3	
Actuated g/C Ratio		0.53	0.53	0.66	0.66			0.25	0.25		0.25	
v/c Ratio		0.25	0.17	0.31	0.19			0.81	0.23		0.10	
Control Delay		19.0	3.9	11.2	9.7			65.4	7.1		26.4	
Queue Delay Total Delay		0.0	0.0	0.0	0.0 9.7			0.0	0.0		0.0	
LOS		19.0 B	3.9 A	11.2 B	9.7 A			65.4 E	7.1 A		26.4 C	
Approach Delay		14.9	~	0	10.2			48.3	~		26.4	
Approach LOS		В			В			D			С	
Queue Length 50th (m)		29.3	0.0	17.2	20.3			58.1	0.0		4.9	
Queue Length 95th (m)		51.4	13.1	34.8	35.4			79.3	12.0		11.9	
Internal Link Dist (m)		229.2	105.0	75.0	778.9			182.2			48.7	
Turn Bay Length (m) Base Capacity (vph)		1700	125.0 895	75.0 677	2238			497	668		575	
Starvation Cap Reductn		1700	895	0//	2238			497	800 0		5/5	
Spillback Cap Reductn		0	0	0	0			0	0		0	
Storage Cap Reductn		0	0	0	0			0	0		0	
Reduced v/c Ratio		0.25	0.17	0.28	0.19			0.48	0.15		0.06	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 13	iU I to obcoc 1	ERTI -	nd 6-MP	TI Start	of Groce							
Offset: 0 (0%), Referenced Natural Cycle: 75	no priase i	LLDIL 8	u u.wB	ne, otart	or Gleen							
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.81												
Intersection Signal Delay:	20.6					n LOS: C						
Intersection Capacity Utiliz	ation 59.7	%		IC	CU Level	of Servic	e B					
Analysis Period (min) 15												
Splits and Phases: 1: M	oodie & Ca	rlina										
	4	iiiig			1	k						
🕈 Ø1	🛛 🖘 🖉 🖉	R)				♥ Ø4						
♥ Ø1 26 s	44 s	R)				50 s						
Ø1 26 s ₩ Ø6 (R)	44 s	R)				♥ 04 50 s						
26 s	44 s	R)		,		50 s				-,		
26 s	44 s	R)				50 s				-,		P
26 s	44s	R)				50 s				-,		Pa
26 s	44 s	R)				50 s				-,	l	Pa
26 s	•	R)				50 s				-,		Pa
26s	11 5		Сарас	sity An	alvsis	50 s				-,		Pa
Zés	d Interse		Сарас	ity An	-	50 s				-,	12-0	
Zés	d Interse		Capac	ity An	alysis	50 s				-,		
26s √ 26 (R) 27 CS HCM Unsignalized 3: Site Access & C Movement	d Interse Carling → EBT		Capac	← WBT	NBL	50 s				-,		
26 s √ c6 (R) 20 g CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations	d Interse Carling → EBT	ection EBR	√ WBL	← WBT	NBL	50 s 50 s 50 s NBR				-,		
26 s 26 (R) 27 s CS HCM Unsignalized CS HCM HCM CS HCM	d Interse Carling ►BT ↑₽ 545	ection EBR	WBL 0		NBL V	50 s 50 s 50 s 50 s NBR 0				-,		
26 s CG (R) 20 g CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h)	d Interse Carling → EBT ↑Ъ 545	ection EBR	√ WBL	★ WBT 415 415 415	NBL V 0 0	50 s 50 s 50 s NBR				-,		
26 s 26 s 27 of (R) 27 s CS HCM Unsignalizer CS HCM Unsignalizer 3: Site Access & C Movement Lare Configurations Traffic Volume (Veh/h) Future Volume (Veh/h) Future Volume (Veh/h)	d Interse Carling ► EBT ↑ 545 545 545 Free	ection EBR	WBL 0	★ WBT 415 415 415 Free	NBL V 0 0 Stop	50 s 50 s 50 s 50 s NBR 0				.,		
26 s 26 c (R) 20 s CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade	d Interse Carling ← EBT ↑1 545 545 545 Free 0%	ection EBR 0 0	WBL 0 0	★ WBT 415 415 Free 0%	► NBL ● 0 0 0 Stop 0%	0 0				•,		
26 s 26 s 27 s	d Interse Carling ► EBT ↑1> 545 545 Free 0.%	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT ↓↑↑ ↓15 ↓15 Free 0% 1.00	► NBL ♥ 0 0 0 0 0% 1.00	► NBR 0 0 1.00						
26 s 26 c (R) 26 c (R) 27 c (R)	d Interse Carling ← EBT ↑1 545 545 545 Free 0%	ection EBR 0 0	WBL 0 0	★ WBT 415 415 Free 0%	► NBL ● 0 0 0 Stop 0%	0 0						
26 s 26 s 27 s	d Interse Carling ► EBT ↑1> 545 545 Free 0.%	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT ↓↑↑ ↓15 ↓15 Free 0% 1.00	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 1.00				.,		
26 s 26 c (R) 20 s CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak Hour Factor Peak Hour Factor Peak Hour Factor Peak Hour Factor Peak Hour Factor Lane Width (m)	d Interse Carling ► EBT ↑1> 545 545 Free 0.%	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT ↓↑↑ ↓15 ↓15 ↓15 Free 0% 1.00	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 0 0 0 0 0 0 0 0				.,		
26 s 26 c (R) 20 s CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak Hour Fa	d Interse Carling ► EBT ↑1> 545 545 Free 0.%	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT ↓↑↑ ↓15 ↓15 ↓15 Free 0% 1.00	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 0 0 0 0 0 0 0 0				.,		
26 s 26 s 27 ge (R) 27 ge (R)	H = s H	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT 415 415 Free 0% 1.00 415	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 0 0 0 0 0 0 0 0				.,		
26 s CG (R) 20 s CS HCM Unsignalized CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak Hour Fact	d Interse Carling ► EBT ↑1> 545 545 Free 0.%	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT ↓↑↑ ↓15 ↓15 ↓15 Free 0% 1.00	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 0 0 0 0 0 0 0 0						
26 s 26 s 27 g6 (R) 20 s CS CS HCM Unsignalized CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How Tale (vph) Pedestinas Lane Width (m) Waiking Speed (m/s) Percent Blockage Right turn firer (veh) Median type Median type	H = s H	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT 415 415 Free 0% 1.00 415	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 0 0 0 0 0 0 0 0						
26 s 26 s 27 c6 (R) 20 s CS CS HCM Unsignalized CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak Hour Facto	H = s H	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT 415 415 Free 0% 1.00 415	► NBL ♥ 0 0 0 0 0 0 0 1.00	► NBR 0 0 1.00						
26 s 26 s 27 c6 (R) 20 s CS CS HCM Unsignalized CS CS HCM Unsignalized 3: Site Access & C Movement Lane Confordions Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How rete (vph) Pedestrians Lane Width (m) Waking Speed (m/s) Percent Blockage Percent Blockage Right tum face (veh) Median type Median ty	H = s H	ection EBR 0 0	✓ WBL 0 0 1.00	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 Stop 0% 1.00 0	► NBR 0 0 1.00						
26 s 26 s 27 of (R) 27 of (R)	H = s H	ection EBR 0 0	WBL 0 0 1.00 0	★ WBT 415 415 Free 0% 1.00 415	► NBL ♥ 0 0 0 0 0% 1.00	NBR 0 1.00 0						
26 s 26 s 27 c6 (R) 28 c CS CS HCM Unsignalized CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak H	H = s H	ection EBR 0 0	WBL 0 0 1.00 0 545	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 Stop 0% 1.00 0 752	S0 s 0 s 0 s 0 s 0 s 0 s 0 s 0 s						
26 s 26 s 27 c6 (R) 20 s CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How rate (veh) Pedastians Lane Width (m) Walking Speed (m/s) Percent Blockage (m) Walking Speed (m/s) Percent Blockage Percent Blockage (m) Valking Speed (m) Pedastians Lane Width (m) Walking Speed (m) Percent Blockage (m) Volume (veh) Nedian storage veh) Upstream signal (m) Xp, Jatoou nublockd VC, sage 1 conf vol VC2, stage 2 conf vol VC2, unblocked vol	H = s H	ection EBR 0 0	WBL 0 0 0 0 1.00 0 545 545	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 Stop 0% 1.00 0 752 752	50 s 0 s 0 s 0 s 0 s 0 s 0 s 0 s						
26 s 26 s 27 g 27 g	H = s H	ection EBR 0 0	WBL 0 0 1.00 0 545	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 Stop 0% 1.00 0 752	S0 s 0 s 0 s 0 s 0 s 0 s 0 s 0 s						
26 s 26 s 27 g6 (R) 28 s CS CS CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How rela (veh) Pedestrians Lane Widh (m) Walking Speed (m/s) Percent Blockage Crade Peak Hour Factor Houry How rela (veh) Median storage veh) Upstream signal (m) Xp, platoou nublockd VC, stage 2 conf vol VC2, stage 2 conf vol	H = s H	ection EBR 0 0	WBL 0 0 0 1.00 0 545 545 4.1	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 0% 1.00 0 752 6.8	S0 s 080 s 088 s 088 s 088 s 0 0 0 0 0 0 0 0 0 0 0 0 0						
26 s 26 s 27 g (g) 27 g	H = s H	ection EBR 0 0	WBL 0 0 0 1.00 0 545 545 545 4.1	★ WBT 415 415 Free 0% 1.00 415	NBL 90 00 00 00 00 00 00 00 00 00 00 00 00	S0 s				.,		
26 s 26 s (R) 27 a, g 27 a	H = s H	ection EBR 0 0	✓ WBL 0 0 1.00 0 545 545 545 100	★ WBT 415 415 Free 0% 1.00 415	NBL 0 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s 26 s 26 s 26 c (R) 20 a CS CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry flow rate (vph) Pedestrans Lane Width (m) Waiking Speed (mis) Percent Blockage Right tum face (whith (m) Median storage veh) Upstream signal (m) Dy, platoou nublockd VC, snige 1 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC3, stage 2 conf vol VC4, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC4, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC5, stage 2 conf vol VC4, stage 2 conf vol VC4, stage 2 conf vol VC5, sta	He s d Interso carling	ection EBR 0 0 0 1.00 0	WBL 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		NBL 0 0 0 0 0 0 0 0 0 0 0 0 0	S0 s				.,		
26 s 26 s 26 s 27 s	Has Hinterss Carling → Free S45 S45 Free None EB1	ection EBR 0 0 0 1.00 0 EB2 EB2	WBL 0 0 0 0 0 0 0 0 0 0 545 545 4.1 222 000 1034 WB 1		NBL 0 0 0 0% 1.00 0 0% 1.00 0 0% 752 752 6.8 3.5 5 000 0 050 0 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s 26 s 26 s 26 s 27 s 28 s CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How rate (veh) Pedestrians Lane Width (m) Waking Speed (mls) Percent Blockage Percent Blockage (mls) Percent Blockage (mls) Perce	H = 3 H =	ection EBR 0 0 1.00 0 1.00 0 1.00	WBL 0 0 0 1.00 0 1.00 0 545 545 4.1 2.2 100 1034 WB1 138	WBT 415 Free 0% 415 Free 1.00 415 None WB 2 277	NBL 0 0 0 0% 1.00 0 0% 1.00 0 0% 7.52 7.52 6.8 3.5 100 350 8 NB 1 0	50 s 00 s						
26 s CG (R) 20 s CS CS HCM Unsignalized CS CS HCM Unsignalized 3: Site Access & C Movemant Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Peak Hour Factor (ms) Peak Hour Factor Peak Hour Factor (ms) Peak Hour Factor (ms) Peak Hour Factor (ms) Peak Hour Factor (ms) Pictor	H Interss Id Inters Carling → Free S45 Free None None EB11 363 0	ection EBR 0 0 0 1.00 0 EB2 182 0 0 0 0 0 0 0 0 0	WBL 0 0 1.00 0 1.00 0 545 545 4.1 100 1034 WB1 138 0 0	WBT 415 415 57ree 0% 1.00 415 None WB2 277 0	NBL NBL 0 0 0% 1.00 0 0% 1.00 0 0 0% 1.00 0 0 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0 0% 1.00 0 0 0 0 0% 1.00 0 0 0 0 0 0 0 0% 1.00 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s 26 s 26 s 26 s 27 s 28 s CS CS HCM Unsignalized 3: Site Access & C 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houry How rate (veh) Pedestrians Lane Wdht (m) Walking Speed (m/s) Percent Blockage (m) Pedestrians Lane Wdht (m) Walking Speed (m/s) Percent Blockage Control Cardo Percent Blockage (m) Valking Speed (m/s) Percent Blockage (m) Valking Speed (m/s) Percent Blockage (m) Volume Total Volume Total Volume Total Volume Total Volume Total Volume Total	H = 3 H	ection EBR 0 0 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 0 1.00 0 0 1.00 0 0 0 0 0 0 0 0 0 0 0 0	WBL 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WBT 415 Free 0% 1.00 415	NBL № 0 0 Stop 0% 1.00 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s				-,		
Zes	H = s H = s H	ection <u>EBR</u> 0 0 1.00 1.00	WBL 0 0 1.00 0 1.00 0 545 545 545 545 100 1034 WB1 138 0 0 0 0 0		NBL V 0 0 0 0% 0% 1.00 0 0% 1.00 0 0 0% 1.00 0 0 0 0% 1.00 0 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s 26 s 27 c6 (R) 28 s CS CS CS CS CS CS CS HCM Unsignalized 3: Site Access & C Movement Lane Configurations Traffic Volume (veh/h) Sign Confol Grade Peak Hour Factor Houry How rel (veh) Pedestrians Lane Widh (m) Walking Speed (m/s) Percent Blockage Peak Hour Factor Houry How relator Houry How relator Nedian storage veh) Upstream signal (m) XP, platoou nublocked VC, snige (s) CC, 2 stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol CC, snige (s) CC, 2 stage (s) FF (s) Di queue free % CM capacity (veh/h) Direction, Lane # Volume Total Volume Left Volume Left Volume Left Volume Left	H = 2 H =	EB2 100 100 0 120 0 1700 0,111	WBL 0 0 1.00 0 1.00 0 545 545 4.1 2.2 1034 WB 1 138 8 0 0 0 1034	WBT 415 Free 0% 415 Free 0% 415 None WB 2 277 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBL V 0 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s 26 s 27 c6 (R) 27 c6 (R) 27 c6 (R) 27 c6 (R) 27 c7	H = 3 H = 3	EB2 EB2 100 0 1.00 0 0 1.00 0 0 0 1.00 0 1.00 0 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 1.00 1.00 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	WBL 0 0 1.00 0 1.00 0 0 545 545 545 4.1 100 1034 0 0 0 0.0 0.0	₩BT 415 415 415 0% 1.00 415 None WB 2 2777 0 0100 0100 0100 0100 0100	NBL V 0 0 0 0% 0% 1.00 0 0% 1.00 0 0 0% 1.00 0 0 0 0% 1.00 0 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0% 1.00 0 0 0 0 0 0 0 0 0 0 0 0	50 s 00 s						
26 s √ ce (k) 27 g CS CS CS CS CS CS CS CS CS CS	H = 2 H =	EB2 100 100 0 120 0 1700 0,111	WBL 0 0 1.00 0 1.00 0 545 545 4.1 2.2 1034 WB 1 138 8 0 0 0 1034	WBT 415 Free 0% 415 Free 0% 415 None WB 2 277 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBL Y 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	50 s 00 s						
26 s 26 s 27 ge (R) 27 ge (R)	H = 3 H = 3	EB2 EB2 100 0 1.00 0 0 1.00 0 0 0 1.00 0 1.00 0 0 1.00 0 0 1.00 0	WBL 0 0 1.00 0 1.00 0 0 545 545 545 4.1 100 1034 0 0 0 0.0 0.0	₩BT 415 415 415 0% 1.00 415 None WB 2 2777 0 0100 0100 0100 0100 0100	NBL 0 0 0 0 0	50 s 00 s						
26 s √ ce (k) 27 g CS CS CS CS CS CS CS CS CS CS	H = s H	EB2 EB2 100 0 1.00 0 0 1.00 0 0 0 1.00 0 1.00 0 0 1.00 0 0 1.00 0	WBL 0 0 1.00 0 1.00 0 545 545 545 545 1034 WB1 138 0 1034 0.0 0.00	₩BT 415 415 415 0% 1.00 415 None WB 2 2777 0 0100 0100 0100 0100 0100	NBL Y 0 0 0	50 s 00 s						Pa,
26 s 26 s 26 s 26 s 27 s CS CS CS CS HCM Unsignalized CS CS CS CS CS CS CS CS CS CS	H = s H	EB2 EB2 100 0 1.00 0 0 1.00 0 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 1.00 1.00 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	WBL 0 0 1.00 0 1.00 0 545 545 545 545 1034 WB1 138 0 1034 0.0 0.00	WBT 415 415 415 0% 1.00 415 None	NBL 0 0 0 0 0	50 s 00 s						

Queues

1: Moodie & Carling

۶

+ 1 1

∢

 \mathbf{r} -

12-01-2022

12-01-2022 ~

1 /

\$ Ŧ

Synchro 11 Report Page 7

12-01-2022

3430 Carling Avenue 2024 Future Background AM Peak 3:29 pm 12-01-2022 CS

	۶	-	$\mathbf{\hat{z}}$	4	+	۰.	1	Ť	1	1	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	- 11	1	٦	≜ î≽			4			4	
Traffic Volume (vph)	15	545	20	20	585	15	20	10	50	10	10	15
Future Volume (vph)	15	545	20	20	585	15	20	10	50	10	10	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.92			0.94	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1728	3424	1505	1723	3364			1538			1242	
Flt Permitted	0.43	1.00	1.00	0.45	1.00			0.91			0.89	
Satd. Flow (perm)	773	3424	1505	813	3364			1412			1126	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	545	20	20	585	15	20	10	50	10	10	15
RTOR Reduction (vph)	0	0	6	0	1	0	0	43	0	0	13	0
Lane Group Flow (vph)	15	545	14	20	599	0	0	37	0	0	22	0
Confl. Peds. (#/hr)	1		4	4		1	1		7	7		1
Confl. Bikes (#/hr)												6
Heavy Vehicles (%)	0%	1%	0%	0%	2%	16%	23%	0%	0%	0%	100%	14%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Effective Green, g (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70			0.14			0.14	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	543	2405	1057	571	2363			199			159	
v/s Ratio Prot		0.16			c0.18							
v/s Ratio Perm	0.02		0.01	0.02				c0.03			0.02	
v/c Ratio	0.03	0.23	0.01	0.04	0.25			0.19			0.14	
Uniform Delay, d1	3.4	3.9	3.3	3.4	4.0			28.4			28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.3			0.5			0.4	
Delay (s)	3.5	4.2	3.4	3.5	4.3			28.9			28.6	
Level of Service	А	А	А	А	А			С			С	
Approach Delay (s)		4.1			4.3			28.9			28.6	
Approach LOS		А			A			С			С	
Intersection Summary												
HCM 2000 Control Delay			6.3	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	city ratio		0.24									
Actuated Cycle Length (s)			75.0		um of los				11.7			
Intersection Capacity Utiliza	ation		48.1%	IC	CU Level	of Servic	е		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 4: Bedale & Carling

Queues

4: Bedale & Carling

۶

 \rightarrow

							``					
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	3	<u></u>	1	3	≜ †}			÷			4	
Traffic Volume (vph)	15	545	20	20	585	15	20	10	50	10	10	15
Future Volume (vph)	15	545	20	20	585	15	20	10	50	10	10	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util, Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.996			0.916			0.942	
Fit Protected	0.950			0.950				0.988			0.986	
Satd, Flow (prot)	1729	3424	1547	1729	3363	0	0	1539	0	0	1247	0
Flt Permitted	0.425			0.449		-	-	0.907	-	-	0.894	
Satd. Flow (perm)	773	3424	1505	814	3363	0	0	1413	0	0	1129	0
Right Turn on Red		0121	Yes	011	0000	Yes	Ŭ	1110	Yes		1120	Yes
Satd. Flow (RTOR)			45		5	100		50	100		15	100
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		456.6			117.8			75.2			83.5	
Travel Time (s)		27.4			7.1			6.8			7.5	
Confl. Peds. (#/hr)	1	21.4	4	4	1.1	1	1	0.0	7	7	1.5	1
Confl. Bikes (#/hr)			-	-								e
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	0%	0%	2%	16%	23%	0%	0%	0%	100%	14%
Adj. Flow (vph)	15	545	20	20	585	10 /6	20	10	50	10	100 %	14/0
Shared Lane Traffic (%)	15	040	20	20	000	15	20	10	50	10	10	10
Lane Group Flow (vph)	15	545	20	20	600	0	0	80	0	0	35	0
Enter Blocked Intersection	No	345 No	20 No	20 No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Leit	3.7	Right	Leit	3.7	Right	Leit	0.0	rtigni	Leit	0.0	Right
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		4.0			4.0			4.0			4.0	
	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Headway Factor	1.06	1.06	1.06	1.06	1.00	1.00	24	1.06	1.06	1.06	1.00	1.00
Turning Speed (k/h) Number of Detectors	24	2	14	24	2	14	24	2	14	24	2	14
	Left	Thru		Left	Thru		Left	Z		Left	Thru	
Detector Template			Right									
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		

