267 O'Connor

TIA Strategy Report

prepared for:

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August 18, 2020

477191-01000



TIA Plan Reports

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

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

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

CERTIFICATION

- 1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- 2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- 3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- 4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check $\sqrt{\text{appropriate field(s)}}$] is either transportation engineering \mathbf{v} or transportation planning \mathbf{v} .
- 1,2 License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

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TIA Strategy Report

1. Screening Form

The Trip Generation Trigger was met based on the development size, and the Safety Trigger was met based on the proposed site driveway's proximity to the signalized O'Connor/Gilmour intersection and O'Connor Bikeway. The Location Trigger was not met. The Screening Form and City comments are provided in Appendix A.

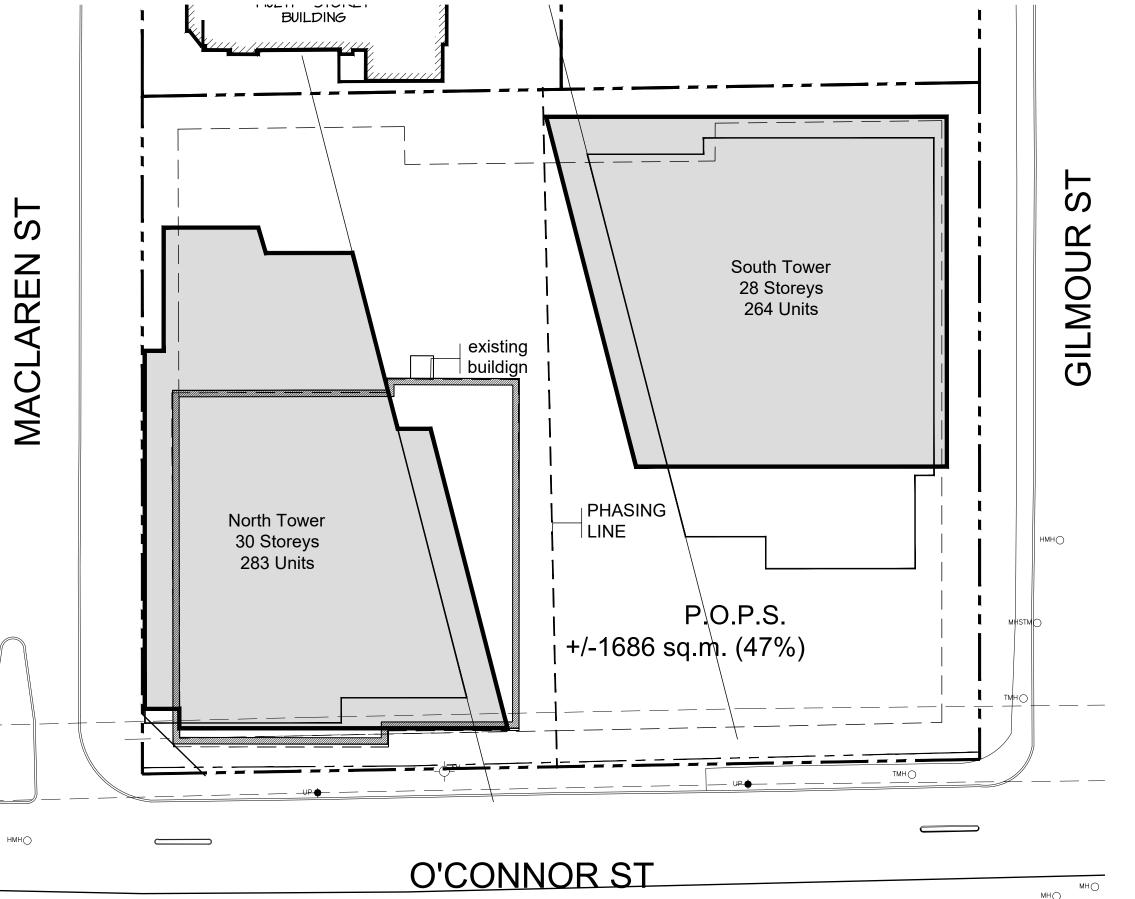
2. Scoping Report

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

This report has been prepared to support a Zoning Bylaw Amendment (ZBLA) for the property located on O'Connor Street between MacLaren Street and Gilmour Street. The site is currently zoned as R4.T[479]. From the information provided, it is our understanding that the proponent is proposing to a construct a two-phase residential development located at 267 O'Connor Street. Phase I consists of a 30-storey tower comprised of 264 residential units and will be constructed on the southern portion of the site with vehicle access proposed to Gilmour Street. Phase II consists of a 30-storey tower comprised of 283 units on the northern portion of the site with vehicle access via the same connection to Gilmour Street. The site is currently occupied by a parking lot on the southern portion and a 6-storey commercial building on the northern portion. The expected build-out date for Phase I and II is 2023 and 2025, respectively. Depending on the growth rate of the study area, the horizon year 2030 will be assessed for 5-years beyond site build out. Currently, approximately 304 total parking spaces are proposed in an underground parking structure. As this development is at the ZBLA stage, these numbers are subject to change and may be revised during Site Plan Approval (SPA). The local context of the site is provided as Figure 1 and the initial Concept Plan is provided as Figure 2.





DEVELOPMENT STATS

PHASE 1 TOWER - 28 STOREYS

-TOTAL GROSS FLOOR AREA 226,086 SQ.FT. 184,345 SQ.FT. -TOTAL NET LEASEABLE AREA -UNIT COUNT 264 UNITS

PHASE 2 TOWER - 30 STOREYS

-TOTAL GROSS FLOOR AREA 246,453 SQ.FT. -TOTAL NET LEASEABLE AREA 198,869 SQ.FT. -UNIT COUNT 283 UNITS

PROPERTY AREA

- TOTAL GROSS AREA 38,724 SQ.FT. - 40% GROSS AREA 15,490 SQ.FT - P.O.P.S. 18.141 SQ.FT

** 700 SQ.FT. AVERAGE UNIT SIZE

** ASSUME NO UNITS ON GROUND FLOOR

PARKING STATS (4 LEVELS)

PHASE 1 TOWER - 28 STOREYS, 264 UNITS

REQUIRED PARKING

RES. PARKING (0.5 PER UNIT) 132 VISITOR PARKING (0.1 PER UNIT) 26 TOTAL PARKING REQUIREMENTS 158

PROVIDED PARKING SPACES(4 LEVELS):

152 (+6 TEMPORARY)

142

PHASE 2 TOWER - 30 STOREYS, 263 UNITS

RES. PARKING (0.5 PER UNIT)

VISITOR PARKING (0.1 PER UNIT) 28 TOTAL PARKING REQUIREMENTS 170 PROVIDED PARKING SPACES(4 LEVELS): 152 328 TOTAL PARKING REQUIREMENTS:

TOTAL PROVIDED PARKING SPACES: 304

STORAGE LOCKERS (UNDERGROUND)

PHASE 1 TOWER - 28 STOREYS, 264 UNITS

PROVIDED STORAGE LOCKERS(4 LEVELS): 240

PHASE 2 TOWER - 30 STOREYS, 283 UNITS

PROVIDED STORAGE LOCKERS(4 LEVELS): 244

TOTAL STORAGE LOCKERS 484 LOCKER RATIO / UNIT : 0.88







2.1.2. Existing Conditions

Area Road Network

O'Connor Street is a one-way southbound arterial roadway, which extends from Wellington Street in the north to Isabella Street in the south. South of Isabella Street, O'Connor Street continues as a local roadway to Fifth Avenue. Within the study area, O'Connor Street has a two-lane cross section with on-street parking provided along the west side of the roadway from 8am to 5:30pm. There is a bi-directional cycle track along the east side of the roadway. The unposted speed limit is understood to be 50 km/h.

Metcalfe Street is a one-way northbound arterial roadway which extends from Wellington Street in the north to Isabella Street in the south. South of Isabella Street, Metcalfe Street continues as a local roadway to Monkland Avenue. Within the study area, Metcalfe Street has a three-lane cross section with on-street parking provided along the east side of the roadway from 9:30am to 3:30pm. The unposted speed limit is understood to be 50 km/h.

Somerset Street is an east-west arterial roadway which extends from Queen Elizabeth Driveway in the east to Garland Street in the east where it continues as Wellington Street W. Within the study area, Somerset Street has a two-lane cross section. The unposted speed limit is understood to be 50 km/h.

Gladstone Avenue is an east-west major collector roadway which extends from Parkdale Avenue in the west to Elgin Street in the east. East of Elgin Street, Gladstone Avenue continues as a local roadway to Cartier Street. Within the study area, Gladstone Avenue has a two-lane cross section with parking bays provided on the north and south side of the roadway. The unposted speed limit is understood to be 50 km/h.

MacLaren Street is a one-way west local roadway that extends from MacDonald Street in the east to Bronson Avenue in the west. Within the study area, MacLaren Street has a two-lane cross section with parking provided on the north side of the roadway. The unposted speed limit is understood to be 50 km/h.

Gilmour Street is a one-way east local roadway that extends from Queen Elizabeth Driveway in the east to Bronson Avenue in the west. Within the study area, Gilmour Street has a two-lane cross section with parking provided on the north side of the roadway. The unposted speed limit is understood to be 50 km/h.

Existing Study Area Intersections

Somerset/O'Connor

The Somerset/O'Connor intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/right-turn lane. The westbound approach consists of a shared through/left-turn lane. The southbound approach consists of a shared through/right-turn lane and a shared though/left-turn lane. Northbound movements are prohibited at this location as O'Connor Street operates as a one-way in the southbound direction.



MacLaren/O'Connor

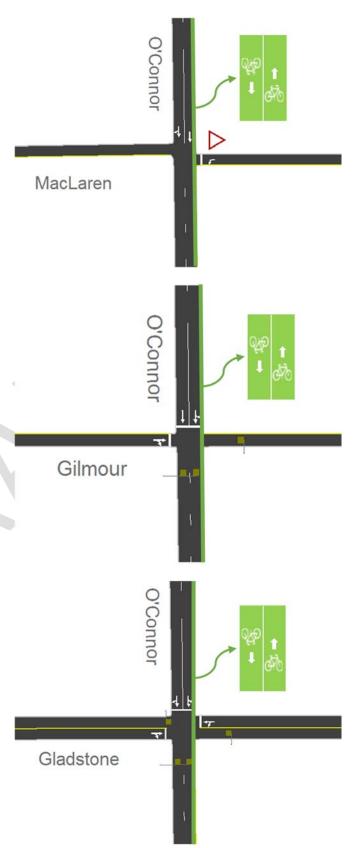
The MacLaren/O'Connor intersection is an unsignalized four-legged intersection with STOP control on the minor approach (MacLaren Street). The southbound approach consists of a through lane and a shared through/right-turn lane. The westbound approach consists of a right-turn lane. Northbound and eastbound and westbound through movements are prohibited at this location as O'Connor Street operates as a one-way in the southbound direction and MacLaren Street operates as a one-way in the westbound direction.

Gilmour/O'Connor

The Gilmour/O'Connor intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/right-turn lane. The southbound approach consists of a shared through/left-turn lane and a through lane. Northbound and westbound movements are prohibited at this location as O'Connor Street operates as a one-way in the southbound direction and Gilmour Street operates as a one-way in the eastbound direction.

Gladstone/O'Connor

The Gladstone/O'Connor intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/right-turn lane. The westbound approach consists of a shared through/left-turn lane. The southbound approach consists of a shared through/right-turn lane and a shared though/left-turn lane. Northbound movements are prohibited at this location as O'Connor Street operates as a one-way in the southbound direction.



Somerset/Metcalfe

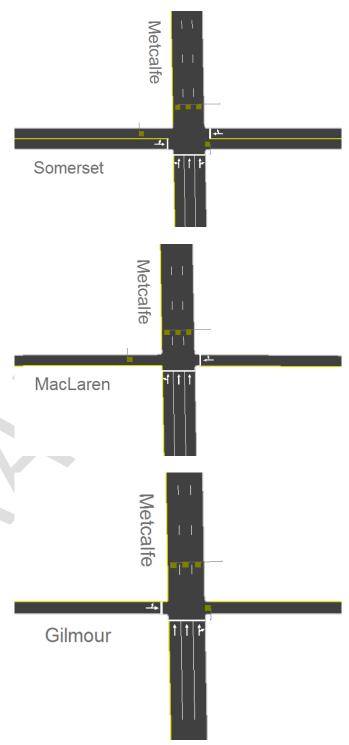
The Somerset/Metcalfe intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/left-turn lane. The westbound approach consists of a shared through/right-turn lane. The northbound approach consists of a shared through/right-turn lane and a shared though/left-turn lane. Southbound movements are prohibited at this location as Metcalfe Street operates as a one-way in the northbound direction.

MacLaren/Metcalfe

The MacLaren/Metcalfe intersection is a signalized four-legged intersection. The westbound approach consists of a shared through/left-turn lane. The northbound approach consists of a shared through/left-turn lane and two through lanes. Southbound and eastbound movements are prohibited at this location as Metcalfe Street operates as a one-way in the northbound direction and MacLaren Street operates as a one-way in the westbound direction.

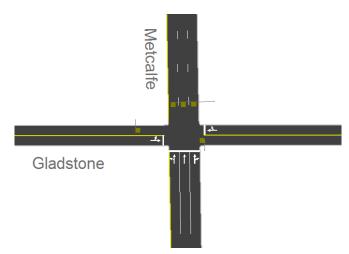
Gilmour/Metcalfe

The Gilmour/O'Connor intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/left-turn lane. The northbound approach consists of a shared through/right-turn lane and two through lanes. Southbound and westbound movements are prohibited at this location as Metcalfe Street operates as a one-way in the southbound direction and Gilmour Street operates as a one-way in the eastbound direction.



Gladstone/Metcalfe

The Gladstone/Metcalfe intersection is a signalized four-legged intersection. The eastbound approach consists of a shared through/right-turn lane. The westbound approach consists of a shared through/left-turn lane. The northbound approach consists of a shared through/right-turn lane and a shared though/left-turn lane and a through lane. Southbound movements are prohibited at this location as Metcalfe Street operates as a one-way in the northbound direction.



Existing Driveways to Adjacent Developments

On the north side of Gilmour Street, between O'Connor Street and Metcalfe Street, there are four existing driveways to adjacent developments. On the south side there are also four existing driveways.

Pedestrian/Cycling Network

With respect to pedestrians, sidewalk facilities in the vicinity of the site are provided along both sides of Gilmour Street, O'Connor Street, Metcalfe Street, MacLaren Street, Somerset Street, and Gladstone Avenue.

With respect to cyclists, according to the Ottawa Cycling Plan, O'Connor Street, Metcalfe Street, Somerset Street, and Gladstone Avenue are classified as Spine Routes. A bi-directional cycling facility is provided along the east side of O'Connor Street. Somerset Street and Gladstone Avenue are identified as "suggested routes".

Transit Network

Transit service within the vicinity of the site is by OC Transpo Routes #5, 7, and 14. Routes #7 and 14 provide frequent all-day service and Route #5 provides local service. The closest transit stops are located on Elgin Street approximately 330m walking distance northeast of the site and on Bank Street approximately 270m walking distance southwest of the site. Figure 3 illustrates the area transit network within the study area.



Existing Area Traffic Management Measures

Existing area traffic management measures on Gilmour Street within the study area include speed humps, on-street parking, intersection narrowings and zebra-stripe crosswalks at the Gilmour/O'Connor and Gilmour/Metcalfe intersections.

Existing Peak Hour Volumes

Illustrated as Figure 4 are the most recent weekday morning and afternoon peak hour traffic volumes obtained from the City of Ottawa at the study area intersections. These peak hour traffic volumes are included as Appendix B.

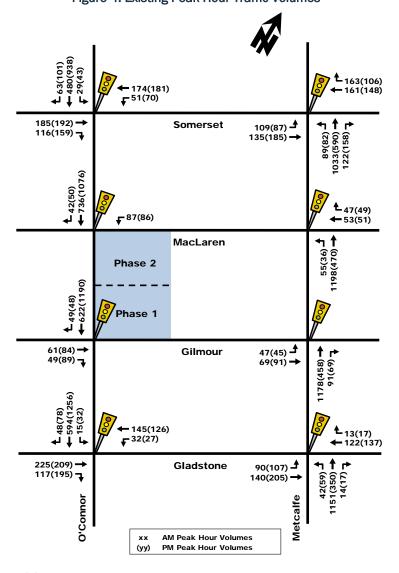


Figure 4: Existing Peak Hour Traffic Volumes

Existing Road Safety Conditions

Collision history for the study area intersections (2013 to 2017, inclusive) was obtained from the City of Ottawa and most collisions (80%) involved only property damage, indicating low impact speeds, and 20% involved personal injuries. The primary causes of collisions cited by police include; turning movement (33%), single vehicle (unattended or other) (28%), sideswipe (16%) and angle (16%) type collisions.

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). At intersections within the study area, reported collisions have historically take place at a rate of:

- 0.31/MEV at the Gilmour/Metcalfe intersection;
- 0.34/MEV at the Gilmour/O'Connor intersection;
- 0.76/MEV at the MacLaren/Metcalfe intersection; and,
- 0.47/MEV at the MacLaren/O'Connor intersection.

It is noteworthy that within the 5-years of recorded collision data there was eight collisions involving a pedestrian and two involving cyclists. The collisions involving pedestrians resulted in non-fatal injuries and the collisions involving cyclists resulted in non-fatal injuries. The source collision data as provided by the City of Ottawa and related analysis is provided as Appendix C.

2.1.3. Planned Conditions

Planned Study Area Transportation Network Changes

Transit Priority Projects

A notable transportation network change within the study area is the Phase I construction of the east-west LRT, which is the conversion of the City's existing BRT corridor to LRT between the current Blair transit station and the Tunney's Pasture station including a tunnel through the City's Downtown. Currently, this phase of construction has been completed and Phase II is underway and is expected to be completed by end of 2025. The nearest LRT station is located at the O'Connor/Queen intersection which approximately 850m walking distance from the site.

Additionally, transit signal priority measures have been identified for both Elgin Street and Bank Street within the Affordable Network and Network Concept plans.

Road Projects

A notable road network change within the study area is Elgin Street Renewal Project, which is now substantially complete. It is currently open to two-way traffic with final work completed by Fall 2020. In addition to updating the sewer and water system, the project has revitalized the roadway and promote active modes.

Other Area Development

According to the City's development application search tool, there are no developments planned within the vicinity of the subject site that are expected to have a notable impact on the surrounding transportation network.

2.2. Study Area and Time Periods

The proposed study area for Phase 1 is outlined below and highlighted in Figure 5. Given the trips expected to be generated by this development will be residential trips, the time periods to be assessed are the weekday morning and afternoon commuter peak hours.



- Somerset/O'Connor intersection;
- MacLaren/O'Connor intersection;
- Gilmour/O'Connor intersection;
- Gladstone/O'Connor intersection;
- Somerset/Metcalfe intersection;
- MacLaren/Metcalfe intersection;
- Gilmour/Metcalfe intersection;
- Gladstone/Metcalfe intersection:
- Gilmour Street adjacent to the site; and,
- O'Connor Street adjacent to the site.

2.3. Exemption Review

Based on the City's TIA guidelines and the subject site, the following sections of the TIA process will be exempt, unless otherwise directed.

Table 1: Exemption Review

Module	Element	Exemption Consideration
Design Review	All elements	As this is TIA is for a Zoning Application, the Design Review Component is
Component (4.1 - 4.4)		not required.
4.8 Review of Network	All elements	This development is not expected to generate 200 person-trips more than
Concept		the permitted zoning for the site.

3. Forecasting

3.1. Development Generated Travel Demand

Existing Site Trip Generation

As the existing building on site currently generates trips, it is necessary to assess the current site operations in order to understand the impacts to the surrounding road network. For purposes of this study, the existing traffic volumes will be approximated using ITE Trip rates and the existing shopping centre floor area, which is assumed to be composed of the following:

- ~ 3,710 m² (40,000 ft²) of general office space;
- ~ 75 m² (800 ft²) of fast casual restaurant area (closed during afternoon peak hour);
- ~ 465 m² (5.000 ft²) of sports medical centre; and
- ~ 185m² (2,000 ft²) of pharmacy/drugstore.

Figure 6, shows the existing building and the estimated floor areas. The ITE trip generation rates used for the existing property are shown in Table 2. Note that there are no formal trip generation rates for a sports medical centre land use and as such the trip generation rates for a dental office (ITE 720) have been applied. The description for this land use aligns most closely with how a sports medical centre would function.



Table 2: ITE Trip Generation Rates - Existing Building

Land Hoo	Data Cauras	Trip Rates					
Land Use	Data Source	AM Peak	PM Peak				
Pharmacy/Drugstore w/out Drive-Thru	ITE 880	T = 2.94(X)	T = 8.51(X)				
Fast Casual Restaurant	ITE 930	T = 2.07(X)	N/A (closed PM peak)				
Physiotherapy Office	ITE 720	T = 2.78(X)	T = 3.46(X)				
	116 720	Ln(T) = 0.89Ln(X) + 1.31	T=3.39(X)+2.02				
General Office	ITE 710	T = 1.16(X)	T = 1.15(X)				
	116 / 10	T= 0.94(X) + 26.49	Ln(T) = 0.95Ln(X) + 0.36				
Note: T = Average Vehicle Trip							
X=1,000 ft ² of Ground Floor Area							

As ITE trip generation surveys only record vehicle trips and typically reflect highly suburban locations (with little to no access by travel modes other than private automobiles), adjustment factors appropriate to the Ottawa study area context were applied to attain estimates of person trips for the proposed development. To convert ITE vehicle trip rates to person trips, an auto occupancy factor and a non-auto trip factor were applied to the ITE vehicle trip rates. Our review of available literature suggests that a combined factor of approximately 1.3 is considered reasonable to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. The person trip generation for the existing development is summarized in Table 3.

Table 3: Modified Existing Person Trip Generation

Land Use	Aroo	AM Pea	k (Person T	rips/hr)	PM Peak (Person Trips/hr)		
Land Ose	Area	In	Out	Total	In	Out	Total
Pharmacy/Drugstore w/out Drive-Thru	2,000 ft ²	5	3	8	10	12	22
Fast Casual Restaurant	800 ft ²	1	1	2	0	0	0
Physiotherapy Office	5,000 ft ²	15	5	20	6	18	24
General Office	40,000 ft ²	70	12	82	9	52	61
Total Existing	91	21	112	25	82	107	

As shown in Table 3, a total of approximately 110 persons/h are projected to travel to/from the existing development during both the weekday morning and afternoon commuter peak hours. Total person-trip generation values were then reduced to non-auto modal shares using the O-D survey (2011) for a site within the Ottawa Inner Area. Table 4 outlines the mode shares for the Ottawa Inner Area and selected mode splits.

With regard to pass-by trips, the ITE Trip Generation Handbook 9th Edition approximates the average percentage of pass-by trips for a pharmacy/drugstore without a drive-thru is 55% which has been applied. It should be noted that the Handbook did not state an average pass-by rate for a fast-casual restaurant and as such, one has not been included.

Table 4: 2011 OD Survey - Ottawa East Mode Shares

Table 4. 2011 Ob Carroy Ctarra Last mode Charce											
		24H			AM Peak			PM Peak		_	
	From District	To District	Within District	From District	To District	Within District	From District	To District	Within District	Average Split	Selected Split
Auto Driver	44%	44%	22%	40%	41%	20%	45%	43%	20%	35%	35%
Auto Passenger	12%	12%	8%	7%	9%	9%	10%	11%	8%	10%	10%
Transit	28%	28%	10%	25%	41%	13%	33%	22%	10%	23%	25%
Bike/Walk	13%	14%	58%	25%	7%	52%	10%	22%	60%	29%	30%
Other	3%	2%	2%	3%	2%	6%	2%	2%	2%	3%	

Table 5: Total Existing Site Trip Generation

Travel Mode	Mode Share	AM Pe	eak (Person T	rips/h)	PM Peak (Person Trips/h)			
Travel Mode	Widde Share	ln	Out	Total	ln	Out	Total	
Auto Driver	35%	34	10	44	11	31	42	
Auto Passenger	10%	10	3	13	3	8	11	
Transit	25%	21	4	25	5	20	25	
Bike/Walk	30%	26	4	30	6	23	29	
Total Person Trips	35%	91	21	112	25	82	107	
	Less Pass-by (55%)	-1	-1	-2	-2	-2	-4	
Total	33	9	42	9	29	38		

As shown in Table 5 above, the total estimated existing site generated trips are estimated to be approximately 40 to 45 veh/h during the morning and afternoon peak hours. This estimate is consistent with the size of the current on-site parking lot (100 spaces).

Comparison to Traffic Count at Site Driveway

A site visit was completed on July 9th, 2019 to determine existing peak hour enter/egress volumes at the existing site access at O'Connor Street. These observed volumes, in comparison to assumed existing trip generation outlined previously, are summarized in Table 6.

Table 6: Comparison of Existing Site Traffic Estimates

Method		AM Peak (veh/	h)	PM Peak (veh/h)			
Metriod	ln	Out	Total	In	Out	Total	
Observed Site Access Volumes	25	4	29	2	28	30	
Assumed Trip Generation	33	9	42	9	29	38	
Net Auto Trip Difference	-8	-5	-13	-7	-1	-8	

As shown in Table 6, the ITE Trip generation analysis for the assumed existing building composition overestimates the total trip generation by approximately 10 veh/h. While this may be considered negligible, the site access volumes will be used in the following analysis when determining the net increase in site traffic to remain conservative.

3.1.1. Trip Generation and Mode Shares

Appropriate trip generation rate for the proposed development consisting of approximately 264 and 283 residential units for Phase I and II, respectively, was obtained from the City's 2009 TRANS Trip Generation – Residential Trip Rates. Table 7 summarizes the trip generation rates.

Table 7: TRANS Residential Trip Rates

Land Use	Data Source	Trip Rates				
Land OSE	Data Source	AM Peak	PM Peak			
High Rise Apartment	222	T = 0.17(du)	T = 0.16(du)			
Note: T = Average Vehicle Trip du = dwelling units						

Phase I Trip Generation

Using the TRANS Trip Generation rates outlined in Table 7 and the TRANS Trip Generation mode splits for the residential component of the site, the total amount of vehicle trips generated by the proposed 264 residential units is summarized in Table 8.

Table 8: Projected Auto Trip Generation - Phase I

Landllas	Aroo	AM	// Peak (veh/	'h)	PM Peak (veh/h)			
Land Use	Area	In	Out	Total	In	Out	Total	
High Rise Apartments	264 units	10	35	45	26	16	42	
Total 'New' Auto Trips		10	35	45	26	16	42	

As shown in Table 8, a total of approximately 40 to 45 veh/h are projected to travel to/from the proposed development during both the weekday morning and afternoon commuter peak hours. The vehicle trips shown in Table 8 for the proposed site were converted to total person trips using the auto modal share values in Table 3.6 of the TRANS report which are summarized in Table 9. Total person-trip generation values were then split by mode using the 2011 OD-Survey modal shares outlined in Table 4. The updated anticipated trips generated by the proposed Phase I development are summarized in Table 10.

Table 9: 2009 TRANS Report High Rise Apartments, Person Trip Generation - Phase I

Troval Mada	AM Mode	AM Pe	ak (Person	Trips/h)	PM Mode	PM Peak (Person Trips/h)			
Travel Mode	Share	In	Out	Total	Share	In Out		Total	
Auto Driver	27%	10	35	45	23%	26	16	42	
Auto Passenger	3%	1	5	6	6%	6	4	10	
Transit	27%	10	35	45	29%	34	20	54	
Bike/Walk	43%	17	54	71	42%	48	29	77	
Total Person Trips	100%	38	129	167	100%	114	69	183	

Table 10: 0-D Modal Site Trip Generation - Phase I

Travel Mode	Made Chare	AM Pe	ak (Person T	rips/h)	PM Peak (Person Trips/h)			
Travel Mode	Mode Share	In	Out	Total	In	Out	Total	
Auto Driver	35%	14	45	59	40	25	65	
Auto Passenger	10%	3	13	16	12	7	19	
Transit	25%	9	32	41	28	17	45	
Bike/Walk	30%	12	39	51	34	20	54	
Total Person Trips	100%	38	129	167	114	69	183	
	Total 'New' Auto Trips	14	45	59	40	25	65	

As shown in Table 10, Phase I is projected to generate approximately an additional 170 to 185 person-trips per hour in the weekday commute peak hours. The increase in two-way transit trips is estimated to be approximately 40 to 45 persons per hour, and the increase in bike/walk trips is approximately 50 to 55 persons per hour. The total amount of 'new' vehicle traffic to the study area is projected to be approximately 60 veh/h during the morning peak hour and approximately 65 veh/h in the afternoon peak hour.

Phase II Trip Generation

Using the TRANS Trip Generation rates outlined in Table 7 and the TRANS Trip Generation mode splits for the residential component of the site, the total amount of vehicle trips generated by the proposed 283 residential units is summarized in Table 11.

Table 11: Projected Auto Trip Generation - Phase II

Land Use	Aroo	AM	/I Peak (veh/	'h)	PM Peak (veh/h)		
Land OSe	Area	In	Out	Total	In	Out	Total
High Rise Apartments	283 units	11	37	48	27	18	45
Total 'New' Auto Trips		11	37	48	27	18	45

As shown in Table 8, a total of approximately 45 to 50 veh/h are projected to travel to/from the proposed development during both the weekday morning and afternoon commuter peak hours. The vehicle trips shown in Table 11 for the proposed site were converted to total person trips using the auto modal share values in Table 3.6 of the TRANS report which are summarized in Table 12. Total person-trip generation values were then split by mode using the 2011 OD-Survey modal shares outlined in Table 4. The updated anticipated trips generated by the proposed Phase I development are summarized in Table 13.