1+ 4 4

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Detector Phase Switch Phase	2	2	2	6	6		8	8		4	4	
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s) Total Split (s)	25.6 43.0	25.6 43.0	25.6 43.0	25.6 43.0	25.6 43.0		29.1 32.0	29.1 32.0		29.1 32.0	29.1 32.0	
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%		42.7%	42.7%		42.7%	42.7%	
Maximum Green (s) Yellow Time (s)	37.4 3.7	37.4 3.7	37.4 3.7	37.4 3.7	37.4 3.7		25.9 3.3	25.9 3.3		25.9 3.3	25.9 3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
Lost Time Adjust (s) Total Lost Time (s)	0.0 5.6	0.0 5.6	0.0 5.6	0.0 5.6	0.0 5.6			0.0 6.1			0.0 6.1	
Lead/Lag	0.0	0.0	0.0	0.0	0.0			0.1			0.1	
Lead-Lag Optimize? Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s) Flash Dont Walk (s)	7.0 13.0	7.0 13.0	7.0 13.0	7.0 13.0	7.0 13.0		7.0 16.0	7.0		7.0 16.0	7.0 16.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s) Actuated g/C Ratio	55.0 0.73	55.0 0.73	55.0 0.73	55.0 0.73	55.0 0.73			12.6 0.17			12.6 0.17	
v/c Ratio	0.03	0.22	0.02	0.03	0.24			0.29			0.17	
Control Delay	6.1 0.0	5.3 0.0	1.1 0.0	6.0 0.0	5.4 0.0			14.7 0.0			18.5 0.0	
Queue Delay Total Delay	6.1	5.3	1.1	6.0	5.4			14.7			18.5	
LOS	Α	A	A	A	A			B			B	
Approach Delay Approach LOS		5.2 A			5.4 A			14.7 B			18.5 B	
Queue Length 50th (m)	0.5	11.3	0.0	0.7	12.5			3.8 12.1			2.6	
Queue Length 95th (m) Internal Link Dist (m)	3.5	29.6 432.6	1.2	4.2	32.8 93.8			51.2			8.0 59.5	
Turn Bay Length (m)	30.0		15.0	30.0								
Base Capacity (vph) Starvation Cap Reductn	567 0	2512 0	1116 0	597 0	2469 0			520 0			399 0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn Reduced v/c Ratio	0 0.03	0.22	0.02	0 0.03	0 0.24			0 0.15			0 0.09	
Intersection Summary	0.03	U.22	0.02	0.03	0.24			0.13			0.03	~
Area Type:	Other											
Cycle Length: 75												
Actuated Cycle Length: 75 Offset: 7 (9%), Referenced		2:EBTL a	nd 6:WE	TL, Start	of Green							
Natural Cycle: 55												
Control Type: Actuated-Co Maximum v/c Ratio: 0.29	ordinated											
Intersection Signal Delay: (ntersectio							
Intersection Capacity Utiliz Analysis Period (min) 15	ation 48.1	%		l	CU Level	of Servic	e A					
Splits and Phases: 4: Be	edale & Ca	irling										
🗢 Ø2 (R)						₽	Ø4					_
<u>₩</u>							Ø8					
∮ Ø6 (R) 43 e						37 e	Ø8					_
Queues												
Queues 1: Moodie & Carlin	-										12-0	01-2
	ng , 🌶	→	ŕ	ŕ	+	×.	•	†	~	`	12-0	01-3
1: Moodie & Carlin	-	EBT	EBR	WBL	← WBT	WBR	▲ NBL	NBT	NBR	SBL	↓ SBT	
1: Moodie & Carlin	EBL 10	41↑ 480	320	WBL *1 240	← WBT 420	WBR 10	NBL 195		•	10	Ŧ	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph)	EBL 10 10	480 480 480	320 320	WBL 240 240	420 420	WBR 10 10	NBL 195 195	NBT 4 15 15	NBR 160 160	10 10	↓ SBT ↔ 10 10	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpl)	EBL 10 10 1800	41↑ 480	320 320 1800	WBL 240 240 1800	↑1 → 420	WBR 10 10 1800	NBL 195 195 1800	NBT €	NBR 160 160 1800	10 10 1800	↓ SBT ↔ 10	
1: Moodie & Carlin Lane Configurations Traffic Volume (vph) Future Volume (vph) Ideal Flow (vphpi) Storage Length (m) Storage Lanes	EBL 10 10 1800 0.0 0	480 480 480	320 320	WBL 240 240 1800 75.0 1	420 420	WBR 10 10	NBL 195 195 1800 0.0 0	NBT 4 15 15	NBR 160 160	10 10 1800 0.0 0	↓ SBT ↔ 10 10	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Lanes Taper Length (m)	EBL 10 10 1800 0.0 0 7.5	480 480 1800	320 320 1800 125.0 1	WBL 240 240 1800 75.0 1 7.5	↑ 420 420 1800	WBR 10 10 1800 0.0 0	NBL 195 195 1800 0.0 0 7.5	NBT 15 15 1800	NBR 160 160 1800 0.0 1	10 10 1800 0.0 0 7.5	↓ SBT 10 10 1800	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane UBI, Factor Ped Bike Factor	EBL 10 10 1800 0.0 0	480 480 480	320 320 1800 125.0 1 1.00 0.96	WBL 240 240 1800 75.0 1	↑ 420 420 1800 0.95 1.00	WBR 10 10 1800 0.0	NBL 195 195 1800 0.0 0	NBT 4 15 15	NBR 160 160 1800 0.0 1 1.00 0.98	10 10 1800 0.0 0	↓ SBT 10 10 1800 1.00 0.99	
1: Moodie & Carlin Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Langt (m) Storage Langt (m) Lane Util, Factor Ped Bike Factor Fit	EBL 10 10 1800 0.0 0 7.5	480 480 1800 0.95 1.00	320 320 1800 125.0 1 1.00	WBL 240 240 1800 75.0 1 7.5 1.00 0.99	↑ 420 420 1800	WBR 10 10 1800 0.0 0	NBL 195 195 1800 0.0 0 7.5	NBT 4 15 15 1800 1.00 1.00	NBR 160 160 1800 0.0 1 1 1.00	10 10 1800 0.0 0 7.5	↓ SBT 10 10 1800 1.00 0.99 0.955	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt Frt Frt Std. Flow (prot)	EBL 10 10 1800 0.0 0 7.5		320 320 1800 125.0 1 1.00 0.96	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679	↑ 420 420 1800 0.95 1.00	WBR 10 10 1800 0.0 0	NBL 195 195 1800 0.0 0 7.5	NBT 4 15 15 1800 1.00 1.00 0.956 1693	NBR 160 160 1800 0.0 1 1.00 0.98	10 10 1800 0.0 0 7.5	↓ SBT 10 10 1800 1.00 0.99 0.955 0.984 1701	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Glael Flow (vph) Storage Length (m) Lane Ulli, Factor Pad Dike Factor Frt Fit Protected Satd. Flow (prot) Fit Permitted	EBL 10 100 1800 0.0 0.0 7.5 0.95 0.95	4↑ 480 480 1800 0.95 1.00 0.999 3455 0.945	1800 1800 125.0 1.00 0.96 0.850 1517	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679 0.401	▲20 420 1800 0.95 1.00 0.997 3412	WBR 10 10 1800 0.0 0 0.95	NBL 195 195 1800 0.0 0 7.5 1.00	NBT 4 15 15 1800 1.00 1.00 0.956 1693 0.719	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532	10 10 1800 0.0 7.5 1.00	↓ SBT 10 10 1800 1.00 0.99 0.955 0.984 1701 0.886	
1: Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt Frt Frt Std. Flow (prot)	EBL 10 10 1800 0.0 0 7.5 0.95		7 320 320 1800 125.0 1 1.00 0.96 0.850	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679	♦1> 420 420 1800 0.95 1.00 0.997	WBR 10 1800 0.0 0 0.95	NBL 195 195 1800 0.0 0 7.5 1.00	NBT 4 15 15 1800 1.00 1.00 0.956 1693	NBR 160 160 1800 0.0 1 1.00 0.98 0.850	10 10 1800 0.0 0 7.5 1.00	↓ SBT 10 10 1800 1.00 0.99 0.955 0.984 1701	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt Rith Factor Rith Turn on Red Sadt. Flow (prot) Right Turn on Red Sadt. Flow (prot)	EBL 10 100 1800 0.0 0.0 7.5 0.95 0.95		125.0 1800 125.0 1.00 0.96 0.850 1517 1460	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679 0.401	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 4 	WBR 10 10 1800 0.0 0 0.95 0.95	NBL 195 195 1800 0.0 0 7.5 1.00	NBT 4 15 15 1800 1.00 1.00 0.956 1693 0.719 1272	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496	10 10 1800 0.0 7.5 1.00	↓ SBT 10 10 1800 1.00 0.99 0.955 0.984 1701 0.886 1530 10	
1: Moodie & Carlin Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Fit Per Protected Stati. Flow (prot) Fit Permitted Stati. Flow (pem) Right Turn on Red	EBL 10 100 1800 0.0 0.0 7.5 0.95 0.95	4↑ 480 480 1800 0.95 1.00 0.999 3455 0.945	125.0 125.0 125.0 1.00 0.96 0.850 1517 1460 Yes	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679 0.401	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 	WBR 10 10 1800 0.0 0 0.95 0.95	NBL 195 195 1800 0.0 0 7.5 1.00	NBT 4 15 15 1800 1.00 1.00 0.956 1693 0.719	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes	10 10 1800 0.0 7.5 1.00	↓ SBT 10 10 1800 1.00 0.99 0.955 0.984 1701 0.886 1530	
Moodie & Carlin Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt Frt Permitted Fit Protocted Said. Flow (pert) Fit Permitted Said. Flow (pert) Fit Permitted Said. Flow (pert) Fit Portices Said. Flow (Port) Fit Permitted Fit Protocted Said. Flow (pert) Fit Permitted Fit Pices Said. Flow (pert) Fit Permitted Fit Pices Said. Flow (Port) Fit Pices Fit Pices Fit Fit Pices Fit Fit Pices Fit Fit	EBL 10 10 1800 0.0 0 7.5 0.95 0 0 0		125.0 1800 125.0 125.0 125.0 125.0 1.00 0.96 0.850 1517 1460 Yes 320	WBL 240 1800 75.0 1 7.55 1.00 0.99 0.999 0.950 1679 0.401 705	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 4 60 	WBR 10 10 1800 0.0 0 0.95 0 0 Yes	NBL 195 195 1800 0.0 0 7.5 1.00 0 0	NBT 4 15 15 1800 1.00 1.00 0.956 1693 0.719 1272 80	NBR ↑ 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes 160	10 10 1800 0 0 7.5 1.00 0 0	↓ SBT 10 10 100 1800 1.00 0.955 0.984 1701 0.886 1530 10 50	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Icane Configurations Traffic Volume (vph) Ideal Flow (vphp) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Fri Frotected Said. Flow (prot) Fri Rentited Said. Flow (prot) Ink Speed (kh) Link Distance (m) Travel Time (s) Confi. Peds (#hr)	EBL 10 100 1800 0.0 0.0 7.5 0.95 0.95		125.0 125.0 125.0 1.00 0.96 0.850 1517 1460 Yes	WBL 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679 0.401	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 4 60 802.8 	WBR 10 10 1800 0.0 0 0.95 0.95	NBL 195 195 1800 0.0 0 7.5 1.00	NBT 4 15 15 1800 1.00 1.00 0.956 1693 0.719 1272 80 209.4	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes	10 10 1800 0.0 7.5 1.00	↓ SBT 10 10 1800 1.00 0.999 0.955 0.984 1701 0.886 1530 10 50 65.8	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Itane Configurations Traffic Volume (vph) Itical Flow (vphp) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt Retrotted Stad. Flow (pnd) Fit Retrotted Stad. Flow (pnd) Ink Speed (kh) Link Distance (m) Travel Time (s) Confl. Peds (#hr) Confl. Peds (#hr)	EBL 10 10 1800 00 0 0 7.5 0.95 0 0 0 0 0 0 0 0 0 0 0 0 0		**************************************	WBL 240 240 1800 75.0 0.99 0.950 1679 0.401 705 6 6	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 4 60 802.8 48.2 1.00 	WBR 10 10 1800 0.0 0 0.95 0 0 Yes 3 1.00	NBL 1955 1951 1800 00 7.5 1.00 0 0 0 0 0	NBT 4 15 15 1800 1.00 0.956 1693 0.719 1272 80 209.4 9.4 1.00	NBR 7 160 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes 160 4 9 1.00	10 10 1800 0.0 7.5 1.00 0 0 0 4 1.00	↓ SBT 100 100 1800 1800 1800 1800 0.955 0.984 1701 0.886 1530 100 50 56.8 4.7 1.00	
Moodie & Carlin Lane Group Lane Configurations Traffer Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util. Factor Ped Bike Factor Frt Fritherter Stad. Flow (prot) Fit Permitted Sadd. Flow (prot) Fit Permitted Sadd. Flow (prot) Fit Permitted Sadd. Flow (RTOR) Link Speed (kh) Link Speed (kh) Confl. Bikes (#hn) Peak Hour Factor Heavy Vehicles (%)	EBL 10 10 1800 0.0 7.5 0.95 0 0 0 0 0 3 1.00 0%		1000 1000 1000 1000 1000 1000 1000 100	WBL 240 240 240 1800 75.0 1 7.5 1.00 0.99 0.950 1679 0.401 705 6 1.00 3%	 ▲10 420 420 1800 0.95 1.00 0.997 3412 3412 3412 3412 4 60 802.8 48.2 1.00 1% 	WBR 10 10 1800 0.0 0 0 95 0 95 0 Yes 3 1.00 0%	NBL 195 195 1800 0.0 0 7.5 1.00 0 0 0 0 0 1 1 1.00 3%	NBT 4 15 15 15 15 15 15 15 15 15 15 15 15 15	NBR 7 160 1600 1800 0.0 0.98 0.850 1532 1496 Yes 160 4 9 9 1.00 1.0	10 10 1800 0 7.5 1.00 0 0 0 4 1.00 0%	↓ SBT 4 10 10 10 1800 0.959 0.955 0.984 1701 0.886 1530 10 50 65.8 4.7 1.00 0%	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util. Factor Ped Bike Factor Frt Rentited Stadt. Flow (prot) Fit Permitted Stadt. Flow (prot) Link Distance (m) Travel Time (d) Confil. Bikes (Hrn) Peak. (Hrn) Peak. (Hrn) Peak. (Hrn) Peak (Hrn) Pea	EBL 10 10 10 10 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0	480 0.95 1.00 0.999 3455 0.945 3268 0.945 3268 0.945 3268 0.945 3268 0.945 3268 0.945 3268 0.95 0.945 3268	1000 2% 1000 2000 2000 2000 2000 2000 2000 2000	WBL 240 240 280 1800 175.0 1.00 0.99 0.401 705 6 6 1.00 3% 240	 ▲↓ ↓20 ↓20 ↓20 ↓20 ↓800 1800 0.95 1.00 0.997 3412 341	WBR 10 10 1800 0.0 0 0 0 95 0 0 7 95 0 0 7 95 0 0 3 3 1.00 0% 10	NBL 195 195 1800 0 0 7.5 1.00 0 0 0 0 1 1.00 3% 195	NBT 4 15 15 15 15 1800 0.956 1693 0.719 1272 80 209.4 9.4 1.00 0% 15 1.00	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes 160 4 9 1.00 1,	10 10 1800 0.0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 10 10 10 1800 1800 1800 1800 1701 0.886 1530 10 50 65.8 4.7 1.00 0% 10 10 10 10 10 10 10 10 10 10	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Index Volume (vph) Ideal Flow (vphp) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Fri Fir Length (m) Lane Util, Factor Fir Rentted Stad. Flow (pnt) Fir Rentted Stad. Flow (pnt) Ink Speed (kh) Confl. Reds. (#hn) Confl. Reds. (#hn) Confl. Reds. (#hn) Peak Hour Factor Heavy Vehicles (%) Alg. Flow (vph) Shared Lane Traffic (%) Shared Lane Traffic (%)	EBL 10 100 1800 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0	480 480 1800 0.95 1.00 0.999 3455 0.945 3268 60 253.2 1.2 1.2 1.00 0% 480 490	1000 1000 1000 1000 1000 1000 1000 100	WBL 240 240 240 1800 0.99 0.950 1679 0.401 705 6 6 1.00 3% 240 240	 ▲ 1.00 ▲ 20 ↓ 20 ↓ 20 ↓ 20 ↓ 20 ↓ 100 ↓ 00 ↓ 00	WBR 10 10 1800 0.0 0 0 0 0 0 0 0 Ves 3 1.00 0% 10 0 0 0 0 0 0 0 0 0 0 0 0 0	NBL 195 195 1800 0.0 0 7.5 1.00 0 0 0 0 0 1 1 1.00 3% 195 0	NBT 4 15 15 15 15 1800 0.956 1693 0.719 1272 800 209.4 9.4 1.00 0% 15 210	NBR 160 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 1532 1496 160 160 1% 160 160 160 160 160 1800 1985 1995	10 10 1800 0.0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 10 10 10 10 10 10 10 0.99 0.955 0.984 1701 0.886 1530 10 50 65.8 4.7 1.00 0% 10 0 10 10 10 10 10 10 10 10	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Storage Length (m) Lane Util, Factor Ped Bike Factor Fri Frotected Stad. Flow (pnt) Fri Frotected Stad. Flow (pnt) Link Distance (m) Travel Time (s) Confil. Peds: (#hn) Confil. Reises (#hn) Peak Hour Factor Heavy Vehicles (%) Agi, Flow (vph) Shared Lane Traffic (%)	EBL 10 10 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0	480 0.95 1.00 0.999 3455 0.945 3268 60 253.2 15.2 1.00 0% 480 No Left	1000 2% 1000 2000 2000 2000 2000 2000 2000 2000	WBL 240 240 280 1800 175.0 1.00 0.99 0.401 705 6 6 1.00 3% 240	 ▲10 ▲10 ▲100 	WBR 10 10 1800 0.0 0 0 0 95 0 0 7 95 0 0 7 95 0 0 3 3 1.00 0% 10	NBL 195 195 1800 0 0 7.5 1.00 0 0 0 0 1 1.00 3% 195	NBT 4 15 15 150 15 1800 1.00 0.956 1693 0.719 1272 800 209.4 1.00 0% 15 210 2010 No 210 Left	NBR 160 160 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes 160 4 9 1.00 1,	10 10 1800 0.0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 4 0 100 100 100 100 0.956 0.984 1701 0.886 0.955 0.955 0.955 0.955 0.955 0.955 0.955 0.955 0.955 1530 1530 1530 100 0 0 0 0 0 0 0 0 0 0 0 0	
Moodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt If Protected Said. Flow (prot) Fit Permitted Said. Flow (prot) Fit Qermitted Said. Flow (prot) Travel Time (s) Confit. Breas: (#hr) Peak. (#hr) Peak. (#hr) Peak. (#hr) Peak. (#hr) Peak. (#hr) Fit Permitted Shared Lane Traffic (%) Lane Group Flow (vph) Lane Broup Flow (vph) Lane Broup Flow (vph) Median Width(m)	EBL 100 000 7.5 0.95 005 00 00 00 00 00 00 00 00 00 00 00 0	41 480 0.95 1.00 0.95 1.00 0.95 1.00 0.945 3268 60 0.945 3268 60 0.945 1.5.2 1.5.2 1.5.2 1.00 0% 480 0.95 1.00 0.95 1.5.2 1.00 0.95 1.00 0.95 1.00 0.95 1.5.2 1.00 0.95 1.00 0.95 1.5.2 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.5.2 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.5.2 1.00 0.95 1.00 0.95 1.00 0.95 1.5.2 1.00 0.05 1.00 0.95 1.00 0.95 1.00 0.95 1.5.2 1.00 0.05 1.5.2 1.00 0.05 1.5.2 1.00 0.05 1.5.2 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 1.00 0.05 1.00	1000 Feb 2000 Feb 200	WBL 240 240 75.0 1800 75.5 1.00 0.99 0.950 1679 0.401 705 0.401 705 6 6 6 6 1.00 3% 240 0.3%	↑	WBR 10 1800 0.0 0.95 0 0 Yes 3 1.00 0% 10 0 No	NBL 195 195 196 1800 0.0 0 7.5 1.00 0 0 0 1 1.00 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 1800 1.00 0.956 6.0719 1272 80 209.4 9.4 9.4 9.4 1.00 0% 15 210 No Left 0.0 0.0	NBR NBR 160 1600 1600 1000 1000 1100 1000 1532 1496 Yes 1600 4 9 1.000 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1496 1532 1496 1532 1496 1532 1496 1532 1496 1532 1496 1532 1496 1532 1496 1532 1000 1532 1496 1532 1496 1532 1000 1532 1000 100	10 10 1800 0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 4 4 5 0 1.00 0.99 0.955 0.984 1701 0.084 1530 0.984 1701 0.084 1530 0 0 65.8 4.7 1.00 0% 0% 0% 0% 0% 0% 0% 0% 0%	
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt Tritocted Sadd. Flow (prot) Fit Permitted Sadd. Flow (prot) Confl. Peds. (#hr) Fit Permitted Sared Lane Traffic (%) Lane Group Flow (vph) Sared Lane Traffic (%) Lane Group Flow (vph) Link Offset(m) Link Offset(m) Link (Mith(m)	EBL 100 000 7.5 0.95 005 00 00 00 00 00 00 00 00 00 00 00 0	480 0.95 1.00 0.999 3455 0.945 3268 60 253.2 15.2 1.00 0% 480 No Left	1000 Feb 2000 Feb 200	WBL 240 240 75.0 1800 75.5 1.00 0.99 0.950 1679 0.401 705 0.401 705 6 6 6 6 1.00 3% 240 0.3%	 ▲10 ▲10 ▲100 	WBR 10 1800 0.0 0.95 0 0 Yes 3 1.00 0% 10 0 No	NBL 195 195 196 1800 0.0 0 7.5 1.00 0 0 0 1 1.00 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 150 15 1800 1.00 0.956 1693 0.719 1272 800 209.4 1.00 0% 15 210 2010 No 2100 Left	NBR NBR 160 1600 1600 1000 1000 1100 1000 1532 1496 Yes 1600 4 9 1.000 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1532 153	10 10 1800 0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 4 0 100 100 100 100 0.956 0.984 1701 0.886 0.955 0.955 0.955 0.955 0.955 0.955 0.955 0.955 0.955 1530 1530 1530 100 0 0 0 0 0 0 0 0 0 0 0 0	
Hoodie & Carlin Lane Coup Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Unit, Factor Ped Bike Factor Frt Frt Protected Said. Flow (prot) Said. Flow (prot) Rt Pormited Said. Flow (prot) Fit Pormited Said. Flow (prot) Fit Protected Said. Flow (prot) Confi. Rese (#hn) Confi. Bikes (#hn) Confi. Bikes (#hn) Confi. Bikes (#hn) Ender Site (Teore (%h) Lane Group Flow (vph) Lane Algingment Median Wrdth(m) Crosswalk Wrdth(m) Crosswalk Wrdth(m)	EBL 100 1800 000 00 00 00 00 00 00 00 00	4↑ 480 0.95 1.00 0.995 1.00 0.995 3268 60 253.2 15.2 1.00 0% 480 No Left 480 No 8480 No 8480 No 8480 No 8480 No 8480 8480 8480 8480 8480 8480 8480 848	7 320 320 1800 125.0 1 1.00 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0	WBL 240 240 1800 75.0 0.99 0.950 1679 0.401 705 6 6 1.00 3% 240 No Left	↑	WBR 10 10 10 10 0 0 0 0 0 0 0 0 0 Yes 3 3 1.00 0% 10 0 0 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	NBL 195 180 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 No Left	NBT 4 15 15 15 1800 0.0566 1693 0.719 1272 80 209.4 9.4 9.4 1.00 0% 15 210 No Left 1.00 0.0 4.8	NBR 1600 1600 1800 1001 1.000 0.98 0.850 1532 1496 749 1.000 1% 1600 1% 1600 No Right	10 10 1800 0 7.5 1.00 0 0 0 4 4 1.00 0% 10 0 No Left	↓ SBT 10 10 10 10 10 10 10 10 1800 0.959 0.984 1701 0.886 1530 10 0.686 4.7 1.00 0% 150 0.00 0.0 Left 0.00 0.0 4.8	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Frt Tritocted Sadd. Flow (prot) Fit Permitted Sadd. Flow (prot) Confl. Peds. (#hr) Fit Permitted Sared Lane Traffic (%) Lane Group Flow (vph) Sared Lane Traffic (%) Lane Group Flow (vph) Link Offset(m) Link Offset(m) Link (Mith(m)	EBL 100 000 7.5 0.95 005 00 00 00 00 00 00 00 00 00 00 00 0	4↑ 480 1800 0.95 1.00 0.999 3455 0.945 3268 60 253.2 15.2 1.00 0% 480 0% 480 No 0.65 1.00 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	1000 Feb 2000 Feb 200	WBL 240 240 75.0 1800 75.5 1.00 0.99 0.950 1679 0.401 705 6 6 6 6 6 6 0.00 3% 240 0.240 No	 ♣1. 420 420 1800 0.95 1.00 0.997 3412 3412 4 6 802.8 48.2 1.00 802.8 48.2 4.00 802.8 48.2 4.00 802.8 4.10 1.01 4.10 1.02 1.01 1.02 1.01 1.02 1.02 1.01 1.02 1.02 1.03 1.04 1.04 1.05 1.	WBR 10 1800 0.0 0.95 0 0 Yes 3 1.00 0% 10 0 No	NBL 195 195 196 195 100 0 0 0 0 0 1.00 0 1.00 0 0 0 0 0 0 0 0 0 0 0 No	NBT 4 15 15 15 1800 0.956 1693 0.719 1272 80 209.4 9.4 1.00 0% 0% 15 210 No 0.2010 No 0.00	NBR NBR 160 1600 1600 1000 1000 1100 1000 1532 1496 Yes 1600 4 9 1.000 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1532 1496 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1600 1532 1496 1532 153	10 10 1800 0 0 7.5 1.00 0 0 0 4 4 1.00 0% 10	↓ SBT 10 10 10 1800 1.00 0.955 0.984 1701 100 0.955 0.984 1701 100 50.88 4.7 1.00 0% 1.00 0.95 0.955 0.984 1701 0.955 0.984 1701 0.085 0.955 0.984 1701 100 0.955 0.984 1701 0.085 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.955 0.984 1.001 0.085 0.985 1.000 0.955 0.984 1.001 0.085 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.955 0.985 1.000 0.085 0.985 1.000 0.085 0.000 0.055 0.085 0.000 0.055 0.000 0.000 0.000 0.005 0.0000 0.00000 0.0000 0.0000 0.00000 0.00000 0.0000 0.00000 0.000	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt The Totocted Sadt. Flow (prot) Fit Permitted Sadt. Flow (prot) End Vertice Sadt. Flow (prot) End Vertice Sadt. Flow (prot) End Vertice Sadt. Flow (prot) End For Bocked Intersection Lane Sagment Median Width(m) End Verdiavy Left Turn Lane Mardway Left Turn Lane Sadtor Turning Speed (kh) Vander of Detectors	EBL 10 10 10 00 00 0 0 0 0 0 0 0 0 0 0	4↑ 480 480 1800 0.955 1.00 0.999 3455 0.945 3268 600 253.2 15.2 1.00 0% 480 0% 480 0.945 3.268 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 0.945 1.02 1.02 0.945 1.02 1.02 0.945 1.02 1.	7 320 320 1800 125.0 0.96 0.96 0.850 1517 1460 Yes 320 6 4 1.00 0.2% 320 No Right 1.06 1.00 1	WBL Y 240 1800 75.0 0.99 0.950 1679 0.401 705 6 1.00 3% 240 No Left 1.06 244 1 1.06 244 1	↑	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 1800 00 0 7.5 1.00 0 0 1 1.00 3% 195 0 1.00 3% 1.00 1.00 1.00 1.00	NBT 4 15 15 15 15 1800 0.956 1993 0.719 1272 800 209.4 9.4 1.00 0% 209.4 9.4 1.5 210 No 0.6 4.8 1.5 210 1.5 210 1.5 210 1.5 210 1.5 210 1.5 210 1.5 215 215 215 215 215 215 215 21	NBR 160 160 160 1800 0.0 1800 0.0 1800 0.0 1532 1496 Yes 160 1532 1496 Yes 160 1532 1496 No Right 1.00 No Right 1.00 1.00 No Right 1.00 No Right 1.00 1.00 Right 1.00	10 10 1800 0 7.5 1.00 0 0 0 4 4 1.00 0% 10 0 0 0 0 1.06 24 4 1	↓ SBT 1.00 0.955 0.984 1701 1.00 0.984 1701 1.00 0.886 1530 10 50 0.884 1.530 10 50 0.884 1.00 0.985 1.00 0.984 1.00 0.0886 1.00 0.0884 1.00 0.0886 1.00 0.0884 1.00 0.0886 1.00 0.0884 1.00 0.0886 1.00 0.0884 1.00 0.06 1.00 0.084 1.00 0.086 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.06 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.	· · · ·
Moodie & Carlin Lane Group Lane Configurations Traffer Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Line Util: Factor Ped Bike Factor Fit Protected Said. Flow (port) Fit Perticeted Said. Flow (port) Fit Perceted Said. Flow (port) Fit Perceted Said. Flow (port) Fit Perceted Fit Perceted Said. Flow (port) Fit Perceted Fit	EBL 100 100 100 000 00 00 00 00 00	4↑↑ 480 480 1800 0.95 1.00 0.945 3268 60 253.2 15.2 15.2 15.2 1.00 0.945 3268 60 253.2 15.2 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 1.00 0.945 3268 1.00 0.945 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3268 1.00 0.945 3.00 0.045 3.00 0.045 3.00 0.045 3.00 0.045 3.00 0.045 3.00 0.045 3.00 0.045 3.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	1.06 1.06 1.07 1.07 1.00 1.05 1.07 1.00 0.95 0.95 0.05 0.95 0.05 0.95 0.05 0.0	WBL 240 1800 75.0 1.00 0.99 0.950 1679 0.950 1679 0.401 1.00 6 1.00 0.3% 240 No Left 1.06 24 1.06 24 1.06 24 1.06 1.04 1.06 1.04 1.06 1.05 1.06		WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 1955 1951 1800 0.0 0 7.5 1.00 0 0 0 0 0 0 0 0 1.00 No Left 1.066 24	NBT 1 1 15 15 15 1800 1.00 0.956 1.00 0.979 1272 80 209.4 9.4 9.4 1.00 0% 15 210 No 0.4 1.00 0.0 0.01 1.00 0.02 2.10 No 0.2 1.06 2 2 Thru	NBR 1600 1601 1600 18000 0.098 0.8500 1532 1496 1600 1532 1496 1600 No Right 1.000 No Right 1.000 1800 1000 1000 1100 100	10 10 1800 0 7.5 1.00 0 0 0 0 4 4 1.00 0 % 0 0 No Left 1.06 24 1 1	↓ SBT 4 4 0 0 0.99 0.955 0.984 1701 0.880 0.984 1701 0.88 0 0.984 1701 1.00 0.88 1.00 0% 0% 10 30 No 0 Left 0.0 0 0 0 1.06 2 Thru	· · · ·
Moodie & Carlin Lane Group Lane Configurations Traffer Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Line Util: Factor Ped Bike Factor Fit Protected Said. Flow (port) Fit Perticeted Said. Flow (Part) Peak Hour Factor Peak Hour Factor Travel Time (s) Confil. Bikes (#hn) Confil. Bikes (#hn) Peak Hour Factor Heavy Vehicles (%) Adj. Flow (vph) Link Offset(m) Crosswalk Width(m) Link Offset(m) Dretector Template Leading Detector (m)	EBL 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	4↑ 480 480 1800 0.95 1.00 0.995 1.00 0.995 3268 60 253.2 15.2 1.00 0.945 3268 60 253.2 15.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 1.00 0.045 1.00 0.045 1.00 0.045 1.00 0.05 1.00 0.05 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00	1.06 1.06 1.00 1.00 1.05 1.00 1.05 1.01 1.00 1.00	WBL 240 1800 75.0 1.00 0.99 0.950 1.00 0.401 705 6 6 1.00 3% 240 240 No Left 1.06 244 1 1.06 6.1 1.06 6.24 1.06 244 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	↑↑ ↑ 420 420 420 1800 0.95 1.00 0.997 3412 3412 3412 3412 3412 3412 460 802.8 48.2 1.00 1.0% 420 430 No Left 1.06 4.8 1.06 2 Thru 30.5 0.0 0.0	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 7.5 1.00 0 0 0 0 0 1 1 1.00 3% 195 0 No 0 Left 1.06 24 1 0.00 0.00	NBT Image: NBT <td>NBR NBR 160 160 160 1800 0.0 1800 0.0 1800 0.0 1532 1496 160 1532 1496 160 160 No Right 1.00 160 180 180 160 160 160 160 160 160 160 180 160 180 160 180 160 180 180 180 180 180 180 180 18</td> <td>10 10 1800 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>↓ SBT SBT 100 0.99 0.955 0.984 1701 1800 0.086 1530 10 0.886 1530 10 0.886 1530 10 0.0 0.886 1530 10 0 0.886 1530 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>· · · ·</td>	NBR NBR 160 160 160 1800 0.0 1800 0.0 1800 0.0 1532 1496 160 1532 1496 160 160 No Right 1.00 160 180 180 160 160 160 160 160 160 160 180 160 180 160 180 160 180 180 180 180 180 180 180 18	10 10 1800 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT SBT 100 0.99 0.955 0.984 1701 1800 0.086 1530 10 0.886 1530 10 0.886 1530 10 0.0 0.886 1530 10 0 0.886 1530 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt The Toteted Stad. Flow (prot) Fit Permitted Stad. Flow (prot) Fit Permitted Stad. Flow (prot) Link Speed (kh) Link Speed (kh) Link Speed (kh) Shared Lane Traffic (%) Lane Group Fore(vph) Enter Blocked Intersection Entersection Entersection Entersecti	EBL 10 10 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0	4↑ 480 480 480 1800 0.95 1.00 0.995 1.00 0.995 1.00 0.995 1.00 0.995 1.00 0.995 1.00 0.995 0.945 3268 60 253.2 15.2 1.02 0.945 3265 0.945 3268 1.00 0.945 1.00 0.045 1.00 0.045 1.00 0.045 1.00 0.00 1.00 1.	7 10 320 320 320 1800 125.0 1 1.00 0.96 0.850 1517 1460 Yes 320 No Right 1.06 14 1.00 No Right 1.06 14 1.00 0.0 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00 15 1.00	WBL 240 240 1800 0.99 0.950 1.00 0.99 0.401 705 6 6 1.00 3% 240 240 240 240 240 240 240 240 240 0.00	↑↑ ↑ 420 420 420 1800 0.95 1.00 0.97 3412 3412 3412 3412 4 60 802.8 48.2 48.2 1.00 1% 420 No 1.00 1% 420 1.00 1.00 1.00 1.01 1% 420 1.00 1.00 1.00 1.00 1.00 1.00 1.00	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 1.00 3% 195 0 0 No Left 1.06 24 4 1 0.00 0.0	NBT 1 1 15 15 15 15 15 1800 1.00 0.956 1.00 0.719 1272 80 209.4 9.4 9.4 1.00 0% 1.00 0% 1.00 0.0 0.4 8 1.00 0.0 0.4 8 1.06 2 1.00 0.0 0.0 0.0	NBR NBR 160 160 160 1.00 0.850 0.850 1.00 1532 1496 Yes 160 1.00 1% 160 1.00 Right 1.00 Right 1.00 0.0 0.0 0.0 0.0 1.00 0.0 0.0 0.0 0	10 10 1800 0 0 7.5 1.00 0 0 4 1.00 0% 10 0 0 0 0 0 0 0 0 0 0 0 0 1.06 24 4 1 1.06 1.06 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 44 10 10 10 10 10 1800 0.99 0.955 0.984 1701 0.886 1530 10 0.886 1530 10 0 0 65.8 1.00 0% 0.0 10 10 10 10 10 10 10 10 10 10 10 10 10	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt The Toteted Stadi. Flow (prot) Fit Permitted Stadi. Flow (prot) Fit Quertited Stadi. Flow (prot) Link Speed (kh) Link Speed (kh) Link Distance (m) Travel Time (s) Confl. Peds. (#khr) Peak Hour Factor Heavy Vehicles (%) Shared Lane Traffic (%) Lane Group Folectors Detector Template Leading Detector (m) Trailing Detector (m) Detector 1 Spee(m)	EBL 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	4↑ 480 480 1800 0.95 1.00 0.995 1.00 0.995 3268 60 253.2 15.2 1.00 0.945 3268 60 253.2 15.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 3268 60 253.2 1.00 0.945 1.00 0.045 1.00 0.045 1.00 0.045 1.00 0.05 1.00 0.05 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00	1.06 1.06 1.00 1.00 1.05 1.00 1.05 1.01 1.00 1.00	WBL 240 1800 75.0 1.00 0.99 0.950 1.00 0.401 705 6 6 1.00 3% 240 240 No Left 1.06 244 1 1.06 6.1 1.06 6.24 1.06 244 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	↑↑ ↑ 420 420 420 1800 0.95 1.00 0.997 3412 3412 3412 3412 3412 3412 460 802.8 48.2 1.00 1.0% 420 430 No Left 1.06 4.8 1.06 2 Thru 30.5 0.0 0.0	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 7.5 1.00 0 0 0 0 0 1 1 1.00 3% 195 0 No 0 Left 1.06 24 1 0.00 0.00	NBT 4 15 15 15 15 15 15 15 1693 0.719 209.4 9.4 1.00 0% 15 210 No 0.0% 15 210 No 0.0 0.0 1.06 210 No 1.06 210 No 210 No 0.0 0.0	NBR NBR 160 160 160 1800 0.0 1800 0.0 1800 0.0 1532 1496 160 1532 1496 160 160 No Right 1.00 160 180 180 160 160 160 160 160 160 160 180 160 180 160 180 160 180 180 180 180 180 180 180 18	10 10 1800 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT SBT 100 0.99 0.955 0.984 1701 1800 0.086 1530 10 0.886 1530 10 0.886 1530 10 0.0 0.886 1530 10 0 0.886 1530 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	· · · ·
Moodie & Carlin Lane Group Lane Configurations Traffer Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util. Factor Ped Bike Factor Fri Rentited Stadt. Flow (prot) Fri Permitted Stadt. Flow (prot) End Vertice Stadt. Flow (prot) Link Obstance (m) Travel Time (2) Link Obstance (m) Travel Time (4) Confil. Bikes (Hrn) Peak Hour Factor Peaks. (Hrn) Confil. Bikes (Hrn) Peak Hour Factor There Time (5%) Adj. Flow (vph) There Time (5%) Adj. Flow (vph) There Score (Hrn) Link Obsteme Time (7%) Lane Group Flow (vph) Link Obsteme Time (7%) Lane Group Flow (vph) Detector 1 Position(m) Detector 1 Type	EBL 10 10 100 100 0 0 0 0 0 0 0 0 0 0 0 0	44€ 480 480 1800 0.95 1.00 0.999 3455 0.945 3268 60 0.253.2 15.2 15.2 15.2 15.2 15.2 15.2 15.2 15	7 320 320 1800 0.850 1.00 0.850 1.00 2% 320 6 4 4 1.00 2% 320 No Right 1.06 1.460 No Right 1.06 1.00 0.850 1.00 0.00 1.00 0.	WBL 240 240 240 75.0 75.0 75.0 75.0 0.950 1679 0.401 705 705 6 6 6 1.00 0.3% 240 240 No Left 1.06 24 1 1.06 24 1 1.06 24 1 1.06 24 1.06 24 1.06 24 0.3% 240 0.3% 240 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.401 7.5.0 1679 0.3% 0.3% 0.401 7.5.0 1679 0.3% 0.401 7.5.0 1679 0.3% 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 0.401 7.5.0 1679 1679 1679 1679 1679 1679 1679 1679	↑↑ ↑ 420 420 420 1800 0.95 1.00 0.97 3412 3412 3412 3412 4 60 802.8 48.2 48.2 430 No 1.06 2 Thru 30.5 0.00 1.8 CI+Ex CI+Ex	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 15 15 15 15 15 15 15 15 1693 0.719 209.4 9.4 1.00 0% 15 210 No 0.00 4.8 1.06 2 Thru 30.0 1.8 CI+Ex	NBR NBR 160 1800 0.0 1 1.000 0.98 0.850 0.98 0.850 1532 1496 7 Yes 160 1532 1496 7 Yes 160 100 1% 160 160 160 160 160 17 8 9 1.000 180 180 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.	10 100 1800 0.0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 100 0.99 0.956 0.984 1701 1800 1800 1800 1800 1800 1830 10 50 0.984 4.7 1.00 0.984 4.7 1.00 0.0% 1.00 0.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.984 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.084 1.00 0.00 1.00 0.084 1.00 0.084 1.00 0.00 1.00 1.00 0.00 1.0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util, Factor Ped Bike Factor Frt The Toteted Stadi. Flow (prot) Fit Permitted Stadi. Flow (prot) Fit Quertited Stadi. Flow (prot) Link Speed (kh) Link Speed (kh) Link Distance (m) Travel Time (s) Confl. Peds. (#khr) Peak Hour Factor Heavy Vehicles (%) Shared Lane Traffic (%) Lane Group Folectors Detector Template Leading Detector (m) Trailing Detector (m) Detector 1 Spee(m)	EBL 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	44€ 480 480 1800 0.955 1.00 0.999 3455 0.945 3268 60 0.253.2 1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.	7 7 7 320 320 320 1800 125.0 1 1.00 0.96 0.850 1517 1460 0.850 1517 7 9 320 7 9 320 8 320 8 320 8 320 8 1.06 4 14 1 1 Right 1 0.0 0.00 0.0	WBL 240 240 240 75.0 75.0 75.0 75.0 75.0 75.0 75.0 75.	↑↑ ↑ 420 420 420 1800 0.95 1.00 0.997 3412 3412 3412 3412 3412 3412 4 60 802.8 48.2 48.2 1.00 1% 420 1% 430 No 0.0 1.06 2 Thru 30.5 0.0 0.0 1.8	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL NBL 1955 1800 0.0 0.0 0.0 0.0 0 0 0 1.00 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 15 15 15 15 15 15 15 15 15 160 0.056 0.719 209.4 9.4 1.00 0% 15 210 No 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.06 2 Thru 30.5 0.0 0.0 0.0	NBR NBR 160 160 160 17 100 0.0 1800 0.850 1532 1496 9 1.00 0.98 0.850 1532 1496 Yes 160 100 No Right 1.066 14 14 0.0 0.0 0.0 0.0 0.0 1 1 100 10 0.0 0.0	10 10 1800 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 40 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Unit, Factor Ped Bike Factor Fri The Protected Stad. Flow (prot) Fri Rentited Stad. Flow (prot) Fit Permitted Stad. Flow (prot) Link Speed (kh) Link Distance (m) Travel Time (s) Confl. Peds: (#hr) Peak Hour Factor Heavy Vehicles (%) Shared Lane Traffic (%) Shared Lane Traffic (%) Conswalk Width(m) Two wyLeft Turn Lane Headway Factor Median Width(m) Turing Speed (kh) Number of Detectors Detector T Spee(m) Detector 1 Spee(m) Detector 1 Spee(m) Detector 1 Channel Detector 1 Queue (s) Detector 1 Queue (s) Detector 1 Queue (s)	EBL 10 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0	440 480 480 1800 0.955 1.00 0.999 3455 0.945 3268 3268 3268 3268 3268 3268 480 0.945 3268 3268 3268 480 0.945 3268 480 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	700 320 320 320 125.0 125.0 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.	WBL WBL 240 240 240 75.0 1.00 0.99 0.99 0.99 0.90 1679 0.401 705 240 240 240 0.00 Left 1.06 24 1.06 24 1.06 240 1.06 0.00 0.00 0.00 0.00 0.00 0.00 0.0	*** ** 420 420 1800 997 3412 3412 3412 3412 3412 4 60 802.8 48.2 48.2 1.00 1% 420 1.00 1.05 0.0 1.06 2 2 1.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 1955 1966 1800 0.0 0 0 7.5 1.00 0 0 0 0 1.00 1.00 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 15 15 15 15 15 15 15 15 15	NBR NBR 160 160 160 1800 0.0 1800 0.0 1800 0.0 1 1.00 0.98 0.850 1532 1496 Yes 160 1.00 1.00 1.00 1.00 No Right 1.00 No Right 1.00 0.0 1.00 0.98 0.99 0.98 0.99 0.98 0.98 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.98 0.99 0.99 0.9	10 10 1800 0.0 0 7.5 1.00 0 0 0 4 1.00 0% 10 0% 10 0% 24 1 1.eft 6.1 0.0 0.0 0.0 0.0 0.0 0% 0.0 0% 0.0 0.0 0	↓ SBT 40 10 10 10 10 10 10 10 0.99 0.955 0.984 1701 1800 0.984 1701 1800 0.984 1701 1800 0.984 1701 100 0.984 1701 100 0.984 1700 100 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.00 1.000 0.000 0.000 1.000 0.0000 0.00000 0.0000 0.0000 0.0000000 0.0000 0.0000 0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffe Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util. Factor Ped Bike Factor Fr H Thotcked Sadt. Flow (prot) Fit Permitted Sadt. Flow (prot) Fit Permitted Sadt. Flow (prot) Fit Permitted Sadt. Flow (prot) Ender Verlage (Mn) Confit. Peds. (#Mn) Confit. Bikes (Hn) Confit. Bikes (Hn) Fit Permitted Sadt Flow (Vph) Link Obstance (m) Travel Time (s) Torvel Time (s) Torsevalt Width(m) Link Offset(m) Crosswalk Width(m) Link Offset(m) Turning Detector (m) Taining Detector (m) Detector 1 Position(m)	EBL 10 10 100 100 0 0 0 0 0 0 0 0 0 0 0 0	41€ 480 480 480 1800 0.95 1.00 0.999 3455 3268 60 253.2 15.2 1.00 0% 480 0.945 3268 490 0% 480 0% 480 490 0% 480 1.06 253.2 15.2 1.00 0% 480 0.95 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 1.00 0.00 1.00	7 320 320 320 1800 0.96	WBL WBL 240 240 240 240 240 240 240 240 180 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.040 1670 0.09 0.09 0.09 0.00 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 0.09 0.050 1679 0.040 170 0.09 0.050 1679 0.040 170 0.09 0.050 1679 0.040 170 0.09 0.00 0.00 0.00 0.00 0.00 0.00 0.	1 1 420 420 420 1800 9.95 1.00 0.997 3412 3412 3412 3412 4 60 802.8 48.2 48.2 1.00 1% 1.00 1% 1.00 1% 1.00 1.06 2 Thru 3.7 0.0 0.0 0.0 1.06 2 Thru 3.7 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	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 1800 0.056 1993 0.0719 1272 80 209.4 9.4 9.4 9.4 1.00 0% 15 210 No 0.0 19 209.4 9.4 9.4 1.00 0.0 19 209.4 9.4 1.00 1.00 0.019 1272 80 209.4 9.4 1.00 1.00 0.019 1272 80 209.4 9.4 1.00 1.00 0.019 1272 80 209.4 9.4 1.00 0.00 1.00 0.019 1.00 1.00 0.019 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 0.00 1.00 0.00 0.00 1.00 0.00	NBR NBR 160 160 160 100 100 100 100 0.98 0.850 1532 1496 Yes 160 1532 1496 Yes 160 1532 1496 No Right 1.06 14 10 No Right 1.06 160 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	10 10 1800 0.0 0 7.5 1.00 0 0 4 1.00 0% 10 0 No Left 1.166 24 4 1 Left 1.166 24 6.1 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 4. 0 0 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 0.886 1530 100 0.886 100 0% 10 300 0.0 1.00 0.0 1.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Fit In Protected Said. Flow (prot) Fit Permitted Said. Flow (wph) Travel Time (s) Confit. Base (fithr) Peak Hour Factor Turning Speed (kh) Number of Detector (m) Traing Detector (m) Taining Detector (m) Detector 1 Peakin(m) Detector 2 Szer(m) Detector 2 Szer(m)	EBL 10 10 100 100 0 0 0 0 0 0 0 0 0 0 0 0	440 480 480 1800 0.955 1.00 0.999 3455 0.945 3268 3268 3268 3268 3268 3268 480 0.945 3268 3268 3268 480 0.945 3268 480 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	7 320 320 320 1800 0.96	WBL WBL 240 240 240 240 240 240 240 240 180 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.09 0.09 0.09 0.09 0.00 0.00 0.	*** ** 420 420 1800 997 3412 3412 3412 3412 3412 4 60 802.8 48.2 48.2 1.00 1% 420 1.00 1.05 0.0 1.06 2 2 1.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 15 15 15 15 15 15 15 15 15	NBR NBR 160 160 160 100 100 100 100 0.98 0.850 1532 1496 Yes 160 1532 1496 Yes 160 1532 1496 No Right 1.06 14 10 No Right 1.06 160 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	10 10 1800 0.0 0 7.5 1.00 0 0 4 1.00 0% 10 0 No Left 1.166 24 4 1 Left 1.166 24 6.1 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 40 10 10 10 10 10 10 10 0.99 0.955 0.984 1701 1800 0.984 1701 1800 0.984 1701 1800 0.984 1701 100 0.984 1701 100 0.984 1700 100 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.984 1.000 0.00 1.000 0.000 0.000 1.000 0.0000 0.00000 0.0000 0.0000 0.0000000 0.0000 0.0000 0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) future Volume (vph) future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Unit, Factor Ped Bike Factor Fri Taper Length (m) Lane Unit, Factor Ped Bike Factor Fri Right Turn on Red Said. Flow (prof) Filt Permitted Said. Flow (prof) Link Speed (kh) Link Distance (m) Travel Time (s) Confl. Peds. (#hr) Peak Hour Factor Heavy Vehicles (%) Shared Lane Traffic (%) Shared Lane Traffic (%) Link Offsel(m) Crosswalk Width(m) Turing Speed (kin) Mumber of Detector Speedor T Channel Detector 1 Channel Detector 2 Position(m) Detector 2 Position(m)	EBL 10 10 100 100 0 0 0 0 0 0 0 0 0 0 0 0	4↑ 480 480 1800 0.955 1.00 0.999 3455 3268 60 253.2 15.2 1.00 0% 480 253.2 15.2 1.52 1.00 0% 480 0.945 3268 60 0.945 3268 480 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 3268 60 0.945 1.00 0.945 3268 60 0.945 1.00 0.945 3268 60 0.945 1.00 0.95 1.00 0.00 1.00	7 320 320 320 1800 0.96	WBL WBL 240 240 240 240 240 240 240 240 180 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.09 0.09 0.09 0.09 0.00 0.00 0.	↑↑ ↑ ↓ 420 420 1800 1800 0.95 1.00 3412 3412 3412 3412 3412 3412 342 342 342 1000 1% 420 100 1% 420 100 1% 420 430 No 1% 4420 100 1% 420 100 1% 100 1% 1.01 100 1% 1.01 100 1.02 1.01 100 1.02 1.01 100 0.01 1.02 0.01 1.02 1.02 0.02 0.01 1.02 0.03 1.02 1.02 1.04 1.02 1.02	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 15 15 15 15 15 15	NBR NBR 160 160 160 100 100 100 100 0.98 0.850 1532 1496 Yes 160 1532 1496 Yes 160 1532 1496 No Right 1.06 14 10 No Right 1.06 160 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	10 10 1800 0.0 0 7.5 1.00 0 0 4 1.00 0% 10 0 No Left 1.166 24 4 1 Left 1.166 24 6.1 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 40-00-00-00-00-00-00-00-00-00-00-00-00-0	· · · ·
Hoodie & Carlin Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane Util: Factor Ped Bike Factor Fri Trentited Stad. Flow (prot) Fri Pernitted Stad. Flow (prot) Fri Pernitted Stad. Flow (prot) Fri Pernitted Stad. Flow (prot) Confi. Bikes (fm) Fraever Unite (s) Confi. Bikes (fm) Frierer Biocked (fm) Link Obtance (m) Travel Time (s) Confi. Bikes (fm) Confi. Bikes (fm) Confi. Bikes (fm) Median Width(m) Link Offstance (rs) Haedvay Factor Turning Speed (kh) Number of Detector (m) Travel Temple Leading Detector (m) Traing Detector (m) Traing Detector (m) Traing Detector (m) Detector 1 Pesition(m) Detector 2 Size(m) Detector 2 Size(m) Detector 2 Size(m)	EBL 10 10 100 100 0 0 0 0 0 0 0 0 0 0 0 0	41€ 480 480 480 1800 0.95 1.00 0.999 3455 3268 60 253.2 15.2 1.00 0% 480 0.945 3268 490 0% 480 0% 480 490 0% 480 1.06 253.2 15.2 1.00 0% 480 0.95 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.05 15.2 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00 0.00 1.00	7 320 320 320 1800 0.96	WBL WBL 240 240 240 240 240 240 240 240 180 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.99 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.950 1679 0.09 0.09 0.09 0.09 0.09 0.00 0.00 0.	↑↑ ↑ ↓ 420 420 1800 1800 0.95 1.00 0.997 3412 3412 3412 3412 3412 342 460 802.8 482 48.2 1.00 1000 1% 420 430 No 1.06 2 1.00 4.8 1.06 2 1.00 2 1.00 0.0 0.0 0.8 CI+Ex 0.0 0.0 0.28.7 1.8 1.8 1.8	WBR 10 100 0.0 0.0 0.0 0 0 Yes 3 1.00 0% Right 1.06	NBL 195 195 1800 0.0 0 0 7.5 1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NBT 4 15 15 15 15 1800 0.956 100 100 100 100 100 100 209.4 9.4 9.4 1.00 0% 15 210 No 0.0 0.6 210 No 0.0 0.0 0.0 0.0 0.10 1.06 2 1.06 2 1.06 2 1.06 2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	NBR NBR 160 160 160 100 100 100 100 0.98 0.850 1532 1496 Yes 160 1532 1496 Yes 160 1532 1496 No Right 1.06 14 10 No Right 1.06 160 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	10 10 1800 0.0 0 7.5 1.00 0 0 4 1.00 0% 10 0 No Left 1.166 24 4 1 Left 1.166 24 6.1 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	↓ SBT 40-00-00-00-00-00-00-00-00-00-00-00-00-0	E