Table 12: 2009 TRANS Report High Rise Apartments, Person Trip Generation - Phase II

Travel Mode	AM Mode	AM Pea	ak (Person ⁻	Γrips/h)	PM Mode	PM Peak (Person Trips/h)			
Travel Mode	Share	In	Out	ut Total Share In Out		Out	Total		
Auto Driver	27%	11	37	48	23%	27	18	45	
Auto Passenger	3%	2	4	6	6%	6	5	11	
Transit	27%	11	36	47	29%	35	22	57	
Bike/Walk	43%	19	57	76	42%	51	32	83	
Total Person Trips	100%	43	134	177	100%	119	77	196	

Table 13: O-D Modal Site Trip Generation - Phase II

Travel Mode	Made Chare	AM Pe	ak (Person T	rips/h)	PM Peak (Person Trips/h)			
Travel Mode	Mode Share	In	Out	Total	In	Out	Total	
Auto Driver	35%	15	47	62	42	27	69	
Auto Passenger	10%	5	12	17	11	8	19	
Transit	25%	11	33	44	30	19	49	
Bike/Walk	30%	12	42	54	36	23	59	
Total Person Trips	100%	43	134	177	119	77	196	
	Total 'New' Auto Trips	15	47	62	42	27	69	

As shown in Table 10, Phase II is projected to generate approximately an additional 180 to 200 person-trips per hour in the weekday commute peak hours. The increase in two-way transit trips is estimated to be approximately 45 to 50 persons per hour, and the increase in bike/walk trips is approximately 50 to 60 persons per hour. The total amount of 'new' vehicle traffic to the study area is projected to be approximately 60 veh/h during the morning peak hour and approximately 70 veh/h in the afternoon peak hour.

Total Site Trip Generation

The total Phase I and Phase II projected trips for the proposed development are summarized below in Table 14.

Table 14: Total Phase 1 and Phase 2 Site Trip Generation

Travel Mode	Mode Share	AM Pe	ak (Person T	rips/h)	PM Peak (Person Trips/h)			
Travel Mode	Widde Share	In	Out	Total	In	Out	Total	
Auto Driver	35%	29	92	121	82	52	134	
Auto Passenger	10%	8	25	33	23	15	38	
Transit	25%	20	65	85	58	36	94	
Bike/Walk	30%	24	81	105	70	43	113	
Total Person Trips	100%	81	263	344	233	146	379	
Total 'New' Auto Trips		29	92	121	82	52	134	

As shown in Table 14, the site is projected to generate approximately 345 to 380 person-trips per hour in the weekday commute peak hours. The projected two-way transit trips are estimated to be approximately 85 to 95 persons per hour, and the projected bike/walk trips are approximately 105 to 115 persons per hour. The total vehicle trips generated by the site is projected to be approximately 120 veh/h during the morning peak hour and approximately 135 veh/h in the afternoon peak hour.

Net Auto Trip Increase

Using the Phase I and II projected auto trips presented in Table 8 and Table 11, respectively, and subtracting the observed site access volumes shown in Table 6, Table 15 illustrates the total net auto trips generated by the proposed development once Phase I and Phase II has been constructed.

Table 15: Net Vehicle Trip Generation

Table 2011 tot Vollide 111p deliciation											
Made Chare	Al	M Peak (veh/	h)	PM Peak (veh/h)							
Mode Share	In	Out	Total	In	Out	Total					
Observed Site Access Auto Trips	25	4	29	2	28	30					
'New' Auto Trips Phase I	14	45	59	40	25	65					
'New' Auto Trips Phase I & II	29	92	121	82	52	134					
Net 'New' Auto Trips Phase I Increase	-11	41	30	38	-3	35					
Net 'New' Auto Trips Phase I & II Increase	4	88	92	80	24	104					

As shown in Table 15 above, the total net increase in Phase I trips are anticipated to be 30 veh/h and 35 veh/h during the morning and afternoon peak hours, respectively. The total net increase in Phase I & II trips are anticipated to be 90 veh/h and 105 veh/h during the morning and afternoon peak hours, respectively.

3.1.2. Mode Shares

As the development is not located in a TOD zone and is approximately 850m walking distance from the future O'Connor LRT Station, the future mode shares are expected to be the same as outlined in Table 4.

3.1.3. Trip Distribution

Based on the 2011 OD Survey (Ottawa Inner Area/Ottawa Centre districts) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 55% to/from the south via Metcalfe Street and HWY-417;
- 25% to/from the north via O'Connor Street;
- 5% to/from the east via Somerset Street; and,
- 15% to/from the west via Somerset Street and Gilmour Street.

3.1.4. Trip Assignment

The expected 'new' site-generated auto trips for Phase I (Table 8) and Phase 2 (Table 11) of the proposed development (Figure 2) are assigned to the road networks as shown in Figure 7 and Figure 8, respectively. Figure 9 illustrates the total site generated trips applied to the network, including pass-by trips.

3.2. Background Network Travel Demands

3.2.1. Transportation Network Plans

See Section 2.3.1.

3.2.2. Background Growth

The following background traffic growth (summarized in Table 16) was calculated based on historical traffic count data (years 2003, 2007, 2010, and 2017) provided by the City of Ottawa at the Somerset/O'Connor intersection north of the site. Detailed background traffic growth analysis is included as Appendix D.

Table 16: Somerset/O'Connor Historical Background Growth (2003-2017)

· ·		Percent Annual Change								
Time Period	North Leg	South Leg	East Leg	West Leg	Overall					
8 hrs	-2.22%	-1.66%	-0.41%	-0.19%	-1.34%					
AM Peak	-2.20%	-1.76%	-0.65%	-0.17%	-1.31%					
PM Peak	-2.22%	-1.99%	-1.19%	-0.42%	-1.67%					

As shown in Table 16, the Somerset/O'Connor intersection has experienced approximately 1.31 to 1.67% overall annual decrease in traffic within recent years. This is consistent with the decline in vehicular traffic outlined in the TMP. Rather than use a negative growth rate, a more conservative growth rate will be used of 0% annual growth as advised by City of Ottawa (Jennifer Armstrong; Program Manager Transportation Policy and Networks) on April 11th, 2019.

Figure 7: Phase I 'New' Site Generated Traffic

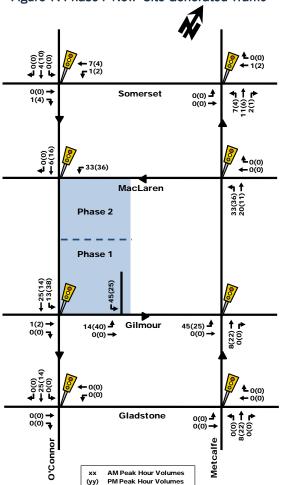
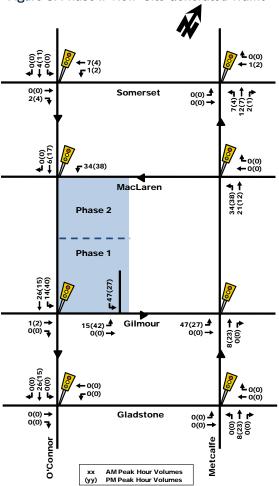


Figure 8: Phase II 'New' Site Generated Traffic



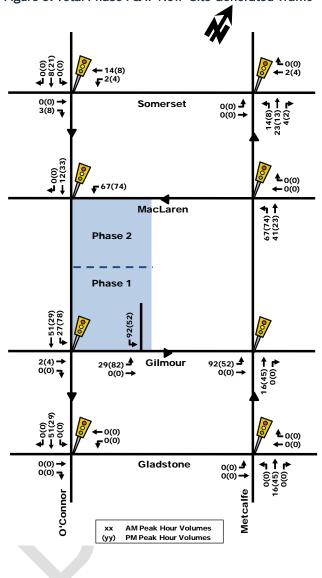


Figure 9: Total Phase I & II 'New' Site Generated Traffic

3.2.3. Other Developments

See Section 2.1.4.

3.3. Demand Rationalization

The 2022 and 2025 total projected volumes are composed of the existing traffic volumes (Figure 4) combined with the anticipated site generated vehicle volumes. Figure 10 displays the 2023 total projected volumes and Figure 11 illustrates the total 2025 projected volumes. As there is no projected background traffic growth, the 2030 horizon year traffic volumes are anticipated to be similar to the 2025 horizon year.

The TAC Guide for Signalized Intersection (2008) identifies the typical saturation flow rate for through lanes and left turn lanes as approximately 1,800 veh/h/ln and 1,750 veh/h/ln, respectively. While there are not any movements at study area intersections reaching this threshold. This will be further explored in Section 4.9 of the Strategy Report.

Figure 10: Total Projected Volumes - Phase I

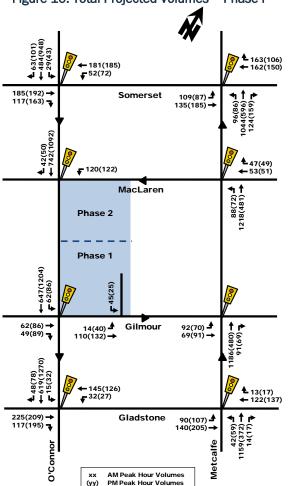
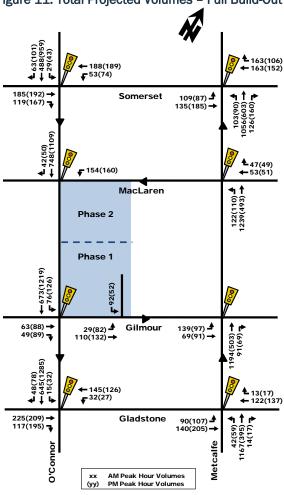


Figure 11: Total Projected Volumes - Full Build-Out



4. Strategy

4.1. Development Design

Exempt - See Section 2.3.

As this is TIA is for a Zoning Application, the Design Review Component is not required. It will be included in the subsequent TIA in support of the SPA.

4.2. Parking

Exempt - See Section 2.3.

Vehicle Parking

A total of 304 vehicle parking spaces are expected to be provided for residents of the planned development. A total of 152 vehicle parking spaces will be provided for each Phase I and II, totalling 304 parking spaces at full build-out. The number of parking spaces provided meets the minimum parking space rates set by the City of Ottawa parking provisions.

Bicycle Parking

Based on bicycle parking rates outlined in City of Ottawa By-laws, approximately 274 bicycle parking spaces are needed to meet the minimum requirement. A minimum of 25% (69 spaces) of these spaces must be located within a secure structure with no more than 50% (137 spaces) of them vertical spaces.

Final parking statistics will be confirmed in the subsequent TIA in support of the SPA.

4.3. Boundary Street Design

Exempt - See Section 2.3.

As this is TIA is for a Zoning Application, the Design Review Component is not required. It will be included in the subsequent TIA in support of the SPA.

4.4. Access Intersection Design

Exempt - See Section 2.3.

As this is TIA is for a Zoning Application, the Design Review Component is not required. It will be included in the subsequent TIA in support of the SPA.

4.5. Transportation Demand Management

The proposed residential development is located within walking distance to transit stops located along Bank Street and Elgin Street, and the future Queen LRT Station and adjacent to the O'Connor Bikeway. As such, the location of the site is ideal in promoting non-auto travel during the weekday peak hours and outside peak hours. The TDM-Supportive Development Design and Infrastructure Checklist and TDM Measures Checklist have been provided as Appendix E. Some of the TDM measures that the proponent is providing/considering are as follows:

- Display walking/cycling maps in building lobby and/or amenity areas;
- Display transit maps in building lobby and/or amenity areas;
- Provide a multimodal travel option information package to new residents in tenant move-in package;
- Contract with provider to install on-site carshare vehicles and promote their use by residents;
- Unbundle parking costs from monthly rent;
- Provide pedestrian connections to existing City sidewalks; and,
- Building entrances located close to street front to minimize walking distances.

Given the type of development and its location within the urban inner area, and given the existing and future cycling and pedestrian facilities within the area, the development is well positioned to promote travel via transit and active modes.

4.6. Neighbourhood Traffic Management (NTM)

The following section discusses the development's impact on the surrounding neighbourhood and local access route. Table 17 summarizes Gilmour Street's roadway classification, the TIA Guideline's roadway threshold, and the approximate existing and projected total site traffic (Phase I and II) on the main access route to the site.

Table 17: Roadway Classification Analysis of Site Access Routes

Roadway	Classification	Daily Threshold	Peak Hour Peak Direction	Peak Hour Peak Direction Volume AM Peak (PM Peak)		
		(veh/day)	Threshold (veh/h)	Existing	Projected	
Gilmour Street - O'Connor Street to Metcalfe Street	Local	1,000	120	110 (<mark>130</mark>)	220 (265)	

As shown in Table 17, the existing morning peak hour peak directional volumes are approaching the suggested threshold and the existing afternoon peak hour peak directional volumes exceed them. With the addition of site traffic, the directional thresholds are exceeded during both peak hours. The proposed development could maintain the existing vehicle access on O'Connor Street; however, this access would provide a conflict point with the existing O'Connor Bikeway. As such, potential NTM measures that could be considered to lessen the impact to Gilmour Street include speed humps, midblock narrowings, intersection narrowings etc. It should be noted that these measures would require monitoring and a comprehensive study completed by the City prior to implementation.

4.7. Transit

As shown in Section 3.1, the total "new" two-way transit trips for the proposed development are approximately 45-50 and 40-45 persons/h during the weekday peak hours for Phase I and II, respectively. This amount of person trips can be accommodated by the existing transit located on Bank Street, Elgin Street, and the Queen LRT Station.

4.8. Review of Network Concept

Exempt - See Section 2.3.

4.9. Intersection Design

4.9.1. Existing Conditions

The following Table 18 provides a summary of the existing traffic operations at the study area intersections based on the SYNCHRO (V9) traffic analysis software and the existing traffic volumes (Figure 4). The subject signalized intersection was assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s). The subject signalized intersection 'as a whole' was assessed based on weighted v/c ratio. The unsignalized intersections were assessed based on delay and the corresponding level of service. The SYNCHRO model output of existing conditions is provided within Appendix F.

Table 18: Existing Intersection Performance

	Weekday AM Peak (PM Peak)								
Interpostion	С	ritical Moveme	ent	Intersection 'as a whole'					
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c			
Somerset/O'Connor	C(E)	0.74(0.93)	EBT(EBT)	22.3(32.7)	A(D)	0.50(0.83)			
Gilmour/O'Connor	A(A)	0.38(0.59)	EBT(EBT)	8.0(7.5)	A(A)	0.31(0.59)			
Gladstone/O'Connor	C(E)	0.78(0.91)	EBT(EBT)	23.3(22.6)	A(C)	0.53(0.78)			
Somerset/Metcalfe	F(E)	1.05(0.92)	EBT(EBT)	28.4(24.1)	B(A)	0.61(0.51)			
MacLaren/Metcalfe	A(A)	0.37(0.30)	NBT(WBT)	3.7(4.4)	A(A)	0.37(0.17)			
Gilmour/Metcalfe	A(A)	0.42(0.33)	NBT(EBT)	4.2(6.8)	A(A)	0.41(0.22)			
Gladstone/Metcalfe	C(C)	0.73(0.76)	EBT(EBT)	15.7(19.9)	A(A)	0.46(0.42)			
MacLaren/O'Connor (unsignalized)	B(C)	12.4(15.1)	WB(WB)	1.2(1.1)	A(A)	-			
O'Connor/Site (unsignalized)	C(C)	18.0(19.9)	WB(WB)	0.7(0.9)	A(A)	-			
Note: Analysis of signalized intersections assur	mes a PHF of 0.9	95 and a saturation	n flow rate of 180	00 veh/h/lane.					

As shown in Table 18, all study area intersections 'as a whole' currently operate at an acceptable LoS 'C' or better during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'E' or better during peak hours with the exception of the Somerset/Metcalfe intersection. The critical

eastbound movement at this location operates at an LoS 'F' during the morning peak hour. This is likely due to the high volume of left-turning vehicles at this location (approximately 110 veh/h during the morning peak hour) and high number of pedestrians crossing.

Multi-Modal Level of Service - Existing Conditions

The MMLoS analysis for the signalized study area intersection is summarized in Table 19. The existing detailed MMLoS analysis is provided as Appendix G.

Table 19: MMLoS - Signalized Intersection, Existing Conditions

					Level of	Service				
Intersection	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)		Vehicle (LoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target	LoS	Target
Somerset/O'Connor	D	Α	D	Α	N/A		F	D	D	Е
Gilmour/O'Connor	D	Α	D	Α	N/A		D	N/A	Α	Е
Gladstone/O'Connor	С	Α	D	Α	F		F	D	С	E
Somerset/Metcalfe	С	Α	D	С	N/A	No	F	N/A	В	Е
MacLaren/Metcalfe	С	Α	D	С	N/A	Target	F	N/A	Α	Е
Gilmour/Metcalfe	С	Α	D	С	N/A		D	N/A	Α	Е
Gladstone/Metcalfe	С	Α	D	С	F		F	N/A	Α	E

The letters identified in red text in Table 19 do not meet the MMLoS Targets for their designated area (within 300m of a school). There are only transit routes travelling east and west through the Gladstone/O'Connor and Gladstone/Metcalfe intersections and as such, these are the only locations with a TLoS component. As there are no transit priority measures currently on Gladstone, there is no transit level of service target. As Gilmour Street, Metcalfe Street, MacLaren Street and Gladstone Avenue do not form part of the truck route and, as such, there are no TkLoS targets for these intersections.

With regard to pedestrians, the low effective walk time is the main factor for the failing levels of service. The pedestrian level of service at these intersections could be improved by considering major geometric and signal timing changes.

With regard to cyclists, there are no facilities provided on the east/west roadways and on Metcalfe Street which results in the failing levels of service as cyclists must travel in mixed traffic. Potential mitigative measures include cross-rides, bike boxes, or pocket bike lanes. Note that implementation of bike boxes would require the right-turn-on-red to be prohibited.

With regard to trucks, as Somerset Street and Gladstone Avenue only have one receiving lane, the resulting level of service is an TkLoS 'F'. It should be noted however, that the TkLoS on the remaining north legs of these intersection are TkLoS 'D' which meets the target.

Total Projected 2023 Conditions - Phase I

The following Table 20 provides a summary of the total 2023 projected operations at the study area intersections based on the Synchro (V10) traffic analysis software. The Synchro model output of total projected conditions is provided within Appendix F.

Table 20: Total Projected 2023 Performance at Study Area Intersections

	Weekday AM Peak (PM Peak)						
Interpostion	С	Critical Movement			Intersection 'as a whole'		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c	
Somerset/O'Connor	C(E)	0.74(0.93)	EBT(EBT)	22.3(33.4)	A(D)	0.51(0.83)	
Gilmour/O'Connor	A(B)	0.38(0.62)	EBT(SBT)	7.9(8.4)	A(B)	0.33(0.62)	
Gladstone/O'Connor	C(E)	0.78(0.91)	EBT(EBT)	23.3(23.2)	A(C)	0.53(0.80)	
Somerset/Metcalfe	F(E)	1.06(0.93)	EBT(EBT)	28.4(24.3)	B(A)	0.62(0.51)	
MacLaren/Metcalfe	A(A)	0.39(0.30)	NBT(WBT)	3.7(4.2)	A(A)	0.39(0.19)	
Gilmour/Metcalfe	A(A)	0.44(0.41)	EBT(EBT)	4.9(7.3)	A(A)	0.42(0.24)	
Gladstone/Metcalfe	C(C)	0.73(0.76)	EBT(EBT)	15.7(19.6)	A(A)	0.47(0.42)	
MacLaren/O'Connor (unsignalized)	B(C)	13.0(16.5)	WB(WB)	1.7(1.6)	A(A)	-	
O'Connor/Site (unsignalized)	A(A)	9.5(9.9)	SB(SB)	2.6(1.3)	A(A)	-	
Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.							

As shown in Table 20, study area intersections are projected to operate similar to 2022 conditions with slight increases to v/c ratios and delay. Study area intersections 'as a whole' are projected to operate at an acceptable LoS 'C' or better during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are projected to continue operating at an acceptable LoS 'E' or better during peak hours with the exception of the Somerset/Metcalfe intersection. The critical eastbound through movement at this location is projected to operate at an LoS 'F' during the morning peak hour.

Total Projected 2025 Conditions – Full Build-Out (Phase I and II)

The following Table 21 provides a summary of the total 2025 projected operations at the study area intersections based on the Synchro (V10) traffic analysis software. The Synchro model output of total projected conditions is provided within Appendix F.

Table 21: Total Projected 2025 Performance at Study Area Intersections

	Weekday AM Peak (PM Peak)					
Interpostion	(Critical Moveme	ent	Intersection 'as a whole'		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Somerset/O'Connor	C(E)	0.74(0.94)	EBT(EBT)	22.4(34.1)	A(D)	0.51(0.84)
Gilmour/O'Connor	A(B)	0.39(0.65)	EBT(SBT)	7.6(9.3)	A(B)	0.35(0.65)
Gladstone/O'Connor	C(E)	0.78(0.91)	EBT(EBT)	23.1(22.5)	A(D)	0.54(0.81)
Somerset/Metcalfe	F(E)	1.06(0.93)	EBT(EBT)	28.4(24.1)	B(A)	0.62(0.52)
MacLaren/Metcalfe	A(A)	0.41(0.30)	NBT(WBT)	3.6(4.0)	A(A)	0.40(0.21)
Gilmour/Metcalfe	A(A)	0.57(0.46)	EBT(EBT)	6.2(7.4)	A(A)	0.44(0.26)
Gladstone/Metcalfe	C(C)	0.73(0.76)	EBT(EBT)	15.7(19.4)	A(A)	0.47(0.42)
MacLaren/O'Connor (unsignalized)	B(C)	13.7(18.3)	WB(WB)	2.2(2.2)	A(A)	-
O'Connor/Site (unsignalized)	B(B)	10.0(10.7)	SB(SB)	4.0(2.1)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.						

As shown in Table 21, study area intersections are projected to operate similar to 2022 conditions with slight increases to v/c ratios and delay. Study area intersections 'as a whole' are projected to operate at an acceptable LoS 'D' or better during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are projected to continue operating at an acceptable LoS 'E' or better during peak hours with the exception of the Somerset/Metcalfe

intersection. The critical eastbound through movement at this location is projected to operate at an LoS 'F' during the morning peak hour.

Total Projected 2030 Conditions - Full Build-Out + 5 Years

As there is no projected background traffic, the projected 2030 horizon year traffic operations are expected to be similar to the 2025 horizon year. As such, the results shown in Table 21 and accompanying conclusions will remain constant for the 2030 horizon year.

Multi-Modal Level of Service - Projected 2023, 2025, 2030 Conditions

As there are no planned changes to the study area intersections, the projected MMLoS is expected to be the same as the existing MMLoS reported in Table 19.

5. Findings, Conclusions and Recommendations

Based on the results summarized herein, the following transportation related conclusions are offered:

Proposed Site

- Taggart is proposing a mixed-use development comprised of 2 high-rise residential towers totalling 547 units;
- Phase 1 build-out is expected in 2023 with the build-out of Phase 2 expected in 2025;
- Approximately 300 parking spaces are proposed in an underground parking structure which meet the minimum requirements outlined in City By-laws;
 - Approximately 274 bicycle parking spaces are required to be in compliance with City By-laws;
 - Parking statistics will be confirmed in the supporting TIA for the SPA; and,
- Vehicle access to the development is proposed via a new all movement driveway connection to Gilmour Street.

Site Trip Generation

- Phase 1 is projected to generate approximately 60 65 veh/h during the morning and afternoon peak hours;
 - The net increase/decrease of trips compared to existing trip generation is 30 veh/h and 35 veh/h during the morning and afternoon peak hours respectively;
- Phase 2 is projected to generate approximately 60 veh/h and 70 veh/h during the morning and afternoon peak hours respectively;
- The total site is projected to generate approximately 120 veh/h and 135 veh/h during the morning and afternoon peak hours respectively; and,
 - The net increase of trips compared to existing trip generation is 90 veh/h and 105 veh/h during the morning and afternoon peak hours respectively.

Existing and Projected Conditions

- The study area intersections operate 'as a whole' with a LoS 'D' or better during peak hours. Critical movements
 operate at a LoS 'E' or better during peak hours with the exception of the eastbound movement at the
 Somerset/Metcalfe intersection during the morning peak hour;
 - The high volume of eastbound left-turning vehicles and high number of pedestrians at this location are likely the cause of this movement failing;
- For the 2023 and 2025 horizon years, study area intersections are projected to operate 'as a whole' with a LoS 'D' or better during peak hours. Critical movements operate at a LoS 'E' or better during peak hours with the exception of the EBT at the Somerset/Metcalfe intersection during the morning peak hour; and,
- The MMLoS targets for existing conditions are not met at all locations for pedestrian and cycling modes. The target TkLoS is not met at the Somerset/O'Connor and Gladstone/O'Connor intersections;
 - PLoS is not met mainly due to effective walks time but can be improved with major geometric and signal timing changes;

 BLoS is not met due to cyclists travelling in mixed traffic. Potential mitigative measures include cross-rides, bike boxes, or pocket bike lanes.

Based on the foregoing, the proposed residential development fits well into the context of the surrounding area, and its location and design serve to promote use of walking, cycling, and transit modes, thus supporting City of Ottawa policies, goals and objectives with respect to redevelopment, intensification and modal share. Therefore, approval from a transportation perspective of the proposed residential development is recommended.

Once the ZBA submission is approved, the next steps for the Site Plan Application will include updating this report to include Modules 4.1 to 4.2 and assess the design review component of the proposed development.

Prepared By: Reviewed by:

Rani Nahas, E.I.T. Transportation Analyst Mark Baker, P.Eng. Senior Transportation Engineer

Appendix A Screening Form





City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date 8/18/2020
Project 267 O'Connor TIA

Project Number 477191-01000

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

Module 1.1 - Description of Proposed Development	
Municipal Address	267 O'Connor Street
Description of location	Bounded by O'Connor Street, MacLaren Street, and Gilmour Street. Phase 1 is located on the south portion of the site and Phase 2 is located on the north portion of the site.
Land Use	Primarily residential
Development Size	263 units (Phase 1) 284 units (Phase 2)
Number of Accesses and Locations	One access to Gilmour Street
Development Phasing	Two phases. It should be noted that the focus of the TIA is Phase 1, however Phase 2 will also be included in the analysis.
Buildout Year	Phase 1 - 2023; Phase 2 - 2025
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger			
Land Use Type	Townhomes or Apartments		
Development Size	547	Units	
Trip Generation Trigger Met?	Yes		

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

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection;	Yes	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety		
concerns on the boundary streets within 500 m of the	Yes	Proximity to O'Connor Bikeway
development		
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	

From: Nahas, Rani
To: Nahas, Rani

Subject: FW: 267 O"Connor St - Transportation Comments

Date: Tuesday, August 18, 2020 11:26:43 AM

From: Dubyk, Wally < Wally. Dubyk@ottawa.ca>

Sent: Thursday, July 11, 2019 12:07 PM

To: Sponder, Andre <<u>Andre.Sponder@parsons.com</u>> **Cc:** Deiaco, Simon <<u>Simon.Deiaco@ottawa.ca</u>>

Subject: [EXTERNAL] 267 O'Connor St - Transportation Comments

Andre,

Please review the following comments;

Project No.: TBD	Project Address: 267 O'Connor Street
Consultant: Parsons	Ward/Councillor: 14/McKenney

Transportation

_

<u>List of Report reviewed:</u>

- TIA Forecasting Report, Parsons Proj. No. 477191-01000, Dated June 27, 2019

Comments:

- Table 2's title incorrectly refers to vehicle trips.
- To maintain the transit and active modal share percentages recorded in this Traffic Assessment Zone, please ensure that all proposed TDM measures include implementation details and reference to the site/concept plan.