Queues

4: Bedale & Carling

12-01-2022

~

+ ≻ ≻ ↓

3430 Carling Avenue 2024 Future Background PM Peak 3:30 pm 12-01-2022 CS

12-01-2022

Queues

	۶	-	\mathbf{i}	1	-	۰.	•	Ť	1	- \	.↓	
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	S
Detector Phase	2	2	2	1	6		8	8	8	4	4	_
Switch Phase	-		-		-		-	-	-			
Ainimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Vinimum Split (s)	28.6	28.6	28.6	10.6	28.6		31.0	31.0	31.0	31.0	31.0	
Fotal Split (s)	40.0	40.0	40.0	25.0	65.0		35.0	35.0	35.0	35.0	35.0	
otal Split (%)	40.0%	40.0%	40.0%	25.0%	65.0%		35.0%	35.0%	35.0%	35.0%	35.0%	
Aaximum Green (s)	34.4	34.4	34.4	19.4	59.4		29.0	29.0	29.0	29.0	29.0	
(ellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.3	2.3	2.3	2.3	2.3	
ost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Fotal Lost Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
.ead/Lag	Lag	Lag	Lag	Lead								
.ead-Lag Optimize?	Yes	Yes	Yes	Yes								
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Valk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
lash Dont Walk (s)	16.0	16.0	16.0		16.0		18.0	18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5		5		5	5	5	5	5	
Act Effct Green (s)	Ŭ	49.5	49.5	66.6	66.6		Ŭ	21.8	21.8	0	21.8	
Actuated g/C Ratio		0.50	0.50	0.67	0.67			0.22	0.22		0.22	
/c Ratio		0.30	0.36	0.41	0.19			0.76	0.36		0.09	
Control Delay		17.7	3.8	9.9	7.4			53.3	6.8		21.1	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		17.7	3.8	9.9	7.4			53.3	6.8		21.1	
.OS		B	0.0 A	0.0 A	A			00.0	0.0 A		C	
Approach Delay		12.2	A	~	8.3			33.2	~		21.1	
Approach LOS		12.2 B			0.5 A			C			C	
Queue Length 50th (m)		28.1	0.0	16.2	14.8			38.3	0.0		3.1	
Queue Length 95th (m)		51.5	17.2	34.2	27.3			56.8	13.9		9.3	
nternal Link Dist (m)		229.2	11.2	04.2	778.8			185.4	10.0		41.8	
Furn Bay Length (m)		220.2	125.0	75.0	110.0			100.1			11.0	
Base Capacity (vph)		1617	884	658	2285			372	551		455	
Starvation Cap Reductn		0	0	0.00	0			0	0		455	
Spillback Cap Reductn		0	0	0	0			0	0		0	
Storage Cap Reductn		0	0	0	0			0	0		0	
Reduced v/c Ratio		0.30	0.36	0.36	0.19			0.56	0.29		0.07	
Reduced v/c Ratio		0.50	0.30	0.30	0.19			0.50	0.29		0.07	
ntersection Summary												
	Other											
Cycle Length: 100	-											
Actuated Cycle Length: 100												
Offset: 0 (0%), Referenced	to phase	2:EBTL a	ind 6:WB	TL, Start	of Green							
Vatural Cycle: 75												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.76												
ntersection Signal Delay: 1					ntersectio							
ntersection Capacity Utilization	ation 71.8	%		10	CU Level	of Servic	еC					
Analysis Period (min) 15												
Splits and Phases: 1: Mo	odie & Ca	arling										
√ Ø1	-	A						a				-
▼ ⊎1 25 s	40	P02 (R)					35					
€ Ø6 (R)							-	1 _{Ø8}				
								1 108				

	500	505	505	14.001	14.00.00	14100	1101	1007	100	0.01	0.07	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		<1 ↑	1	<u></u>	≜ î⊳		105	۹,	1	10	4	
Traffic Volume (vph)	10	480	320	240	420	10	195	15	160	10	10	
Future Volume (vph)	10	480	320	240	420	10	195	15	160	10	10 1800	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00			1.00			1.00	0.97		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Fit Protected		1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)		3454	1462	1675	3411			1690	1492		1698	
Flt Permitted		0.94	1.00	0.40	1.00			0.72	1.00		0.89	
Satd. Flow (perm)		3267	1462	707	3411			1272	1492		1529	_
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	10	480	320	240	420	10	195	15	160	10	10	
RTOR Reduction (vph)	0	0	162	0	1	0	0	0	125	0	8	
Lane Group Flow (vph)	0	490	158	240	429	0	0	210	35	0	22	
Confl. Peds. (#/hr)	3		6	6		3	1		4	4		
Confl. Bikes (#/hr)			4						9			
Heavy Vehicles (%)	0%	0%	2%	3%	1%	0%	3%	0%	1%	0%	0%	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)		49.5	49.5	66.6	66.6			21.8	21.8		21.8	
Effective Green, g (s)		49.5	49.5	66.6	66.6			21.8	21.8		21.8	
Actuated g/C Ratio		0.50	0.50	0.67	0.67			0.22	0.22		0.22	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1617	723	582	2271			277	325		333	
v/s Ratio Prot				c0.05	0.13							
v/s Ratio Perm		0.15	0.11	c0.23				c0.17	0.02		0.01	
v/c Ratio		0.30	0.22	0.41	0.19			0.76	0.11		0.07	
Uniform Delay, d1		15.0	14.3	7.0	6.4			36.6	31.3		31.0	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.5	0.7	0.5	0.2			11.3	0.1		0.1	
Delay (s)		15.5	15.0	7.5	6.6			47.9	31.5		31.1	
Level of Service		В	В	A	А			D	С		С	
Approach Delay (s)		15.3			6.9			40.8			31.1	
Approach LOS		В			А			D			С	
Intersection Summary												
HCM 2000 Control Delay			17.6	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	acity ratio		0.52									
Actuated Cycle Length (s)			100.0	S	um of los	t time (s)			17.2			
Intersection Capacity Utilization	ation		71.8%	IC	U Level	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

3430 Carling Avenue 2024 Future Background PM Peak 3:30 pm 12-01-2022 CS

HCM Signalized Intersection Capacity Analysis

۶

 \mathbf{r}

-

1: Moodie & Carling

Synchro 11 Report Page 3

12-01-2022

-

1 /

\$ Ļ ~

-۸.

∢

	≯	→	\mathbf{r}	1	-	۰.	1	T.	1	1	÷.	~
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
Lane Configurations	٦	11	1	1	≜ †₽			\$			\$	
Traffic Volume (vph)	15	606	17	29	645	14	8	0	33	28	0	
Future Volume (vph)	15	606	17	29	645	14	8	0	33	28	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		0
Storage Lanes	1		1	1		0	0		0	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Ped Bike Factor			0.96	0.99	1.00			0.97			0.98	
Frt			0.850		0.997			0.891			0.973	
Fit Protected	0.950			0.950				0.990			0.962	
Satd. Flow (prot)	1729	3458	1432	1729	3446	0	0	1557	0	0	1644	
Fit Permitted	0.401			0.423				0.927			0.741	
Satd. Flow (perm)	730	3458	1375	763	3446	0	0	1456	0	0	1247	
Right Turn on Red			Yes			Yes			Yes			Y
Satd. Flow (RTOR)			45		4			38			38	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		456.6			117.8			75.2			83.5	
Travel Time (s)		27.4			7.1			6.8			7.5	
Confl. Peds. (#/hr)			11	11			7		20	20		
Confl. Bikes (#/hr)	4.00					2		1.00	10			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	0
Adj. Flow (vph)	15	606	17	29	645	14	8	0	33	28	0	
Shared Lane Traffic (%)					050							
Lane Group Flow (vph)	15	606	17	29	659	0	0	41	0	0	35	
Enter Blocked Intersection	No	No	No	No	No	No	No	No Left	No	No	No Left	N
Lane Alignment	Left	Left	Right	Left	Left 3.7	Right	Left	0.0	Right	Left	0.0	Rig
Median Width(m)		3.7										
Link Offset(m)		0.0 4.8			0.0 4.8			0.0 4.8			0.0 4.8	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.0
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.00	1.00	1.06	1.06	1.0
Turning Speed (k/h) Number of Detectors	24	2	14	24	2	14	24	2	14	24	2	
	Left	Z	Right	Left	Thru		Left	Z		Left	Z	
Detector Template	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Leading Detector (m)	0.0	0.0	0.0	0.0	0.0		0.1	0.0		0.1	0.0	
Trailing Detector (m) Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	CI+EX	UI+EX	CI+EX	UI+EX	CI+EX		UI+EX	CI+EX		UI+EX	CI+EX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7	0.0	0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OIL			OILEX			OIL			UNEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	renti	2	renil	renil	NA 6		renti	NA 8		renil	4	
Permitted Phases	2	2	2	6	0		8	0		4	4	

	-	\mathbf{r}	1	-	1	1
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	đ₽			†î≽	Y	
Traffic Volume (veh/h)	605	0	0	415	0	0
Future Volume (Veh/h)	605	Ő	0	415	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	605	0	0	415	0	0
Pedestrians	000	Ŭ			Ŭ	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	NULLE			NULLE		
Upstream signal (m)						
pX. platoon unblocked						
vC, conflicting volume			605		812	302
vC1, stage 1 conf vol			303		012	502
vC1, stage 2 conf vol						
vC2, stage 2 control vCu, unblocked vol			605		812	302
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			4.1		0.0	0.9
tG, 2 stage (s) tF (s)			22		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			983		321	700
						100
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	403	202	138	277	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	983	1700	1700	
Volume to Capacity	0.24	0.12	0.00	0.16	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS					Α	
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS					Α	
Intersection Summary	_		_	_	_	
Average Delay			0.0			
Intersection Capacity Utiliz	zation		21.0%	10	Ulevel	of Service
Analysis Period (min)			15			
nidiysis renou (min)			15			

HCM Unsignalized Intersection Capacity Analysis 3: Site Access & Carling

12-01-2022

Queues

	۶	-	\mathbf{r}	4	-	۰.	1	T.	1	- \	. ↓	~
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Detector Phase	2	2	2	6	6		8	8		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	
Vinimum Split (s)	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	
Fotal Split (s)	43.0	43.0	43.0	43.0	43.0		32.0	32.0		32.0	32.0	
Fotal Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%		42.7%	42.7%		42.7%	42.7%	
Maximum Green (s)	37.4	37.4	37.4	37.4	37.4		25.9	25.9		25.9	25.9	
(ellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lead/Lag	0.0	0.0	0.0	0.0	0.0			0.1			0.1	
Lead-Lag Optimize?												
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	59.4	59.4	59.4	59.4	59.4		5	12.6		5	12.6	
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.79			0.17			0.17	
v/c Ratio	0.03	0.22	0.02	0.05	0.75			0.17			0.17	
Control Delay	6.1	4.7	0.02	5.9	4.8			10.0			8.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	6.1	4.7	0.0	5.9	4.8			10.0			8.9	
I OS	0.1 A	4.7 A	0.7 A	J.5 A	4.0 A			10.0 A			0.5 A	
Approach Delay	A	4.6	A	A	4.8			10.0			8.9	
Approach LOS		4.0 A			4.0 A			10.0 A			0.9 A	
Queue Length 50th (m)	0.5	12.8	0.0	1.0	14.1			0.4			0.0	
Queue Length 95th (m)	3.5	33.1	0.0	5.5	36.1			6.6			5.5	
Internal Link Dist (m)	0.0	432.6	0.0	0.0	93.8			51.2			59.5	
Turn Bay Length (m)	30.0	432.0	15.0	30.0	33.0			J1.2			33.3	
Base Capacity (vph)	578	2738	1098	604	2729			527			455	
Starvation Cap Reductn	5/6	2/30	1096	004	2129			527			455	
	0	0	0	0	0			0			0	
Spillback Cap Reductn Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.03	0.22	0.02	0.05	0.24			0.08			0.08	
ntersection Summary												
Area Type: Cycle Length: 75	Other											
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced Natural Cycle: 55	to phase	2:EBTL a	ind 6:WB	TL, Start	of Green							
Control Type: Actuated-Cor	ordinated											
Maximum v/c Ratio: 0.24												
ntersection Signal Delay: 5	5.0			h	ntersectio	n LOS: A	ι					
Intersection Capacity Utiliza Analysis Period (min) 15	ation 50.0	%		I	CU Level	of Servic	еA					
Splits and Phases: 4: Be	dale & Ca	rlina										
Ø2 (R)						4	Ø4					
43 s						32 s						
🗸 Ø6 (R)						- 4	Øŝ					

	۶	-	\mathbf{r}	*	+	۰.	1	Ť	1	1	↓	~
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
ane Configurations		↑ Ъ	1	٦	≜ †₽			4	7		4	
Fraffic Volume (vph)	10	410	155	200	420	10	230	10	110	10	15	1
uture Volume (vph)	10	410	155	200	420	10	230	10	110	10	15	1
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	0.0		125.0	75.0		0.0	0.0		0.0	0.0		0.
Storage Lanes	0		1	1		0	0		1	0		
Faper Length (m)	7.5			7.5			7.5			7.5		
ane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Ped Bike Factor					1.00			1.00	0.99		0.99	
Frt			0.850		0.997				0.850		0.961	
It Protected		0.999		0.950				0.954			0.986	
Satd. Flow (prot)	0	3388	1547	1712	3380	0	0	1613	1488	0	1501	
It Permitted		0.942		0.448				0.709			0.901	
Satd. Flow (perm)	0	3195	1547	807	3380	0	0	1197	1469	0	1371	
Right Turn on Red			Yes			Yes			Yes			Ye
Satd. Flow (RTOR)			155		3				110		10	
Link Speed (k/h)		60			60			80			50	
Link Distance (m)		253.2			740.2			206.2			72.7	
Travel Time (s)		15.2			44.4			9.3			5.2	
Confl. Peds. (#/hr)							1					
Confl. Bikes (#/hr)						6			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	8%	0%	4%	0%	0%	504
Adj. Flow (vph)	10	410	155	200	420	10	230	10	110	10	15	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	420	155	200	430	0	0	240	110	0	35	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	N
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Rig
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.0
Turning Speed (k/h)	24		14	24		14	24		14	24		1
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru			Thru	Right	Left	Thru	
eading Detector (m)	6.1	30.5	6.1	6.1	30.5		0.0	30.5	6.1	6.1	30.5	
Frailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		0.0	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Furn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

HCM Signalized Intersection Capacity Analysis

12 01 2022

	٠	-	\mathbf{i}	1	-	۰.	•	Ť	1	1	1	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBI
Lane Configurations	ň	^	1	3	≜ †≽			\$			\$	-
Traffic Volume (vph)	15	606	17	29	645	14	8	0	33	28	0	
Future Volume (vph)	15	606	17	29	645	14	8	0	33	28	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lane Util, Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00			0.96			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00			1.00			0.99	
Frt	1.00	1.00	0.85	1.00	1.00			0.89			0.97	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.96	
Satd. Flow (prot)	1729	3458	1375	1714	3445			1540			1616	
Flt Permitted	0.40	1.00	1.00	0.42	1.00			0.93			0.74	
Satd. Flow (perm)	730	3458	1375	762	3445			1441			1246	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Adj. Flow (vph)	15	606	17	29	645	14	8	0	33	28	0	
RTOR Reduction (vph)	0	0	5	0	1	0	0	34	0	0	31	
Lane Group Flow (vph)	15	606	12	29	658	0	0	7	0	0	4	
Confl. Peds. (#/hr)			11	11			7		20	20		
Confl. Bikes (#/hr)						2			10			;
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	09
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	54.7	54.7	54.7	54.7	54.7			8.6			8.6	
Effective Green, g (s)	54.7	54.7	54.7	54.7	54.7			8.6			8.6	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73			0.11			0.11	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	532	2522	1002	555	2512			165			142	
v/s Ratio Prot		0.18			c0.19							
v/s Ratio Perm	0.02		0.01	0.04				c0.01			0.00	
v/c Ratio	0.03	0.24	0.01	0.05	0.26			0.04			0.03	
Uniform Delay, d1	2.8	3.3	2.8	2.9	3.4			29.5			29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.2	0.3			0.1			0.1	
Delay (s)	2.9	3.6	2.8	3.0	3.7			29.7			29.6	
Level of Service	A	A	A	A	A			С			С	
Approach Delay (s)		3.5			3.6			29.7			29.6	
Approach LOS		A			A			С			С	
Intersection Summary												
HCM 2000 Control Delay			5.0	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Cap	acity ratio		0.23									
Actuated Cycle Length (s)			75.0	S	um of los	t time (s)			11.7			
Intersection Capacity Utiliz	ation		50.0%	IC	U Level	of Service	Э		A			
Analysis Period (min)			15									
c Critical Lane Group												

3430 Carling Avenue 2024 Future Background PM Peak 3:30 pm 12-01-2022 CS

Synchro 11 Report Page 7

1: Moodie & Carlin	ig 🌶				+	4	•	t	~	1	12-1	2-202
		-	¥	¥		-	,	•		*	+	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Detector Phase Switch Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.6	28.6	28.6	10.6	28.6		31.0	31.0	31.0	31.0	31.0	
Total Split (s)	44.0	44.0	44.0	27.0	71.0		59.0	59.0	59.0	59.0	59.0	
Total Split (%)	33.8%	33.8%	33.8%	20.8%	54.6%		45.4%	45.4%	45.4%	45.4%	45.4%	
Maximum Green (s)	38.4	38.4	38.4	21.4	65.4		53.0	53.0	53.0	53.0	53.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		18.0	18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5		5		5	5	5	5	5	
Act Effct Green (s)		68.8	68.8	86.2	86.2			32.2	32.2		32.2	
Actuated g/C Ratio		0.53	0.53	0.66	0.66			0.25	0.25		0.25	
v/c Ratio		0.25	0.17	0.32	0.19			0.81	0.25		0.10	
Control Delay		19.2	3.9	11.3	9.7			65.6	7.0		26.4	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		19.2	3.9	11.3	9.7			65.6	7.0		26.4	
LOS		В	A	В	A			E	Α		С	
Approach Delay		15.1			10.2			47.2			26.4 C	
Approach LOS		B 29.4	0.0	18.1	B 20.5			D 58.2	0.0		5.0	
Queue Length 50th (m)		29.4	13.2	36.5	20.5			58.2 79.4	12.6		5.0	
Queue Length 95th (m)		229.2	13.2	30.5	716.2			182.2	12.0		48.7	
Internal Link Dist (m) Turn Bay Length (m)		229.2	125.0	75.0	/ 10.2			102.2			40.7	
Base Capacity (vph)		1691	892	683	2241			488	664		564	
Starvation Cap Reductn		1091	092	003	2241			400	004		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		0.25	0.17	0.29	0.19			0.49	0.17		0.06	
		0.20	0.11	0.20	0.10			0.10	0.11		0.00	
ntersection Summary												
	Other											
Cycle Length: 130												
Actuated Cycle Length: 13				TI 01-1								
Offset: 0 (0%), Referenced	to phase	ZEBIL 8		TL, Start	or Green							
Natural Cycle: 75	and the set of the											
Control Type: Actuated-Co Maximum v/c Ratio: 0.81	ordinated											
ntersection Signal Delay: 1	20.5			l.	ntersectio	100.0						
ntersection Capacity Utiliz		w.			CU Level							
Analysis Period (min) 15	2001 35.5	/0			SO Level		сD					
Splits and Phases: 1: M	oodie & Ca	arling										
√ Ø1	₽	(R)				04						
27 s	44 s					59 s						
V Ø6 (R)						100						

HCM Signalized Intersection Capacity Analysis 1: Moodie & Carling

1: Moodie & Carling											1Z=1	2-202
	۶	-	\mathbf{i}	1	+	۰.	1	Ť	1	1	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBI
Lane Configurations		-{∱}	1	1	≜ †⊅			é.	1		4	
Traffic Volume (vph)	10	410	155	200	420	10	230	10	110	10	15	1
Future Volume (vph)	10	410	155	200	420	10	230	10	110	10	15	1
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lane Util, Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3388	1547	1712	3378			1611	1468		1500	
Fit Permitted		0.94	1.00	0.45	1.00			0.71	1.00		0.90	
Satd. Flow (perm)		3196	1547	808	3378			1197	1468		1370	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Adj. Flow (vph)	10	410	155	200	420	10	230	10	110	10	15	1
RTOR Reduction (vph)	0	0	73	0	1	0	0	0	83	0	8	
ane Group Flow (vph)	0	420	82	200	429	0	0	240	27	0	27	
Confl. Peds. (#/hr)							1					
Confl. Bikes (#/hr)						6			1			1
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	8%	0%	4%	0%	0%	50
	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	0	2	1 01111	1	6		1 0.111	8	1 01111	1 01111	4	
Permitted Phases	2		2	6	-		8	-	8	4	-	
Actuated Green, G (s)	-	68.9	68.9	86.2	86.2			32.2	32.2		32.2	
Effective Green, g (s)		68.9	68.9	86.2	86.2			32.2	32.2		32.2	
Actuated g/C Ratio		0.53	0.53	0.66	0.66			0.25	0.25		0.25	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1693	819	617	2239			296	363		339	
/s Ratio Prot		1000	015	c0.03	0.13			200	000		000	
/s Ratio Perm		0.13	0.05	c0.19	0.10			c0.20	0.02		0.02	
/c Ratio		0.25	0.10	0.32	0.19			0.81	0.02		0.02	
Jniform Delay, d1		16.5	15.2	8.7	8.5			46.0	37.5		37.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
ncremental Delay, d2		0.4	0.2	0.3	0.2			15.4	0.1		0.1	
Delay (s)		16.9	15.4	9.0	8.6			61.4	37.6		37.6	
evel of Service		B	B	A	A			F	D		D	
Approach Delay (s)		16.5			8.8			53.9			37.6	
Approach LOS		B			A			D			D	
ntersection Summary												
HCM 2000 Control Delay			22.1	Н	CM 2000	Level of	Service		С			-
HCM 2000 Volume to Capacity	ratio		0.47									
Actuated Cycle Length (s)			130.0	S	um of los	t time (s)			17.2			
ntersection Capacity Utilization	n		59.9%		U Level		9		17.2 B			
Analysis Period (min)			15		2 23101		-					
Critical Lane Group			15									

3430 Carling Avenue 2024 Total Future AM Peak 3:32 pm 12-01-2022 CS

Synchro 11 Report Page 3

	۶	-	\mathbf{r}	1	+		1	Ť	1	1	Ŧ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Lane Configurations	5	^	7	5	≜ †⊅			\$			4	
Traffic Volume (vph)	15	550	20	20	585	15	20	10	50	10	10	1
Future Volume (vph)	15	550	20	20	585	15	20	10	50	10	10	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		0
Storage Lanes	1		1	1		0	0		0	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Ped Bike Factor	1.00		0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.996			0.916			0.942	
Flt Protected	0.950			0.950				0.988			0.986	
Satd. Flow (prot)	1729	3424	1547	1729	3363	0	0	1539	0	0	1247	
Flt Permitted	0.425			0.446				0.907			0.894	
Satd. Flow (perm)	773	3424	1505	809	3363	0	0	1413	0	0	1129	
Right Turn on Red			Yes			Yes			Yes			Ye
Satd. Flow (RTOR)			45		5			50			15	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		512.1			117.8			75.2			83.5	
Travel Time (s)		30.7			7.1			6.8	_	_	7.5	
Confl. Peds. (#/hr)	1		4	4		1	1		7	7		
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Heavy Vehicles (%)	0%	1%	0%	0%	2%	16%	23%	0%	0%	0%	100%	14
Adj. Flow (vph)	15	550	20	20	585	15	20	10	50	10	10	1
Shared Lane Traffic (%)	45	550	20	20	000	0	^	80	0	0	35	
Lane Group Flow (vph)	15	550			600		0		0			
Enter Blocked Intersection	No Left	No Left	No	No Left	No Left	No	No Left	No Left	No	No Left	No Left	N
Lane Alignment Median Width(m)	Leit	3.7	Right	Leit	3.7	Right	Leit	0.0	Right	Leit	0.0	Rig
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		4.0			4.0			4.0			4.0	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.0
Turning Speed (k/h)	24	1.00	14	24	1.00	14	24	1.00	14	24	1.00	1
Number of Detectors	1	2	1	1	2	14	1	2	14	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		

HCM Unsignalized Intersection Capacity Analysis 3: Site Access & Carling

	-	•	1	-	N		
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	≜ †≽			-{î†	Ý		
Traffic Volume (veh/h)	545	10	0	415	15	5	
Future Volume (Veh/h)	545	10	0	415	15	5	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	545	10	0	415	15	5	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			555		758	278	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			555		758	278	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			100		96	99	
cM capacity (veh/h)			1026		348	726	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1		
Volume Total	363	192	138	277	20		
Volume Left	0	0	0	0	15		
Volume Right	0	10	0	0	5		
cSH	1700	1700	1026	1700	400		
Volume to Capacity	0.21	0.11	0.00	0.16	0.05		
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.2		
Control Delay (s)	0.0	0.0	0.0	0.0	14.5		
Lane LOS					В		
Approach Delay (s)	0.0		0.0		14.5		
Approach LOS					В		
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utiliz	ation		26.2%	IC	U Level	of Service	A
Analysis Period (min)			15				

3430 Carling Avenue 2024 Total Future AM Peak 3:32 pm 12-01-2022 CS

Synchro 11 Report Page 4

	۶	-	>	1	+	۰.	•	1	~	1	+	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Detector Phase	2	2	2	6	6	TUDIX	8	8	NDIX	4	4	001
Switch Phase	_	-	-	-	-		-	-				
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	
Total Split (s)	43.0	43.0	43.0	43.0	43.0		32.0	32.0		32.0	32.0	
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%		42.7%	42.7%		42.7%	42.7%	
Maximum Green (s)	37.4	37.4	37.4	37.4	37.4		25.9	25.9		25.9	25.9	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0 5.6			0.0 6.1			0.0	
Total Lost Time (s) Lead/Lag	5.0	0.0	0.0	5.0	5.0			0.1			0.1	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Nalk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	55.0	55.0	55.0	55.0	55.0			12.6			12.6	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73			0.17			0.17	
v/c Ratio	0.03	0.22	0.02	0.03	0.24			0.29			0.17	
Control Delay	6.1	5.3	1.1	6.0	5.4			14.7			18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	6.1	5.3	1.1	6.0	5.4			14.7			18.5	
LOS	A	A	A	A	A			В			В	
Approach Delay		5.2			5.4			14.7			18.5	
Approach LOS	0.5	A	0.0	0.7	A 12.5			B 3.8			B 2.6	
Queue Length 50th (m)	0.5	11.4 29.8	1.2	4.2	32.8			3.8			2.6	
Queue Length 95th (m) Internal Link Dist (m)	3.5	488.1	1.2	4.2	93.8			51.2			59.5	
Turn Bay Length (m)	30.0	400.1	15.0	30.0	93.0			51.2			59.5	
Base Capacity (vph)	567	2512	1116	593	2469			520			399	
Starvation Cap Reductn	0	2012	0	0	2405			020			0	
Spillback Cap Reductn	Ő	Ő	Ő	Ő	Ő			Ő			Ő	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.03	0.22	0.02	0.03	0.24			0.15			0.09	
Intersection Summary												
	Other											
Cycle Length: 75	Outor											
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced	to phase	2:EBTL a	and 6:WB	TL. Start	of Green							
Natural Cycle: 55				,								
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.29												
Intersection Signal Delay: 6	6.2			Ir	ntersection	n LOS: A						
Intersection Capacity Utilization	ation 48.1	%		10	CU Level	of Servic	e A					
Analysis Period (min) 15												
Splits and Phases: 4: Be	dale & Ca	rlina										
🗢 Ø2 (R)						*	Ø4				_	
10 5						32 s						
Ø6 (R)							08					

HCM Signalized Intersection Capacity Analysis 4: Bedale & Carling

4: Bedale & Carling	y										12.1	2-2022
	۶	-	\mathbf{i}	4	+	۰.	1	Ť	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	1	† †	7	ľ	≜ î≽			¢,			\$	
Traffic Volume (vph)	15	550	20	20	585	15	20	10	50	10	10	- 1
Future Volume (vph)	15	550	20	20	585	15	20	10	50	10	10	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.92			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1728	3424	1505	1723	3364			1538			1242	
Flt Permitted	0.43	1.00	1.00	0.45	1.00			0.91			0.89	
Satd. Flow (perm)	773	3424	1505	810	3364			1412			1126	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adi, Flow (vph)	15	550	20	20	585	15	20	10	50	10	10	15
RTOR Reduction (vph)	0	0	6	20	1	0	0	43	0	0	13	(
Lane Group Flow (vph)	15	550	14	20	599	0	0	37	0	0	22	0
Confl. Peds. (#/hr)	1	330	4	4	333	1	1	37	7	7	22	1
Confl. Bikes (#/hr)			4	4					1	1		e
Heavy Vehicles (%)	0%	1%	0%	0%	2%	16%	23%	0%	0%	0%	100%	14%
					Z%	10%		NA	U 76		NA	14%
Turn Type	Perm	NA	Perm	Perm			Perm	NA 8		Perm	NA 4	
Protected Phases		2			6			ð			4	
Permitted Phases	2		2	6			8	10.0		4		
Actuated Green, G (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Effective Green, g (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70			0.14			0.14	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	543	2405	1057	569	2363			199			159	
v/s Ratio Prot		0.16			c0.18							
v/s Ratio Perm	0.02		0.01	0.02				c0.03			0.02	
v/c Ratio	0.03	0.23	0.01	0.04	0.25			0.19			0.14	
Uniform Delay, d1	3.4	4.0	3.3	3.4	4.0			28.4			28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.3			0.5			0.4	
Delay (s)	3.5	4.2	3.4	3.5	4.3			28.9			28.6	
Level of Service	A	А	А	A	A			С			С	
Approach Delay (s)		4.1			4.3			28.9			28.6	
Approach LOS		А			А			С			С	
Intersection Summary												
HCM 2000 Control Delay			6.3	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	acity ratio		0.24									
Actuated Cycle Length (s)			75.0	S	um of los	t time (s)			11.7			
Intersection Capacity Utiliza	ation		48.1%		U Level				A			
Analysis Period (min)			15		2 2310		-					
c Critical Lane Group			10									

3430 Carling Avenue 2024 Total Future AM Peak 3:32 pm 12-01-2022	2
CS	

Synchro 11 Report Page 7

	۶	-	\mathbf{i}	1	-	۰.	1	Ť	1	- \	Ŧ	1
Lane Group	FBI	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Detector Phase	2	2	2	1	6	mon	8	8	8	4	4	00
Switch Phase	~	-	~									
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.6	28.6	28.6	10.6	28.6		31.0	31.0	31.0	31.0	31.0	
Total Split (s)	40.0	40.0	40.0	25.0	65.0		35.0	35.0	35.0	35.0	35.0	
Fotal Split (%)	40.0%	40.0%	40.0%	25.0%	65.0%		35.0%	35.0%	35.0%	35.0%	35.0%	
Maximum Green (s)	34.4	34.4	34.4	19.4	59.4		29.0	29.0	29.0	29.0	29.0	
(ellow Time (s)	34.4	3.7	3.7	3.7	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	1.5	0.0	0.0	0.0	0.0		2.0	0.0	0.0	2.0	0.0	
Total Lost Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lead/Lag	Lag	Lag	Lag	Lead	0.0			0.0	0.0		0.0	
Lead-Lag Optimize?	Yes	Yes 3.0	Yes 3.0	Yes 3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0											
Recall Mode	C-Min	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		18.0	18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5		5		5	5	5	5	5	
Act Effct Green (s)		49.2	49.2	66.6	66.6			21.8	21.8		21.8	
Actuated g/C Ratio		0.49	0.49	0.67	0.67			0.22	0.22		0.22	
v/c Ratio		0.30	0.36	0.43	0.19			0.76	0.39		0.09	
Control Delay		17.9	3.8	10.1	7.4			53.3	6.8		21.1	
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0		0.0	
Total Delay		17.9	3.8	10.1	7.4			53.3	6.8		21.1	
LOS		В	A	B	A			D	A		С	
Approach Delay		12.4			8.4			31.8			21.1	
Approach LOS		В			A			С			С	
Queue Length 50th (m)		28.4	0.0	17.0	14.8			38.3	0.0		3.1	
Queue Length 95th (m)		52.0	17.4	35.6	27.3			56.8	14.5		9.3	
Internal Link Dist (m)		229.2			691.7			185.4			41.8	
Turn Bay Length (m)			125.0	75.0								
Base Capacity (vph)		1607	880	657	2285			372	565		455	
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		0.30	0.36	0.38	0.19			0.56	0.32		0.07	
		0.00	0.00	0.00	0.10			0.00	0.02		0.01	
Intersection Summary												
	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 0 (0%), Referenced	to phase	2:EBTL a	ind 6:WB	TL, Start	of Green							
Natural Cycle: 75												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.76												
Intersection Signal Delay: 1					ntersection							
Intersection Capacity Utiliz	ation 71.8	%		10	CU Level	of Servic	еC					
Analysis Period (min) 15												
Splits and Phases: 1: Mo	oodie & Ca	arling										
√ Ø1		-22 (R)						04				
25 s	40						35					
Ø6 (R)	- e.						-	¶øs				
								1 108				