Wally Dubyk Project Manager - Transportation Approvals Development Review, Central & South Branches 613-580-2424 x13783

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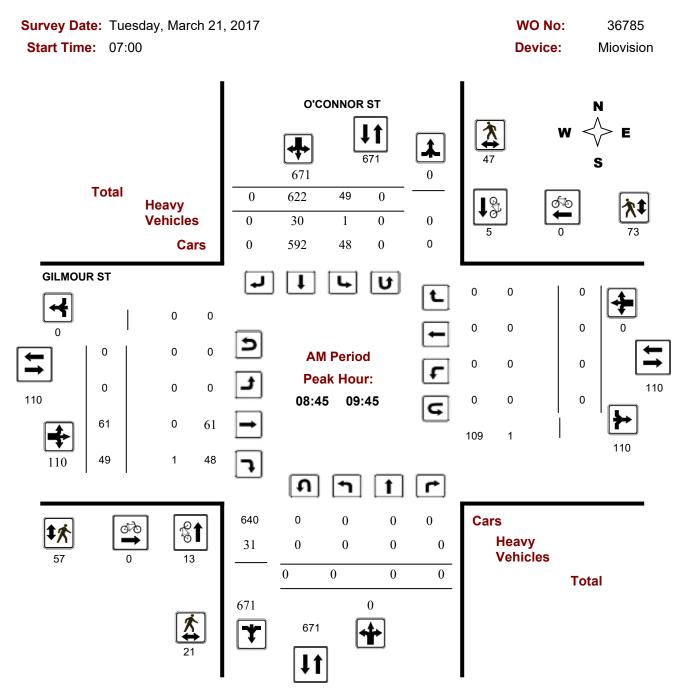
Appendix B Traffic Count Data





Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ O'CONNOR ST



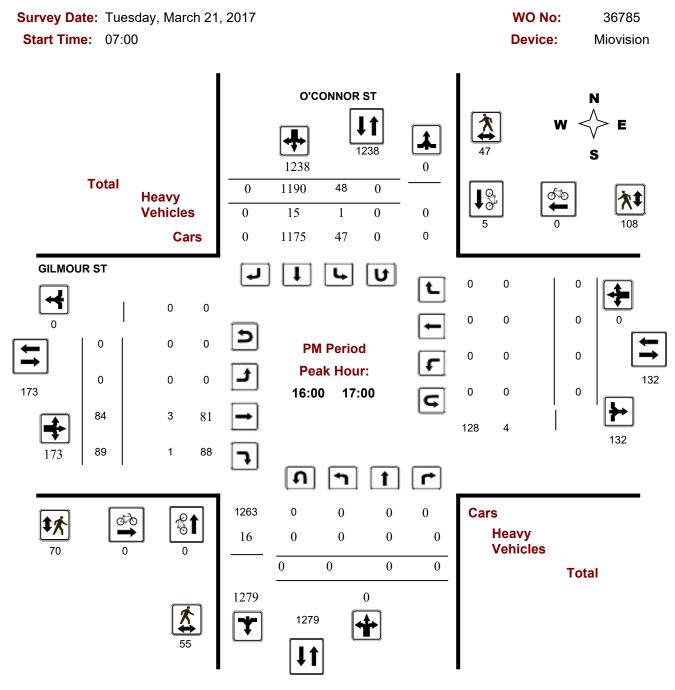
Comments

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Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ O'CONNOR ST



Comments

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5299373 - Metcalfe and Gladstone - Apr - 4th - TMC

Tue Apr 4, 2017

AM Peak (8AM - 9AM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movements

ID: 397175, Location: 45.413818, -75.689574, Site Code: 36833103



Le g	West						East						South						Nor	th					
Direction	Eastbo	und					Wes	tbound					Northb	ound					Sou	thbo	und				
Time	L	T	R	U	App	Pe d*	L	T	R	U	App	Ped*	L	T	R	U	App	Pe d*	L	T	R	U	App	Pe d*	Int
2017-04-04																									
8:00AM	30	39	0	0	69	19	0	26	6	0	32	23	10	277	2	0	289	14	0	0	0	0	0	11	390
8:15AM	21	34	0	0	55	13	0	36	2	0	38	11	12	326	4	0	342	16	0	0	0	0	0	19	435
8:30AM	21	37	0	0	58	19	0	28	0	0	28	6	9	261	4	0	274	9	0	0	0	0	0	10	360
8:45AM	18	30	0	0	48	15	0	32	5	0	37	20	11	287	4	1	303	13	0	0	0	0	0	18	388
Total	90	140	0	0	230	66	0	122	13	0	135	60	42	1151	14	1	1208	52	0	0	0	0	0	58	1573
% Approach	39.1%	60.9%	0%	0%	-	-	0%	90.4%	9.6%	0%	-	-	3.5%	95.3%	1.2%	0.1%	-	-	0%	0%	0%	0%	-	-	-
% Total	5.7%	8.9%	0%	0%	14.6%	-	0%	7.8%	0.8%	0%	8.6%	-	2.7%	73.2%	0.9%	0.1%	76.8%	-	0%	0%	0%	0%	0%	-	-
PHF	0.750	0.897	-	-	0.833	-	-	0.847	0.542	-	0.888	-	0.875	0.883	0.875	0.250	0.883	-	-	-	-	-	-	-	0.904
Lights and																									
Motorcycles	86	128	0	0	214	-	0	114	13	0	127	-	41	1145	14	1	1201	-	0	0	0	0	0	-	1542
% Lights and																									
Motorcycles	95.6%	91.4%	0%	0%	93.0%	-	0%	93.4%	100%	0%	94.1%	-	97.6%	99.5%	100%	100%	99.4%	-	0%	0%	0%	0%	-	-	98.0%
He a vy	4	9	0	0	13	-	0	7	0	0	7	-	0	5	0	0	5	-	0	0	0	0	0	-	25
% Heavy	4.4%	6.4%	0%	0%	5.7%	-	0%	5.7%	0%	0%	5.2%	-	0%	0.4%	0%	0%	0.4 %	-	0%	0%	0%	0%	-	-	1.6%
Bicycles on																									
Road	0	3	0	0	3	-	0	1	0	0	1	-	1	1	0	0	2	-	0	0	0	0	0	-	6
% Bicycles																									
on Road	0%	2.1%	0%	0%	1.3%		0%	0.8%	0%	0%	0.7%	-	2.4%	0.1%	0%	0%	0.2%		0%	0%	0%	0%	-	-	0.4%
Pedestrians	-	-	-	-	-	66	-	-	-	-	-	60	-	-	-	-	-	52	-	-	-	-	-	58	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5299373 - Metcalfe and Gladstone - Apr - 4th - TMC

Tue Apr 4, 2017 PM Peak (4:15PM - 5:15PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movements

ID: 397175, Location: 45.413818, -75.689574, Site Code: 36833103



Leg	West						East						South						Nort	h					
Direction	Eastbo	und					We s	tbound					Northb	ound					Sout	hbo	und				
Time	L	Т	R	U	App	Pe d*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U A	App	Pe d*	Int
2017-04-04																									
4:15PM	27	49	0	0	76	12	0	38	4	0	42	10	8	99	10	0	117	9	0	0	0	0	0	14	235
4:30PM	22	73	0	0	95	15	0	41	3	0	44	6	11	86	2	0	99	7	0	0	0	0	0	12	238
4:45PM	31	47	0	0	78	15	0	25	3	0	28	13	20	79	4	0	103	20	0	0	0	0	0	13	209
5:00PM	27	46	0	0	73	20	0	33	7	0	40	14	20	86	1	0	107	14	0	0	0	0	0	12	220
Total	107	215	0	0	322	62	0	137	17	0	154	43	59	350	17	0	426	50	0	0	0	0	0	51	902
% Approach	33.2%	66.8%	0%	0%	-	-	0%	89.0%	11.0%	0%	-	-	13.8%	82.2%	4.0%	0%	-	-	0% ()%	0% (0%	-	-	-
% Total	11.9%	23.8%	0%	0%	35.7%	-	0%	15.2%	1.9%	0%	17.1%	-	6.5%	38.8%	1.9%	0%	47.2%	-	0% ()%	0% (0%	0%	-	-
PHF	0.863	0.736	-	-	0.847	-	-	0.835	0.607	-	0.875	-	0.738	0.884	0.425	-	0.910	-	-	-	-	-	-	-	0.947
Lights and																									
Motorcycles	106	207	0	0	313	-	0	127	16	0	143	-	59	346	17	0	422	-	0	0	0	0	0	-	878
% Lights and																									
Motorcycles	99.1%	96.3%	0%	0%	97.2%	-	0%	92.7%	94.1%	0%	92.9%	-	100%	98.9%	100%	0%	99.1%	-	0% ()%	0% (0%	-	-	97.3%
He a vy	1	7	0	0	8	-	0	6	1	0	7	-	0	4	0	0	4	-	0	0	0	0	0	-	19
% Heavy	0.9%	3.3%	0%	0%	2.5%	-	0%	4.4%	5.9%	0%	4.5%	-	0%	1.1%	0%	0%	0.9%	-	0% ()%	0% (0%	-	-	2.1%
Bicycles on																									
Road	0	1	0	0	1	-	0	4	0	0	4	-	0	0	0	0	0	-	0	0	0	0	0	-	5
% Bicycles																									
on Road	0%		υ%	0%	0.3%		0%	2.9%	0%	υ%	2.6%	-	0%	0%	0%	υ%	0 %		0% (J%	υ% (0%	-		0.6%
Pedestrians	-	-		-	-	62	-	-	-	-	-	43	-	-	-	-	-		-	-	-	-	-	51	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	- 1	100%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5299374 - Gladstone Ave and O'Connor St - TMC

Tue Mar 21, 2017 AM Peak (8AM - 9AM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movement

ID: 393991, Location: 45.413048, -75.691547, Site Code: 36793103



Leg	Wes	st					East						Sou	th					North						
Dire ction	East	tbound					Westbo	und					Nor	thbour	ıd				South	bound					
Time	L	T	R	U	App	Pe d*	L	T	R	U	App	Ped*	L	T	R	U	App	Pe d*	L	T	R	U	App	Pe d*	Int
2017-03-21																									
8:00AM	0	57	28	0	85	17	12	25	0	0	37	19	0	4	0	0	4	17	4	162	17	0	183	13	309
8:15AM	0	62	27	0	89	17	7	41	0	0	48	17	0	8	0	0	8	15	3	125	7	0	135	9	280
8:30AM	0	45	38	0	83	20	8	38	0	0	46	29	0	7	0	0	7	21	4	163	7	0	174	19	310
8:45AM	0	61	24	0	85	24	5	41	0	0	46	27	0	6	0	0	6	19	4	144	17	0	165	12	302
Total	0	225	117	0	342	78	32	145	0	0	177	92	0	25	0	0	25	72	15	594	48	0	657	53	1201
% Approach	0%	65.8%	34.2%	0%	-	-	18.1%	81.9%	0%	0%	-	-	0%	100%	0% (0%	-	-	2.3%	90.4%	7.3%	0%	-	-	-
% Total	0%	18.7%	9.7%	0%	28.5%	-	2.7%	12.1%	0%	0%	14.7%	-	0%	2.1%	0% (0%	2.1%	-	1.2%	49.5%	4.0%	0%	54.7%	-	-
PHF	-	0.907	0.770	-	0.961	-	0.667	0.884	-	-	0.922	-	-	0.781	-	- (0.781	-	0.938	0.911	0.706	-	0.898	-	0.969
Lights and																									
Motorcycles	0	212	116	0	328	-	30	133	0	0	163	-	0	0	0	0	0	-	15	578	45	0	638	-	1129
% Lights and																									
Motorcycles	0%						93.8%	91.7%			92.1%	-	0%	0%	0% (0%	0%	-	100%		93.8%			-	94.0%
He a vy	0	10	1	. 0	11	-	2	7	0	0	9	-	0	0	0	0	0	-	0	16	3	0	19	-	39
% Heavy	0%	4.4%	0.9%	0%	3.2%	-	6.3%	4.8%	0%	0%	5.1%	-	0%	0%	0% (0%	0%	-	0%	2.7%	6.3%	0%	2.9%	-	3.2%
Bicycles on																									
Road	0	3	0	0	3	-	0	5	0	0	5	-	0	25	0	0	25	-	0	0	0	0	0	-	33
% Bicycles on Road	0%	1.3%	0%	0%	0.9%	_	0%	3.4%	0%	0%	2.8%	_	0%	100%	0% (0% 1	100%	_	0%	0%	0% (0%	0 %	_	2.7%
Pedestrians	-	-				78	-		-	-	-	92	-	-	-	-	-	72	-	-	-	-	-	53	
% Pedestrians	-	-	-		-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5299374 - Gladstone Ave and O'Connor St - TMC

Tue Mar 21, 2017

PM Peak (3:45PM - 4:45PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movement

ID: 393991, Location: 45.413048, -75.691547, Site Code: 36793103



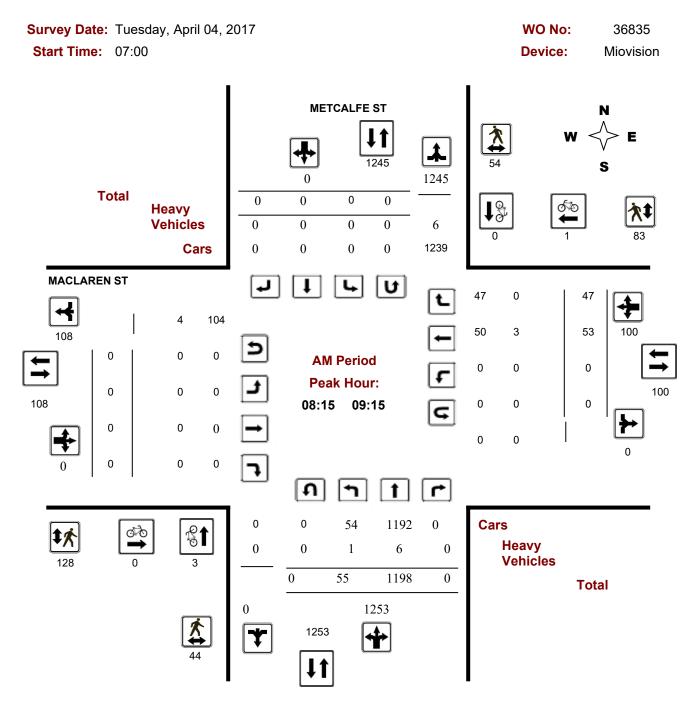
Le g	We	st					East						Sou	th					North						
Dire ction	Eas	tbound					Westbo	und					Nort	hboun	d				Southb	ound					
Time	L	T	R	U	App	Pe d*	L	T	R	U	App	Pe d*	L	T	R	U	App	Pe d*	L	T	R	U	App	Pe d*	Int
2017-03-21																									
3:45PM	0	53	52	0	105	14	8	28	0	0	36	14	0	0	0	0	0	15	5	317	19	0	341	15	482
4:00PM	0	54	55	0	109	17	6	35	0	0	41	31	0	1	0	0	1	13	9	316	19	0	344	22	495
4:15PM	0	50	43	0	93	16	5	28	0	0	33	11	0	0	0	0	0	22	8	321	21	0	350	21	476
4:30PM	0	52	45	0	97	11	8	35	0	0	43	15	0	0	0	0	0	23	10	302	19	0	331	13	471
Total	0	209	195	0	404	58	27	126	0	0	153	71	0	1	0	0	1	73	32	1256	78	0	1366	71	1924
% Approach	0%	51.7%	48.3%	0%	-	-	17.6%	82.4%	0%	0%	-	-	0%	100%	0% ()%	-	-	2.3%	91.9%	5.7%	0%	-	-	-
% Total	0%	10.9%	10.1%	0%	21.0%	-	1.4%	6.5%	0%	0%	8.0%	-	0%	0.1%	0% ()%	0.1%	-	1.7%	65.3%	4.1%	0%	71.0%	-	-
PHF	Γ-	0.968	0.886	-	0.927	-	0.844	0.900	-	-	0.890	-	-	0.250	-	- (0.250	-	0.800	0.978	0.929	-	0.976	-	0.972
Lights and																									
Motorc ycles	0	204	190	0	394	-	27	118	0	0	145	-	0	0	0	0	0	-	31	1238	78	0	1347	-	1886
% Lights and																									
Motorcycles	0%	97.6%	97.4%	0%	97.5%	-	100%	93.7%	0%	0%	94.8%	-	0%	0% (0% ()%	0 %	-	96.9%	98.6%	100% (0%	98.6%	-	98.0%
He a vy	0	5	5	0	10	-	0	7	0	0	7	-	0	0	0	0	0	-	0	18	0	0	18	-	35
% Heavy	0%	2.4%	2.6%	0%	2.5%	-	0%	5.6%	0%	0%	4.6%	-	0%	0% (0% ()%	0%	-	0%	1.4%	0% (0%	1.3 %	-	1.8%
Bicycles on																									
Road	0	0	0	0	0	-	0	1	0	0	1	-	0	1	0	0	1	-	1	0	0	0	1	-	3
% Bicycles on Road		0%	0%	0%	0%	_	0%	0.8%	0%	0%	0.7%	_	0%	100% (0% (0% 1	100%	_	3.1%	0%	0% (0%	0.1%	-	0.2%
Pe de strians	-	_	-	-	-	58	-	-	-	-	-	71	-	_	-	-	-	73	-	-	_	-	-	71	
% Pedestrians	Τ-	_	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn



Turning Movement Count - Full Study Peak Hour Diagram

MACLAREN ST @ METCALFE ST



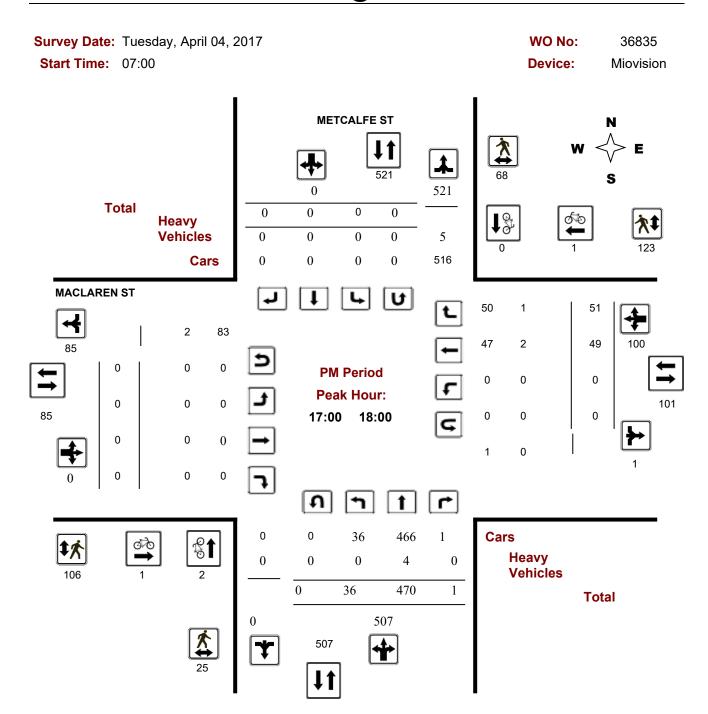
Comments

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Turning Movement Count - Full Study Peak Hour Diagram

MACLAREN ST @ METCALFE ST



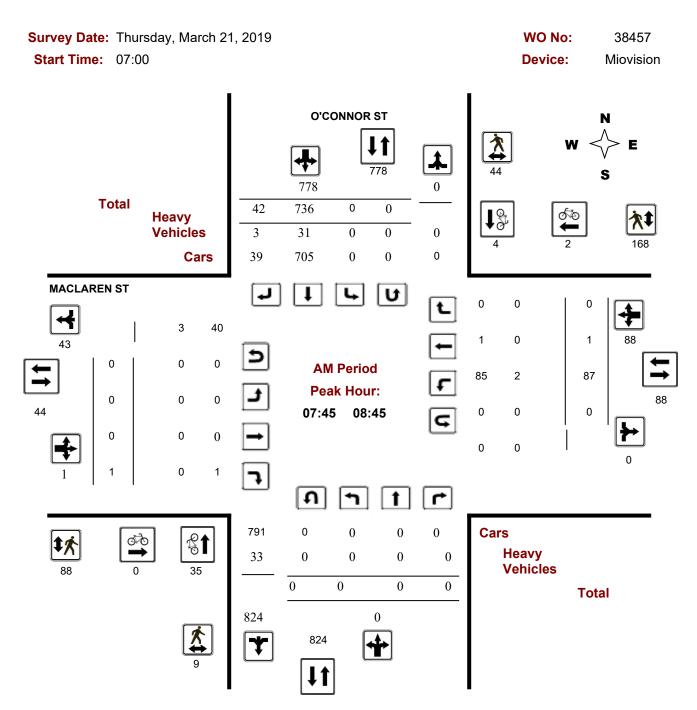
Comments

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Turning Movement Count - Full Study Peak Hour Diagram

MACLAREN ST @ O'CONNOR ST



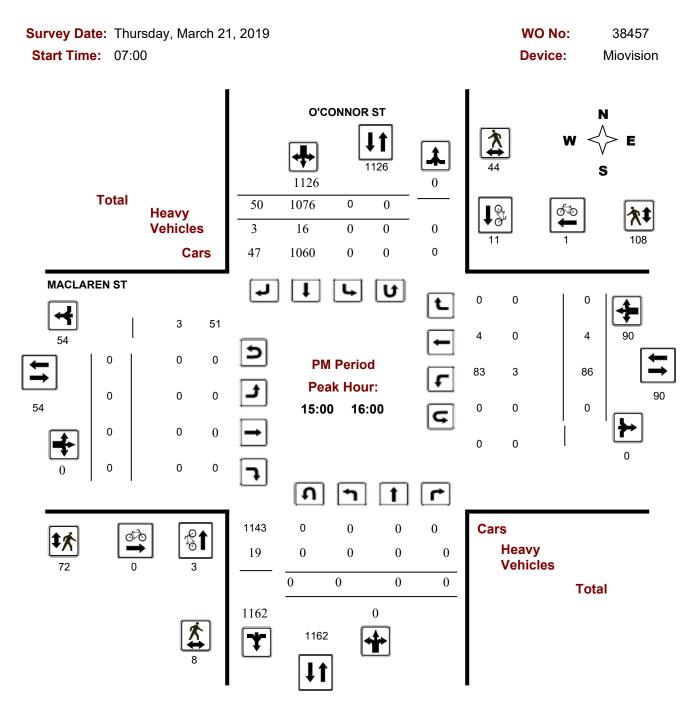
Comments

2019-Jun-13 Page 1 of 4



Turning Movement Count - Full Study Peak Hour Diagram

MACLAREN ST @ O'CONNOR ST



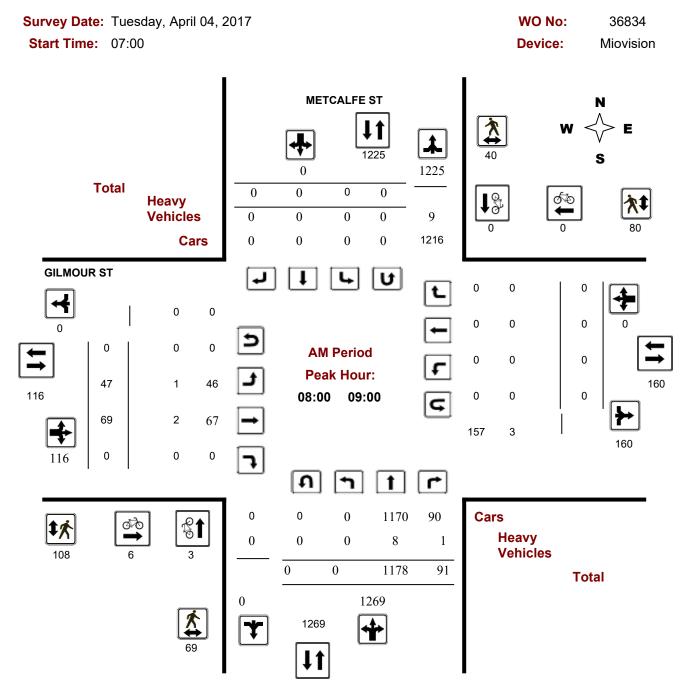
Comments

2019-Jun-13 Page 4 of 4



Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ GILMOUR ST



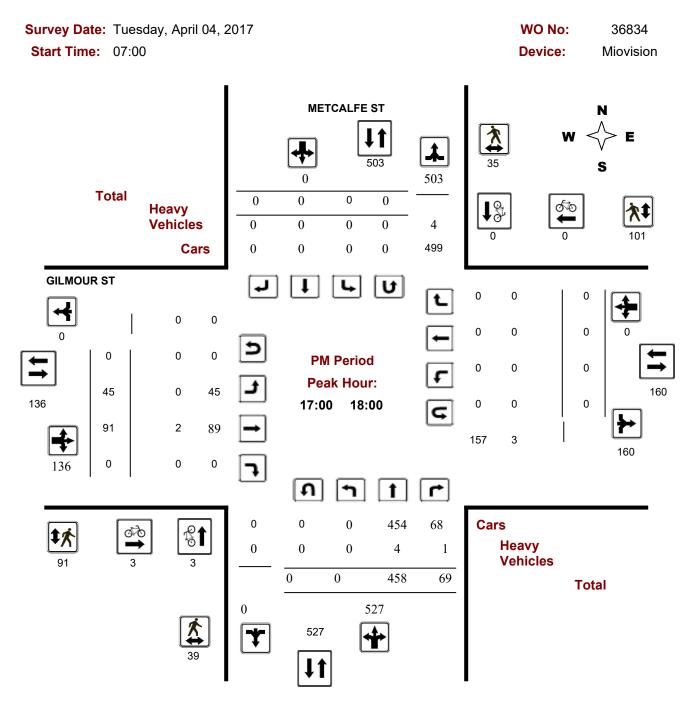
Comments

2019-Jun-13 Page 1 of 4



Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ GILMOUR ST



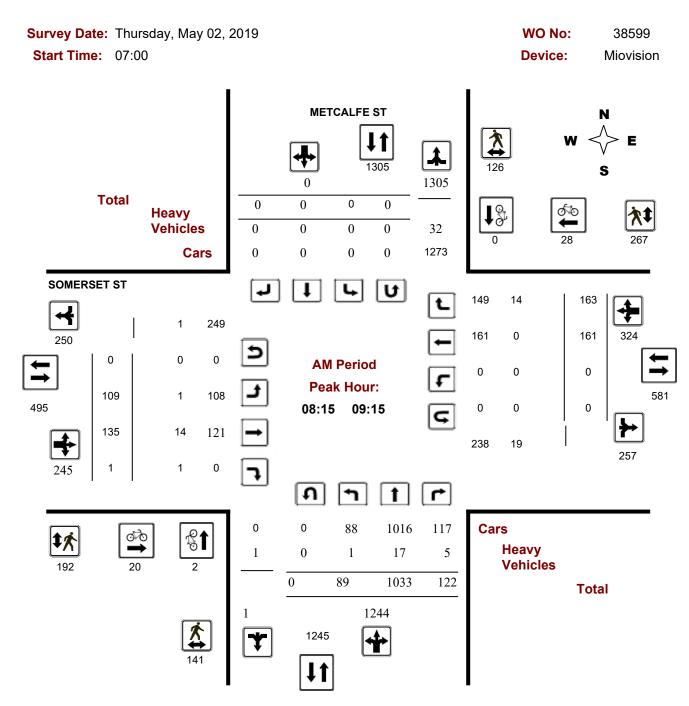
Comments

2019-Jun-13 Page 4 of 4



Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ SOMERSET ST



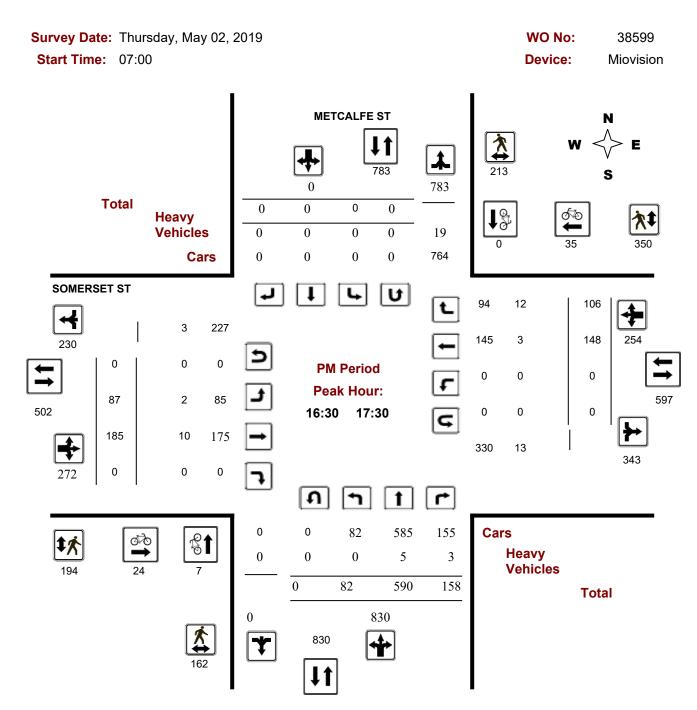
Comments

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Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ SOMERSET ST



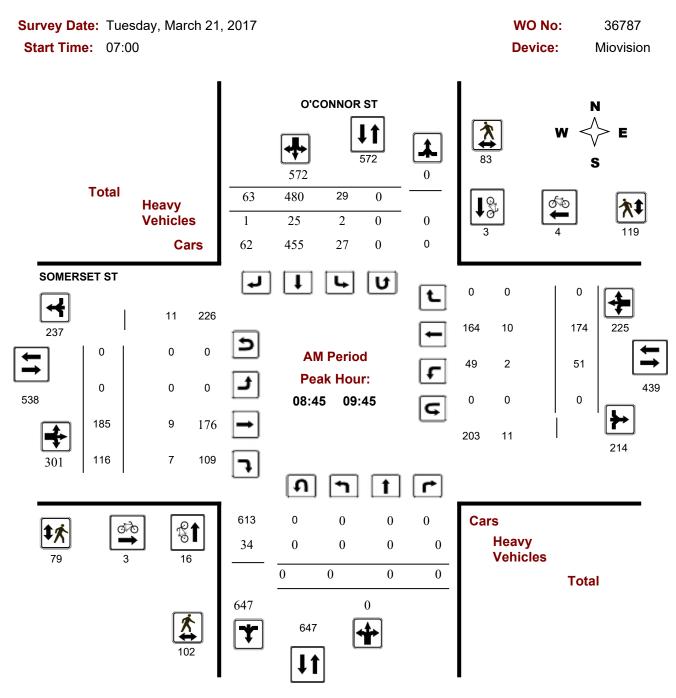
Comments

2019-Jun-14 Page 4 of 4



Turning Movement Count - Full Study Peak Hour Diagram

O'CONNOR ST @ SOMERSET ST



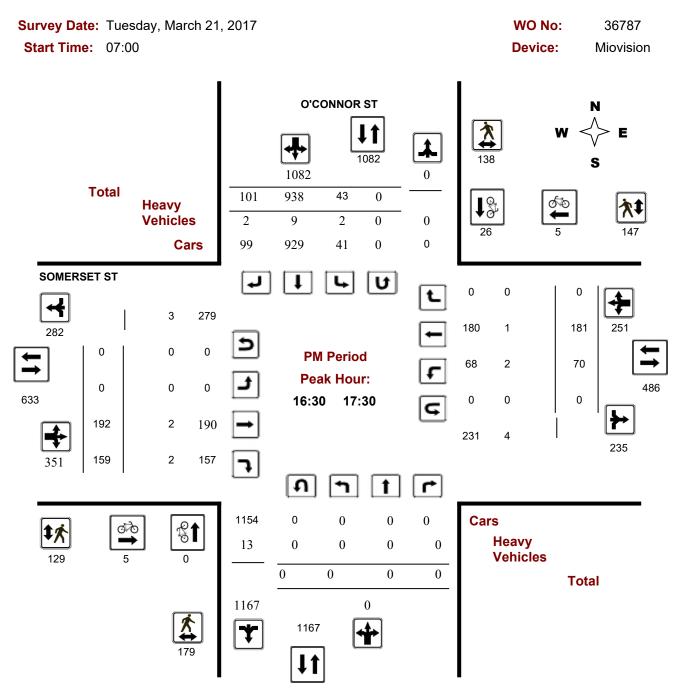
Comments

2019-Jun-14 Page 1 of 4



Turning Movement Count - Full Study Peak Hour Diagram

O'CONNOR ST @ SOMERSET ST



Comments

2019-Jun-14 Page 4 of 4

Appendix C Collision Data and Analysis



Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	3	16	7	7	0	1	5	0	39	1
Non-fatal injury	0	0	1	1	0	8	0	0	10	1
Non reportable	0	0	0	0	0	0	0	0	0	1
Total	3	16	8	8	0	9	5	0	49	
	#6 or 6%	#1 or 33%	#3 or 16%	#3 or 16%	#7 or 0%	#2 or 18%	#5 or 10%	#7 or 0%		-