	٠		~	~	t	A.		t	1	1	1	1
	-	-	•	¥	•	~	7	•		*	÷	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Lane Configurations		-¢†	1	1	<u>†</u> ₽		105	4	1		4	
Traffic Volume (vph)	10	480	320	250	420	10	195	15	180	10	10	1
Future Volume (vph)	10	480	320	250	420	10	195	15	180	10	10	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	0.0		125.0	75.0		0.0	0.0		0.0	0.0		0
Storage Lanes	7.5		1	7.5		U	0 7.5		1	7.5		
Taper Length (m) Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Lane Util. Factor Ped Bike Factor	0.95	1.00	0.96	0.99	1.00	0.95	1.00	1.00	0.98	1.00	0.99	1.0
Fit Fit		1.00	0.850	0.99	0.997			1.00	0.850		0.955	
Fit Protected		0.999	0.000	0.950	0.997			0.956	0.000		0.955	
Satd. Flow (prot)	0	3455	1517	1679	3412	0	0	1693	1532	0	1701	
Fit Permitted	U	0.9455	1517	0.400	3412	U	U	0.719	1995	U	0.886	
Satd. Flow (perm)	0	3268	1460	703	3412	0	0	1272	1496	0	1530	
Right Turn on Red	0	3200	Yes	103	J412	Yes	0	1212	Yes	0	1000	Ye
Satd. Flow (RTOR)			320		4	103			180		10	10
Link Speed (k/h)		60	520		60			80	100		50	
Link Distance (m)		253.2			715.7			209.4			65.8	
Travel Time (s)		15.2			42.9			9.4			4.7	
Confl. Peds. (#/hr)	3	10.2	6	6	42.5	3	1	5.4	4	4	4.7	
Confl. Bikes (#/hr)	5		4	0		5			9	-		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Heavy Vehicles (%)	0%	0%	2%	3%	1%	0%	3%	0%	1%	0%	0%	0
Adj. Flow (vph)	10	480	320	250	420	10	195	15	180	10	10	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	320	250	430	0	0	210	180	0	30	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	N
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Rig
Median Width(m)		3.7			3.7			0.0	v .		0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.0
Turning Speed (k/h)	24		14	24		14	24		14	24		1
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru			Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		0.0	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		0.0	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

HCM Signalized Intersection Capacity Analysis
1: Moodie & Carling

1: Moodie & Carling												
	^	-	\mathbf{r}	1	-	 	1	t.		>	Ŧ	*
Novement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
ane Configurations		t∳	7	5	đ₽			۹.	7		4	
Traffic Volume (vph)	10	480	320	250	420	10	195	15	180	10	10	
uture Volume (vph)	10	480	320	250	420	10	195	15	180	10	10	
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	18
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
ane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
rpb, ped/bikes		1.00	0.96	1.00	1.00			1.00	0.97		0.99	
lpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
rt		1.00	0.85	1.00	1.00			1.00	0.85		0.95	
It Protected		1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)		3454	1462	1675	3411			1690	1492		1698	
It Permitted		0.94	1.00	0.40	1.00			0.72	1.00		0.89	
Satd. Flow (perm)		3267	1462	705	3411			1272	1492		1529	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.
Adj. Flow (vph)	10	480	320	250	420	10	195	15	180	10	10	
RTOR Reduction (vph)	0	0	163	0	1	0	0	0	141	0	8	
ane Group Flow (vph)	0	490	157	250	429	0	0	210	39	0	22	
Confl. Peds. (#/hr)	3	100	6	6	120	3	1	210	4	4		
Confl. Bikes (#/hr)	Ŭ		4	Ŭ		Ŭ			9	· · ·		
Heavy Vehicles (%)	0%	0%	2%	3%	1%	0%	3%	0%	1%	0%	0%	0
	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2	~	2	6			8	0	8	4		
Actuated Green, G (s)		49.2	49.2	66.6	66.6			21.8	21.8		21.8	
Effective Green, g (s)		49.2	49.2	66.6	66.6			21.8	21.8		21.8	
Actuated g/C Ratio		0.49	0.49	0.67	0.67			0.22	0.22		0.22	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
/ehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
ane Gro Cap (vph)		1607	719	583	2271			277	325		333	
/s Ratio Prot		1007	715	c0.05	0.13			211	525		000	
/s Ratio Perm		0.15	0.11	c0.23				c0.17	0.03		0.01	
/c Ratio		0.30	0.22	0.43	0.19			0.76	0.12		0.07	
Jniform Delay, d1		15.2	14.5	7.1	6.4			36.6	31.4		31.0	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
ncremental Delay, d2		0.5	0.7	0.5	0.2			11.3	0.2		0.1	
Delay (s)		15.7	15.2	7.6	6.6			47.9	31.6		31.1	
evel of Service		В	В	A	A			D	С		С	
Approach Delay (s)		15.5			6.9			40.4	-		31.1	
Approach LOS		В			А			D			С	
ntersection Summary												
ICM 2000 Control Delay			17.8	Н	CM 2000	Level of	Service		В			-
HCM 2000 Volume to Capacit	v ratio		0.53									
Actuated Cycle Length (s)	,		100.0	S	um of los	t time (s)			17.2			
ntersection Capacity Utilizatio	n		71.8%		U Level		е		C			
Analysis Period (min)			15									

3430 Carling Avenue 2024 Total Future PM Peak 11:59 pm 05-30-2013 CS

HCM Unsignalized Intersection Capacity Analysis 3: Site Access & Carling

	-	\mathbf{r}	*	-	1	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	≜t ≽			- fh	¥		
Traffic Volume (veh/h)	610	20	5	420	10	5	
Future Volume (Veh/h)	610	20	5	420	10	5	
Sian Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	610	20	5	420	10	5	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			630		840	315	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			630		840	315	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			22		3.5	3.3	
p0 queue free %			99		97	99	
cM capacity (veh/h)			962		306	687	
	50.1	50.0				00,	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1		
Volume Total	407	223	145	280	15		
Volume Left	0	0	5	0	10		
Volume Right	0	20	0	0	5		
cSH	1700	1700	962	1700	376		
Volume to Capacity	0.24	0.13	0.01	0.16	0.04		
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.9		
Control Delay (s)	0.0	0.0	0.4	0.0	15.0		
Lane LOS			A		В		
Approach Delay (s)	0.0		0.1		15.0		
Approach LOS					В		
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utili	zation		28.5%	IC	U Level	of Service	
Analysis Period (min)			15				

12-12-2022

Synchro 11 Report Page 4

3430 Carling Avenue 2024 Total	Future PM Peak 11:59 pm 05-30-2013
	r diaro r mir dan r 1.00 pin do do 2010
CS	

	۶	-+	~	4	+	•	•	t	*	1	Ţ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Detector Phase	2	2	2	6	6	mon	8	8	HBH	4	4	00
Switch Phase	~	-	-		Ŭ							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	
Total Split (s)	43.0	43.0	43.0	43.0	43.0		32.0	32.0		32.0	32.0	
Fotal Split (%)	43.0 57.3%	57.3%	57.3%	57.3%	43.0		42.7%	42.7%		42.7%	42.7%	
	37.4	37.4	37.4	37.4	37.4		42.7%	42.1%		42.7%	42.7%	
Maximum Green (s) Yellow Time (s)	37.4	37.4	37.4	37.4	37.4		25.9	25.9		25.9	25.9	
	3.7	3.7	3.7	3.7	3.7		2.8	2.8		2.8	3.3	
All-Red Time (s)							2.8			2.8		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	59.4	59.4	59.4	59.4	59.4			12.6			12.6	
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.79			0.17			0.17	
v/c Ratio	0.03	0.22	0.02	0.05	0.24			0.16			0.17	
Control Delay	6.1	4.7	1.1	5.9	4.8			11.1			10.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	6.1	4.7	1.1	5.9	4.8			11.1			10.1	
LOS	A	A	A	0.5 A	4.0 A			B			B	
Approach Delay	~	4.6	A	~	4.8			11.1			10.1	
Approach LOS		4.0 A			4.0 A			B			B	
Queue Length 50th (m)	0.5	13.0	0.0	1.0	14.3			0.9			0.3	
Queue Length 95th (m)	3.5	33.6	1.2	5.7	36.5			7.3			6.5	
	0.0	515.4	1.4	J.1	93.8			51.2			59.5	
Internal Link Dist (m)	30.0	515.4	15.0	30.0	93.0			51.2			59.5	
Turn Bay Length (m)		0.000			0700			500			450	
Base Capacity (vph)	574	2738	1098	598	2729			522			458	
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	0.03	0.22	0.02	0.05	0.24			0.09			0.09	
Intersection Summary												
	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced	to phase	2:EBTL a	and 6:WE	TL. Start	of Green							
Natural Cycle: 55												
Control Type: Actuated-Con	ordinated											
Maximum v/c Ratio: 0.24												
Intersection Signal Delay: 5	1			li li	tersectio	105-4						
Intersection Capacity Utiliza		24			CU Level							
Analysis Period (min) 15	10011 00.0	70			JO LEVEI	OF OSTING	6 A					
, , ,	dale & Ca	dina										
1 A		miy										
₩ @2 (R) 43 s	_					32 s	Ø4		_			
							Ø8					
Ø6 (R)												

	≯	-	\mathbf{r}	1	-	۰.	1	1	1	1	Ŧ	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations	3	<u>†</u> †	1	3				÷			4	
Traffic Volume (vph)	15	615	20	30	650	15	10	0	35	30	0	
Future Volume (vph)	15	615	20	30	650	15	10	0	35	30	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		
Storage Lanes	1		1	1		0	0		0	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor			0.96	0.99	1.00			0.97			0.98	
Frt			0.850		0.997			0.895			0.966	
Fit Protected	0.950			0.950				0.989			0.964	
Satd. Flow (prot)	1729	3458	1432	1729	3446	0	0	1564	0	0	1636	
Fit Permitted	0.399			0.419				0.913			0.751	
Satd. Flow (perm)	726	3458	1375	756	3446	0	0	1442	0	0	1257	
Right Turn on Red			Yes			Yes			Yes			
Satd. Flow (RTOR)			45		4			38			38	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		539.4			117.8			75.2			83.5	
Travel Time (s)		32.4			7.1			6.8			7.5	
Confl. Peds. (#/hr)			11	11			7		20	20		
Confl. Bikes (#/hr)						2			10			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	
Adj. Flow (vph)	15	615	20	30	650	15	10	0	35	30	0	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	615	20	30	665	0	0	45	0	0	40	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	F
Median Width(m)		3.7			3.7			0.0	, in the second s		0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	
Turning Speed (k/h)	24		14	24		14	24		14	24		
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Fx	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7	0.0	0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		SILLA			SILLA			SILLX			SILLA	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	r onff	2	1 GHI	1 GHII	6		1 Gill	8		1 GHI	4	
Permitted Phases	2	2	2	6	0		8	0		4		

3430	Cariirig	Avenue	2024	10(9)	FULUI
CS	-				

Page 5

HCM Signalized Intersection Capacity Anal	veie
	y 313
4: Bedale & Carling	

4: Bedale & Carlin	<u> </u>										12-1	2-2022
	≯	-	\mathbf{r}	1	-	•	1	1	1	-	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	<u></u>	1	٦	đ₽			4			4	
Traffic Volume (vph)	15	615	20	30	650	15	10	0	35	30	0	10
Future Volume (vph)	15	615	20	30	650	15	10	0	35	30	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00			0.96			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00			1.00			0.99	
Frt	1.00	1.00	0.85	1.00	1.00			0.90			0.97	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.96	
Satd. Flow (prot)	1729	3458	1375	1714	3445			1546			1611	
Flt Permitted	0.40	1.00	1.00	0.42	1.00			0.91			0.75	
Satd. Flow (perm)	726	3458	1375	756	3445			1428			1255	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adi, Flow (vph)	15	615	20	30	650	15	10	0	35	30	0	10
RTOR Reduction (vph)	0	0	5	0	1	0	0	34	0	0	34	0
Lane Group Flow (vph)	15	615	15	30	664	0	0	11	Ő	0	6	0
Confl. Peds. (#/hr)	10	015	11	11	004	0	7		20	20	0	7
Confl. Bikes (#/hr)						2			10	20		5
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA	0 /6	Perm	NA	0 /0	Perm	NA	0 /6
Protected Phases	reilli	2	reilli	renn	6		Feim	8		reilli	4	
Permitted Phases	2	2	2	6	0		8	0		4	4	
Actuated Green, G (s)	54.7	54.7	54.7	54.7	54.7		0	8.6		4	8.6	
	54.7	54.7	54.7	54.7 54.7	54.7 54.7			8.6			8.6	
Effective Green, g (s)					0.73			0.11			0.11	
Actuated g/C Ratio	0.73	0.73	0.73	0.73								
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	529	2522	1002	551	2512			163			143	
v/s Ratio Prot		0.18			c0.19							
v/s Ratio Perm	0.02		0.01	0.04				c0.01			0.01	
v/c Ratio	0.03	0.24	0.01	0.05	0.26			0.07			0.04	
Uniform Delay, d1	2.8	3.3	2.8	2.9	3.4			29.6			29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.2	0.3			0.2			0.1	
Delay (s)	2.9	3.6	2.8	3.0	3.7			29.8			29.7	
Level of Service	A	A	A	A	A			С			С	
Approach Delay (s)		3.5			3.6			29.8			29.7	
Approach LOS		A			A			С			С	
Intersection Summary												
HCM 2000 Control Delay			5.1	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Cap	acity ratio		0.24									
Actuated Cycle Length (s)			75.0		um of los				11.7			
Intersection Capacity Utiliz	ation		50.0%	IC	U Level	of Servic	е		A			
Analysis Period (min)			15									
c Critical Lane Group												

3430 Carling Avenue 2024 Total Future PM Peak 11:59 pm 05-30-2013 CS

3430 Carling Avenue 2029 Ultimate AM Peak 3:35 pm 12-01-2022 CS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4 î h	7	٦	đ₽			4	1		4	
Traffic Volume (vph)	10	430	165	210	440	10	245	10	115	10	15	10
Future Volume (vph)	10	430	165	210	440	10	245	10	115	10	15	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Fit Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3388	1547	1712	3379			1610	1468		1500	
Flt Permitted		0.94	1.00	0.43	1.00			0.71	1.00		0.90	
Satd. Flow (perm)		3196	1547	779	3379			1196	1468		1369	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adi, Flow (vph)	10	430	165	210	440	10	245	10	115	10	15	10
RTOR Reduction (vph)	0	0	81	0	1	0	0	0	85	0	7	0
Lane Group Flow (vph)	0	440	84	210	449	0	0	255	30	0	28	0
Confl. Peds. (#/hr)	-						1					1
Confl. Bikes (#/hr)						6			1			10
Heavy Vehicles (%)	0%	2%	0%	1%	2%	0%	8%	0%	4%	0%	0%	50%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2	1 0.111	1	6		1 01111	8	1 01111	1 01111	4	
Permitted Phases	2	-	2	6	Ŭ		8		8	4		
Actuated Green, G (s)	-	66.5	66.5	84.4	84.4		Ŭ	34.0	34.0		34.0	
Effective Green, g (s)		66.5	66.5	84.4	84.4			34.0	34.0		34.0	
Actuated g/C Ratio		0.51	0.51	0.65	0.65			0.26	0.26		0.26	
Clearance Time (s)		5.6	5.6	5.6	5.6			6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1634	791	594	2193			312	383		358	
v/s Ratio Prot		1004	151	c0.03	0.13			012	000		000	
v/s Ratio Perm		0.14	0.05	c0.20	0.10			c0.21	0.02		0.02	
v/c Ratio		0.27	0.03	0.35	0.20			0.82	0.02		0.02	
Uniform Delay, d1		18.0	16.4	9.6	9.2			45.1	36.2		36.2	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.3	0.4	0.2			15.2	0.1		0.1	
Delay (s)		18.4	16.7	9.9	9.4			60.2	36.3		36.3	
Level of Service		B	B	A	A			F	D		D	
Approach Delay (s)		17.9	0	~	9.6			52.8	U		36.3	
Approach LOS		B			3.0 A			02.0 D			D	
Intersection Summary			22.7		CM 2022	Level of	Cania		С			
HCM 2000 Control Delay HCM 2000 Volume to Capacit			0.50	н	GNI 2000	Level of	Service		U			
	y ratio			~	um of I	time (-)			17.0			
Actuated Cycle Length (s)			130.0			t time (s)			17.2			
Intersection Capacity Utilization	n		61.9%	IC	U Level	of Servic	B		В			
Analysis Period (min)			15									
c Critical Lane Group												

1: Moodie & Carling 77444 ۶

HCM Signalized	Intersection	Capacity	Analysis

3430 Carling Avenue 2029 Ultimate AM Peak 3:35 pm 12-01	1 2022
3430 Gaming Avenue 2023 Opiniate Awi Feak 3.33 pm 12-0	1=2022
CS	

Synchro 11 Report Page 1

\$ Ť. 1

12-12-2022

SBR

Yes 10

1

 SBL
 Sb1

 10
 15
 10

 10
 15
 10

 10
 15
 10

 10
 15
 10

 1800
 1800
 1800

 0.0
 0.0
 0

50 72.7 5.2

0.0 0.0 4.8

1.06

0.0 0.0

28.7

1.8

0.0

12-12-2022

CI+Ex

1.06 14

5 Ť. ~

Carling Avenue	2029	Ultimate	AM	Peak	3:35 p	pm	12-01-2	2022	
•									

Sync

eak 3:35 p	m 12-01-2022	

1 /

110305	2	2	0	
ng Avenue	2029 Ultimate AM Pe	ak 3:35 pm 12-	01-2022	

28.7

	0
8	8

	2		1	6	
2		2	6		8

ected Phases		2		1	6
mitted Phases	2		2	6	

Detector 2 Size(m)		1.8		
Detector 2 Type		CI+Ex		
Detector 2 Channel				
Detector 2 Extend (s)		0.0		
Turn Type	Perm	NA	Perm	pm-
Protected Phases		2		
Permitted Phases	2		2	

Queues

Lane Group

1: Moodie & Carling

Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) Storage Length (m) Storage Length (m) Storage Length (m) Lane UBL Factor Ped Bike Factor Frt Fit Protected Stat. Flow (port) Fit Permitted Stat. Flow (port) Fit Permitted Stat. Flow (port) Fit Permitted Stat. Flow (port) Fit Permitted

Link Speed (k/h) Link Distance (m)

Travel Time (s) Confl. Peds. (#/hr) Confl. Bikes (#/hr)

Peak Hour Factor Heavy Vehicles (%) Adj. Flow (vph)

Heakly Verhices (%) Adj, Flow (vph) Shared Lane Traffic (%) Lane Group Flocked Intersection Lane Alignment Median With(m) Link Offset(m) Crosswaki Widh(m) Two way Left Turn Lane Headway Factor Turning Speed (kh) Number of Detectors Detector Template Leading Detector (m) Detector T Size(m) Detector T Channel Detector T Channel Detector T Channel

Detector 1 Queue (s)

Detector 1 Delay (s) Detector 2 Position(m)

۶

EBL

-

EBT

10 430 10 430

7

EBR WBL WBT

Yes 165

253.2

15.2

0.0 4.8

1.06 1.06

0.0

0.0 0.0

1.06 1.06 14 24

 0.0
 0.0
 0.0
 0.0

 0.0
 0.0
 0.0
 0.0
 0.0

 1
 2
 1
 1
 2

 Left
 Thru
 Right
 Left
 Thru

 6.1
 30.5
 6.1
 6.1
 30.5

 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
 6.1 1.8 6.1 6.1 1.8 CI+Ex CI+Ex CI+Ex CI+Ex 0.0 0.0 0.0

Perm Perm NA				
	Perm	Perm	NA	
4			4	
8 4	8	4		
				_

		0.0		0.0		
Perm	pm+pt	NA	Perm	NA	Perm	
	1	6		8		
0	c		0		0	

1 ۰.