80% 20% 0% 100%

GILMOUR ST / O'CONNOR ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2013-2017	9	14,348	1825	0.34

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	3	1	1	0	0	1	0	7
Non-fatal injury	0	0	1	0	0	1	0	0	2
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	3	2	1	0	1	1	0	9
	11%	33%	22%	11%	0%	11%	11%	0%	

78% 22% 0% 100%

MACLAREN ST / METCALFE ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2013-2017	14	10.122	1825	0.76

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	1	8	3	1	0	1	0	0	14
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	1	8	3	1	0	1	0	0	14
	7%	57%	21%	7%	0%	7%	0%	0%	

100% 0% 0% 100%

MACLAREN ST / O'CONNOR ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2013-2017	12	14,068	1825	0.47

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	1	1	0	3	0	0	0	0	5	Ι.
Non-fatal injury	0	0	0	1	0	6	0	0	7] !
Non reportable	0	0	0	0	0	0	0	0	0	1
Total	1	1	0	4	0	6	0	0	12	1
	8%	8%	0%	33%	0%	50%	0%	0%		_

42% 58% 0% 100%

METCALFE ST / GILMOUR ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2013-2017	6	10,505	1825	0.31

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	3	2	1	0	0	0	0	6	
Non-fatal injury	0	0	0	0	0	0	0	0	0	
Non reportable	0	0	0	0	0	0	0	0	0	
Total	0	3	2	1	0	0	0	0	6	
	0%	50%	33%	17%	0%	0%	0%	0%		

100% 0% 0% 100%

METCALFE ST , MACLAREN ST to GILMOUR ST

	,			
Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2013-2017	1	n/a	1825	n/a

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

100% 0% 0% 100%

O'CONNOR ST, MACLAREN ST to GILMOUR ST

Y	ears	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
201	3-2017	4	n/a	1825	n/a

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	0	1	1	0	0	0	1	0	3
Non-fatal injury	0	0	0	0	0	1	0	0	1
Non reportable	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	1	1	0	4
	0%	25%	25%	0%	0%	25%	25%	0%	

75% 25% 0% 100%

GILMOUR ST , O'CONNOR ST to METCALFE ST

Years	Years Total # 24 Hr AADT Collisions Veh Volume		Days	Collisions/MEV
2013-2017	3	n/a	1825	n/a

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total
P.D. only	0	0	0	1	0	0	2	0	3
Non-fatal injury	0	0	0	0	0	0	0	0	0
Non reportable	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	2	0	3
	0%	0%	0%	33%	0%	0%	67%	0%	

100% 0% 0% 100%



City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2013 **To:** December 31, 2017

Location: GILMOUR ST @ O'CONNOR ST

Traffic Control: Traffic signal Total Collisions: 9

Traine Control. Train	ino oigilai						. ota. o	omsions. 5	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Feb-05, Tue,09:29	Clear	Turning movement	P.D. only	Wet	South	Turning left	Delivery van	Other motor vehicle	
					South	Going ahead	Delivery van	Other motor vehicle	
2014-Feb-05, Wed,17:23	Clear	Sideswipe	Non-fatal injury	Slush	South		Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jan-02, Fri,09:07	Clear	Angle	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Dec-14, Mon,15:53	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2016-Jun-24, Fri,12:34	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Sep-19, Mon,12:01	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	

Monday, June 17, 2019 Page 1 of 7

					South	•	Automobile, station wagon	Other motor vehicle	
2017-Mar-01, Wed,11:30	Rain	SMV other	Non-fatal injury	Wet	East	Turning right	Unknown	Pedestrian	1
2017-Aug-21, Mon,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2017-Oct-20, Fri,22:01	Clear	Sideswipe	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Location: GILMOUR ST btwn O'CONNOR ST & METCALFE ST

Traffic Control: No control

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2013-Mar-15, Fri,12:30	Snow	Angle	P.D. only	Loose snow	South	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2014-Jun-15, Sun,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2017-Nov-01, Wed,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	

Location: MACLAREN ST @ METCALFE ST

Traffic Control: Traffic signal Total Collisions: 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2013-May-11, Sat,07:58	Rain	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	

Monday, June 17, 2019 Page 2 of 7

					North	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Oct-23, Wed,11:53	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Dec-07, Sat,11:48	Clear	SMV other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Snowbank/drift
2014-Aug-18, Mon,09:24	Clear	Turning movement	P.D. only	Dry	North	Turning left	Truck - open	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2014-Aug-18, Mon,11:27	Clear	Angle	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Oct-22, Wed,16:41	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Mar-11, Wed,07:40	Clear	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2015-Apr-11, Sat,19:00	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

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2015-Oct-15, Thu,18:58	Rain	Sideswipe	P.D. only	Wet	North	Changing lanes	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Apr-08, Fri,08:58	Snow	Rear end	P.D. only	Wet	North	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Aug-17, Wed,12:57	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-06, Fri,16:38	Clear	Turning movement	P.D. only	Ice	North	Turning left	Pick-up truck	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2017-Sep-21, Thu,14:55	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-24, Fri,12:50	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					North	Going ahead	Passenger van	Other motor vehicle

Location: MACLAREN ST @ O'CONNOR ST

Traffic Control: Stop sign Total Collisions: 12

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Veh	hicle type	First Event	No. Ped
2013-Feb-06, Wed,17:52	Clear	Angle	P.D. only	Dry	South		tomobile, ation wagon	Other motor vehicle	

Monday, June 17, 2019 Page 4 of 7

					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Mar-06, Wed,18:43	Clear	SMV other	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Pedestrian	1
2013-Nov-11, Mon,13:45	Rain	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pedestrian	1
2014-Feb-12, Wed,21:52	Clear	Rear end	P.D. only	Packed snow	West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Dec-01, Tue,17:55	Clear	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pedestrian	1
2016-Feb-13, Sat,17:46	Clear	Angle	P.D. only	Ice	West	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Feb-14, Sun,12:50	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Pedestrian	1
2016-Mar-01, Tue,16:49	Clear	SMV other	Non-fatal injury	Wet	South	Going ahead	Automobile, station wagon	Pedestrian	1
2016-Jul-09, Sat,22:45	Rain	Turning movement	P.D. only	Wet	South	Turning right	Automobile, station wagon	Cyclist	
					South	Going ahead	Bicycle	Other motor vehicle	
2016-Aug-18, Thu,17:00	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	

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					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-23, Fri,15:11	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
2017-Sep-01, Fri,15:42	Clear	Angle	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Cyclist	
					North	Going ahead	Bicycle	Other motor vehicle	

Location: METCALFE ST @ GILMOUR ST

Traffic Control: Traffic signal Total Collisions: 6

Cle Manoeuver Vehicle type First Event No. Ped Furning left Automobile, Other motor station wagon vehicle
station wagon vehicle
rainer abased - Dalisa vahiala - Other master
oing ahead Police vehicle Other motor vehicle
toing ahead Automobile, Other motor station wagon vehicle
loing ahead Pick-up truck Other motor vehicle
Furning left Pick-up truck Other motor vehicle
oing ahead Pick-up truck Other motor vehicle
anging lanes Pick-up truck Other motor
vehicle
ioir

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2016-May-04, Wed,13:59	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-07, Tue,12:08	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Passenger van	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

Location: METCALFE ST btwn MACLAREN ST & GILMOUR ST

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
2016-Jul-20, Wed,20:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	

Location: O'CONNOR ST btwn MACLAREN ST & GILMOUR ST

Traffic Control: No control

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	Vehicle type	First Event	No. Ped
2015-Mar-30, Mon,17:46	Clear	Turning movement	P.D. only	Dry	South	Turning left	Passenger van	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2017-Aug-15, Tue,11:20	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Pedestrian	1
2017-Oct-10, Tue,10:20	Clear	SMV unattended vehicle	P.D. only	Dry	West	Reversing	Automobile, station wagon	Unattended vehicle	
2017-Nov-08, Wed,18:32	Clear	Sideswipe	P.D. only	Dry	South	Pulling away from shoulder or curb		Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

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Appendix D Background Traffic Growth



O'Connor/Somerset <u>8 hrs</u>

Voor	Date	North	n Leg	Sout	h Leg	East	Leg	West Leg		Total
reai	Date	SB	NB	NB	SB	WB	EB	EB	WB	iotai
2003	Tuesday 20 May	8114			8475	1576	1860	2411	1766	24202
2007	Friday 10 August	6889			7004	1379	1579	1992	1680	20523
2010	Friday 30 July	6571			6891	1142	1394	1906	1334	19238
2017	Tuesday 21 March	5879			6587	1617	1598	2357	1668	19706

North Leg

Year		Cou	unts		% Change				
rear	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT	
2003		8114		24202					
2007		6889		20523		-15.1%		-15.2%	
2010		6571		19238		-4.6%		-6.3%	
2017		5879		19706		-10.5%		2.4%	

Regression Estimate Regression Estimate
Average Annual Change

2003 2017

2003

2017

2003

2017

7801 5700 -2.22%

West Leg

Year		Cou	ınts		% Change				
real	EB	WB	EB+WB	INT	EB	WB	EB+WB	INT	
2003	2411	1766	4177	24202					
2007	1992	1680	3672	20523	-17.4%	-4.9%	-12.1%	-15.2%	
2010	1906	1334	3240	19238	-4.3%	-20.6%	-11.8%	-6.3%	
2017	2357	1668	4025	19706	23.7%	25.0%	24.2%	2.4%	

Regression Estimate Regression Estimate

2158 2177

1665 1546 3823 3723

Average Annual Change

0.06%

-0.53% -0.19%

East Leg

Year		Cou	ınts		% Change				
real	EB	WB	EB+WB	INT	EB	WB	EB+WB	INT	
2003	1860	1576	3436	24202					
2007	1579	1379	2958	20523	-15.1%	-12.5%	-13.9%	-15.2%	
2010	1394	1142	2536	19238	-11.7%	-17.2%	-14.3%	-6.3%	
2017	1598	1617	3215	19706	14.6%	41.6%	26.8%	2.4%	

Regression Estimate Regression Estimate
Average Annual Change

1712 1478 -1.04%

1403 1461 0.29%

3115 2939

-0.41%

South Leg

Year		Cou	ınts			% Ch	% Change SB NB+SB INT 17.4% -15.2%		
rear	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT	
2003		8475		24202					
2007		7004		20523		-17.4%		-15.2%	
2010		6891		19238		-1.6%		-6.3%	
2017		6587		19706		-4.4%		2.4%	

Regression Estimate Regression Estimate

2003 2017

7986 6314

Average Annual Change

-1.66%

O'Connor/Somerset AM Peak

Year	Date	Nortl	n Leg	Sout	h Leg	East	Leg	West Leg		Total
real		SB	NB	NB	SB	WB	EB	EB	WB	iotai
2003	Tuesday 20 May	793			840	247	244	307	263	2694
2007	Friday 10 August	591			615	152	182	224	170	1934
2010	Friday 30 July	562			545	76	144	160	109	1596
2017	Tuesday 21 March	572			647	225	214	301	237	2196

North Leg

Year		Co	unts		% Change				
rear	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT	
2003		793		2694					
2007		591		1934		-25.5%		-28.2%	
2010		562		1596		-4.9%		-17.5%	
2017		572		2196		1.8%		37.6%	

Regression Estimate Regression Estimate
Average Annual Change

2003 2017

715 524 -2.20%

West Leg

Year		Cou	unts			% Change			
reai	EB	WB	EB+WB	INT	EB	WB	EB+WB	INT	
2003	307	263	570	2694					
2007	224	170	394	1934	-27.0%	-35.4%	-30.9%	-28.2%	
2010	160	109	269	1596	-28.6%	-35.9%	-31.7%	-17.5%	
2017	301	237	538	2196	88.1%	117.4%	100.0%	37.6%	

Regression Estimate Regression Estimate

2003

2017

2003

2017

201 187

437

447

Average Annual Change

0.12%

250

206

-0.53% -0.17%

East Leg

Year		Cou	unts		% Change			
Teal	EB	WB	EB+WB	INT	EB	WB	EB+WB	INT
2003	244	247	491	2694				
2007	182	152	334	1934	-25.4%	-38.5%	-32.0%	-28.2%
2010	144	76	220	1596	-20.9%	-50.0%	-34.1%	-17.5%
2017	214	225	439	2196	48.6%	196.1%	99.5%	37.6%

Regression Estimate Regression Estimate
Average Annual Change

180 386 169 352

184 -0.82% -0.46% -0.65%

South Leg

Year		COL	ınts		% Change				
real	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT	
2003		840		2694					
2007		615		1934		-26.8%		-28.2%	
2010		545		1596		-11.4%		-17.5%	
2017		647		2196		18.7%		37.6%	

Regression Estimate Regression Estimate **Average Annual Change**

2003 2017

734 572

-1.76%

O'Connor/Somerset PM Peak

Year	Date	North	n Leg	Sout	h Leg	East	Leg	Wes	West Leg	
reai	Date	SB	NB	NB	SB	WB	EB	EB	WB	Total
2003	Tuesday 20 May	1527			1609	252	338	423	255	4404
2007	Friday 10 August	1281			1275	222	251	323	300	3652
2010	Friday 30 July	1366			1416	231	244	334	271	3862
2017	Tuesday 21 March	1082			1167	251	235	351	282	3368

North Leg

Year	Counts				% Change				
rear	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT	
2003		1527		4404					
2007		1281		3652		-16.1%		-17.1%	
2010		1366		3862		6.6%		5.8%	
2017		1082		3368		-20.8%		-12.8%	

Regression Estimate Regression Estimate
Average Annual Change

2003 2017

2003

2017

2003

2017

1494 1091 -2.22%

West Leg

/ear Counts					% Change				
EB	WB	EB+WB	INT	EB	WB	EB+WB	INT		
423	255	678	4404						
323	300	623	3652	-23.6%	17.6%	-8.1%	-17.1%		
334	271	605	3862	3.4%	-9.7%	-2.9%	5.8%		
351	282	633	3368	5.1%	4.1%	4.6%	-12.8%		
	423 323 334	EB WB 423 255 323 300 334 271	EB WB EB+WB 423 255 678 323 300 623 334 271 605	EB WB EB+WB INT 423 255 678 4404 323 300 623 3652 334 271 605 3862	EB WB EB+WB INT EB 423 255 678 4404 323 300 623 3652 -23.6% 334 271 605 3862 3.4%	EB WB EB+WB INT EB WB 423 255 678 4404 323 300 623 3652 -23.6% 17.6% 334 271 605 3862 3.4% -9.7%	EB WB EB+WB INT EB WB EB+WB 423 255 678 4404 -23.6% 17.6% -8.1% 323 300 623 3652 -23.6% 17.6% -8.1% 334 271 605 3862 3.4% -9.7% -2.9%		

Regression Estimate Regression Estimate

270 651 286 614

Average Annual Change

328 -1.07%

382

0.41% -0.42%

East Leg

Year		Cou	unts		% Change				
real	EB	WB	EB+WB	INT	EB	WB	EB+WB	INT	
2003	338	252	590	4404					
2007	251	222	473	3652	-25.7%	-11.9%	-19.8%	-17.1%	
2010	244	231	475	3862	-2.8%	4.1%	0.4%	5.8%	
2017	235	251	486	3368	-3.7%	8.7%	2.3%	-12.8%	

Regression Estimate Regression Estimate
Average Annual Change

236 242

544 459

217 -2.44%

307

0.18% -1.19%

South Leg

Year		COL	ınts			% Cr	nange	
real	NB	SB	NB+SB	INT	NB	SB	NB+SB	INT
2003		1609		4404				
2007		1275		3652		-20.8%		-17.1%
2010		1416		3862		11.1%		5.8%
2017		1167		3368		-17.6%		-12.8%

Regression Estimate Regression Estimate **Average Annual Change**

2003 2017

1535 1158 -1.99%

Appendix E TDM Checklist



TDM Measures Checklist:

Residential Developments (multi-family, condominium or subdivision)

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

	TDM	measures: Residential developments	Check if proposed & add descriptions
	1.	TDM PROGRAM MANAGEMENT	
	1.1	Program coordinator	
BASIC	★ 1.1.1	Designate an internal coordinator, or contract with an external coordinator	
	1.2	Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
	2.	WALKING AND CYCLING	
	2.1	Information on walking/cycling routes & des	tinations
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances (multi-family, condominium)	✓ Maps could be displayed in building lobby or ground-floor amenity areas
	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)	✓ Transit information could be displayed in building lobby or ground-floor amenity areas
BETTER	3.1.2	Provide real-time arrival information display at entrances (multi-family, condominium)	
	3.2	Transit fare incentives	
BASIC 1	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 1	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels (subdivision)	
	3.4	Private transit service	
BETTER	3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	
	4.	CARSHARING & BIKESHARING	
	4.1	Bikeshare stations & memberships	
BETTER	4.1.1	Contract with provider to install on-site bikeshare station (<i>multi-family</i>)	~
BETTER	4.1.2	Provide residents with bikeshare memberships, either free or subsidized (multi-family)	
	4.2	Carshare vehicles & memberships	:
BETTER	4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	✓ Taggart is already doing this on another development currently under construction (Bank & Flora)
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)	
BASIC	5.1.2	Unbundle parking cost from monthly rent (multi-family)	▼ This is the typical approach in all rental buildings managed by Taggart Realty Management

TDM measures: Residential developments		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	✓ Information on multimodal travel options can be included in new tenant move-in package
	6.2	Personalized trip planning	
BETTER ★	6.2.1	Offer personalized trip planning to new residents	

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-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	\mathbf{Z}
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	\mathbf{Z}
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		No transit stations or major stops within 600m
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official Plan policy 4.3.12)	

TDM-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)	\mathbf{Z}
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and onroad cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	To be addressed in the SPA
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	
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	upportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILITY	TIES
	2.1	Bicycle parking	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	☐ To be addressed in the SPA
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)	To be addressed in the SPA
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see Zoning By-law Section 111)	To be addressed in the SPA
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)	☐ To be addressed in the SPA
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multifamily residential developments	
	2.3	Bicycle repair station	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	
	3.	TRANSIT	
	3.1	Customer amenities	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	No 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	No off-site transit stops
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	4.	RIDESHARING	
	4.1	Pick-up & drop-off facilities	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	
	5.	CARSHARING & BIKESHARING	
	5.1	Carshare parking spaces	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses (see Zoning By-law Section 94)	
	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	To be addressed in the SPA
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)	
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111)	
	6.2	Separate long-term & short-term parking areas	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	

Appendix F Synchro Analysis



Existing AM 1: O'Connor & Somerset

	-	•	←	↓			
Lane Group	EBT	WBL	WBT	SBT	Ø5		
Lane Configurations	1,	*	A	ፈቤ			
Traffic Volume (vph)	185	51	174	480			
Future Volume (vph)	185	51	174	480			
ane Group Flow (vph)	317	54	183	602			
Turn Type	NA	pm+pt	NA	NA			
Protected Phases	4	3	8	6	5		
Permitted Phases		8					
Detector Phase	4	3	8	6			
Switch Phase							
Vinimum Initial (s)	10.0	5.0	10.0	10.0	1.0		
Minimum Split (s)	20.6	10.5	20.5	19.1	5.0		
Total Split (s)	22.0	15.0	37.0	38.0	5.0		
Fotal Split (%)	27.5%	18.8%	46.3%	47.5%	6%		
/ellow Time (s)	3.3	3.3	3.3	3.3	2.0		
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0		
ost Time Adjust (s)	0.0	0.0	0.0	0.0			
Total Lost Time (s)	5.6	5.5	5.5	5.1			
Lead/Lag	Lag	Lead		Lag	Lead		
_ead-Lag Optimize?	Yes	Yes		Yes	Yes		
Recall Mode	None	None	None	C-Min	None		
Act Effct Green (s)	20.5	28.3	28.3	37.1			
Actuated g/C Ratio	0.26	0.35	0.35	0.46			
v/c Ratio	0.74	0.20	0.29	0.40			
Control Delay	34.7	15.5	17.9	17.7			
Queue Delay	0.0	0.0	0.0	0.0			
Total Delay	34.7	15.5	17.9	17.7			
LOS	C	В	B	B			
Approach Delay	34.7		17.3	17.7			
Approach LOS	C	4.7	B 17.2	B			
Queue Length 50th (m)	38.4	4.7	17.2	36.6			
Queue Length 95th (m)	64.4	10.4	28.3	52.2			
Internal Link Dist (m)	145.1	1.0	162.8	42.7			
Turn Bay Length (m)	436	1.0	757	1624			
Base Capacity (vph)	436	316 0	0	1624			
Starvation Cap Reductn	0						
Spillback Cap Reductn	0	0	0	0			
Storage Cap Reductn Reduced v/c Ratio	0.73	0.17	0.24	0.37			
	0.73	0.17	0.24	0.37			
ntersection Summary							
Cycle Length: 80							
Actuated Cycle Length: 80							
Offset: 44 (55%), Referenced to p	ohase 6:SBTL, S	Start of Gree	en				
Natural Cycle: 60							
Control Type: Actuated-Coordinat	ted						
Maximum v/c Ratio: 0.74							
ntersection Signal Delay: 22.3				Int	ersection LOS: C		
ntersection Capacity Utilization 5	8.7%				J Level of Service B		
Analysis Period (min) 15							
Splits and Phases: 1: O'Conno	r & Somerset						
					√ Ø3	1	
					15 s		22
2.2					4-		
#Rø s ♦ ø6 (R)					▼ Ø8	<u> </u>	
20 0					27.0		

	→	↓	
Lane Group	EBT	SBT	Ø5
Lane Configurations	1	41	~~
Traffic Volume (vph)	61	622	
Future Volume (vph)	61	622	
Lane Group Flow (vph)	116	707	
Turn Type	NA	NA	
Protected Phases	4	6	5
Permitted Phases	7	U	J
Detector Phase	4	6	
Switch Phase			
Minimum Initial (s)	10.0	10.0	1.0
Minimum Split (s)	20.6	26.1	5.0
Total Split (s)	21.0	54.0	5.0
Total Split (%)	26.3%	67.5%	6%
Yellow Time (s)	3.3	3.3	2.0
All-Red Time (s)	2.3	1.8	0.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.1	
Lead/Lag	3.0	Lag	Lead
Lead-Lag Optimize?		Yes	Yes
Recall Mode	None	C-Min	None
Act Effct Green (s)	13.0	55.9	IVOITO
Actuated g/C Ratio	0.16	0.70	
v/c Ratio	0.38	0.30	
Control Delay	22.4	5.6	
Queue Delay	0.0	0.0	
Total Delay	22.4	5.6	
LOS	C	3.0 A	
Approach Delay	22.4	5.6	
Approach LOS	22.4 C	3.0 A	
Queue Length 50th (m)	9.3	14.1	
Queue Length 95th (m)	23.2	27.8	
Internal Link Dist (m)	147.3	15.1	
Turn Bay Length (m)	147.3	13.1	
	25.7	2407	
Base Capacity (vph)	352	2407	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn Storage Cap Reductn	0	0	
Reduced v/c Ratio		0	
Neuticeu V/C Kallu	0.33	0.29	
Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 46 (58%), Referenced to pl	hase 6:SBTL, S	Start of Gree	n
Natural Cycle: 55			
Control Type: Actuated-Coordinate	ed		
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 8.0			
Intersection Capacity Utilization 42	2.3%		
Analysis Period (min) 15			
. ,			
Splits and Phases: 3: O'Connor	& Gilmour		
L			
# Aø			
50 540			

	→	•	•	ļ		
ane Group	EBT	WBL	WBT	SBT	Ø5	
ane Configurations	Î.		र्ध	4Th		
Traffic Volume (vph)	225	32	145	594		
-uture Volume (vph)	225	32	145	594		
_ane Group Flow (vph)	360	0	187	692		
Turn Type	NA	Perm	NA	NA		
Protected Phases	4		8	6	5	
Permitted Phases		8				
Detector Phase	4	8	8	6		
Switch Phase	•	-	-	_		
Minimum Initial (s)	10.0	10.0	10.0	10.0	1.0	
Vinimum Split (s)	25.5	25.5	25.5	31.3	5.0	
Total Split (s)	28.0	28.0	28.0	47.0	5.0	
Total Split (%)	35.0%	35.0%	35.0%	58.8%	6%	
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.2	2.2	2.2	2.0	0.0	
Lost Time Adjust (s)	0.0	۷.۷	0.0	0.0	0.0	
Total Lost Time (s)	5.5		5.5	5.3		
Lead/Lag	5.5		5.5		Lead	
Lead/Lag Lead-Lag Optimize?				Lag Yes	Yes	
Lead-Lag Optimize? Recall Mode	None	None	None	C-Min	None	
		None			None	
Act Effet Green (s)	21.5		21.5	43.2		
Actuated g/C Ratio	0.27		0.27	0.54		
v/c Ratio	0.78		0.55	0.39		
Control Delay	36.0		30.3	14.8		
Queue Delay	0.0		0.0	0.0		
Total Delay	36.0		30.3	14.8		
LOS	D		С	В		
Approach Delay	36.0		30.3	14.8		
Approach LOS	D		С	В		
Queue Length 50th (m)	45.8		24.2	21.8		
Queue Length 95th (m)	66.8		38.5	66.8		
nternal Link Dist (m)	152.8		164.9	226.6		
Turn Bay Length (m)						
Base Capacity (vph)	515		382	1913		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.70		0.49	0.36		
ntersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 44 (55%), Referenced to phase	۱TЯ2·4 ه	Start of Gree	n			
Vatural Cycle: 65	0.501L,	Start of Olet	211			
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.78						
ntersection Signal Delay: 23.3				Int	ersection LOS: C	
ntersection Signal Delay: 23.3 ntersection Capacity Utilization 69.2%	,				U Level of Service C	
ntersection Capacity Utilization 69.2% Analysis Period (min) 15	0			ICI	n reaei di Selvice C	
Analysis Penou (min) 15						
Splits and Phases: 4: O'Connor & G	Sladstone					
						→ Ø4
						28 s
# Aø						₹Ø8
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Lane Group	EBL	EBT	WBT	NBT
Lane Configurations		વી	ĵ₃	ፈተኬ
Traffic Volume (vph)	109	135	161	1033
Future Volume (vph)	109	135	161	1033
Lane Group Flow (vph)	0	257	341	1309
Turn Type	Perm	NA	NA	NA
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	19.5	19.5	19.5	18.2
Total Split (s)	42.0	42.0	42.0	48.0
Total Split (%)	46.7%	46.7%	46.7%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3
All-Red Time (s)	2.2	2.2	2.2	1.9
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		5.5	5.5	5.2
Lead/Lag		0.0	0.0	0.2
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Min
Act Effct Green (s)	None	27.6	27.6	51.7
Actuated g/C Ratio		0.31	0.31	0.57
v/c Ratio		1.05	0.76	0.52
Control Delay		103.4	37.4	11.2
Queue Delay		0.0	0.0	0.1
Total Delay		103.4	37.4	11.3
LOS		103.4 F	37.4 D	11.3 B
Approach Delay		103.4	37.4	11.3
		103.4 F		
Approach LOS			D	B
Queue Length 50th (m)		~46.3	50.7	29.0
Queue Length 95th (m)		#80.3	70.5	46.4
Internal Link Dist (m)		162.8	146.4	54.5
Turn Bay Length (m)		222	500	240/
Base Capacity (vph)		322	592	2496
Starvation Cap Reductn		0	0	298
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		0.80	0.58	0.60
Intersection Summary				
Cycle Length: 90				
Actuated Cycle Length: 90				
	CO DINDTI C	tart of Croc	\n	
Offset: 29 (32%), Referenced to pha	ise z:inbit, s	start of Gree	211	
Natural Cycle: 40				
Control Type: Actuated-Coordinated				
Maximum v/c Ratio: 1.05				
Intersection Signal Delay: 28.4	201			In
Intersection Capacity Utilization 79.0)%			IC
Analysis Period (min) 15				
 Volume exceeds capacity, queue 		ally infinite.		
Queue shown is maximum after t	wo cycles.			
# 95th percentile volume exceeds		ue may be	longer.	
Queue shown is maximum after t	wo cycles.			
Splits and Phases: 5: Metcalfe & S	Somerset			
▲				
Ø2 (R)				
48 c				
10.0				

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Lane Group	WBT	NBT	
Lane Configurations	î,	4413	
Traffic Volume (vph)	53	1198	
uture Volume (vph)	53	1198	
ane Group Flow (vph)	105	1319	
Turn Type	NA	NA	
Protected Phases	8	2	
Permitted Phases	· ·		
Detector Phase	8	2	
Switch Phase	U	2	
Minimum Initial (s)	10.0	10.0	
Winimum Split (s)	23.1	20.0	
Total Split (s)	25.0	65.0	
Total Split (%)	27.8%	72.2%	
Yellow Time (s)	3.3	3.3	
All-Red Time (s)	1.8	1.7	
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.1	5.0	
Lead/Lag			
Lead-Lag Optimize?		0.111	
Recall Mode	None	C-Min	
Act Effct Green (s)	16.4	67.5	
Actuated g/C Ratio	0.18	0.75	
v/c Ratio	0.32	0.37	
Control Delay	21.5	2.2	
Queue Delay	0.0	0.0	
Total Delay	21.5	2.3	
LOS	С	А	
Approach Delay	21.5	2.3	
Approach LOS	С	Α	
Queue Length 50th (m)	8.7	9.9	
Queue Length 95th (m)	22.5	11.3	
Internal Link Dist (m)	155.2	64.2	
Turn Bay Length (m)			
Base Capacity (vph)	388	3591	
Starvation Cap Reductn	0	457	
Spillback Cap Reductn	1	109	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.27	0.42	
Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90			
	SA DINDTI	Start of Croon	
Offset: 59 (66%), Referenced to phas Natural Cycle: 45	SC Z.INDTL,	Start of Green	
Control Types Astrotod Coordinated			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			Interception LOC: A
Intersection Signal Delay: 3.7	2.4		Intersection LOS: A
Intersection Capacity Utilization 51.9	%		ICU Level of Service A
Analysis Period (min) 15			
Splits and Phases: 6: Metcalfe & M	MacLaren		
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Lane Group EBT NBT Lane Configurations Traffic Volume (vph) 69 1178 Future Volume (vph) 69 1178 Lane Group Flow (vph) 122 1336 Turn Type NA NA Protected Phases 4 2 Permitted Phases Detector Phase 3 4 2 Switch Phase Minimum Initial (s) 10.0 10.0 Minimum Split (s) 26.3 23.1 Total Split (%) 30.0% 70.0% Yellow Time (s) 3.3 3.3 All-Red Time (s) 2.0 1.8 Lost Time Adjust (s) 5.3 5.1 Lead/Lag Lead-Lag Optimize? Recall Mode None C-Min Act Effet Green (s) 18.8 60.8 Actuated y/C Ratio 0.21 0.68 v/C Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 Queue Length 95th (m) 12.2 8.4 Approach LOS C A Approach LOS C A Approach LOS C A Queue Length 50th (m) 12.2 8.4 Queue Length 50th (m) 12.2 8.4 Turn Bay Length (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actualeted Maximum v/C Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour		→	†
Lane Configurations Traffic Volume (vph) Future Volume (vph) For 1178 Future Volume (vph) Future Volume (vph) Future Volume (vph) Future Volume (vph) Future Volume Volume (vph) Future Volume Volume (vph) Future Volume Volume Volume Volume Future Volume Vo	Lane Group	EBT	NBT
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Future Volume (vph)	Traffic Volume (vph)	69	1178
Turn Type			
Turn Type			
Protected Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Spit (s) Total Delay To		NA	NA
Detector Phase Switch Phase Switch Phase Switch Phase Minimum Initial (s) 10.0 10.0 Minimum Split (s) 26.3 23.1 Total Split (s) 27.0 63.0 Total Split (%) 30.0% 70.0% Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.0 1.8 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.3 5.1 Lead/Lag Lead-Lag Optimize? Recall Mode None C-Min Act Effct Green (s) 18.8 60.8 Actuated g/C Ratio 0.21 0.68 V/C Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 LOS C A Approach LOS C A Approach LOS C A Cueue Length 95th (m) 12.2 8.4 Queue Length 95th (m) 163.6 226.4 Turn Bay Length (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0 Storage Cap Reductn 0 0 Storage Cap Reductn 0 0 Storage Cap Reductn 0 0 Cifset: \$8 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% ICU Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour ■		4	
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Switch Phase Minimum Initial (s) 10.0 10.0 Minimum Split (s) 26.3 23.1 Total Split (s) 27.0 63.0 Total Split (%) 30.0% 70.0% Yellow Time (s) 3.3 3.3 All-Red Time (s) 2.0 1.8 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.3 5.1 Lead/Lag Optimize? Recall Mode None C-Min Act Effct Green (s) 18.8 60.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 Queue Delay 0.0	Detector Phase	4	2
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Total Split (%) 30.0% 70.0% Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.0 1.8 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.3 5.1 Lead/Lag Lead-Lag Optimize? Recall Mode None C-Min Act Effct Green (s) 18.8 60.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 Queue Length 95th (m) 12.2 8.4 Queue Length 95th (m) 163.6 226.4 Internal Link Dist (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Maximum v/c Ratio: 0.42 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalife & Gilmour		26.3	23.1
Total Split (%) 30.0% 70.0% Yellow Time (s) 3.3 3.3 All-Red Time (s) 2.0 1.8 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.3 5.1 Lead/Lag Lead-Lag Optimize? Recall Mode None C-Min Act Effct Green (s) 18.8 60.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 LOS C A Approach LOS C A Approach LOS C A Oueue Length 50th (m) 12.2 8.4 Queue Length 95th (m) 163.6 226.4 Turn Bay Length (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0 Spillback Cap Reductn 0 0 Reduced v/c Ratio 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Actua			
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Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.32 0.42 Control Delay 22.7 2.5 Queue Delay 0.0 0.0 Total Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 LOS C A Approach Delay 22.7 2.5 Approach LOS C A Queue Length 50th (m) 12.2 8.4 Queue Length 95th (m) 163.6 226.4 Internal Link Dist (m) 163.6 226.4 Turn Bay Length (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0 Storage Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Actuated Cycle Length: 90 Ciffset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
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Control Delay			
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Internal Link Dist (m) Turn Bay Length (m) Base Capacity (vph) 439 3212 Starvation Cap Reductn 0 0 Spillback Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
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Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection LOS: A Intersection Capacity Utilization 52.3% ICU Level of Service A Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Starvation Cap Reductn	0	0
Reduced v/c Ratio 0.28 0.42 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Spillback Cap Reductn	0	0
Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Storage Cap Reductn	0	0
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% ICU Level of Service A Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Reduced v/c Ratio	0.28	0.42
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 58 (64%), Referenced to phase 2:NBT, Start of Green Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% ICU Level of Service A Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Interception Cummens		
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Natural Cycle: 50 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Offset: 58 (64%), Referenced to ph	nase 2:NBT, St	art of Green
Maximum v/c Ratio: 0.42 Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% ICU Level of Service A Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
Intersection Signal Delay: 4.2 Intersection Capacity Utilization 52.3% Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour	Control Type: Actuated-Coordinate	ed	
Intersection Capacity Utilization 52.3% ICU Level of Service A Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
Analysis Period (min) 15 Splits and Phases: 7: Metcalfe & Gilmour			
Splits and Phases: 7: Metcalfe & Gilmour	Intersection Capacity Utilization 52	.3%	
*	Analysis Period (min) 15		
*	Splits and Phases: 7: Metcalfe 8	k Gilmour	
▶ Ø2 (R)	+		
	Ø2 (R)		

8: Metcaile & Gladstone	•	→	←	†
Lane Group	EBL	EBT	WBT	NBT
Lane Configurations		र्दी	1	ፈተሴ
Traffic Volume (vph)	90	140	122	1151
Future Volume (vph)	90	140	122	1151
Lane Group Flow (vph)	90	242	142	1271
Turn Type	Perm	NA	NA	NA
Protected Phases	Pellii	1NA 4	8	2
	4	4	ŏ	2
Permitted Phases	4	4	0	
Detector Phase	4	4	8	2
Switch Phase		,	,	
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	27.2	27.2	27.2	31.5
Total Split (s)	28.0	28.0	28.0	62.0
Total Split (%)	31.1%	31.1%	31.1%	68.9%
Yellow Time (s)	3.3	3.3	3.3	3.3
All-Red Time (s)	1.9	1.9	1.9	2.2
Lost Time Adjust (s)		0.0	0.0	0.0
Total Lost Time (s)		5.2	5.2	5.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	C-Min
Act Effct Green (s)	INOTIC	21.9	21.9	57.4
Actuated g/C Ratio		0.24	0.24	0.64
v/c Ratio		0.24	0.24	0.64
		43.7	27.6	9.1
Control Delay				
Queue Delay		0.0	0.0	0.0
Total Delay		43.7	27.6	9.1
LOS		D	С	Α
Approach Delay		43.7	27.6	9.1
Approach LOS		D	С	Α
Queue Length 50th (m)		38.5	19.3	35.5
Queue Length 95th (m)		58.7	31.9	53.5
Internal Link Dist (m)		164.9	144.6	38.8
Turn Bay Length (m)				
Base Capacity (vph)		367	472	3151
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		0.66	0.30	0.40
		0.00	0.30	0.40
Intersection Summary				
Cycle Length: 90				
Actuated Cycle Length: 90				
Offset: 43 (48%), Referenced to pha	se 2:NBTL	Start of Gre	en	
Natural Cycle: 60	JOS Z.IND I L, V	orall of Olo	···	
Control Type: Actuated-Coordinated				
Maximum v/c Ratio: 0.73				
				l.
Intersection Signal Delay: 15.7	-0/			lr 14
Intersection Capacity Utilization 74.5	0%			IC
Analysis Period (min) 15				
0.111	01 1 :			
Splits and Phases: 8: Metcalfe & 0	Gladstone			
-4.				



Synchro 9 - Report Parsons

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LDL	LDI	LDIK	*	WDT	WDIC	IVDL	IVDI	NDIC	ODL	♦ ₽	ODIT
Traffic Vol, veh/h	0	0	0	87	0	0	0	0	0	0	736	42
Future Vol, veh/h	0	0	0	87	0	0	0	0	0	0	736	42
Conflicting Peds, #/hr	44	0	9	9	0	44	86	0	168	168	0	86
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	- -	- -	None	-	-	None	-	-	None
Storage Length	_	_	-	0	_	-	_	_	-	_	-	-
Veh in Median Storage, #	_	_	-	-	0	_	-	_	_	-	0	_
Grade, %	_	0	_	_	0	-	_	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	92	0	0	0	0	0	0	775	44
WWW. Tiow	J	Ū	Ū	,,	Ū	Ū	Ū	Ū	J	Ū	770	• • • • • • • • • • • • • • • • • • • •
Major/Minor				Minor1						Majora		
Major/Minor										Major2		
Conflicting Flow All				397	-	-				-	-	0
Stage 1				0	-	-				-	-	-
Stage 2				397	-	-				-	-	-
Critical Hdwy				6.84	-	-				-	-	-
Critical Hdwy Stg 1				-	-	-				-	-	-
Critical Hdwy Stg 2				5.84	-	-				-	-	-
Follow-up Hdwy				3.52	-	-				-	-	-
Pot Cap-1 Maneuver				580	0	0				0	-	-
Stage 1				- (40	0	0				0	-	-
Stage 2				648	0	0				0	-	-
Platoon blocked, %				F00	0						-	-
Mov Cap-1 Maneuver				580	0	-				-	-	-
Mov Cap-2 Maneuver				580	0	-				-	-	-
Stage 1				- / 40	0	-				-	-	-
Stage 2				648	0	-				-	-	-
Approach				WB						SB		
HCM Control Delay, s				12.4						0		
HCM LOS				В								
Minor Lane/Major Mvmt	\	WBLn1	SBT	SBR								
Capacity (veh/h)		580	-	-								
HCM Lane V/C Ratio		0.158	-	-								
HCM Control Delay (s)		12.4	-	-								
HCM Lane LOS		В	-	-								
HCM 95th %tile Q(veh)		0.6	-	-								

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	*					44
Traffic Vol, veh/h	8	0	0	0	50	823
Future Vol, veh/h	8	0	0	0	50	823
Conflicting Peds, #/hr	0	0	0	174	174	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	0	0	0	53	866
Major/Minor	Minor1				Major2	
Conflicting Flow All	713	_			174	0
	174					-
Stage 1		-			-	
Stage 2	539	-			-	-
Critical Hdwy	6.84	-			4.14	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	5.84	-			-	-
Follow-up Hdwy	3.52	-			2.22	-
Pot Cap-1 Maneuver	366	0			1400	-
Stage 1	-	0			-	-
Stage 2	549	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	285	-			1194	-
Mov Cap-2 Maneuver	285	-			-	-
Stage 1	-	-			-	-
Stage 2	502	-			-	-
Approach	WB				SB	
HCM Control Delay, s	18				0.5	
HCM LOS	C				0.5	
TIOW E03						
Minor Lane/Major Mvmt		WBLn1	SBL	SBT		
Capacity (veh/h)		285	1194	-		
HCM Lane V/C Ratio		0.03	0.044	-		
HCM Control Delay (s)		18	8.2	-		
HCM Lane LOS		С	Α	-		
HCM 95th %tile Q(veh)		0.1	0.1	-		

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Lane Group	EBT	WBL	WBT	SBT	Ø5
Lane Configurations	î,	*	•	ፈጉ	
Traffic Volume (vph)	192	70	181	938	
Future Volume (vph)	192	70	181	938	
Lane Group Flow (vph)	369	74	191	1138	
Turn Type	NA	pm+pt	NA	NA	
Protected Phases	4	3	8	6	5
Permitted Phases		8			
Detector Phase	4	3	8	6	
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	10.0	1.0
Minimum Split (s)	20.6	10.5	20.5	19.1	5.0
Total Split (s)	21.0	14.0	35.0	40.0	5.0
Total Split (%)	26.3%	17.5%	43.8%	50.0%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.5	5.5	5.1	
Lead/Lag	Lag	Lead		Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Min	None
Act Effct Green (s)	20.1	30.9	30.9	34.5	
Actuated g/C Ratio	0.25	0.39	0.39	0.43	
v/c Ratio	0.93	0.27	0.28	0.83	
Control Delay	61.9	19.5	18.9	26.3	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	61.9	19.5	18.9	26.3	
LOS	E	В	В	С	
Approach Delay	61.9		19.1	26.3	
Approach LOS	E		В	С	
Queue Length 50th (m)	~59.8	7.3	20.1	75.9	
Queue Length 95th (m)	#112.6	15.7	35.3	102.2	
Internal Link Dist (m)	145.1		162.8	42.7	
Turn Bay Length (m)		1.0			
Base Capacity (vph)	398	288	687	1385	
Starvation Cap Reductn	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	
Storage Cap Reductn	0	0	0	0	
Reduced v/c Ratio	0.93	0.26	0.28	0.82	
Intersection Summary					

Intersection Summary

Cycle Length: 80 Actuated Cycle Length: 80

Offset: 58 (73%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.7

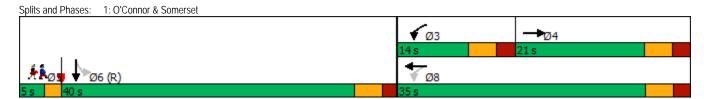
Intersection Capacity Utilization 78.1%

Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

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

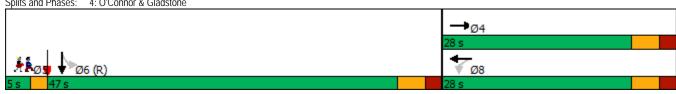


Synchro 9 - Report Parsons

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Lane Group	EBT	SBT	Ø5	
Lane Configurations	î,	413	,	
Traffic Volume (vph)	84	1190		
Future Volume (vph)	84	1190		
Lane Group Flow (vph)	182	1304		
Turn Type	NA	NA		
Protected Phases	4	6	5	
Permitted Phases	4	Ü	3	
	4	,		
Detector Phase	4	6		
Switch Phase	10.0	10.0	1.0	
Minimum Initial (s)	10.0	10.0	1.0	
Minimum Split (s)	20.6	26.1	5.0	
Total Split (s)	21.0	54.0	5.0	
Total Split (%)	26.3%	67.5%	6%	
Yellow Time (s)	3.3	3.3	2.0	
All-Red Time (s)	2.3	1.8	0.0	
Lost Time Adjust (s)	0.0	0.0		
Total Lost Time (s)	5.6	5.1		
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	
Recall Mode	None	C-Min	None	
Act Effct Green (s)	13.1	52.2		
Actuated g/C Ratio	0.16	0.65		
v/c Ratio	0.59	0.59		
Control Delay	28.4	4.6		
Queue Delay	0.0	0.0		
Total Delay	28.4	4.6		
LOS	C	Α		
Approach Delay	28.4	4.6		
Approach LOS	20.4 C	4.0 A		
Queue Length 50th (m)	16.5	23.4		
Queue Length 95th (m)	35.4	m31.6		
Internal Link Dist (m)	147.3	15.1		
	147.3	13.1		
Turn Bay Length (m)	251	22.47		
Base Capacity (vph)	351	2246		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.52	0.58		
Intersection Summary				
Cycle Length: 80				
Actuated Cycle Length: 80				
Offset: 71 (89%), Referenced to phase	e 6:SBTL.	Start of Gree	en	
Natural Cycle: 60	,			
Control Type: Actuated-Coordinated				
Maximum v/c Ratio: 0.59				
Intersection Signal Delay: 7.5				Intersection LOS: A
Intersection Capacity Utilization 61.0%	6			ICU Level of Service B
Analysis Period (min) 15				155 25.51 01 0011100 0
m Volume for 95th percentile queue	is metered	hy unstream	m signal	
volume for 75th percentile queue	13 111010100	by upsucai	ıı sıyııdı.	
Splits and Phases: 3: O'Connor & G	Gilmour			
and				
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Lane Group	EBT	WBL	WBT	SBT	Ø5	
Lane Configurations	ĵ.		4	ፈቤ		
Traffic Volume (vph)	209	27	126	1256		
Future Volume (vph)	209	27	126	1256		
Lane Group Flow (vph)	425	0	161	1438		
Turn Type	NA	Perm	NA	NA		
Protected Phases	4		8	6	5	
Permitted Phases		8				
Detector Phase	4	8	8	6		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	1.0	
Minimum Split (s)	25.5	25.5	25.5	31.3	5.0	
Total Split (s)	28.0	28.0	28.0	47.0	5.0	
Total Split (%)	35.0%	35.0%	35.0%	58.8%	6%	
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.2	2.2	2.2	2.0	0.0	
Lost Time Adjust (s)	0.0		0.0	0.0		
Total Lost Time (s)	5.5		5.5	5.3		
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	C-Min	None	
Act Effct Green (s)	21.4		21.4	44.8		
Actuated g/C Ratio	0.27		0.27	0.56		
v/c Ratio	0.91		0.55	0.77		
Control Delay	50.0		32.9	13.3		
Queue Delay	0.0		0.0	0.0		
Total Delay	50.0		32.9	13.3		
LOS	D		C	В		
Approach Delay	50.0		32.9	13.3		
Approach LOS	D		C	В		
Queue Length 50th (m)	53.5		20.6	112.8		
Queue Length 95th (m)	#103.8		39.2	139.2		
Internal Link Dist (m)	152.8		164.9	226.6		
Turn Bay Length (m)	132.0		104.7	220.0		
Base Capacity (vph)	488		306	1865		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductin	0		0	0		
Storage Cap Reductin	0		0	0		
Reduced v/c Ratio	0.87		0.53	0.77		
Reduced WC Rail0	0.87		0.53	0.77		
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 13 (16%), Referenced to p	hase 6:SBTL, S	Start of Gree	en			
Natural Cycle: 75	.,,,					
Control Type: Actuated-Coordinate	ed					
Maximum v/c Ratio: 0.91						
Intersection Signal Delay: 22.6				Inte	ersection LOS: C	
Intersection Capacity Utilization 84	4.3%				J Level of Service E	
Analysis Period (min) 15				.00		
# 95th percentile volume exceed	ds capacity, que	ue mav he	longer			
Queue shown is maximum afte		as may be	.ongon			
24040 Showing maximum and	oyolos.					
Splits and Phases: 4: O'Connor	& Gladstone					
5pins and 1 mases. 4. 0 control	a Glaustone					



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Lane Group	EBL	EBT	WBT	NBT		
Lane Configurations		£Î	ĵ.	ፈተሴ		7
Fraffic Volume (vph)	87	185	148	590		
Future Volume (vph)	87	185	148	590		
Lane Group Flow (vph)	0	287	268	873		
Turn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4					
Detector Phase	4	4	8	2		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	19.5	19.5	19.5	18.2		
Total Split (s)	35.0	35.0	35.0	40.0		
Total Split (%)	46.7%	46.7%	46.7%	53.3%		
Yellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	2.2	2.2	2.2	1.9		
Lost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.5	5.5	5.2		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		21.2	21.2	43.1		
Actuated g/C Ratio		0.28	0.28	0.57		
v/c Ratio		0.92	0.63	0.38		
Control Delay		60.0	27.1	11.1		
Queue Delay		0.0	0.0	0.3		
Total Delay		60.0	27.1	11.3		
LOS		Е	С	В		
Approach Delay		60.0	27.1	11.3		
Approach LOS		Е	С	В		
Queue Length 50th (m)		39.0	29.9	23.5		
Queue Length 95th (m)		#61.6	45.2	33.4		
Internal Link Dist (m)		162.8	146.4	54.5		
Turn Bay Length (m)						
Base Capacity (vph)		434	586	2312		
Starvation Cap Reductn		0	0	724		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.66	0.46	0.55		
Intersection Summary						
Cycle Length: 75						
Actuated Cycle Length: 75						
	2 MDTI (Start of Crac	n n			
Offset: 20 (27%), Referenced to phase Natural Cycle: 40	¿ Z.IND I L, J	Start of Gree	ЯI			
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.92						
Intersection Signal Delay: 24.1				Int	reaction LOC. C	
					rsection LOS: C Level of Service C	
Intersection Capacity Utilization 68.7%)			ICI	Level of Service C	
Analysis Period (min) 15			laman			
# 95th percentile volume exceeds ca	ipacity, que	eue may be	ionger.			
Queue shown is maximum after two	o cycles.					
Culting and Discours . F. Matanife o Co						
Splits and Phases: 5: Metcalfe & So	merset					
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Lane Group	WBT	NBT
Lane Configurations	1.	4413
Traffic Volume (vph)	51	470
Future Volume (vph)	51	470
Lane Group Flow (vph)	106	533
Turn Type	NA	NA
Protected Phases	8	2
Permitted Phases		
Detector Phase	8	2
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	23.1	20.0
Total Split (s)	25.0	50.0
Total Split (%)	33.3%	66.7%
Yellow Time (s)	3.3	3.3
All-Red Time (s)	1.8	1.7
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.1	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	14.8	54.1
Actuated g/C Ratio	0.20	0.72
v/c Ratio	0.30	0.15
Control Delay	15.8	2.1
Queue Delay	0.0	0.0
Total Delay	15.8	2.1
LOS	В	Α
Approach Delay	15.8	2.1
Approach LOS	В	А
Queue Length 50th (m)	6.0	3.2
Queue Length 95th (m)	17.7	5.3
Internal Link Dist (m)	155.2	64.2
Turn Bay Length (m)		
Base Capacity (vph)	459	3443
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.23	0.15
Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 75		
Offset: 56 (75%), Referenced to phase	se 2·NRTI '	Start of Green
Natural Cycle: 45	50 Z.IID I L, I	order or Green
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.30		
Intersection Signal Delay: 4.4		
Intersection Capacity Utilization 55.2	0/_	
Analysis Period (min) 15	.70	
Analysis i chou (min) 15		
Splits and Phases: 6: Metcalfe & M	MacLaren	
Spins and Fridges. C. Wetcane a N	VIGOE GITOTT	
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Lane Group	EBT	NBT	
Lane Configurations	વ	ተ ቀሴ	
Traffic Volume (vph)	91	458	
Future Volume (vph)	91	458	
Lane Group Flow (vph)	143	555	
Turn Type	NA	NA	
Protected Phases	4	2	
Permitted Phases		-	
Detector Phase	4	2	
Switch Phase		2	
Minimum Initial (s)	10.0	10.0	
Minimum Split (s)	26.3	23.1	
Total Split (s)	27.0	48.0	
Total Split (%)	36.0%	64.0%	
Yellow Time (s)	3.3	3.3	
All-Red Time (s)	2.0	1.8	
	-1.3	0.0	
Lost Time Adjust (s) Total Lost Time (s)	-1.3 4.0	5.1	
	4.0	5.1	
Lead/Lag			
Lead-Lag Optimize?	Nama	C Min	
Recall Mode	None	C-Min	
Act Effct Green (s)	17.9	48.0	
Actuated g/C Ratio	0.24	0.64	
v/c Ratio	0.33	0.19	
Control Delay	18.4	3.9	
Queue Delay	0.0	0.0	
Total Delay	18.4	3.9	
LOS	B	A	
Approach Delay	18.4	3.9	
Approach LOS	В	A	
Queue Length 50th (m)	11.5	8.4	
Queue Length 95th (m)	24.5	9.6	
Internal Link Dist (m)	163.6	226.4	
Turn Bay Length (m)		0007	
Base Capacity (vph)	555	2987	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.26	0.19	
Intersection Summary			
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 52 (69%), Referenced to phase	se 2:NBT, S	tart of Green	
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 6.8			Intersection LOS: A
Intersection Capacity Utilization 39.2	%		ICU Level of Service A
Analysis Period (min) 15			
Splits and Phases: 7: Metcalfe & G	Gilmour		
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Lane Group	EBL	EBT	WBT	NBT		
Lane Configurations		£1	ĵ.	ፈተሴ		
Traffic Volume (vph)	107	205	137	350		
Future Volume (vph)	107	205	137	350		
Lane Group Flow (vph)	0	329	162	448		
Turn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4					
Detector Phase	4	4	8	2		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	27.2	27.2	27.2	31.5		
Total Split (s)	39.0	39.0	39.0	36.0		
Total Split (%)	52.0%	52.0%	52.0%	48.0%		
Yellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	1.9	1.9	1.9	2.2		
Lost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.2	5.2	5.5		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		22.4	22.4	41.9		
Actuated g/C Ratio		0.30	0.30	0.56		
//c Ratio		0.76	0.31	0.17		
Control Delay		35.0	18.7	9.2		
Queue Delay		0.0	0.0	0.0		
Total Delay		35.0	18.7	9.2		
LOS		С	В	Α		
Approach Delay		35.0	18.7	9.2		
Approach LOS		С	В	Α		
Queue Length 50th (m)		42.3	16.4	9.9		
Queue Length 95th (m)		57.9	25.1	19.4		
Internal Link Dist (m)		164.9	144.6	38.8		
Turn Bay Length (m)						
Base Capacity (vph)		650	792	2646		
Starvation Cap Reductn		0	0	0		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.51	0.20	0.17		
Intersection Summary						
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 39 (52%), Referenced to pha	ase 2:NBTL.	Start of Gre	en			
Natural Cycle: 60						
Control Type: Actuated-Coordinated	d					
Maximum v/c Ratio: 0.76						
ntersection Signal Delay: 19.9				In	ersection LOS: B	
ntersection Capacity Utilization 69.	.8%				U Level of Service C	
Analysis Period (min) 15						
Splits and Phases: 8: Metcalfe &	Gladstone					
					A	
Ø2 (R)					→ Ø4	
36 s					39 s	
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Library allian
Intersection 1.1
Int Delay, s/veh 1.1
Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR
Lane Configurations *
Traffic Vol, veh/h 0 0 0 86 0 0 0 0 0 1076 50
Future Vol, veh/h 0 0 0 86 0 0 0 0 0 1076 50
Conflicting Peds, #/hr 44 0 8 8 0 44 72 0 108 108 0 72
Sign Control Free Free Free Stop Stop Free Free Free Free Free Free Free Fre
RT Channelized None None None
Storage Length 0
Veh in Median Storage, # 0 0 -
Grade, % - 0 0 0 0 -
Peak Hour Factor 95 95 95 95 95 95 95 95 95 95 95 95
Heavy Vehicles, % 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Mvmt Flow 0 0 0 91 0 0 0 0 0 1133 53
Major/Minor Minor1 Major2
Conflicting Flow All 575 0
Stage 1 0
Stage 2 575
Critical Hdwy 6.84
Critical Hdwy Stg 1
Critical Hdwy Stg 2 5.84
Follow-up Hdwy 3.52
Pot Cap-1 Maneuver 448 0 0
Stage 1 - 0 0
Stage 2 526 0 0 0
Platoon blocked, %
Mov Cap-1 Maneuver 448 0
Mov Cap-2 Maneuver 448 0
Stage 1 - 0
Stage 2 526 0
Approach WB SB
HCM Control Delay, s 15.1 0
HCM LOS C
Minor Lane/Major Mvmt WBLn1 SBT SBR
Capacity (veh/h) 448
HCM Lane V/C Ratio 0.202
HCM Control Delay (s) 15.1
HCM Lane LOS C
HCM 95th %tile Q(veh) 0.7