> NBL NBT NBR

7.6

0 0

 7.5
 7.5
 7.5
 7.5
 7.5

 0.95
 0.95
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00</t

 b
 1
 10

 1.00
 1.00
 1.00
 1.00
 1.00
 1.00
 1.00

 0%
 2%
 0%
 1%
 2%
 0%
 8%
 0%
 4%
 0%
 0%
 5%

 10
 430
 165
 210
 440
 10
 245
 10
 115
 10
 15
 10

0 440 165 210 450 0 0 255 115 0 35 0 No Left Left Right Left Left Right Left Right 27 000

1.06 14 1.06 24 1 Ť

1

1 0

Yes 115

206.2

9.3 1

0.0

1.06

2

0.0 0.0 0.0 0.0

28.7

1.8

CI+Ex

0.0

0.0 0.0

1.06 14 1

 1
 2
 1
 1
 2

 Thru
 Right
 Left
 Thru

 0.0
 30.5
 6.1
 6.1
 30.5

 0.0
 0.0
 0.0
 0.0
 0.0

 0.0
 0.0
 0.0
 0.0
 0.0

 0.0
 1.8
 6.1
 6.1
 1.8

 CI+Ex
 CI+Ex
 CI+Ex
 CI+Ex
 CI+Ex
 CI+Ex

0.0 0.0 0.0 0.0 0.0 0.0

1.06

-

440 440

 0.850
 0.997
 0.850

 0.990
 0.950
 0.954
 0.954

 0.3388
 1547
 1712
 3380
 0
 0.1612
 1488

 0.942
 0.432
 0.709
 0.709
 0.709
 0.709
 1197
 1469

 Ves
 Yes
 Yes
 Yes
 1197
 1469

2

711.9

42.7

0.0 4.8

1.06

0.0

28.7

CI+Ex

1.8

≮

 ↓↑
 ↑
 ↓↑

 10
 430
 165
 210
 440
 10
 245

 10
 430
 165
 210
 440
 10
 245

 1800
 1800
 1800
 1800
 1800
 1800
 1800

 0.0
 125.0
 75.0
 0.0
 0.0
 1 1

Maximum Green (s)	38.4	38.4	38.4	20
Yellow Time (s)	3.7	3.7	3.7	3
All-Red Time (s)	1.9	1.9	1.9	1.
Lost Time Adjust (s)		0.0	0.0	0
Total Lost Time (s)		5.6	5.6	5
Lead/Lag	Lag	Lag	Lag	Lea
Lead-Lag Optimize?	Yes	Yes	Yes	Y
Vehicle Extension (s)	3.0	3.0	3.0	3
Recall Mode	C-Min	C-Min	C-Min	Nor
Walk Time (s)	7.0	7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	5	5	5	
Act Effct Green (s)		66.5	66.5	84
Actuated g/C Ratio		0.51	0.51	0.
v/c Ratio		0.27	0.19	0.
Control Delay		20.9	4.2	12
Queue Delay		0.0	0.0	(
Total Delay		20.9	4.2	12
LOS		С	A	
Approach Delay		16.3		
Approach LOS		В		
Queue Length 50th (m)		32.3	0.0	20
Queue Length 95th (m)		56.7	13.9	- 39
Internal Link Dist (m)		229.2		
Turn Bay Length (m)			125.0	- 75
Base Capacity (vph)		1634	871	6
Starvation Cap Reductn		0	0	
Spillback Cap Reductn		0	0	
Storage Cap Reductn		0	0	
Reduced v/c Ratio		0.27	0.19	0.3
Intersection Summary				
Area Type:	Other			
Cycle Length: 130				
Actuated Cycle Length: 1				
Offset: 0 (0%), Reference	d to phase :	2:EBTL a	and 6:WB	TL, S
Natural Cycle: 75				
Control Type: Actuated-C				
Massimum u/a Datia: 0.02				

Splits and Phases: 1: Moodie & Carling

Ø1

Ø6 (R)

CS

Queues 1: Moodie & Carling

Lane Gro

Detector Pl

۶

-

>

EBL EBT EBR WBL

Queue Length 50th (r	n)	32.3	0.0	20.1	22.7		61.5	0.0
Queue Length 95th (r	n)	56.7	13.9	39.9	39.1		82.9	12.5
Internal Link Dist (m)		229.2			687.9		182.2	
Turn Bay Length (m)			125.0	75.0				
Base Capacity (vph)		1634	871	651	2196		497	677
Starvation Cap Redu	ctn	0	0	0	0		0	0
Spillback Cap Reduct	'n	0	0	0	0		0	0
Storage Cap Reductr		0	0	0	0		0	0
Reduced v/c Ratio		0.27	0.19	0.32	0.20		0.51	0.17
Intersection Summary	/							
Area Type:	Other							
Cycle Length: 130								
Actuated Cycle Lengt	h: 130							
Offset: 0 (0%), Refere	enced to phase 2	:EBTL a	and 6:WB1	L, Start	of Green			
Natural Cycle: 75								
Control Type: Actuate	d-Coordinated							
Maximum v/c Ratio: 0	.82							
Intersection Signal De				Ir	ntersection	LOS: C		
Intersection Capacity		5		10	CU Level of	f Service B		
Analysis Period (min)	15							

Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	28.6	28.6	28.6	10.6	28.6	31.0	31.0	31.0	31.0	31.0	
Total Split (s)	44.0	44.0	44.0	26.0	70.0	60.0	60.0	60.0	60.0	60.0	
Total Split (%)	33.8%	33.8%	33.8%	20.0%	53.8%	46.2%	46.2%	46.2%	46.2%	46.2%	
Maximum Green (s)	38.4	38.4	38.4	20.4	64.4	54.0	54.0	54.0	54.0	54.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9	2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.6	5.6	5.6	5.6		6.0	6.0		6.0	
Lead/Lag	Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0	18.0	18.0	18.0	18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5	5	5	
Act Effct Green (s)		66.5	66.5	84.4	84.4		34.0	34.0		34.0	
Actuated g/C Ratio		0.51	0.51	0.65	0.65		0.26	0.26		0.26	
v/c Ratio		0.27	0.19	0.35	0.20		0.82	0.25		0.10	
Control Delay		20.9	4.2	12.4	10.6		64.5	6.5		25.3	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay		20.9	4.2	12.4	10.6		64.5	6.5		25.3	
LOS		С	A	В	В		E	A		С	
Approach Delay		16.3			11.2		46.5			25.3	
Approach LOS		В			В		D			С	
Queue Length 50th (m)		32.3	0.0	20.1	22.7		61.5	0.0		4.8	
Queue Length 95th (m)		56.7	13.9	39.9	39.1		82.9	12.5		11.6	
Internal Link Dist (m)		229.2			687.9		182.2			48.7	
Turn Bay Length (m)			125.0	75.0							
Base Capacity (vph)		1634	871	651	2196		497	677		574	
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	0.19	0.32	0.20		0.51	0.17		0.06	
Intersection Summary											
Area Type:	Other										
Cuele Length 120											

₩04

108

-

WBT WBR NBL NBT NBR SBL SBT SBR

≮

1

1 1

\$ 1 ~

12-12-2022

Page 2

12-12-2022

HCM Unsignalized Intersection Capacity Analysis 3. Site Acc , ess & Carling

02 (R)

	-	~	~	-	•	1		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	tbi ∳1≽	LDN	VVDL	41»	Y	NUN		_
Traffic Volume (veh/h)	570	10	0	435	15	5		
Future Volume (Veh/h)	570	10	0	435	15	5		
Sign Control	Free	10	0	Free	Stop	5		
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	570	10	0	435	15	5		
Pedestrians	010	10	Ŭ	100	10			
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume			580		792	290		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			580		792	290		
tC, single (s)			4.1		6.8	6.9		
tC, 2 stage (s)								
tF (s)			2.2		3.5	3.3		
p0 queue free %			100		95	99		
cM capacity (veh/h)			1004		330	713		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1			
Volume Total	380	200	145	290	20			
Volume Left	0	0	0	0	15			
Volume Right	0	10	0	0	5			
cSH	1700	1700	1004	1700	381			
Volume to Capacity	0.22	0.12	0.00	0.17	0.05			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.3			
Control Delay (s)	0.0	0.0	0.0	0.0	15.0			
Lane LOS					В			
Approach Delay (s)	0.0		0.0		15.0			
Approach LOS					В			
Intersection Summary								
Average Delay			0.3					
Intersection Capacity Utiliz	ation		27.0%	IC	U Level	of Service	A	

Synchro 11 Report Page 4

3430 Carling Avenue 2029 Ultimate AM Peak 3:35 pm 12-01-2022 CS

Synchro 11 Report Page 7

12-12-2022

ţ ~

Ť

1 6

3430 Carling Avenue 2029 Ultimate PM Peak 3:36 pm 12-01-2022 CS

6.0 b.c 3.0 3.0 285 335

 c0.17
 0.03

 0.77
 0.13

 36.3
 30.9

 1.00
 1.00

 12.2
 0.2

 48.5
 31.1

 D
 C

 40.5
 5

В

17.2 C

D 40.5 D

3.0 343

0.01 0.06 30.5 1.00 0.1 30.6

30.6 C

Actuated Green, G (s)	52.7	52.7	52.7	52.7	52.7	10.6	
Effective Green, g (s)	52.7	52.7	52.7	52.7	52.7	10.6	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70	0.14	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	517	2382	1065	545	2373	209	
v/s Ratio Prot		0.17			c0.19		
v/s Ratio Perm	0.02		0.01	0.03		c0.03	
v/c Ratio	0.03	0.24	0.01	0.04	0.26	0.18	
Uniform Delay, d1	3.4	4.0	3.3	3.4	4.1	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.3	0.4	
Delay (s)	3.5	4.2	3.4	3.5	4.3	28.8	
Level of Service	Α	А	A	A	A	C	
Approach Delay (s)		4.2			4.3	28.8	
Approach LOS		Α			A	C	
Intersection Summary							
HCM 2000 Control Delay			6.3	Н	CM 2000	Level of Service	Α
HCM 2000 Volume to Capa	acity ratio		0.25				
Actuated Cycle Length (s)			75.0	S	um of lost	time (s)	11.7
Intersection Capacity Utiliz	ation		39.4%	IC	U Level o	of Service	А
Analysis Period (min)			15				
c Critical Lane Group							

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	- 11	1	٦	٩ħ			4			4	
Traffic Volume (vph)	15	575	20	20	615	15	20	10	50	10	10	15
Future Volume (vph)	15	575	20	20	615	15	20	10	50	10	10	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.92			0.94	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1695	3390	1517	1695	3378			1614			1657	
Flt Permitted	0.41	1.00	1.00	0.44	1.00			0.91			0.89	
Satd. Flow (perm)	737	3390	1517	777	3378			1481			1503	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	575	20	20	615	15	20	10	50	10	10	15
RTOR Reduction (vph)	0	0	6	0	1	0	0	43	0	0	13	0
Lane Group Flow (vph)	15	575	14	20	629	0	0	37	0	0	22	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Effective Green, g (s)	52.7	52.7	52.7	52.7	52.7			10.6			10.6	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70			0.14			0.14	
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	517	2382	1065	545	2373			209			212	
v/s Ratio Prot		0.17			c0.19							
v/s Ratio Perm	0.02		0.01	0.03				c0.03			0.01	
v/c Ratio	0.03	0.24	0.01	0.04	0.26			0.18			0.10	
Uniform Delay, d1	3.4	4.0	3.3	3.4	4.1			28.4			28.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.3			0.4			0.2	
Delay (s)	3.5	4.2	3.4	3.5	4.3			28.8			28.3	
Level of Service	A	А	А	A	A			С			С	
Approach Delay (s)		4.2			4.3			28.8			28.3	
Approach LOS		А			А			С			С	
Intersection Summary												
HCM 2000 Control Delay			6.3	Н	CM 2000	Level of	Service		Α			
HCM 2000 Volume to Capa	acity ratio		0.25									
Actuated Cycle Length (s)			75.0	S	um of los	t time (s)			11.7			
Intersection Capacity Utiliz	ation		39.4%	IC	CU Level	of Servic	е		A			