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	7	WDI	IVDI	NDIX	JDL	*
Traffic Vol, veh/h	56	0	0	0	4	TT 1162
Future Vol, veh/h	56	0	0	0	4	1162
Conflicting Peds, #/hr	0	0	0	138	138	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	310p -	None	310p -	None	-	None
Storage Length	0	None -	-	None -	-	None -
Veh in Median Storage, #	0					
ven in Median Storage, #		-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	0	0	0	4	1223
Major/Minor	Minor1				Major2	
Conflicting Flow All	758	-			138	0
Stage 1	138	_			-	-
Stage 2	620	-			_	_
Critical Hdwy	6.84	_			4.14	-
Critical Hdwy Stg 1	- 0.04	_				_
Critical Hdwy Stg 2	5.84	-			-	-
	3.52				2.22	
Follow-up Hdwy		-				-
Pot Cap-1 Maneuver	343	0			1443	-
Stage 1	400	0			-	-
Stage 2	499	0			-	-
Platoon blocked, %						-
Mov Cap-1 Maneuver	300	-			1274	-
Mov Cap-2 Maneuver	300	-			-	-
Stage 1	-	-			-	-
Stage 2	494	-			-	-
Approach	WB				SB	
HCM Control Delay, s	19.9				0	
					U	
HCM LOS	С					
Minor Lane/Major Mvmt		WBLn1	SBL	SBT		
Capacity (veh/h)		300	1274	-		
HCM Lane V/C Ratio		0.196	0.003	-		
HCM Control Delay (s)		19.9	7.8	-		
HCM Lane LOS		C	Α.	-		
				-		
HCM 95th %tile Q(veh)		0.7	0	-		

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Lane Group	EBT	WBL	WBT	SBT	Ø5		
Lane Configurations	ĵ.	*	*	413			
Traffic Volume (vph)	185	52	181	484			
Future Volume (vph)	185	52	181	484			
_ane Group Flow (vph)	319	55	191	606			
Turn Type	NA	pm+pt	NA	NA			
Protected Phases	4	3	8	6	5		
Permitted Phases		8					
Detector Phase	4	3	8	6			
Switch Phase	•	<u> </u>	ŭ	ŭ			
Minimum Initial (s)	10.0	5.0	10.0	10.0	1.0		
Vlinimum Split (s)	20.6	10.5	20.5	19.1	5.0		
Total Split (s)	22.0	15.0	37.0	38.0	5.0		
Fotal Split (%)	27.5%	18.8%	46.3%	47.5%	6%		
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0		
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0			
Total Lost Time (s)	5.6	5.5	5.5	5.1			
_ead/Lag	Lag	Lead	0.0	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		
Recall Mode	None	None	None	C-Min	None		
Act Effct Green (s)	20.6	28.4	28.4	37.0	TNOTIC		
Actuated g/C Ratio	0.26	0.36	0.36	0.46			
//c Ratio	0.20	0.30	0.30	0.40			
Control Delay	34.6	15.5	18.0	17.8			
Queue Delay	0.0	0.0	0.0	0.0			
Fotal Delay	34.6	15.5	18.0	17.8			
OS	C C	13.3 B	В	17.0 B			
Approach Delay	34.6	D	17.4	17.8			
Approach LOS	34.0 C		17.4 B	17.0 B			
Queue Length 50th (m)	38.5	4.8	18.1	37.0			
Queue Length 95th (m)	64.8	10.5	29.7	52.4			
nternal Link Dist (m)	145.1	10.5	162.8	42.7			
Furn Bay Length (m)	170.1	1.0	102.0	72.1			
Base Capacity (vph)	438	317	758	1622			
Starvation Cap Reductn	0	0	0	0			
Spillback Cap Reductn	0	0	0	0			
Storage Cap Reductin	0	0	0	0			
Reduced v/c Ratio	0.73	0.17	0.25	0.37			
	0.73	0.17	0.25	0.37			
ntersection Summary							
Cycle Length: 80							
Actuated Cycle Length: 80							
Offset: 44 (55%), Referenced to phase	6:SBTL,	Start of Gree	en				
Natural Cycle: 60							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.74							
ntersection Signal Delay: 22.3				Int	ersection LOS: C		
ntersection Capacity Utilization 58.9%)			ICI	U Level of Service B		
Analysis Period (min) 15							
Splits and Phases: 1: O'Connor & Se	omerset						
					/		
					√ Ø3	1 Ø4	
					15 s	22 s	
1 <u>2.2</u>					4-		
#Rø s ▼ Ø6 (R)					₩ Ø8		
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ane Group	EBT	SBT	Ø5
Lane Configurations	1,	414	
Fraffic Volume (vph)	62	648	
uture Volume (vph)	62	648	
ane Group Flow (vph)	117	748	
Turn Type	NA	NA	
Protected Phases	4	6	5
Permitted Phases			
Detector Phase	4	6	
Switch Phase			
Minimum Initial (s)	10.0	10.0	1.0
Minimum Split (s)	20.6	26.1	5.0
Total Split (s)	21.0	54.0	5.0
Total Split (%)	26.3%	67.5%	6%
Yellow Time (s)	3.3	3.3	2.0
All-Red Time (s)	2.3	1.8	0.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.6	5.1	ا موط
Lead/Lag		Lag	Lead
Lead-Lag Optimize? Recall Mode	None	Yes	Yes
	None	C-Min	None
Act Effct Green (s) Actuated g/C Ratio	13.0 0.16	55.9 0.70	
v/c Ratio	0.16	0.70	
Control Delay	22.5	5.6	
Queue Delay	0.0	0.0	
Total Delay	22.5	5.6	
LOS	22.5 C	3.0 A	
Approach Delay	22.5	5.6	
Approach LOS	22.5 C	3.0 A	
Queue Length 50th (m)	9.4	15.0	
Queue Length 95th (m)	23.2	27.5	
Internal Link Dist (m)	147.3	65.4	
Turn Bay Length (m)	177.0	00.7	
Base Capacity (vph)	352	2402	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.33	0.31	
	0.00		
Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80	/ CDT:	21 1 6 2	
Offset: 46 (58%), Referenced to ph	nase 6:SBTL, S	Start of Gree	n
Natural Cycle: 55			
Control Type: Actuated-Coordinate	ed		
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 7.9	===		
Intersection Capacity Utilization 43	5.5%		
Analysis Period (min) 15			
Culita and Dhases 2, Olo	0 Cllma		
Splits and Phases: 3: O'Connor	& Gilmour		
👪 No			
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Lane Group	EBT	WBL	WBT	SBT	Ø5	
Lane Configurations	î,		ર્વ	4î.		
Traffic Volume (vph)	225	32	145	620		
Future Volume (vph)	225	32	145	620		
ane Group Flow (vph)	360	0	187	720		
Turn Type	NA	Perm	NA	NA		
Protected Phases	4		8	6	5	
Permitted Phases		8				
Detector Phase	4	8	8	6		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	1.0	
Minimum Split (s)	25.5	25.5	25.5	31.3	5.0	
Total Split (s)	28.0	28.0	28.0	47.0	5.0	
Total Split (%)	35.0%	35.0%	35.0%	58.8%	6%	
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.2 0.0	2.2	2.2 0.0	2.0	0.0	
Lost Time Adjust (s) Total Lost Time (s)	0.0 5.5		5.5	0.0 5.3		
Lead/Lag	5.5		ບ.ບ	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	C-Min	None	
Act Effct Green (s)	21.5	INDITE	21.5	43.2	TVOITE	
Actuated g/C Ratio	0.27		0.27	0.54		
v/c Ratio	0.78		0.55	0.40		
Control Delay	36.0		30.3	15.1		
Queue Delay	0.0		0.0	0.0		
Total Delay	36.0		30.3	15.1		
LOS	D		С	В		
Approach Delay	36.0		30.3	15.1		
Approach LOS	D		С	В		
Queue Length 50th (m)	45.8		24.2	23.9		
Queue Length 95th (m)	66.8		38.5	68.4		
Internal Link Dist (m)	152.8		164.9	226.6		
Turn Bay Length (m)						
Base Capacity (vph)	515		382	1914		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.70		0.49	0.38		
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 44 (55%), Referenced to p	phase 6:SBTL, S	Start of Gree	en			
Natural Cycle: 65						
Control Type: Actuated-Coordina	ited					
Maximum v/c Ratio: 0.78						
Intersection Signal Delay: 23.3	(0.00/				ersection LOS: C	
Intersection Capacity Utilization 6	59.9%			ICI	J Level of Service C	
Analysis Period (min) 15						
Splits and Phases: 4: O'Conno	or & Gladstone					
						→ Ø4
1.						20 8
Å kø v ø6 (R)						₩ Ø8
5 47 c						70 c
J 5 T/ 5						20 S

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Lane Group	EBL	EBT	WBT	NBT	
Lane Configurations		र्ध	ĵ.	ፈቀሴ	
Traffic Volume (vph)	109	135	162	1045	
Future Volume (vph)	109	135	162	1045	
Lane Group Flow (vph)	0	257	343	1332	
Turn Type	Perm	NA	NA	NA	
Protected Phases		4	8	2	
Permitted Phases	4				
Detector Phase	4	4	8	2	
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	
Minimum Split (s)	19.5	19.5	19.5	18.2	
Total Split (s)	42.0	42.0	42.0	48.0	
Total Split (%)	46.7%	46.7%	46.7%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	1.9	
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		5.5	5.5	5.2	
Lead/Lag		0.0	5.5	٥.٤	
Lead-Lag Optimize?					
Recall Mode	None	None	None	C-Min	
Act Effct Green (s)	Nonc	27.7	27.7	51.6	
Actuated g/C Ratio		0.31	0.31	0.57	
v/c Ratio		1.06	0.76	0.54	
Control Delay		103.6	37.4	11.3	
Queue Delay		0.0	0.0	0.1	
Total Delay LOS		103.6 F	37.4	11.4 B	
			D		
Approach Delay		103.6	37.4	11.4	
Approach LOS		F	D	B	
Queue Length 50th (m)		~46.4	51.0	30.1	
Queue Length 95th (m)		#80.5	70.8	48.7	
Internal Link Dist (m)		162.8	146.4	54.5	
Turn Bay Length (m)		000	F00	0.405	
Base Capacity (vph)		320	592	2485	
Starvation Cap Reductn		0	0	307	
Spillback Cap Reductn		0	0	0	
Storage Cap Reductn		0	0	0	
Reduced v/c Ratio		0.80	0.58	0.61	
ntersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 90					
Offset: 29 (32%), Referenced to p	hase 2:NBTL, S	Start of Gree	en		
Natural Cycle: 40					
Control Type: Actuated-Coordinat	ed				
Maximum v/c Ratio: 1.06					
ntersection Signal Delay: 28.3				In	tersection LOS: C
ntersection Capacity Utilization 79	9.5%				CU Level of Service D
Analysis Period (min) 15					
 Volume exceeds capacity, que 	eue is theoretica	ally infinite.			
Queue shown is maximum after	er two cycles.				
# 95th percentile volume exceed		eue may be	longer.		
Queue shown is maximum after		J - J - J	J		
Splits and Phases: 5: Metcalfe	·				
opino unu i nuoco. O. Micicalle	a Johnson				A
Ø2 (R)					₩94
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					-
					Ø8

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Lane Group	WBT	NBT	
Lane Configurations	ኔ	ተቀተ	
Traffic Volume (vph)	53	1219	
Future Volume (vph)	53	1219	
Lane Group Flow (vph)	105	1377	
Turn Type	NA	NA	
Protected Phases	8	2	
Permitted Phases			
Detector Phase	8	2	
Switch Phase		_	
Minimum Initial (s)	10.0	10.0	
Viinimum Split (s)	23.1	20.0	
Total Split (s)	25.0	65.0	
Total Split (%)	27.8%	72.2%	
Yellow Time (s)	3.3	3.3	
All-Red Time (s)	1.8	1.7	
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.1	5.0	
Lead/Lag	J. I	3.0	
Lead/Lag Optimize?			
Recall Mode	None	C-Min	
Act Effet Green (s)	16.4	67.5	
Actuated g/C Ratio	0.18	0.75	
//c Ratio	0.32	0.39	
Control Delay	21.5	2.3	
Queue Delay	0.0	0.0	
Total Delay	21.5	2.3	
LOS	С	Α	
Approach Delay	21.5	2.3	
Approach LOS	С	Α	
Queue Length 50th (m)	8.7	10.9	
Queue Length 95th (m)	22.5	12.6	
nternal Link Dist (m)	155.2	64.2	
Turn Bay Length (m)			
Base Capacity (vph)	388	3555	
Starvation Cap Reductn	0	414	
Spillback Cap Reductn	0	80	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.27	0.44	
ntorcoction Cummon			
ntersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 90	ONDEL	31 1 60	
Offset: 59 (66%), Referenced to ph	nase 2:NBTL, S	Start of Green	
Natural Cycle: 45			
Control Type: Actuated-Coordinate	ed		
Maximum v/c Ratio: 0.39			
ntersection Signal Delay: 3.7			Intersection LOS: A
ntersection Capacity Utilization 53	3.3%		ICU Level of Service A
Analysis Period (min) 15			
Splits and Phases: 6: Metcalfe &	& MacLaren		
*			
Ø2 (R)			
Ø2 (R)			
			4 Ø8

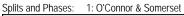
	→	†
Lane Group	EBT	NBT
Lane Configurations	<u> </u>	
Traffic Volume (vph)	69	↑↑ ↑ 1186
Future Volume (vph)	69	1186
Lane Group Flow (vph)	172	1344
Turn Type	NA	NA
Protected Phases	4	2
Permitted Phases	4	2
Detector Phase	4	2
Switch Phase	-	2
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	26.3	23.1
Total Split (s)	27.0	63.0
Total Split (%)	30.0%	70.0%
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	1.8
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.3	5.1
Lead/Lag	5.5	J. I
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	18.8	60.8
Actuated g/C Ratio	0.21	0.68
v/c Ratio	0.44	0.42
Control Delay	24.2	2.5
Queue Delay	0.0	0.0
Total Delay	24.2	2.5
LOS	24.2 C	2.5 A
Approach Delay	24.2	2.5
Approach LOS	24.2 C	2.5 A
Queue Length 50th (m)	17.2	8.5
Queue Length 95th (m)	35.0	12.4
Internal Link Dist (m)	121.1	226.4
	121.1	220.4
Turn Bay Length (m) Base Capacity (vph)	115	3212
	445	
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.39	0.42
Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 90		
Offset: 58 (64%), Referenced to ph	hase 2:NBT, St	art of Green
Natural Cycle: 50		
Control Type: Actuated-Coordinate	ed	
Maximum v/c Ratio: 0.44	.	
Intersection Signal Delay: 4.9		
Intersection Capacity Utilization 52	2.7%	
Analysis Period (min) 15		
Splits and Phases: 7: Metcalfe 8	Cilmour	
Splits and Phases: 7: Metcalle 8	& Gilmour	
T _(32.61)		
Ø2 (R)		

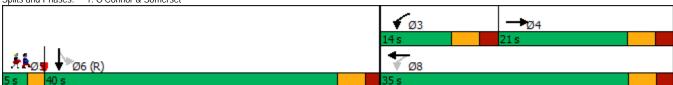
Ame Configurations		•	→	←	†
are Configurations	_ane Group	EBL	EBT	WBT	NBT
rizeffic Volume (vph) 90 140 122 1159					
Future Volume (vph) 90 140 122 1159 and Group Flow (vph) 0 242 142 1279 for comparison of the perm NA	Fraffic Volume (vph)	90	140	122	1159
ane Group Flow (vph)					
Turn Type					
Protected Phases Permitted Phases 4 Permitted Phases 4 4 4 8 2 Permitted Phase Permitted Phases 4 4 4 8 2 Permitted Phases Permitted Phases 4 4 4 8 2 Permitted Phase Permitted Phases Permitted Phases Permitted Phases 4 4 4 8 2 Permitted Phases					
Permitted Phases		i Cilli			
Detector Phase 4		Δ	7	U	
Switch Phase ### ### ### ### ### ### ### ### ### #			4	8	2
### Administration of the content of		7	7	U	
Alfinimum Split (s) 27.2 27.2 27.2 31.5 cotal Split (s) 28.0 28.0 28.0 62.0 cotal Split (s) 28.0 28.0 28.0 62.0 cotal Split (s) 31.1% 31.1% 31.1% 68.9% (relian Split (s) 31.1% 31.1% 31.3% 31.3 31.3 31.3 31.3 3		10.0	10.0	10.0	10.0
Total Split (s)					
Total Split (%) 31.1% 31.1% 31.1% 68.9% Fellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.3 3.					
NI-Red Time (s)					
Cost Time Adjust (s) 0.0					
Total Lost Time (s) 5.2 5.2 5.5 Lead/Lag Optimize? Recall Mode None None None C-Min Note Leffct Green (s) 21.9 21.9 57.4 Rectall Mode 0.73 0.33 0.42 Countrol Delay 43.7 27.6 9.1 Countrol Delay 43.8 19.3 35.8 Countrol Delay 43.7 27.6 9.1 Countrol Type: Actuated Coordinated Maximum v/c Ratio: 0.73 Intersection Capacity Utilization 74.7% Analysis Period (min) 15 Intersection Capacity Utilization 74.7% Analysis Period (min) 15		1.9			
Read/Lag Read-Lag Optimize?	LUST TIME AUJUST (S)				
Recal Mode			5.2	5.2	5.5
None None None None None C-Min					
Act Effet Green (s) 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 21.9 20.4 20.4 20.4 20.4 20.4 20.6 20.6 20.6 20.6 20.7 20.					0
Actuated g/C Ratio		None			
Control Delay					
Control Delay					
December Color C					
Agriculture					
Approach Delay 43.7 27.6 9.1 Approach LOS D C A Approach LOS D C A Dueue Length 50th (m) 38.5 19.3 35.8 Dueue Length 95th (m) 58.7 31.9 54.0 Internal Link Dist (m) 164.9 144.6 38.8 Furn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% Analysis Period (min) 15					
Approach Delay 43.7 27.6 9.1 Approach LOS D C A Queue Length 50th (m) 38.5 19.3 35.8 Queue Length 95th (m) 58.7 31.9 54.0 Internal Link Dist (m) 164.9 144.6 38.8 Furn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Total Delay				
Approach LOS	_OS				
Dueue Length 50th (m) 38.5 19.3 35.8 Dueue Length 95th (m) 58.7 31.9 54.0 Internal Link Dist (m) 164.9 144.6 38.8 Furn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Dycle Length: 90 Actuated Cycle Length: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Approach Delay				
Dueue Length 95th (m) 58.7 31.9 54.0 Internal Link Dist (m) 164.9 144.6 38.8 Turn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary	Approach LOS				
December Company Com	Queue Length 50th (m)		38.5	19.3	35.8
Internal Link Dist (m) 164.9 144.6 38.8 Furn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Control Type: Actuated-Coordinated daximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Queue Length 95th (m)				
Furn Bay Length (m) Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	nternal Link Dist (m)		164.9	144.6	
Base Capacity (vph) 367 472 3151 Starvation Cap Reductn 0 0 0 0 Spillback Cap Reductn 0 0 0 0 Storage Cap Reductn 0 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Valuated Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15					
Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Base Capacity (vph)		367	472	3151
Spillback Cap Reductn 0 0 0 0 Storage Cap Reductn 0 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Valuation Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15					
Storage Cap Reductn 0 0 0 0 Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15					
Reduced v/c Ratio 0.66 0.30 0.41 Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Coffset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Valuational Cycle: 60 Control Type: Actuated-Coordinated Vaximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection LOS: B Intersection Capacity Utilization 74.7% Analysis Period (min) 15	Storage Cap Reductn				
Actuated Cycle Length: 90 Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Valuational Cycle: 60 Control Type: Actuated-Coordinated Vaximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% Analysis Period (min) 15					
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% Analysis Period (min) 15			3.00	0.00	5.71
Actuated Cycle Length: 90 Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% Analysis Period (min) 15					
Offset: 43 (48%), Referenced to phase 2:NBTL, Start of Green Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Cycle Length: 90				
Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Actuated Cycle Length: 90				
Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Offset: 43 (48%), Referenced to pha	se 2:NBTL, :	Start of Gree	en	
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Natural Cycle: 60				
Maximum v/c Ratio: 0.73 Intersection Signal Delay: 15.7 Intersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Control Type: Actuated-Coordinated				
ntersection Signal Delay: 15.7 Intersection LOS: B ntersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15	Maximum v/c Ratio: 0.73				
ntersection Capacity Utilization 74.7% ICU Level of Service D Analysis Period (min) 15					In
Analysis Period (min) 15		'%			
Splits and Phases: 8: Metcalfe & Gladstone	manyolo i ollow (mill) to				
1	Splits and Phases: 8: Metcalfe & 0	Gladstone			
4 ₱					
√ Ø2 (R)	Ø2 (R)				
52 s					

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				*							ÅЪ	
Traffic Vol, veh/h	0	0	0	121	0	0	0	0	0	0	742	42
Future Vol, veh/h	0	0	0	121	0	0	0	0	0	0	742	42
Conflicting Peds, #/hr	44	0	9	9	0	44	86	0	168	168	0	86
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	- -	- -	None	-	-	None	-	-	None
Storage Length	_	-	-	0	_	-	-	-	-	-	-	-
Veh in Median Storage, #	_	-	_	-	0	-	-	_	_	-	0	-
Grade, %	_	0	_	_	0	-	-	0	_	_	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mymt Flow	0	0	0	127	0	0	0	0	0	0	781	44
IVIVIIIL I IUVV	U	U	- 0	127	0	U	0	- 0	- 0	- 0	701	74
Major/Minor				Minor1						Major2		
Conflicting Flow All				400	-	-				-	-	0
Stage 1				0	-	-				-	-	-
Stage 2				400	-	-				-	-	-
Critical Hdwy				6.84	-	-				-	-	-
Critical Hdwy Stg 1				-	-	-				-	-	-
Critical Hdwy Stg 2				5.84	-	-				-	-	-
Follow-up Hdwy				3.52	-	-				-	-	-
Pot Cap-1 Maneuver				578	0	0				0	-	-
Stage 1				-	0	0				0	-	-
Stage 2				646	0	0				0	-	-
Platoon blocked, %											-	-
Mov Cap-1 Maneuver				578	0	-				-	-	-
Mov Cap-2 Maneuver				578	0	-				-	-	-
Stage 1				-	0	-				-	-	-
Stage 2				646	0	-				-	-	-
Approach				WB						SB		
HCM Control Delay, s				13						0		
HCM LOS				В						- 0		
TIOWI EUS				D								
Minor Lane/Major Mvmt	1	WBLn1	SBT	SBR								
Capacity (veh/h)		578	-	_								
HCM Lane V/C Ratio		0.22	-	_								
HCM Control Delay (s)		13	_	_								
HCM Lane LOS		В	_	_								
HCM 95th %tile Q(veh)		0.8	-									
How /our /oure Q(veri)		0.0	_									

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
	EBL		WBI	WBK		SBK
Lane Configurations	15	4	0	0	7	0
Traffic Vol, veh/h	15	110	0	0	47	0
Future Vol, veh/h	15	110	0	0	47	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	116	0	0	49	0
NA 1 (NA)					N. C	
Major/Minor	Major1				Minor2	
Conflicting Flow All	0	0			148	-
Stage 1	-	-			0	-
Stage 2	-	-			148	-
Critical Hdwy	4.12	-			6.42	-
Critical Hdwy Stg 1	-	-			_	-
Critical Hdwy Stg 2	_	-			5.42	-
Follow-up Hdwy	2.218	-			3.518	_
Pot Cap-1 Maneuver	2.210				844	0
Stage 1		-			-	0
Stage 2					880	0
Platoon blocked, %	-				880	U
		-			011	
Mov Cap-1 Maneuver	-	-			844	-
Mov Cap-2 Maneuver	-	-			844	-
Stage 1	-	-			-	-
Stage 2	-	-			880	-
Approach	EB				SB	
HCM Control Delay, s	LU				9.5	
HCM LOS					9.5 A	
LICINI FOS					А	
Minor Lane/Major Mvmt		EBL	EBT	SBLn1		
Capacity (veh/h)		-	_	844		
HCM Lane V/C Ratio		_	-	0.059		
HCM Control Delay (s)				9.5		
HCM Lane LOS		-	-	9.5 A		
HCM 95th %tile Q(veh)		-				
		-	-	0.2		

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Lane Group	EBT	WBL	WBT	SBT	Ø5	
Lane Configurations	1,	7	*	47.		
Fraffic Volume (vph)	192	72	185	949		
Future Volume (vph)	192	72	185	949		
_ane Group Flow (vph)	374	76	195	1150		
Turn Type	NA	pm+pt	NA	NA		
Protected Phases	4	3	8	6	5	
Permitted Phases	4	8	U	U	J	
Detector Phase	4	3	8	6		
Switch Phase	4	J	0	U		
Minimum Initial (s)	10.0	5.0	10.0	10.0	1.0	
Minimum Split (s)	20.6	10.5	20.5	19.1	5.0	
	20.6		35.0		5.0	
Total Split (s)		14.0		40.0		
Total Split (%)	26.3%	17.5%	43.8%	50.0%	6%	
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.5	5.5	5.1		
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Min	None	
Act Effct Green (s)	20.3	31.1	31.1	34.3		
Actuated g/C Ratio	0.25	0.39	0.39	0.43		
v/c Ratio	0.93	0.28	0.28	0.84		
Control Delay	62.9	19.6	18.9	27.1		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	62.9	19.6	18.9	27.1		
LOS	Е	В	В	С		
Approach Delay	62.9		19.1	27.1		
Approach LOS	Е		В	С		
Queue Length 50th (m)	~61.4	7.5	20.6	77.2		
Queue Length 95th (m)	#114.1	16.0	35.8	103.9		
Internal Link Dist (m)	145.1		162.8	42.7		
Turn Bay Length (m)		1.0				
Base Capacity (vph)	401	288	692	1386		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.93	0.26	0.28	0.83		
	0.73	0.20	0.20	0.03		
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 58 (73%), Referenced to p	ohase 6:SBTL. S	Start of Gree	en			
Natural Cycle: 90		2. 0.00				
Control Type: Actuated-Coordina	ted					
Maximum v/c Ratio: 0.93	.cu					
Intersection Signal Delay: 33.4				Inte	ersection LOS: C	
Intersection Capacity Utilization 7	18 7%				J Level of Service D)
Analysis Period (min) 15	U. 1 /0			iCl	PEARLOI SELVICE D	1
	iouo le thooreties	ally infinite				
 Volume exceeds capacity, que change shown is maximum after 		any militile.				
Queue shown is maximum aft	er two cycles.		lamas:			
# 95th percentile volume excee		eue may be	ionger.			
Queue shown is maximum aft	er two cycles.					
Splits and Phases: 1: O'Conno	r & Somerset					





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ane Group	EBT	SBT	Ø5		
_ane Configurations	ĵ,	413			
Fraffic Volume (vph)	86	1205			
-uture Volume (vph)	86	1205			
_ane Group Flow (vph)	185	1361			
Furn Type	NA	NA			
Protected Phases	4	6	5		
Permitted Phases		_	-		
Detector Phase	4	6			
Switch Phase		_			
Minimum Initial (s)	10.0	10.0	1.0		
Vinimum Split (s)	20.6	26.1	5.0		
Fotal Split (s)	21.0	54.0	5.0		
Fotal Split (%)	26.3%	67.5%	6%		
Yellow Time (s)	3.3	3.3	2.0		
All-Red Time (s)	2.3	1.8	0.0		
Lost Time Adjust (s)	0.0	0.0	5.0		
Fotal Lost Time (s)	5.6	5.1			
_ead/Lag	5.0	Lag	Lead		
Lead-Lag Optimize?		Yes	Yes		
Recall Mode	None	C-Min	None		
Act Effct Green (s)	13.1	52.2	140110		
Actuated g/C Ratio	0.16	0.65			
//c Ratio	0.60	0.62			
Control Delay	29.4	5.3			
Queue Delay	0.0	0.2			
Fotal Delay	29.4	5.5			
_OS	29.4 C	3.5 A			
Approach Delay	29.4	5.5			
Approach LOS	29.4 C	3.5 A			
Queue Length 50th (m)	17.2	25.4			
Queue Length 95th (m)	36.5	m43.0			
nternal Link Dist (m)	147.3	65.4			
Furn Bay Length (m)	147.3	00.4			
Base Capacity (vph)	350	2231			
Starvation Cap Reductn	0	229			
Spillback Cap Reductn	0	0			
Storage Cap Reductn	0	0			
Reduced v/c Ratio	0.53	0.68			
	0.55	0.00			
ntersection Summary Cycle Length: 80					
Actuated Cycle Length: 80					
Offset: 71 (89%), Referenced to phase	6.SRTI	Start of Groo	n		
Vatural Cycle: 60	U.SDIL,	Start of Gree	11		
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.62					
				Intersection LOS: A	
ntersection Signal Delay: 8.4 ntersection Capacity Utilization 62.8%					
				ICU Level of Service B	
Analysis Period (min) 15 m Volume for 95th percentile queue is	s meterer	d hy unstream	n signal		
		a by upsucal	ı sıyıldı.		
Splits and Phases: 3: O'Connor & Gi	ilmour				
					→ Ø4
1.1					21 s

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Lane Group	EBT	WBL	WBT	SBT	Ø5		
Lane Configurations	1,		र्य	ፈቤ			
Traffic Volume (vph)	209	27	126	1271			
Future Volume (vph)	209	27	126	1271			
Lane Group Flow (vph)	425	0	161	1454			
Turn Type	NA	Perm	NA	NA			
Protected Phases	4	1 01111	8	6	5		
Permitted Phases	7	8	U	U	J		
Detector Phase	4	8	8	6			
Switch Phase	7	U	U	U			
Minimum Initial (s)	10.0	10.0	10.0	10.0	1.0		
Minimum Split (s)	25.5	25.5	25.5	31.3	5.0		
Total Split (s)	28.0	28.0	28.0	47.0	5.0		
			35.0%		6%		
Total Split (%)	35.0% 3.3	35.0% 3.3	35.0%	58.8% 3.3	2.0		
Yellow Time (s)							
All-Red Time (s)	2.2	2.2	2.2	2.0	0.0		
Lost Time Adjust (s)	0.0		0.0	0.0			
Total Lost Time (s)	5.5		5.5	5.3	l l		
Lead/Lag				Lag	Lead		
Lead-Lag Optimize?			N.	Yes	Yes		
Recall Mode	None	None	None	C-Min	None		
Act Effct Green (s)	21.5		21.5	43.6			
Actuated g/C Ratio	0.27		0.27	0.54			
v/c Ratio	0.91		0.55	0.80			
Control Delay	50.6		32.6	14.1			
Queue Delay	0.0		0.0	0.0			
Total Delay	50.6		32.6	14.1			
LOS	D		С	В			
Approach Delay	50.6		32.6	14.1			
Approach LOS	D		С	В			
Queue Length 50th (m)	53.7		20.5	118.1			
Queue Length 95th (m)	#104.5		39.1	106.8			
Internal Link Dist (m)	152.8		164.9	226.6			
Turn Bay Length (m)							
Base Capacity (vph)	485		309	1822			
Starvation Cap Reductn	0		0	0			
Spillback Cap Reductn	0		0	0			
Storage Cap Reductn	0		0	0			
Reduced v/c Ratio	0.88		0.52	0.80			
ntersection Summary							
Cycle Length: 80							
Actuated Cycle Length: 80							
Offset: 13 (16%), Referenced to	phase 6:SBTL. S	Start of Gree	en				
Natural Cycle: 75							
Control Type: Actuated-Coordina	ated						
Maximum v/c Ratio: 0.91							
ntersection Signal Delay: 23.2				Inte	ersection LOS: C		
ntersection Capacity Utilization	84.7%				J Level of Service E		
Analysis Period (min) 15				100			
# 95th percentile volume excee	eds capacity, que	eue may he	longer				
Queue shown is maximum af		0					
Splits and Dhases: 4: O'Conne	or & Cladetone						
Splits and Phases: 4: O'Conno	or & Gladstone						
						→ Ø4	



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Lane Group	EBL	EBT	WBT	NBT		
ane Configurations		र्	î,	ፈተሴ		
raffic Volume (vph)	87	185	150	597		
uture Volume (vph)	87	185	150	597		
ane Group Flow (vph)	0	287	270	886		
Turn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4					
Detector Phase	4	4	8	2		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	19.5	19.5	19.5	18.2		
Total Split (s)	35.0	35.0	35.0	40.0		
Total Split (%)	46.7%	46.7%	46.7%	53.3%		
Yellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	2.2	2.2	2.2	1.9		
Lost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.5	5.5	5.2		
Lead/Lag						
Lead-Lag Optimize?				0		
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		21.1	21.1	43.2		
Actuated g/C Ratio		0.28	0.28	0.58		
v/c Ratio		0.93	0.63	0.38		
Control Delay		62.2	27.4	10.9		
Queue Delay		0.0	0.0	0.3		
Total Delay		62.2	27.4	11.1		
LOS		E (2.2	C	В		
Approach Delay		62.2	27.4	11.1		
Approach LOS		Е	С	В		
Queue Length 50th (m)		39.2	30.4	23.8		
Queue Length 95th (m)		#62.9	45.5	33.8		
Internal Link Dist (m)		162.8	146.4	54.5		
Turn Bay Length (m)		100	507	0040		
Base Capacity (vph)		430	587	2313		
Starvation Cap Reductn		0	0	719		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.67	0.46	0.56		
Intersection Summary						
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 20 (27%), Referenced to phase	e 2:NBTL S	Start of Gree	en.			
Natural Cycle: 40	o Z.INDTE, C	Start or Grov	511			
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.93						
Intersection Signal Delay: 24.3				Int	rsection LOS: C	
Intersection Signal Delay, 24.3 Intersection Capacity Utilization 69.0%	%				Level of Service C	
Analysis Period (min) 15				100	LOVE OF SCIVICE C	
# 95th percentile volume exceeds ca	anacity que	eue may he	longer			
Queue shown is maximum after tw		Jac may be	iongor.			
	0 0 10100.					
Queue Shown is maximum after tw	,					
	,					
	,				T &	
Splits and Phases: 5: Metcalfe & Sc	,				A	
	,				25.04	

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ane Group	WBT	NBT	
ane Configurations	î,	4413	
raffic Volume (vph)	51	482	
uture Volume (vph)	51	482	
ane Group Flow (vph)	106	585	
urn Type	NA	NA	
Protected Phases	8	2	
Permitted Phases	U	2	
Detector Phase	8	2	
Switch Phase	0	Z	
Minimum Initial (s)	10.0	10.0	
Ainimum Split (s)	23.1	20.0	
otal Split (s)	25.0	50.0	
otal Split (%)	33.3%	66.7%	
'ellow Time (s)	3.3	3.3	
II-Red Time (s)	1.8	1.7	
ost Time Adjust (s)	0.0	0.0	
otal Lost Time (s)	5.1	5.0	
ead/Lag			
ead-Lag Optimize?			
Recall Mode	None	C-Min	
act Effct Green (s)	14.8	54.1	
ctuated g/C Ratio	0.20	0.72	
/c Ratio	0.30	0.17	
Control Delay	15.8	2.1	
Queue Delay	0.0	0.0	
otal Delay	15.8	2.1	
.OS	В	Α	
pproach Delay	15.8	2.1	
pproach LOS	В	А	
Queue Length 50th (m)	6.0	3.7	
Queue Length 95th (m)	17.7	6.3	
nternal Link Dist (m)	155.2	64.2	
urn Bay Length (m)	10012	0 112	
Base Capacity (vph)	459	3386	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.23	0.17	
	0.23	0.17	
ntersection Summary			
Cycle Length: 75 Inctuated Cycle Length: 75 Offset: 56 (75%), Referenced to platural Cycle: 45		Start of Green	
Control Type: Actuated-Coordinat Maximum v/c Ratio: 0.30	ed		
ntersection Signal Delay: 4.2			Intersection LOS: A
ntersection Capacity Utilization 5	5.7%		ICU Level of Service B
nalysis Period (min) 15			
Splits and Phases: 6: Metcalfe	& MacLaren		
1 Ø2 (R)			
50 s			
50 s			← Ø8

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Lane Group	EBT	NBT
Lane Configurations	4	*****
Traffic Volume (vph)	4 91	481
Future Volume (vph)	91	481
Lane Group Flow (vph)	172	579
Turn Type	NA	NA
Protected Phases	4	2
Permitted Phases	т.	2
Detector Phase	4	2
Switch Phase		2
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	26.3	23.1
Total Split (s)	27.0	48.0
Total Split (%)	36.0%	64.0%
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	1.8
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.3	5.1
Lead/Lag	0.0	
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	16.6	48.0
Actuated g/C Ratio	0.22	0.64
v/c Ratio	0.41	0.19
Control Delay	18.7	3.9
Queue Delay	0.0	0.0
Total Delay	18.7	3.9
LOS	В	Α
Approach Delay	18.7	3.9
Approach LOS	В	Α
Queue Length 50th (m)	13.0	8.5
Queue Length 95th (m)	28.0	9.9
Internal Link Dist (m)	121.1	226.4
Turn Bay Length (m)		
Base Capacity (vph)	534	2992
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.19
Interception Commence		
Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 75		
Offset: 52 (69%), Referenced to p	phase 2:NBT, St	art of Green
Natural Cycle: 50		
Control Type: Actuated-Coordina	ited	
Maximum v/c Ratio: 0.41		
Intersection Signal Delay: 7.3		
Intersection Capacity Utilization 4	40.7%	
Analysis Period (min) 15		
Splits and Phases: 7: Metcalfe	& Gilmour	
*		
Ø2 (R)		

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Lane Group	EBL	EBT	WBT	NBT	
Lane Configurations		र्दी	1,	ፈቀቴ	
Traffic Volume (vph)	107	205	137	373	
Future Volume (vph)	107	205	137	373	
Lane Group Flow (vph)	0	329	162	473	
Turn Type	Perm	NA	NA	NA	
Protected Phases		4	8	2	
Permitted Phases	4				
Detector Phase	4	4	8	2	
Switch Phase	10.0	10.0	10.0	10.0	
Minimum Initial (s)	10.0	10.0	10.0	10.0	
Minimum Split (s)	27.2 39.0	27.2 39.0	27.2 39.0	31.5	
Total Split (s)	39.0 52.0%	39.0 52.0%	39.0 52.0%	36.0 48.0%	
Total Split (%) Yellow Time (s)	52.0% 3.3	52.0%	3.3	48.0%	
All-Red Time (s)	3.3 1.9	3.3 1.9	3.3 1.9	2.2	
Lost Time Adjust (s)	1.7	0.0	0.0	0.0	
Total Lost Time (s)		5.2	5.2	5.5	
Lead/Lag		J.Z	J.Z	J.J	
Lead-Lag Optimize?					
Recall Mode	None	None	None	C-Min	
Act Effct Green (s)		22.4	22.4	41.9	
Actuated g/C Ratio		0.30	0.30	0.56	
v/c Ratio		0.76	0.31	0.18	
Control Delay		35.0	18.7	9.3	
Queue Delay		0.0	0.0	0.0	
Total Delay		35.0	18.7	9.3	
LOS		С	В	Α	
Approach Delay		35.0	18.7	9.3	
Approach LOS		С	В	А	
Queue Length 50th (m)		42.3	16.4	10.6	
Queue Length 95th (m)		57.9	25.1	20.5	
Internal Link Dist (m)		164.9	144.6	38.8	
Turn Bay Length (m)					
Base Capacity (vph)		650	792	2648	
Starvation Cap Reductn		0	0	0	
Spillback Cap Reductn		0	0	0	
Storage Cap Reductn		0	0	0	
Reduced v/c Ratio		0.51	0.20	0.18	
Intersection Summary					
Cycle Length: 75					
Actuated Cycle Length: 75					
Offset: 39 (52%), Referenced to pha	ise 2:NBTL	Start of Gre	en		
Natural Cycle: 60	Z. E. NOTE, V	01 010			
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.76					
Intersection Signal Delay: 19.6				In	tersection LOS: B
Intersection Capacity Utilization 69.8	3%				U Level of Service C
Analysis Period (min) 15				10	3 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Splits and Phases: 8: Metcalfe & 0	Gladstone				
					. A
Ø2 (R)					 104
36 s					39 s
					4-
					Ø8
					39 s

Intersection	4 (
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				×							ት ጌ	
Traffic Vol, veh/h	0	0	0	124	0	0	0	0	0	0	1093	50
Future Vol, veh/h	0	0	0	124	0	0	0	0	0	0	1093	50
Conflicting Peds, #/hr	44	0	8	8	0	44	72	0	108	108	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	131	0	0	0	0	0	0	1151	53
Major/Minor				Minor1						Major2		
Conflicting Flow All				584	-	-				-	-	0
Stage 1				0	-	_				-	-	-
Stage 2				584	-	-				-	-	-
Critical Hdwy				6.84	-	-				-	-	-
Critical Hdwy Stg 1				-	-	-				-	-	-
Critical Hdwy Stg 2				5.84	-	-				-	-	-
Follow-up Hdwy				3.52	-	-				-	-	-
Pot Cap-1 Maneuver				443	0	0				0	-	-
Stage 1				-	0	0				0	-	-
Stage 2				521	0	0				0	-	-
Platoon blocked, %											-	-
Mov Cap-1 Maneuver				443	0	-				-	-	-
Mov Cap-2 Maneuver				443	0	-				-	-	-
Stage 1				-	0	-				-	-	-
Stage 2				521	0	-				-	-	-
ü												
Approach				WB						SB		
HCM Control Delay, s				16.5						0		
HCM LOS				C								
200				J								
Minor Lane/Major Mvmt	_1	WBLn1	SBT	SBR								
Capacity (veh/h)		443	JD1 -	JUK -								
HCM Lane V/C Ratio		0.295	-	-								
HCM Control Delay (s)		16.5		-								
HCM Control Delay (S) HCM Lane LOS		16.5 C	-									
		1.2	-									
HCM 95th %tile Q(veh)		1.2	-	-								

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDĹ		WDI	WDK	SDL T	SUK
Traffic Vol, veh/h	42	4 132	0	0	7	0
Future Vol, veh/h	42	132	0		27	0
	42 0	132	0	0		0
Conflicting Peds, #/hr				0	0	
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	139	0	0	28	0
Major/Minor	Molar1				Minor	
Major/Minor	Major1	0			Minor2	
Conflicting Flow All	0	0			227	-
Stage 1	-	-			0	-
Stage 2	-	-			227	-
Critical Hdwy	4.12	-			6.42	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	-	-			5.42	-
Follow-up Hdwy	2.218	-			3.518	-
Pot Cap-1 Maneuver	-	-			761	0
Stage 1	-	-			-	0
Stage 2	-	-			811	0
Platoon blocked, %		-				
Mov Cap-1 Maneuver					761	_
Mov Cap-1 Maneuver	-	-			761	-
	-	-				
Stage 1	-	-			- 011	-
Stage 2	-	-			811	-
Approach	EB				SB	
HCM Control Delay, s					9.9	
HCM LOS					A	
					/ \	
Minor Lane/Major Mvmt		EBL	EBT	SBLn1		
Capacity (veh/h)		-	-	761		
HCM Lane V/C Ratio		-	-	0.037		
HCM Control Delay (s)		-	-	9.9		
HCM Lane LOS		-	-	Α		
HCM 95th %tile Q(veh)		-	-	0.1		
/ 5411 / 54110 (2(4011)				3.1		

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Lane Group	EBT	WBL	WBT	SBT	Ø5			
Lane Configurations	ĵ.	*	*	ፈጌ				
Traffic Volume (vph)	185	53	188	488				
Future Volume (vph)	185	53	188	488				
Lane Group Flow (vph)	320	56	198	611				
Turn Type	NA	pm+pt	NA	NA				
Protected Phases	4	3	8	6	5			
Permitted Phases		8						
Detector Phase	4	3	8	6				
Switch Phase								
Minimum Initial (s)	10.0	5.0	10.0	10.0	1.0			
Minimum Split (s)	20.6	10.5	20.5	19.1	5.0			
Total Split (s)	22.0	15.0	37.0	38.0	5.0			
Total Split (%)	27.5%	18.8%	46.3%	47.5%	6%			
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0			
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0			
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.6	5.5	5.5	5.1				
Lead/Lag	Lag	Lead		Lag	Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			
Recall Mode	None	None	None	C-Min	None			
Act Effct Green (s)	20.6	28.4	28.4	37.0				
Actuated g/C Ratio	0.26	0.36	0.36	0.46				
v/c Ratio	0.74	0.20	0.31	0.41				
Control Delay	34.8	15.5	18.2	17.8				
Queue Delay	0.0	0.0	0.0	0.0				
Total Delay	34.8	15.5	18.2	17.8				
LOS	С	В	В	В				
Approach Delay	34.8		17.6	17.8				
Approach LOS	С		В	В				
Queue Length 50th (m)	38.6	4.9	18.7	37.5				
Queue Length 95th (m)	65.3	10.7	30.7	52.8				
Internal Link Dist (m)	145.1		162.8	42.7				
Turn Bay Length (m)	407	1.0	750	4.04				
Base Capacity (vph)	437	317	758	1621				
Starvation Cap Reductn	0	0	0	0				
Spillback Cap Reductn	0	0	0	0				
Storage Cap Reductn	0	0	0	0				
Reduced v/c Ratio	0.73	0.18	0.26	0.38				
Intersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 80								
Offset: 44 (55%), Referenced to phase	6:SBTL,	Start of Gree	en					
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.74								
Intersection Signal Delay: 22.4				Inte	ersection LOS: C			
Intersection Capacity Utilization 59.1%)			ICI	J Level of Service B			
Analysis Period (min) 15								
Splits and Phases: 1: O'Connor & S	omerset							
					√ ø3	→ (04	
					15 s	22 s		
K					4			
#Rø y ₩ Ø6 (R)					▼ Ø8			

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ane Group	EBT	SBT	Ø5	
ane Configurations	ĵ.	413		
Fraffic Volume (vph)	63	673		
uture Volume (vph)	63	673		
Lane Group Flow (vph)	118	788		
Turn Type	NA	NA		
Protected Phases	4	6	5	
Permitted Phases				
Detector Phase	4	6		
Switch Phase	10.0	10.0	1.0	
Minimum Initial (s)	10.0	10.0	1.0	
Minimum Split (s)	20.6 21.0	26.1 54.0	5.0 5.0	
Total Split (s) Total Split (%)	26.3%	67.5%	6%	
Yellow Time (s)	3.3	3.3	2.0	
All-Red Time (s)	2.3	1.8	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.1		
Lead/Lag	5.0	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	
Recall Mode	None	C-Min	None	
Act Effct Green (s)	13.0	55.9		
Actuated g/C Ratio	0.16	0.70		
//c Ratio	0.39	0.34		
Control Delay	22.8	5.4		
Queue Delay	0.0	0.0		
Total Delay	22.8	5.4		
LOS	С	Α		
Approach Delay	22.8	5.4		
Approach LOS	С	Α		
Queue Length 50th (m)	9.7	16.6		
Queue Length 95th (m)	23.7	25.3		
nternal Link Dist (m)	147.3	65.4		
Turn Bay Length (m)				
Base Capacity (vph)	352	2396		
Starvation Cap Reductn	0	0		
Spillback Cap Reductn	0	0		
Storage Cap Reductn	0	0		
Reduced v/c Ratio	0.34	0.33		
ntersection Summary				
Cycle Length: 80				
Actuated Cycle Length: 80				
Offset: 46 (58%), Referenced to phase	6:SBTL	Start of Gree	n	
Natural Cycle: 55	3.0512,	01 0100		
Control Type: Actuated-Coordinated				
Maximum v/c Ratio: 0.39				
Intersection Signal Delay: 7.6				Intersection LOS: A
Intersection Signal Delay, 7.0 Intersection Capacity Utilization 44.6%				ICU Level of Service A
Analysis Period (min) 15				.00 LOVOI OI OCIVICO A
Splits and Phases: 3: O'Connor & G	ilmour			
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Lane Group	EBT	WBL	WBT	SBT	Ø5	
Lane Configurations	1,		વી	4Tb		
Traffic Volume (vph)	225	32	145	645		
Future Volume (vph)	225	32	145	645		
ane Group Flow (vph)	360	0	187	746		
Furn Type	NA	Perm	NA	NA		
Protected Phases	4	1 01111	8	6	5	
Permitted Phases	-	8	U	U	3	
Detector Phase	4	8	8	6		
Switch Phase	4	U	Ü	U		
Minimum Initial (s)	10.0	10.0	10.0	10.0	1.0	
finimum Split (s)	25.5	25.5	25.5	31.3	5.0	
Fotal Split (s)	28.0	28.0	28.0	47.0	5.0	
otal Split (%)	35.0%	35.0%	35.0%	58.8%	6%	
	33.0%	33.0%	33.0%	3.3	2.0	
Yellow Time (s)	2.2		3.3 2.2	2.0	0.0	
All-Red Time (s)		2.2			0.0	
ost Time Adjust (s)	0.0		0.0	0.0		
Total Lost Time (s)	5.5		5.5	5.3	Lood	
ead/Lag				Lag	Lead	
ead-Lag Optimize?	Nicoc	NI	NI	Yes	Yes	
Recall Mode	None	None	None	C-Min	None	
Act Effct Green (s)	21.5		21.5	43.2		
Actuated g/C Ratio	0.27		0.27	0.54		
//c Ratio	0.78		0.55	0.42		
Control Delay	36.0		30.3	15.1		
Queue Delay	0.0		0.0	0.0		
Total Delay	36.0		30.3	15.1		
_OS	D		С	В		
Approach Delay	36.0		30.3	15.1		
Approach LOS	D		С	В		
Queue Length 50th (m)	45.8		24.2	25.4		
Queue Length 95th (m)	66.8		38.5	69.2		
nternal Link Dist (m)	152.8		164.9	226.6		
Furn Bay Length (m)						
Base Capacity (vph)	515		382	1917		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
leduced v/c Ratio	0.70		0.49	0.39		
tersection Summary						
cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 44 (55%), Referenced to p	ohase 6:SBTL, S	Start of Gree	en			
latural Cycle: 65						
Control Type: Actuated-Coordinate	ted					
Maximum v/c Ratio: 0.78						
ntersection Signal Delay: 23.1				Int	ersection LOS: C	
ntersection Capacity Utilization 7	0.6%				J Level of Service C	
nalysis Period (min) 15						
Splits and Phases: 4: O'Conno	r & Gladstone					
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						70 -

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Lane Group	EBL	EBT	WBT	NBT		
Lane Configurations	LDL	र्	1	441		
Traffic Volume (vph)	109	135	163	1056		
Future Volume (vph)	109	135	163	1056		
Lane Group Flow (vph)	0	257	344	1353		
urn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4	•		_		
Detector Phase	4	4	8	2		
Switch Phase	•	•	_	-		
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	19.5	19.5	19.5	18.2		
Total Split (s)	42.0	42.0	42.0	48.0		
Fotal Split (%)	46.7%	46.7%	46.7%	53.3%		
'ellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	2.2	2.2	2.2	1.9		
ost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.5	5.5	5.2		
_ead/Lag						
_ead-Lag Optimize?						
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		27.8	27.8	51.5		
Actuated g/C Ratio		0.31	0.31	0.57		
v/c Ratio		1.05	0.76	0.55		
Control Delay		103.4	37.7	11.3		
Queue Delay		0.0	0.0	0.1		
Total Delay		103.4	37.7	11.4		
LOS		F	D	В		
Approach Delay		103.4	37.7	11.4		
Approach LOS		F	D	В		
Queue Length 50th (m)		~46.4	51.3	30.1		
Queue Length 95th (m)		#80.5	71.2	51.7		
nternal Link Dist (m)		162.8	146.4	54.5		
Turn Bay Length (m)						
Base Capacity (vph)		320	592	2479		
Starvation Cap Reductn		0	0	297		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.80	0.58	0.62		
ntersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 29 (32%), Referenced to pha	se 2:NBTL, S	Start of Gree	en			
Natural Cycle: 40						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 1.05						
ntersection Signal Delay: 28.1				In	ersection LOS: C	
ntersection Capacity Utilization 80.0	1%				U Level of Service D	
Analysis Period (min) 15						
 Volume exceeds capacity, queue 	e is theoretic	ally infinite.				
Queue shown is maximum after to	wo cycles.					
95th percentile volume exceeds	capacity, que	eue may be	longer.			
Queue shown is maximum after to	wo cycles.	-				
Splits and Phases: 5: Metcalfe & S	Somerset					
▲ ♠					A.	
Ø2 (R)					- Ø4	
48 s					42 s	
					-	
					Ø8	
					42 -	

affic Volume (vph) 53 1239 affic Volume (vph) 53 1239 ane Group Flow (vph) 105 1432 and Type NA NA NA ordected Phases 8 2 armitted Phases 8 2 armitted Phases 8 2 affic Volume (vph) 105 1432 and Type NA NA NA ordected Phases 8 2 armitted Phases 9 affic Volume (vph) 105 1432 and Type NA NA NA ordected Phase 9 affic Volume (vph) 105 1432 and Volume (vph) 106 1432 and Volume (vph) 106 1432 and Volume (vph) 107 1432 and Volume (vph) 108 1432 and Volume (vph) 109 1432 and Volume (vph) 108 1432 and Volume (vph) 109 1432 and Volume (vph) 108 1432 and Volume (vph) 109		+	†
Ame Configurations Affic Volume (vph) 53 1239 Affic Volume (vph) 53 1239 Ame Group Flow (vph) 105 1432 Am Type NA NA NA NA Notoeteded Phases 8 2 Amilted Phases Amilted Phase	Lane Group	WBT	NBT
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atture Volume (vph) 105 1432 and ane Group Flow (vph) 105 1432 and Flow (vph)	Traffic Volume (vph)	53	1239
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arvation Cap Reductn 0 0 0 orage Cap Reductn 0 0 0 orage Cap Reductn 0 0.50 0.42 tersection Summary vcle Length: 90 struated Cycle Length: 90 fiset: 58 (64%), Referenced to phase 2:NBT, Start of Gree attural Cycle: 50 ontrol Type: Actuated-Coordinated aximum v/c Ratio: 0.57 tersection Signal Delay: 6.2 tersection Capacity Utilization 54.2% tensection Capacity Utilization 54.2% tensels and Phases: 7: Metcalfe & Gilmour
orage Cap Reductn 0 0 0 orage Cap Reductn 0 0.50 0.42 duced v/c Ratio 0.50 0.42 detersection Summary vcle Length: 90 struated Cycle Length: 90 ffset: 58 (64%), Referenced to phase 2:NBT, Start of Gree latural Cycle: 50 ontrol Type: Actuated-Coordinated laximum v/c Ratio: 0.57 dersection Signal Delay: 6.2 dersection Capacity Utilization 54.2% dealysis Period (min) 15
orage Cap Reductn 0 0.50 0.42 letresection Summary I/Cle Length: 90 Struated Cycle Length: 90 Iffset: 58 (64%), Referenced to phase 2:NBT, Start of Gree latural Cycle: 50 Introl Type: Actuated-Coordinated laximum v/c Ratio: 0.57 Itersection Signal Delay: 6.2 Itersection Capacity Utilization 54.2% Inalysis Period (min) 15 Introduction of the product of the
educed v/c Ratio 0.50 0.42 lersection Summary vcle Length: 90 struated Cycle Length: 90 ffset: 58 (64%), Referenced to phase 2:NBT, Start of Greentural Cycle: 50 ontrol Type: Actuated-Coordinated aximum v/c Ratio: 0.57 lersection Signal Delay: 6.2 lersection Capacity Utilization 54.2% halysis Period (min) 15 olits and Phases: 7: Metcalfe & Gilmour
cresection Summary crel Length: 90 cituated Cycle Length: 90 fiset: 58 (64%), Referenced to phase 2:NBT, Start of Green atural Cycle: 50 control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 tersection Signal Delay: 6.2 tersection Capacity Utilization 54.2% halysis Period (min) 15 Silts and Phases: 7: Metcalfe & Gilmour
cle Length: 90 cluated Cycle Length: 90 ffset: 58 (64%), Referenced to phase 2:NBT, Start of Gree atural Cycle: 50 control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 fersection Signal Delay: 6.2 fersection Capacity Utilization 54.2% feallysis Period (min) 15
ctuated Cycle Length: 90 ifset: 58 (64%), Referenced to phase 2:NBT, Start of Gree atural Cycle: 50 control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 itersection Signal Delay: 6.2 itersection Capacity Utilization 54.2% halysis Period (min) 15 olits and Phases: 7: Metcalfe & Gilmour
ifset: 58 (64%), Referenced to phase 2:NBT, Start of Gree atural Cycle: 50 control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 dersection Signal Delay: 6.2 dersection Capacity Utilization 54.2% dealysis Period (min) 15 olits and Phases: 7: Metcalfe & Gilmour
atural Cycle: 50 control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 tersection Signal Delay: 6.2 tersection Capacity Utilization 54.2% halysis Period (min) 15 olits and Phases: 7: Metcalfe & Gilmour
control Type: Actuated-Coordinated aximum v/c Ratio: 0.57 dersection Signal Delay: 6.2 dersection Capacity Utilization 54.2% halysis Period (min) 15 Olits and Phases: 7: Metcalfe & Gilmour
eximum v/c Ratio: 0.57 dersection Signal Delay: 6.2 dersection Capacity Utilization 54.2% halysis Period (min) 15 Olits and Phases: 7: Metcalfe & Gilmour
tersection Signal Delay: 6.2 tersection Capacity Utilization 54.2% nalysis Period (min) 15 hits and Phases: 7: Metcalfe & Gilmour
tersection Capacity Utilization 54.2% nalysis Period (min) 15 Olits and Phases: 7: Metcalfe & Gilmour
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olits and Phases: 7: Metcalfe & Gilmour
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Lane Group	EBL	EBT	WBT	NBT		
ane Configurations		र्ध	1,	ፈቀሴ		
Fraffic Volume (vph)	90	140	122	1167		
Future Volume (vph)	90	140	122	1167		
Lane Group Flow (vph)	0	242	142	1287		
Furn Type	Perm	NA	NA	NA		
Protected Phases	. 01111	4	8	2		
Permitted Phases	4	7				
Detector Phase	4	4	8	2		
Switch Phase		7				
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	27.2	27.2	27.2	31.5		
Total Split (s)	28.0	28.0	28.0	62.0		
Total Split (%)	31.1%	31.1%	31.1%	68.9%		
Yellow Time (s)	31.178	3.3	3.3	3.3		
All-Red Time (s)	1.9	1.9	1.9	2.2		
Lost Time Adjust (s)	1.7	0.0	0.0	0.0		
Total Lost Time (s)				5.5		
Total Lost Time (s)		5.2	5.2	5.5		
Lead/Lag						
Lead-Lag Optimize?	N1	M	NI	C Million		
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		21.9	21.9	57.4		
Actuated g/C Ratio		0.24	0.24	0.64		
v/c Ratio		0.73	0.33	0.42		
Control Delay		43.7	27.6	9.1		
Queue Delay		0.0	0.0	0.0		
Total Delay		43.7	27.6	9.1		
LOS		D	С	A		
Approach Delay		43.7	27.6	9.1		
Approach LOS		D	С	Α		
Queue Length 50th (m)		38.5	19.3	36.1		
Queue Length 95th (m)		58.7	31.9	54.4		
Internal Link Dist (m)		164.9	144.6	38.8		
Turn Bay Length (m)						
Base Capacity (vph)		367	472	3151		
Starvation Cap Reductn		0	0	0		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.66	0.30	0.41		
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 43 (48%), Referenced to pha	ase 2:NBTL, :	Start of Gree	en			
Natural Cycle: 60						
Control Type: Actuated-Coordinated	t					
Maximum v/c Ratio: 0.73						
Intersection Signal Delay: 15.7				In	ersection LOS: B	
Intersection Capacity Utilization 74.8	8%			IC	J Level of Service D	
Analysis Period (min) 15						
,,						
Splits and Phases: 8: Metcalfe &	Gladstone					
700.1						
Ø2 (R)						

lutoro esticu												
Intersection	2.2											
Int Delay, s/veh												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				7							ቀ ሴ	
Traffic Vol, veh/h	0	0	0	154	0	0	0	0	0	0	748	42
Future Vol, veh/h	0	0	0	154	0	0	0	0	0	0	748	42
Conflicting Peds, #/hr	44	0	9	9	0	44	86	0	168	168	0	86
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	162	0	0	0	0	0	0	787	44
Major/Minor				Minor1						Major2		
Conflicting Flow All				403	_	-				-	_	0
Stage 1				0	_	-				_	_	-
Stage 2				403	-					_	_	_
Critical Hdwy				6.84	_	_				_	_	_
Critical Hdwy Stg 1				-	-	-				-	_	_
Critical Hdwy Stg 2				5.84	_	_				_	_	_
Follow-up Hdwy				3.52	_	-				-	_	-
Pot Cap-1 Maneuver				575	0	0				0	-	-
Stage 1				-	0	0				0	_	-
Stage 2				644	0	0				0	-	-
Platoon blocked, %				0.7							-	-
Mov Cap-1 Maneuver				575	0	-				-	-	-
Mov Cap-2 Maneuver				575	0	-				-	-	-
Stage 1				-	0	-				-	-	-
Stage 2				644	0	-				-	-	-
Approach				WB						SB		
HCM Control Delay, s				13.7						0		
HCM LOS				13. <i>1</i>						U		
TIGIVI EUG				U								
Minor Lane/Major Mvmt	1	WBLn1	SBT	SBR								
		575	201	SBR								
Capacity (veh/h) HCM Lane V/C Ratio		0.282	-	-								
		13.7	-	-								
HCM Long LOS				-								
HCM CEth (/tilo O(yoh)		B 1.2	-	-								
HCM 95th %tile Q(veh)		1.2	-	-								