≮

ар city 4: Bedale & Carling + * * ۶

 \rightarrow

HCM Signalized	Intersection	Capacity Ar	nalvsis

	۶	-	\mathbf{r}	-	4	•	1	T.	1	1	÷.	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	3	^	1	3	≜ †}			÷			4	
Traffic Volume (vph)	15	575	20	20	615	15	20	10	50	10	10	1
Future Volume (vph)	15	575	20	20	615	15	20	10	50	10	10	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	180
Storage Length (m)	30.0		15.0	30.0		0.0	0.0		0.0	0.0		0.
Storage Lanes	1		1	1		0	0		0	0		
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.0
Frt			0.850		0.996			0.916			0.942	
Fit Protected	0.950			0.950				0.988			0.986	
Satd, Flow (prot)	1695	3390	1517	1695	3377	0	0	1615	0	0	1657	
Flt Permitted	0.413	0000	1011	0.436	0011	Ŭ	Ŭ	0.907	Ŭ		0.894	
Satd. Flow (perm)	737	3390	1517	778	3377	0	0	1482	0	0	1503	
Right Turn on Red	101	0000	Yes	110	0011	Yes	0	1402	Yes	0	1000	Ye
Satd. Flow (RTOR)			45		5	162		50	165		15	10
Link Speed (k/h)		60	+0		60			40			40	
Link Distance (m)		542.9			117.8			75.2			83.5	
		32.6			7.1			6.8			83.5	
Travel Time (s)	1.00	32.6	4.00	1.00	1.00	1.00	1.00	6.8 1.00	1.00	1.00	1.00	1.0
Peak Hour Factor			1.00									
Adj. Flow (vph)	15	575	20	20	615	15	20	10	50	10	10	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	575	20	20	630	0	0	80	0	0	35	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	N
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Righ
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.0
Turning Speed (k/h)	24		14	24		14	24		14	24		1
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	UITEX	OITEX	OILLY	OILLY	UITEX		UITEX	UITEX		OILLA	OITEX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	28.7	0.0	0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)												
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		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	
	25.6	25.6	25.6	25.6	25.6		29.1	29.1		29.1	29.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Fotal Split (s) Fotal Split (%)	43.0 57.3%	43.0 57.3%	43.0 57.3%	43.0 57.3%	43.0 57.3%		32.0 42.7%	32.0 42.7%		32.0 42.7%	32.0 42.7%	
Maximum Green (s)	37.4	37.4	37.4	37.4	37.4		42.7%	25.9		42.7%	42.7%	
Yellow Time (s)	37.4	37.4	37.4	37.4	37.4		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9	1.9	1.9	1.9		2.8	2.8		2.8	2.8	
ost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.6	5.6			6.1			6.1	
.ead/Lag												
.ead-Lag Optimize?												
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode Nalk Time (s)	C-Min 7.0	C-Min 7.0	C-Min 7.0	C-Min 7.0	C-Min 7.0		None 7.0	None 7.0		None 7.0	None 7.0	
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	55.0	55.0	55.0	55.0	55.0		5	12.6		5	12.6	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73			0.17			0.17	
//c Ratio	0.03	0.23	0.02	0.04	0.25			0.28			0.13	
Control Delay	6.1	5.4	1.1	6.0	5.4			14.4			17.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	6.1	5.4	1.1	6.0	5.4			14.4			17.5	
LOS	A	A	A	A	A			В			В	
Approach Delay		5.2			5.4			14.4			17.5	
Approach LOS	0.5	A 12.1	0.0	0.7	A 13.3			B 3.8			B 2.5	
Queue Length 50th (m) Queue Length 95th (m)	3.5	31.4	1.2	4.2	34.5			12.0			7.9	
nternal Link Dist (m)	0.0	518.9	1.2	4.2	93.8			51.2			59.5	
Furn Bay Length (m)	30.0	5.0.5	15.0	30.0	00.0			01.2			00.0	
Base Capacity (vph)	540	2488	1125	570	2479			544			528	
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	0.03	0.23	0.02	0.04	0.25			0.15			0.07	
ntersection Summary												
Area Type: Cycle Length: 75	Other											_
Maximum v/c Ratio: 0.28 ntersection Signal Delay: ntersection Capacity Utiliz Analysis Period (min) 15		%			tersection							
A D												
	adala & Ca											
Splits and Phases: 4: B	edale & Ca	rling				- L.						
Ø2 (R)	edale & Ca	rling				4	Ø4					
*	edale & Ca	rling				32 s						
#3 s	edale & Ca	rling				32 s						
*	edale & Ca	rling				32 s	Ø4 Ø8					
			3:35 pm	12-01-20	22	32 s				Sj	/nchro 11	
			3:35 pm	12-01-20	22	32 s				Sj		
#3 s) Ultimate A	M Peak	apacity	Analy		32.9		•		S)	12-1	Repo Page
ACC (R)) Ultimate A	M Peak	apacity			32 s 32 s 32 s		Ť	·	S)		Page
ADD (R) ADD (CALL) ADD (CAL)) Ultimate A	M Peak ion Ca Aven	apacity	Analy	∕sis ◀━ ₩BT	32.9		NBT	NBR	S) SBL	12-1 ↓ SBT	2-20:
Accept Revenue 2025 Second S	9 Ultimate A ntersect Carling	M Peak ion Ca J Aven ➡ EBT	apacity ue	Y Analy	∕sis ◀━ ₩BT	32 s	OB NBL	NBT €	NBR	SBL	12-1 ↓ SBT	2-20:
Acc (R) Acc	9 Ultimate A ntersect <u>Carling</u> <u>FBL</u> 10	M Peak ion Ca <u>Aven</u> →	apacity ue EBR 7 335	V Analy WBL 265	vsis ← WBT 440	32 s WBR 10	08 NBL 205	NBT 4	NBR 7 190	SBL 10	12-1 ↓ SBT ↓ 10	2-20:
Acceleration of the second secon	9 Ultimate A ntersect Carling EBL 10	M Peak ion Ca Aven ➡ EBT 4↑	apacity ue EBR 7 335 335	Analy WBL 265 265	vsis ← WBT 440 440	328 WBR 10 10	208 NBL 205 205	NBT 4 15 15	NBR 190 190	SBL 10 10	12-1 ↓ SBT 10 10	2-20:
Acc (R) Acc	9 Ultimate A ntersect <u>Carling</u> <u>FBL</u> 10	M Peak ion C₂ Aven ➡ EBT €05 505 505 1800	apacity ue EBR 335 335 1800	Analy WBL 265 265 1800	vsis ₩BT *19 440 440 1800	32 s WBR 10	08 NBL 205	NBT 4 15 15 15 1800	NBR 190 190 1800	SBL 10	12-1 ↓ SBT ↓ 10 10 1800	2-20:
Acceleration of the second secon	9 Ultimate A ntersect Carling EBL 10	M Peak ion C2 Aven → 505 505 505 1800 5.6	epacity ue EBR 7 335 335 335 1800 5.6	WBL 1800 5.6	vsis ₩BT 440 440 1800 5.6	328 WBR 10 10	208 NBL 205 205	NBT 15 15 1800 6.0	NBR 190 190 1800 6.0	SBL 10 10	12-1 ↓ SBT ↓ 10 10 1800 6.0	2-20:
Acc (R) Acc	9 Ultimate A ntersect Carling EBL 10	M Peak ion C2 Aven → EBT 4↑ 505 505 505 505 1800 5.6 0.95	apacity ue EBR 7 335 335 1800 5.6 1.00	WBL 265 265 1800 5.6 1.00	VSIS WBT 440 440 1800 5.6 0.95	328 WBR 10 10	208 NBL 205 205	NBT ↓ 15 15 1800 6.0 1.00	NBR 190 190 1800 6.0 1.00	SBL 10 10	12-1 ↓ SBT 10 10 1800 6.0 1.00	2-20:
Action of the second seco	9 Ultimate A ntersect Carling EBL 10	M Peak ion Ca Aven €BT €05 505 1800 5.6 0.95 1.00	apacity ue EBR 335 335 1800 5.6 1.00 0.96	WBL WBL 265 265 1800 5.6 1.00	VSIS ₩BT 440 440 1800 5.65 1.00	328 WBR 10 10	208 NBL 205 205	NBT 15 15 1800 6.0 1.00 1.00	NBR 190 190 1800 6.0 1.00 0.97	SBL 10 10	12-1 SBT 4 10 10 1800 6.0 1.00 0.99	2-20
Avez (k) Avez (9 Ultimate A ntersect Carling EBL 10	M Peak ion Ca Aven ■ ■ EBT 505 505 505 505 505 505 1.800 0.95 1.00	apacity ue EBR 3355 335 1800 5.6 1.00 0.09 0.09 0.09 0.09 1.00	WBL WBL 265 265 1800 5.6 1.00 1.00 1.00	VSIS WBT 440 440 1800 5.6 0.95 1.00	328 WBR 10 10	208 NBL 205 205	NBT 15 15 1800 6.0 1.00 1.00 1.00 1.00	NBR 190 190 1800 6.0 1.00 0.97 1.00	SBL 10 10	12-1 ↓ SBT 10 10 1800 6.0 1.00 0.99 1.00	2-20:
Action of the second seco	9 Ultimate A ntersect Carling EBL 10	M Peak ion C2 Aven → EBT 4↑ 505 505 1800 5.06 5.095 1.00 1.00	EBR 100 100 100 100 0.85	VBL VBL 100 5.6 1.00 1.00 1.00	WBT ▲40 440 440 1800 5.6 0.95 1.00 1.00	328 WBR 10 10	208 NBL 205 205	NBT 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85	SBL 10 10	12-1 SBT 10 10 1800 6.0 1.00 0.99 1.00 0.95	2-20:
Accession of the second s	9 Ultimate A ntersect Carling EBL 10	M Peak ion Ca Aven → EBT \$05 505 505 505 505 505 505 1800 0.95 5.6 0.95 1.00 1.00 1.00	apacity ue FBR 3355 335 1800 0.56 1.00 0.96 1.00 0.85 1.00	WBL VBL 265 265 1800 5.6 1.00 1.00 1.00 0.095	VSIS WBT +++ +40 440 1800 0.95 1.00 1.00 1.00 1.00	328 WBR 10 10	208 NBL 205 205	NBT 15 15 1800 6.0 1.00 1.00 1.00 1.00 0.96	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00	SBL 10 10	12-1 ↓ SBT 4 10 10 1800 6.0 1.00 0.99 1.00 0.99 1.00 0.98	2-20:
Action of the second seco	9 Ultimate A ntersect Carling EBL 10	M Peak ion Ca Aven €BT €05 505 505 505 505 505 505 505 505 1.00 0.095 1.00 1.00 1.00 3454	apacity ue EBR 5 3355 1800 5.6 0.09 0.085 1.00 0.85 1.00 1.00 1.00	WBL WBL 1800 5.6 1.00 1.0	✓ WBT ↑ ↓ 440 5.6 0.95 5.6 1.00 1.00 1.00 1.00 1.00 1.00 1.00	328 WBR 10 10	208 NBL 205 205	NBT 4 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 0.96 1690	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493	SBL 10 10	12-1 SBT 10 10 10 100 100 100 100 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 1.03 1.04 1.05 1.0	2-20:
Acceleration of the second secon	9 Ultimate A ntersect Carling EBL 10	M Peak ion C2 Aven → EBT 4↑ 505 505 505 505 505 505 505 50	EBR 7 335 335 5.6 1.00 0.96 1.00 0.96 1.00 0.85 1.00 0.85 1.00	WBL 265 265 1800 1.00 1.00 1.00 1.00 1.00 1.00 1.00	VSIS WBT 440 440 440 1800 5.6 0.95 1.00 1.00 1.00 1.00 3411 1.00	328 WBR 10 10	208 NBL 205 205	NBT 4 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72	NBR 190 1900 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00	SBL 10 10	12-1 ↓ SBT 10 10 10 10 10 10 0.09 0.96 0.98 16988 1698 16988 16988 16988 16988 16988 16988 16988 1	2-20:
Action of the second of t	ntersect Carling P EBL 10 10 1800	M Peak ion Ca Aven ● EBT 4↑ 505 505 505 505 505 505 505 505 505 50	EBR ************************************	WBL WBL 265 265 1800 5.6 1.00	WBT \$40 \$40 \$800 5.6 0.95 1.00 1.00 1.00 1.00 1.00 1.00 3411 1.00	1329 WBR 10 1800	205 NBL 205 1800	NBT 15 15 1800 6.0 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271	NBR 190 1900 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493	SBL 10 1800	12-1 ↓ SBT 10 10 10 100 0.99 1.00 0.99 1.00 0.98 1.698 0.98 0.98 1.528	2-20:
According to the second s	0 Ultimate A ntersect Carling € EBL 100 1800	M Peak ion Ca Aven 505 505 505 505 505 505 505 505 505 50	EBR 7 335 336 336 1.00 0.96 1.00 0.96 1.00 0.96 1.00 1.00 0.96 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	WBL 100 100 1.0	✓ WBT ↑ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	829 WBR 10 1800	28 NBL 205 205 1800	NBT € 15 150 1800 6.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.72 1271 1.00	NBR 190 1900 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00	SBL 10 1800	12-11 SBT 10 10 100 0.99 0.98 1.00 0.98 1528 1.00	2-20: 2-
Action of the second seco	ntersect Carling EBL 100 1800	M Peak ion Ca Aven €BT 505 505 505 505 505 505 505 505 505 1.00 1.00	EBR 3355 335 1800 0.96 1.00 0.85 1.00 0.85 1.00 0.462 1.00 1462 1.00 1462 1.00	WBL WBL 265 265 1800 1.00	WBT ++> 440 1800 5.6 0.95 0.95 1.00 1.00 1.00 1.00 1.00 3411 1.00 3411 1.00 3441	1.00 10 10 10 10 10 10 10 10 10	208 NBL 205 205 1800 1.00 205	NBT ↓ 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 15	NBR 190 1900 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493	SBL 10 1800	12-1 SBT 10 10 1800 6.0 0.99 1.00 0.95 0.98 1528 1.00 0.88 1528 1.00 10	2-20: 2-
Accept representation of the provided representation of t	a Ultimate A ntersect Carling € EBL 100 10 1800	M Peak ion Ca Aven	EBR 7 335 335 335 335 5.6 1.00 0.96 1.00 0.96 1.00 0.462 1.00 1462 1.00 335 1.00 1462 1.00 1.0	WBL 265 265 265 1800 5.6 1.00 1.00 1.00 1.00 1.00 2.65 674 1.00 2.65 0	VSIS VBT 440 440 440 1.00 1.00 1.00 1.00 3411 1.00 3411 1.00 40 1 1.00 1.0	329 WBR 10 10 1800 1.00 100 0 0	208 NBL 205 1800	NBT 15 1800 6.0 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 15 0	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 190 147	SBL 10 10 1800	12-1 ↓ SBT 10 10 100 0.99 0.98 1.00 0.98 1.698 0.88 1.00 1528 1.00 1528 1.08 8	2-20: 2-
Action of the second seco	1.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion Ca Aven €BT 505 505 505 505 505 505 505 505 505 1.00 1.00	EBR / 1.00 // / / / / / / / / / / / / / / / / / /	WBL 265 265 1800 1.00 1.00 1.00 1.00 1.00 1.00 1.00	WBT ++> 440 1800 5.6 0.95 0.95 1.00 1.00 1.00 1.00 1.00 3411 1.00 3411 1.00 3441	1.00 0 0 0	205 205 1800 1.00 205 1800	NBT ↓ 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 15	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493	SBL 100 1800	12-1 SBT 10 10 1800 6.0 0.99 1.00 0.95 0.98 1528 1.00 0.88 1528 1.00 10	2-20: 2-
Acceleration of the second secon	a Ultimate A ntersect Carling € EBL 100 10 1800	M Peak ion Ca Aven	EBR 7 335 335 335 335 5.6 1.00 0.96 1.00 0.96 1.00 0.462 1.00 1462 1.00 335 1.00 1462 1.00 1.0	WBL 265 265 265 1800 5.6 1.00 1.00 1.00 1.00 1.00 2.65 674 1.00 2.65 0	VSIS VBT 440 440 440 1.00 1.00 1.00 1.00 3411 1.00 3411 1.00 40 1 1.00 1.0	329 WBR 10 10 1800 1.00 100 0 0	208 NBL 205 1800	NBT 15 1800 6.0 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 15 0	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 190 147	SBL 10 10 1800	12-1 ↓ SBT 10 10 100 0.99 0.98 1.00 0.98 1.698 0.88 1.00 1528 1.00 1528 1.08 8	2-20: 2-
Action of the second seco	1.00 1.00 0 3 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion Cz Aven EBT 100 1.00 1.00 1.00 1.00 3454 3267 1.00 1.00 3455 0.95 505 505 505 505 505 505 505 505 505 5	EBR 7 7 3355 1800 0.96 1.00 0.85 5.6 1.00 0.96 1.00 0.85 5.6 1.00 0.85 5.6 1.00 0.85 5.6 1.00 0.96 1.00 0.96 1.00 1.00 0.03 5 1.00 0.03 5 1.00 0.04 6 1.00 0.05 1.00 1.00 0.05 0.05	WBL 265 265 1800 1.00 1.00 1.00 0.95 674 1.00 265 6 6	WBT \$\$\Phi\$ \$\$\$\Phi\$ \$\$\$\$\Phi\$ \$	1.00 10 10 1800	205 205 205 1800 1.00 205 0 0 1	NBT 4 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 15 0 220	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4 9	SBL 100 1800 1.000 100 0 0 4	12-1 ↓ SBT 10 10 10 10 0.99 1.00 0.99 1.00 0.95 0.98 1528 0.88 1528 0.88 1528 0.88 1528 0.88 1528 10 10 10 10 10 10 10 10 10 10	2-20:
Acceleration of the set of t	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion Ca Aven ➡ EBT 100 505 505 505 505 505 505 505 505 505	EBR 7 3355 1800 5.66 1.00 0.96 1.00 0.85 1.00 0.462 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Analy WBL 7 7 8 265 265 265 265 1800 0.00 1.00 1.00 0.95 1676 0.03 674 1.00 265 265 265 265 265 265 265 265	vsis WBT ↑► ↓↓ <p< td=""><td>1.00 0 0 0</td><td>AND CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONT</td><td>NBT 4 15 15 1800 6.0 1.0</td><td>NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4.9 1%</td><td>SBL 10 10 1800 1.00 10 0 0 4 4</td><td>12-1 ↓ SBT 10 10 10 10 100 0.99 1.00 0.99 1.00 0.98 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.00</td><td>2-20:</td></p<>	1.00 0 0 0	AND CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONT	NBT 4 15 15 1800 6.0 1.0	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4.9 1%	SBL 10 10 1800 1.00 10 0 0 4 4	12-1 ↓ SBT 10 10 10 10 100 0.99 1.00 0.99 1.00 0.98 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.00	2-20:
Acceleration Control Control Control Contro Control Contr	1.00 1.00 0 3 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion C≥ Aven ← 505 505 1800 1.00 1.00 1.00 1.00 1.00 1.00 1.00	EBR 7 7 3355 1800 0.96 1.00 0.85 5.6 1.00 0.96 1.00 0.85 5.6 1.00 0.85 5.6 1.00 0.85 5.6 1.00 0.96 1.00 0.96 1.00 1.00 0.03 5 1.00 0.03 5 1.00 0.04 6 1.00 0.05 1.00 1.00 0.05 0.05	WBL 265 265 1800 1.00 1.00 1.00 0.95 674 1.00 265 6 6	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	1.00 10 10 1800	205 205 205 1800 1.00 205 0 0 1	NBT 4 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 1.00 220 0% NA	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4 9	SBL 100 1800 1.000 100 0 0 4	12-1 ↓ SBT 4 10 10 10 10 10 10 10	2-20:
Acceleration of the set of t	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion Ca Aven ➡ EBT 100 505 505 505 505 505 505 505 505 505	EBR 7 3355 1800 5.66 1.00 0.96 1.00 0.85 1.00 0.462 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	V Analy WBL 265 265 265 1800 1.00 1.00 1.00 0.95 1676 0.38 674 1.00 265 6 6 3% pm-pt	vsis WBT ↑► ↓↓ <p< td=""><td>1.00 10 10 1800</td><td>AND CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CON</td><td>NBT 4 15 15 1800 6.0 1.0</td><td>NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4.9 1%</td><td>SBL 10 10 1800 1.00 10 0 0 4 4</td><td>12-1 ↓ SBT 10 10 10 10 100 0.99 1.00 0.99 1.00 0.98 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.00</td><td>2-20:</td></p<>	1.00 10 10 1800	AND CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT OF CONTRACT. OF CONTRACT OF CONTRACT. OF CON	NBT 4 15 15 1800 6.0 1.0	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.47 4.3 4.9 1%	SBL 10 10 1800 1.00 10 0 0 4 4	12-1 ↓ SBT 10 10 10 10 100 0.99 1.00 0.99 1.00 0.98 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.88 1.00 0.99 1.00 0.88 1.00 0.00	2-20:
Acceleration of the second secon	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion C≥ Aven → \$05 \$05 \$05 \$05 \$05 \$05 \$05 \$09 \$100 \$6 \$09 \$100 \$0.95 \$	EBBR 335 335 335 335 335 335 335 335 335 33	WBL 2655 2655 1800 5.66 1.00 1.00 0.95 1676 0.095 1676 0.095 6 6 3 % pm+pt 1 6	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	1.00 10 10 1800	205 NBL 205 205 1800 1 1800	NBT 4 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.96 1690 0.72 1271 1.00 1.00 220 0% NA	NBR 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 147 43 9 1% Perm	58L 10 10 10 1800 1.000 10 0 0 0 4 0% Perm	12-1 ↓ 10 1800 6.0 1.00 0.98 1.00 0.98 1.00 0.98 1.00 0.98 1.00 0.98 1.08 8 22 0% NA 4	2-20:
Action of the set	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion C≥ Aven ← 505 505 1800 1.00 1.00 1.00 1.00 1.00 1.00 1.00	EBR 1335 335 335 1800 0.96 1.00 1.0	✓ Analy WBL 265 265 265 265 265 265 265 100 1.00 1.00 1.00 0.95 1.00 1.00 0.03 674 1.00 0.03 674 0.03 675 6 6 3% pmptt 1 1 1 1 1 1 1 1 1 1 1 1 1	WBT 440 1800 5.6 1.00 3411 1.00 440 1 1.00 441 1.00 441 1.00 441 1.00 1.00 441 1.00 441 1.00 449 1% NA 6	1.00 10 10 1800	205 NBL 205 205 1800 1 1800	NBT 4 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 1.00 0.90 0.72 1271 1.00 15 0 220 0% NA 8	NBR 190 190 190 190 1800 6.0 1.00 0.97 1.00 1.00 1.00 1.01 1.02 1.03 1.00	58L 10 10 10 1800 1.000 10 0 0 0 4 0% Perm	12-11 SBT 10 10 100 1800 6.0 9.99 1.00 0.95 0.98 0.88 0.88 0.88 0.88 0.88 0.99 1.00 10 0.99 1.00 0.95 0.98 0.08 0.98 0.09 0.98 0.99 0.98 0.98 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.98 0.99 0.98 0.99 0.98	2-20:
Action of the second seco	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion C₂ Aven → 505 505 505 505 505 505 505	EBR 7 335 335 335 335 335 335 335	V Analy WBL 2655 2655 18000 1.00 1.00 1.00 1.00 0.038 674 0.038 674 0.038 674 0.038 675 65 9 65.9 65.9 65.9 65.9 65.9 65.9 65.	wsis	1.00 10 10 1800	205 NBL 205 205 1800 1 1800	NBT 15 15 15 15 15 15 15 15 15 15	NBR 190 190 1800 6.0 1.00 0.07 1.00 1.00 1.493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1.00 1.01 1.02 1.03 1.04 1.05 1.05 1.06 1.07 1.08 1.09 1.00 1.01 1.02 1.03 1.04 1.05 <td>58L 10 10 10 1800 1.000 10 0 0 0 4 0% Perm</td> <td>12-1 ↓ SBT 10 10 10 10 100 0.00 0.98 100 0.98 1528 1.00 0.98 1528 1.00 0.98 1528 1.02 0.9% NA 4 22.5</td> <td>2-202 2-</td>	58L 10 10 10 1800 1.000 10 0 0 0 4 0% Perm	12-1 ↓ SBT 10 10 10 10 100 0.00 0.98 100 0.98 1528 1.00 0.98 1528 1.00 0.98 1528 1.02 0.9% NA 4 22.5	2-202 2-
Action of the set	1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 0	M Peak ion C≥ Aven → 505 505 1800 5.6 505 1800 5.6 505 1800 5.6 505 1800 5.0 555 1.00 0.95 5.005 5.00	EBR 7 335 51800 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 1.00 0.96 5.6 5.6 1.00 0.96 5.6 5.6 1.00 0.96 5.6 5.6 1.00 0.96 5.6 5.6 1.00 0.96 5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.	WBL 265 265 265 100 1.00 1.00 1.00 1.00 0.95 1676 0.95 1676 0.95 1.00 265 3% pm+pt 1 6 65.9		1.00 10 10 1800	205 NBL 205 205 1800 1 1800	NBT 15 15 15 1800 6.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.06 0.72 1.271 1.00 0.220 0% NA 8 22.5 22.5	NBR 190 190 190 190 190 1800 6.0 1.00 0.97 1.00 0.85 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1493 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	58L 10 10 10 1800 1.000 10 0 0 0 4 0% Perm	12-11 SBT 10 10 100 1800 6.0 9.99 1.00 0.95 0.98 0.88 0.88 0.88 0.88 0.88 0.99 1.00 10 0.99 1.00 0.95 0.98 0.08 0.98 0.09 0.98 0.99 0.98 0.98 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.99 0.98 0.98 0.99 0.98 0.99 0.98	Page

 0%

 NA
 Perm
 pm-p.

 2
 6

 47.9
 47.9
 65.9

 49.9
 47.9
 65.9

 56.6
 5.6
 5.6

 5.6
 5.6
 5.6

 3.0
 3.0
 3.0

 1564
 700
 558

 6.013
 -0.25
 -0.20

 3U
 30
 30
 30

 1564
 700
 568
 2247

 0.06
 0.16
 0.06
 0.13

 0.16
 0.11
 c0.25
 0.33
 0.23
 0.47
 0.20

 0.33
 0.23
 0.47
 0.20
 0.47
 0.20
 0.10
 1.00
 0.6
 0.8
 0.6
 0.2
 1.67
 1.00
 0.6
 0.8
 0.6
 0.2
 1.67
 1.60
 8.1
 6.9
 B
 B
 B
 A
 A
 16.4
 7.4

A 7.4 A

HCM 2000 Level of Service

Sum of lost time (s) ICU Level of Service

Clearance Time (s) Vehicle Extension (s)

Vehicle Extension (s) Lane Grp Cap (vph) Vis Ratio Port vis Ratio Port vis Ratio Perm vic Ratio Uniform Delay, d1 Progression Factor Incremental Delay, d2 Delay (s) Level of Service Approach LOS

Hersection Summary HCM 2000 Control Delay HCM 2000 Volume to Capacity ratio Actuated Cycle Length (s) Intersection Capacity Utilization Analysis Period (min) c Critical Lane Group

B 16.4 B

18.3

0.57 100.0

72.3% 15

 $\rightarrow \gamma \leftarrow \leftarrow \checkmark \uparrow \leftarrow \lor \downarrow$

Queues

4: Bedale & Carling

۶

12-12-2022

12-12-2022 ~

HCM Signalized Intersection Capacity Analysis

٠		~	/	-	A.	•	+	*		1	1
·	-)		1			-
					WBR	NBL		NBR	SBL		SBR
							<₽				
											10
											10
					1800	1800		1800	1800		1800
											1.00
15	645	20	30	685	15	10	0	35	30	0	10
											(
15	645	15	30	699	0		11			6	(
		11	11			7		20	20		7
					2			10			5
0%	0%	8%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
	2			6			8			4	
2		2	6			8			4		
54.7	54.7	54.7	54.7	54.7			8.6			8.6	
54.7	54.7	54.7	54.7	54.7			8.6			8.6	
0.73	0.73	0.73	0.73	0.73			0.11			0.11	
5.6	5.6	5.6	5.6	5.6			6.1			6.1	
											_
0.02	0.15	0.01	0.04	00.20			c0.01			0.01	
	0.26			0.28							
~		~	~								
	A			3.7 A			23.0 C			23.1 C	
		5.1	Н	CM 2000	Level of	Service		A			
city ratio		0.25									
		75.0	S	um of los	t time (s)			11.7			
tion		50.0%				9		А			
	EBL 15 1800 5.6 5.7 100 1.00 1.00 1.00 1.00 1.00 1.00 0.09 5.7 1.00 0.100 0.100 0.00	Lett FBT Th 545 15 545 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 1.00 100 1.00 101 1.00 102 3438 100 1.00 115 645 0% % Perm NA 2 2 547 54.7 3.0 3.0 0.73 0.73 0.03 0.26 0.30 3.0 0.10 1.00 0.10 1.00 0.10 1.02 2.9 3.6 A A A A A A A A A A A	EBL EBT EBR 15 645 20 1800 1800 1800 1800 1800 1800 100 1.00 1.00 1.00 1.00 0.95 1.00 1.00 0.06 1.00 1.00 0.07 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.02 3.03 1.07 1.03 1.00 1.00 1.03 1.00 1.00 1.03 1.00 1.00 1.03 1.00 1.00 1.03 1.00 1.00 1.04 1.00 1.00 0.0 0 5 15 6.45 15 10 1.01 1.00 0.73 0.73 0.73 5.6 5.6 5.6 3.0 3.0 3.0 0.02	Perform <	EBL EBR WBL WBL 15 645 20 30 685 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 0.95 1.00 1.00 0.95 1.00 1.00 1.00 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 1.00 1.00 1.00 0.05 1.00 1.00 0.95 1.00 1.00 1.00 0.07 1.05 1.05 1.07 1.04 1.00 1.00 0.02 4.51 1.07 1.04 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01 <t< td=""><td>EHL EBL EBR WeI WeIT MeIT 15 645 20 30 685 15 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 1800 1800 1800 1800 1800 1800 100 100 0.95 1.00 1.00 1.00 1.00 100 100 0.95 1.00 1.00 1.00 1.00 100 1.00 1.00 1.00 1.00 1.00 1.00 129 348 1.075 1.74 3.445 1.00 1.00 15 645 20 3.0 65 1.5 0.0 1.0 1.0 15 645 15 3.0 0.73 0.73 0.73 0.73</td><td>CHI FBR VBI VBT VBR VBL VBT VBR VBL 15 645 20 30 685 15 10 160 1800 1800 1800 1800 1800 1800 1800 180 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 0.95 1.00 1.00 0.95 1.00 1.00 1.00 1.00 100 1.00 0.085 1.00 <</td><td>Image: constraint of the second state of t</td><td>ENL ENL FBR Well WBI WBR NBL NBI NBI NBI 15 645 20 30 685 15 10 0 35 1600 1600 1800</td><td>EHL EBT URR VER VER NET NET<td>EHL EBR WeI WR NEL NEL NET NER SEL SET 15 645 20 30 685 15 10 0 35 30 0 1800 100 100</td></td></t<>	EHL EBL EBR WeI WeIT MeIT 15 645 20 30 685 15 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 1800 1800 1800 1800 1800 1800 100 100 0.95 1.00 1.00 1.00 1.00 100 100 0.95 1.00 1.00 1.00 1.00 100 1.00 1.00 1.00 1.00 1.00 1.00 129 348 1.075 1.74 3.445 1.00 1.00 15 645 20 3.0 65 1.5 0.0 1.0 1.0 15 645 15 3.0 0.73 0.73 0.73 0.73	CHI FBR VBI VBT VBR VBL VBT VBR VBL 15 645 20 30 685 15 10 160 1800 1800 1800 1800 1800 1800 1800 180 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 100 0.95 1.00 1.00 0.95 1.00 1.00 1.00 1.00 100 1.00 0.085 1.00 <	Image: constraint of the second state of t	ENL ENL FBR Well WBI WBR NBL NBI NBI NBI 15 645 20 30 685 15 10 0 35 1600 1600 1800	EHL EBT URR VER VER NET NET <td>EHL EBR WeI WR NEL NEL NET NER SEL SET 15 645 20 30 685 15 10 0 35 30 0 1800 100 100</td>	EHL EBR WeI WR NEL NEL NET NER SEL SET 15 645 20 30 685 15 10 0 35 30 0 1800 100 100

3430 Carling Avenue 2029 Ultimate PM Peak 3:36 pm 12-01-2022 CS

Synchro 11 Report Page 2