Intersection						
Int Delay, s/veh	4					
		EDT	WDT	WDD	CDI	CDD
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0.0	4			*	
Traffic Vol, veh/h	29	110	0	0	92	0
Future Vol, veh/h	29	110	0	0	92	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	116	0	0	97	0
	- 01	110	- 3			- 5
Major/Minor	Major1				Minor2	
Conflicting Flow All	0	0			178	-
Stage 1	-	-			0	-
Stage 2	-	-			178	-
Critical Hdwy	4.12	-			6.42	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	_	_			5.42	_
Follow-up Hdwy	2.218	-			3.518	_
Pot Cap-1 Maneuver	2.210				812	0
Stage 1	_	_			- 012	0
Stage 2					853	0
Platoon blocked, %	-	-			803	U
		-			040	
Mov Cap-1 Maneuver	-	-			812	-
Mov Cap-2 Maneuver	-	-			812	-
Stage 1	-	-			-	-
Stage 2	-	-			853	-
Approach	EB				SB	
HCM Control Delay, s	LU				10	
HCM LOS					В	
HUM LOS					В	
Minor Lane/Major Mvmt		EBL	EBT	SBLn1		
Capacity (veh/h)		_	_	812		
HCM Lane V/C Ratio		_	-	0.119		
HCM Control Delay (s)		-	_	10		
HCM Lane LOS			-	В		
LION LAIR LUJ		-	-	U		
HCM 95th %tile Q(veh)			_	0.4		

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Lane Group	EBT	WBL	WBT	SBT	Ø5	
Lane Configurations	ĵ.	ች	*	ፈቤ		
Traffic Volume (vph)	192	74	189	959		
Future Volume (vph)	192	74	189	959		
Lane Group Flow (vph)	378	78	199	1160		
Turn Type	NA	pm+pt	NA	NA		
Protected Phases	4	3	8	6	5	
Permitted Phases		8				
Detector Phase	4	3	8	6		
Switch Phase						
Minimum Initial (s)	10.0	5.0	10.0	10.0	1.0	
Minimum Split (s)	20.6	10.5	20.5	19.1	5.0	
Total Split (s)	21.0	14.0	35.0	40.0	5.0	
Total Split (%)	26.3%	17.5%	43.8%	50.0%	6%	
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0	
All-Red Time (s)	2.3	2.2	2.2	1.8	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.5	5.5	5.1		
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Min	None	
Act Effct Green (s)	20.2	31.0	31.0	34.4		
Actuated g/C Ratio	0.25	0.39	0.39	0.43		
v/c Ratio	0.94	0.29	0.29	0.85		
Control Delay	65.3	19.8	19.0	27.4		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	65.3	19.8	19.0	27.4		
LOS	E (5.2	В	B	C		
Approach Delay	65.3		19.2	27.4		
Approach LOS	E	77	B	C		
Queue Length 50th (m)	~62.6	7.7	21.1	78.3		
Queue Length 95th (m)	#115.7	16.4	36.6	105.3		
Internal Link Dist (m)	145.1	1.0	162.8	42.7		
Turn Bay Length (m)	400	1.0	(01	1207		
Base Capacity (vph)	400	284	691	1387		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0.04	0	0	0		
Reduced v/c Ratio	0.94	0.27	0.29	0.84		
ntersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 80						
Offset: 58 (73%), Referenced to p	hase 6:SBTL. S	Start of Gree	en			
Natural Cycle: 90						
Control Type: Actuated-Coordinat	ted					
Maximum v/c Ratio: 0.94						
Intersection Signal Delay: 34.1				Int	ersection LOS: C	
Intersection Capacity Utilization 7	9.4%				J Level of Service	e D
Analysis Period (min) 15				.00	2.2.2.2.00.7100	
 Volume exceeds capacity, que 	eue is theoretica	ally infinite.				
Queue shown is maximum after		,				
# 95th percentile volume exceed		ue mav be	longer.			
Queue shown is maximum after						
23040 Shom to maximaliful						
Splits and Phases: 1: O'Connor	r & Somerset					

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Configurations c Volume (vph) 88 1219 6 Volume (vph) 88 1219 6 Group Flow (vph) 88 1219 8 Group Flow Flow 8 Tatle 6 8 Group Flow Flow Flow Flow Flow Flow Flow Flow		-	ţ	
c Volume (vph) 88 1219 e Volume (vph) 88 1219 Group Flow (vph) 187 1416 Type NA NA coted Phases the Phase	Lane Group	EBT	SBT	Ø5
c Volume (vph) 88 1219 e Volume (vph) 88 1219 Group Flow (vph) 187 1416 Type NA NA coted Phases 4 6 5 citted Phases ctor Phase 4 6 6 cth Phase 1 10.0 10.0 1.0 num Split (s) 20.6 26.1 5.0 Split (s) 21.0 54.0 5.0 Split (s) 21.0 54.0 5.0 Split (s) 3.3 3.3 2.0 ed Time (s) 3.3 3.3 2.0 ed Time (s) 2.3 1.8 0.0 Time Adjust (s) 0.0 0.0 Lost Time (s) 5.6 5.1 Zlag Lead Zlag Lead Zlag Lead Zlag Lead Zlag Optimize? Yes Yes Ill Mode None C-Min None ffor Green (s) 13.1 52.4 etad g/C Ratio 0.16 0.66 atio 0.61 0.65 rol Delay 30.3 6.2 re Delay 0.0 0.3 Delay 30.3 6.5 C A Dach Delay 30.3 6.5 re Length 95th (m) 17.8 23.6 re Length 95th (m) 37.1 m57.7 re all Link Dist (m) 147.3 65.4 re Length With (m) 349 2215 re atlon Cap Reductn 0 266 reack Cap Reductn 0 0.54 0.73 rection Signal Delay: 9.3 rection Capacity (vph) 349 2215 rection Summary reaction Signal Delay: 9.3 rection Capacity Unitization 64.4% restricted Signal Delay: 9.3 rection Signal Pelay: 9.3 rection Signal Pelay: 9.3 rection Signal Pelay: 9.3	ane Configurations	Ť.	.J.♦	
e Volume (vph)	Traffic Volume (vph)	88	1219	
Group Flow (vph) Type NA NA NA NA Cteled Phases Stor Phase Ctor Phase A A B B B B B B B B B B B B B B B B B	Future Volume (vph)			
Type	Lane Group Flow (vph)			
cited Phases ctor Phase the Phase ctor Phase hum Initial (s) num Split (s) S	Turn Type			
ctor Phase	Protected Phases			5
totor Phase num Initial (s) num Split (s) Spli	Permitted Phases			
num Initial (s) 10.0 10.0 1.0 num Split (s) 20.6 26.1 5.0 Split (s) 21.0 54.0 5.0 Split (s) 21.0 54.0 5.0 Split (s) 21.0 54.0 5.0 Split (s) 26.3% 67.5% 6% writing (s) 26.3% 67.5% 6% writing (s) 3.3 3.3 2.0 ed Time (s) 2.3 1.8 0.0 Time Adjust (s) 0.0 0.0 Lost Time (s) 5.6 5.1 //Lag Lag Lead -Lag Optimize? Yes Yes III Mode None C-Min None (ffct Green (s) 13.1 52.4 sted g/C Ratio 0.16 0.66 atio 0.61 0.65 rol Delay 30.3 6.2 de Delay 0.0 0.3 Delay 30.3 6.5 c A see Length 95th (m) 17.8 23.6 de Length 95th (m) 17.8 23.6 de Length 95th (m) 147.3 65.4 de Length 95th (m) 37.1 m57.7 del Link Dist (m) 147.3 65.4 de Length 95th (m) 349 2215 del Cap Reductn 0 266 del Cap Reductn 0 0 0 del Cap Reductn 0 0 del Cap Reductn 0 0 del Cap Reductn 0 0 0 del Cap Reductn 0 del Cap Reductn 0 del Cap Reductn 0 del Cap Re	Detector Phase	4	6	
num Split (s)	Switch Phase			
num Split (s)	Minimum Initial (s)	10.0	10.0	1.0
Split (s)	Minimum Split (s)			
Split (%) 26.3% 67.5% 6% w Time (s) 3.3 3.3 2.0 ed Time (s) 2.3 1.8 0.0 Time Adjust (s) 0.0 0.0 Lost Time (s) 5.6 5.1 //Lag Lag Lead	Total Split (s)			
w Time (s) 3.3 3.3 2.0 ed Time (s) 2.3 1.8 0.0 Time Adjust (s) 0.0 0.0 Lost Time (s) 5.6 5.1 //Lag Lag Lead -/Lag Optimize? Yes Yes Il Mode None C-Min None ffct Green (s) 13.1 52.4 alted g/C Ratio 0.16 0.66 atio 0.61 0.65 rol Delay 30.3 6.2 re Delay 0.0 0.3 Delay 30.3 6.5 C A bach Delay 30.3 6.5 C A bach LOS C A re Length 50th (m) 17.8 23.6 re Length 95th (m) 37.1 m57.7 re Length 95th (m) 147.3 65.4 Bay Length (m) Capacity (vph) 349 2215 retion Cap Reductn 0 266 red Cycle Length: 80 section Summary e Length: 80 section Summary e Length: 80 section Signal Delay: 9.3 section Capacity Utilization 64.4% sis Period (min) 15 //olume for 95th percentile queue is metered by upstream signal.	Total Split (%)			
ed Time (s) 2.3 1.8 0.0 Time Adjust (s) 0.0 0.0 Lost Time (s) 5.6 5.1 //Lag Lag Lead -Lag Optimize? Yes Yes Il Mode None C-Min None Effect Green (s) 13.1 52.4 ated g/C Ratio 0.16 0.66 rol Delay 30.3 6.2 the Delay 30.3 6.5 C A Delay 30.3 6.5 C A Delay 30.3 6.5 Delay 30.3 6.	Yellow Time (s)			
Time Adjust (s)	All-Red Time (s)			
Lost Time (s) 5.6 5.1 /Lag	Lost Time Adjust (s)			
Lag Lead -Lag Optimize? Yes Yes II Mode None C-Min None Iffet Green (s) 13.1 52.4 atted g/C Ratio 0.16 0.66 atio 0.61 0.65 rol Delay 30.3 6.2 ate Delay 0.0 0.3 Delay 30.3 6.5 Delay 30.3	Total Lost Time (s)			
-Lag Optimize? Il Mode None C-Min None Iffet Green (s) 13.1 52.4 atted g/C Ratio 0.16 0.61 0.65 rol Delay 30.3 6.2 atted Delay 30.3 Delay 30.3 6.5 Delay 40.5 Delay 40.7 30.8 Delay 40.7	Lead/Lag			Lead
If Mode None C-Min None Iffct Green (s) 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 52.4 13.1 1	Lead-Lag Optimize?			
ated g/C Ratio atio 0.61 0.65 atio 0.61 0.65 atio 0.61 0.65 atio 0.61 0.65 atio 0.62 ate Delay 0.0 0.3 Delay 30.3 6.5 C A acach Delay 30.3 6.5 C A acach Delay 30.3 6.5 C A acach LOS C	Recall Mode	None	C-Min	None
ated g/C Ratio atio 0.61 0.65 atio 0.61 0.65 atio 0.61 0.65 atio 0.61 0.65 atio 0.62 ate Delay 0.0 0.3 Delay 30.3 6.5 C A acach Delay 30.3 6.5 C A acach Delay 30.3 6.5 C A acach LOS C	Act Effct Green (s)	13.1	52.4	
rol Delay rel Delay	Actuated g/C Ratio	0.16	0.66	
Delay 30.3 6.5 Delay 30.3 6.5 C A Deach Delay 30.3 6.5 Deach LOS C A Deach LoS C C C C C C C C Deach LoS C C C C C C C C C C Deach LoS C C C C C C C C C C C C C C C C C C C	v/c Ratio	0.61	0.65	
Delay 30.3 6.5 C A Deach Delay 30.3 6.5 Deach LOS C A Deac	Control Delay	30.3	6.2	
C A pach Delay 30.3 6.5 pach LOS C A pach LoR Lost (m) 17.8 23.6 pach Lore Longth 95th (m) 37.1 m57.7 pach Lore Lore Lore Lore Lore Lore Lore Lore	Queue Delay	0.0	0.3	
pach Delay pach LOS p	Total Delay	30.3	6.5	
pach LOS Re Length 50th (m) Re Length 95th (m) Re Capacity (vph) Re Cap Reductn R	LOS	С	Α	
te Length 50th (m) 17.8 23.6 te Length 95th (m) 37.1 m57.7 hal Link Dist (m) 147.3 65.4 Bay Length (m) Capacity (vph) 349 2215 hation Cap Reductn 0 266 hack Cap Reductn 0 0 tige Cap Reductn 0 0 tige Cap Reductn 0 0.54 hation 0.54 0.73 Section Summary E Length: 80 hated Cycle Length: 80 hated Cycle Length: 80 hated Cycle Length: 80 hated Cycle Copy Referenced to phase 6:SBTL, Start of Green half Cycle: 60 hated Cycle: 60 hat	Approach Delay	30.3	6.5	
te Length 95th (m) 37.1 m57.7 hal Link Dist (m) 147.3 65.4 Bay Length (m) Capacity (vph) 349 2215 halion Cap Reductn 0 266 hack Cap Reductn 0 0 haced v/c Ratio 0.54 0.73 Section Summary Length: 80 hated Cycle Length: 80 hated Cycle Length: 80 hated Cycle Length: 80 hated Cycle Capacity (by Capacity Capacit	Approach LOS	С	Α	
hal Link Dist (m) Bay Length (m) Capacity (vph) 349 2215 ation Cap Reductn 0 266 back Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0	Queue Length 50th (m)	17.8	23.6	
Bay Length (m) Capacity (vph) 349 2215 Pation Cap Reductn 0 266 Pack Cap Reductn 0 0 0 100 100 100 100 100 100 100 100	Queue Length 95th (m)	37.1	m57.7	
Capacity (vph) 349 2215 ration Cap Reductn 0 266 rack Cap Reductn 0 0 rage Cap Reductn 0 0 raced v/c Ratio 0.54 0.73 rection Summary rection S	Internal Link Dist (m)	147.3	65.4	
ration Cap Reductn o	Turn Bay Length (m)			
pack Cap Reductn loge Cap Red	Base Capacity (vph)	349	2215	
ge Cap Reductn octor v/c Ratio 0.54 0.73 section Summary e Length: 80 steet Cycle Length:	Starvation Cap Reductn	0	266	
section Summary Length: 80 ated Cycle Lengt	Spillback Cap Reductn	0	0	
section Summary Length: 80 ated Cycle Length: 80 ated Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% ysis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.	Storage Cap Reductn	0	0	
e Length: 80 ated Cycle Length: 80 st: 71 (89%), Referenced to phase 6:SBTL, Start of Green ral Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% ysis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.	Reduced v/c Ratio	0.54	0.73	
e Length: 80 ated Cycle Length: 80 st: 71 (89%), Referenced to phase 6:SBTL, Start of Green ral Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% ysis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.	Intersection Cummany			
ated Cycle Length: 80 st: 71 (89%), Referenced to phase 6:SBTL, Start of Green ral Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% vsis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.				
st: 71 (89%), Referenced to phase 6:SBTL, Start of Green ral Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% vsis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.				
ral Cycle: 60 rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% ysis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.		as / CDTL C	tant of Cua	
rol Type: Actuated-Coordinated mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% ysis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.		ise 6:SBTL, S	start of Gree	n
mum v/c Ratio: 0.65 section Signal Delay: 9.3 section Capacity Utilization 64.4% vsis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.				
section Signal Delay: 9.3 section Capacity Utilization 64.4% /sis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.				
section Capacity Utilization 64.4% /sis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.				
/sis Period (min) 15 /olume for 95th percentile queue is metered by upstream signal.	Intersection Signal Delay: 9.3			
/olume for 95th percentile queue is metered by upstream signal.		1%		
	Analysis Period (min) 15			
and Phases: 3: O'Connor & Gilmour	m Volume for 95th percentile queu	ie is metered	by upstrear	n signal.
s and Phases: 3: O'Connor & Gilmour				
	Splits and Phases: 3: O'Connor &	Gilmour		



	-	•	←	ţ				
_ane Group	EBT	WBL	WBT	SBT	Ø5			
ane Configurations	1,		र्ध	4Ts				
Traffic Volume (vph)	209	27	126	1285				
-uture Volume (vph)	209	27	126	1285				
_ane Group Flow (vph)	425	0	161	1469				
Turn Type	NA	Perm	NA	NA				
Protected Phases	4		8	6	5			
Permitted Phases		8						
Detector Phase	4	8	8	6				
Switch Phase								
Vinimum Initial (s)	10.0	10.0	10.0	10.0	1.0			
Vlinimum Split (s)	25.5	25.5	25.5	31.3	5.0			
Total Split (s)	28.0	28.0	28.0	47.0	5.0			
Total Split (%)	35.0%	35.0%	35.0%	58.8%	6%			
Yellow Time (s)	3.3	3.3	3.3	3.3	2.0			
All-Red Time (s)	2.2	2.2	2.2	2.0	0.0			
_ost Time Adjust (s)	0.0		0.0	0.0				
Fotal Lost Time (s)	5.5		5.5	5.3				
_ead/Lag				Lag	Lead			
_ead-Lag Optimize?				Yes	Yes			
Recall Mode	None	None	None	C-Min	None			
Act Effct Green (s)	21.5	110110	21.5	43.7	110.10			
Actuated g/C Ratio	0.27		0.27	0.55				
//c Ratio	0.91		0.55	0.81				
Control Delay	50.6		32.6	13.3				
Queue Delay	0.0		0.0	0.0				
Total Delay	50.6		32.6	13.3				
_OS	D		C	В				
Approach Delay	50.6		32.6	13.3				
Approach LOS	D		C	В				
Queue Length 50th (m)	53.7		20.5	117.5				
Queue Length 95th (m)	#104.5		39.1	80.6				
nternal Link Dist (m)	152.8		164.9	226.6				
Turn Bay Length (m)	102.0		101.7	220.0				
Base Capacity (vph)	485		309	1823				
Starvation Cap Reductn	0		0	0				
Spillback Cap Reductn	0		0	0				
Storage Cap Reductn	0		0	0				
Reduced v/c Ratio	0.88		0.52	0.81				
ntersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 80								
Offset: 13 (16%), Referenced to p	hase 6:SBTL, S	Start of Gree	en					
Natural Cycle: 80								
Control Type: Actuated-Coordinate	ed							
Maximum v/c Ratio: 0.91								
ntersection Signal Delay: 22.5				Inte	ersection LOS: C			
ntersection Capacity Utilization 85	5.1%			ICI	J Level of Service E			
Analysis Period (min) 15								
95th percentile volume exceed	ds capacity, que	eue may be	longer.					
Queue shown is maximum after		,	Ŭ					
Splits and Phases: 4: O'Connor	r & Gladstone							
						→	Ø4	
						20.0	-	

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Lane Group	EBL	EBT	WBT	NBT		
ane Configurations		र्	î,	ፈቀሴ		
Fraffic Volume (vph)	87	185	152	603		
Future Volume (vph)	87	185	152	603		
ane Group Flow (vph)	0	287	272	898		
Furn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4					
Detector Phase	4	4	8	2		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	19.5	19.5	19.5	18.2		
Total Split (s)	35.0	35.0	35.0	40.0		
Total Split (%)	46.7%	46.7%	46.7%	53.3%		
Yellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	2.2	2.2	2.2	1.9		
Lost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.5	5.5	5.2		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Min		
Act Effct Green (s)		21.2	21.2	43.1		
Actuated g/C Ratio		0.28	0.28	0.57		
v/c Ratio		0.93	0.64	0.39		
Control Delay		61.8	27.5	10.8		
Queue Delay		0.0	0.0	0.3		
Total Delay		61.8	27.5	11.1		
LOS		E	С	В		
Approach Delay		61.8	27.5	11.1		
Approach LOS		E	С	В		
Queue Length 50th (m)		39.1	30.6	24.4		
Queue Length 95th (m)		#63.0	45.9	34.3		
Internal Link Dist (m)		162.8	146.4	54.5		
Turn Bay Length (m)		102.0	170.7	34.3		
Base Capacity (vph)		430	588	2308		
Starvation Cap Reductn		0	0	704		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.67	0.46	0.56		
Reduced V/C Ralio		0.07	0.40	0.50		
Intersection Summary						
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 20 (27%), Referenced to phase	2·NBTL	Start of Gree	en en			
Natural Cycle: 40	J 2.1.15 1 27	oldit or or o				
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.93						
Intersection Signal Delay: 24.1				In	ersection LOS: C	
Intersection Capacity Utilization 69.3%	,				J Level of Service C	
Analysis Period (min) 15	0			IC	Level of Service C	
	annoitu au	aua mau ha	longor			
# 95th percentile volume exceeds ca		eue may be	ionger.			
Queue shown is maximum after tw	o cycles.					
Culti- and Dhanna F. Matarife a. C.						
Splits and Phases: 5: Metcalfe & So	rnerset					
. ≪Ť an m					2	
Ø2 (R)					704	
40 s					35 s	
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Lane Group	WBT	NBT	
Lane Configurations	î,	ተቀሴ	
Traffic Volume (vph)	51	493	
Future Volume (vph)	51	493	
Lane Group Flow (vph)	106	635	
Furn Type	NA	NA	
		2	
Protected Phases	8	2	
Permitted Phases	0	0	
Detector Phase	8	2	
Switch Phase			
Vinimum Initial (s)	10.0	10.0	
vlinimum Split (s)	23.1	20.0	
Total Split (s)	25.0	50.0	
Total Split (%)	33.3%	66.7%	
Yellow Time (s)	3.3	3.3	
All-Red Time (s)	1.8	1.7	
ost Time Adjust (s)	0.0	0.0	
Fotal Lost Time (s)	5.1	5.0	
Lead/Lag	5.1	5.0	
_ead-Lag Optimize?			
Recall Mode	None	C-Min	
Act Effct Green (s)	14.8	54.1	
Actuated g/C Ratio	0.20	0.72	
//c Ratio	0.30	0.19	
Control Delay	15.8	2.0	
Queue Delay	0.0	0.0	
Total Delay	15.8	2.0	
_OS	В	Α	
Approach Delay	15.8	2.0	
Approach LOS	В	Α	
Queue Length 50th (m)	6.0	3.8	
Queue Length 95th (m)	17.7	6.8	
nternal Link Dist (m)	155.2	64.2	
Turn Bay Length (m)	.00.2	0112	
Base Capacity (vph)	459	3347	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.23	0.19	
ntersection Summary			
Cycle Length: 75 Actuated Cycle Length: 75 Offset: 56 (75%), Referenced to p Natural Cycle: 45	ohase 2:NBTL, S	Start of Green	
Control Type: Actuated-Coordinat Maximum v/c Ratio: 0.30	ed		
ntersection Signal Delay: 4.0			Intersection LOS: A
ntersection Capacity Utilization 5	6.2%		ICU Level of Service B
Analysis Period (min) 15			
Splits and Phases: 6: Metcalfe	& MacLaren		
1 Ø2 (R)			
50 s			
			Ø8
			25.0

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Lane Group	EBT	NBT
Lane Configurations	र्दी	ቀቀሴ
Traffic Volume (vph)	91	503
Future Volume (vph)	91	503
Lane Group Flow (vph)	198	602
Turn Type	NA	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	26.3	23.1
Total Split (s)	27.0	48.0
Total Split (%)	36.0%	64.0%
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	1.8
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.3	5.1
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	16.6	48.0
Actuated g/C Ratio	0.22	0.64
v/c Ratio	0.46	0.20
Control Delay	18.1	3.9
Queue Delay	0.0	0.0
Total Delay	18.1	3.9
LOS	В	Α
Approach Delay	18.1	3.9
Approach LOS	В	Α
Queue Length 50th (m)	13.8	8.7
Queue Length 95th (m)	30.1	10.3
Internal Link Dist (m)	121.1	226.4
Turn Bay Length (m)		
Base Capacity (vph)	544	2997
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.20
Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 75		
Offset: 52 (69%), Referenced to	nhaco 2-MDT Ct	art of Croc
Natural Cycle: 50	phase zinbi, St	art or Gree
	atod	
Control Type: Actuated-Coordina Maximum v/c Ratio: 0.46	aleu	
Intersection Signal Delay: 7.4	41 10/	
Intersection Capacity Utilization Analysis Period (min) 15	41.1%	
Analysis Period (min) 15		
Culita and Dhassas 7. Matsalfa	a 0 Cilma a	
Splits and Phases: 7: Metcalfe	e & Gilmour	
l ↑		
Ø2 (R)		

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ane Group	EBL	EBT	WBT	NBT		
ane Configurations		र्स	ĵ.	ፈቀሴ		•
Fraffic Volume (vph)	107	205	137	395		
uture Volume (vph)	107	205	137	395		
ane Group Flow (vph)	0	329	162	496		
Furn Type	Perm	NA	NA	NA		
Protected Phases		4	8	2		
Permitted Phases	4					
Detector Phase	4	4	8	2		
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0		
Minimum Split (s)	27.2	27.2	27.2	31.5		
Total Split (s)	39.0	39.0	39.0	36.0		
Total Split (%)	52.0%	52.0%	52.0%	48.0%		
Yellow Time (s)	3.3	3.3	3.3	3.3		
All-Red Time (s)	1.9	1.9	1.9	2.2		
Lost Time Adjust (s)		0.0	0.0	0.0		
Total Lost Time (s)		5.2	5.2	5.5		
Lead/Lag						
Lead-Lag Optimize? Recall Mode	None	None	None	C-Min		
Act Effct Green (s)	None	None 22.4	None 22.4	41.9		
Actuated g/C Ratio		0.30	0.30	0.56		
v/c Ratio		0.30	0.30	0.30		
Control Delay		35.0	18.7	9.4		
Queue Delay		0.0	0.0	0.0		
Total Delay		35.0	18.7	9.4		
LOS		C	В	Α		
Approach Delay		35.0	18.7	9.4		
Approach LOS		C	В	A		
Queue Length 50th (m)		42.3	16.4	11.2		
Queue Length 95th (m)		57.9	25.1	21.4		
Internal Link Dist (m)		164.9	144.6	38.8		
Turn Bay Length (m)						
Base Capacity (vph)		650	792	2656		
Starvation Cap Reductn		0	0	0		
Spillback Cap Reductn		0	0	0		
Storage Cap Reductn		0	0	0		
Reduced v/c Ratio		0.51	0.20	0.19		
Intersection Summary						
Cycle Length: 75						
Cycle Lengtn: 75 Actuated Cycle Length: 75						
()	α 2·NDTI (Start of Cro-	an			
Offset: 39 (52%), Referenced to phas Natural Cycle: 60	EZ.NBIL,	sian di Gie	SII .			
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76						
ntersection Signal Delay: 19.4				Inf	ersection LOS: B	
ntersection Signal Delay: 19.4 ntersection Capacity Utilization 69.89)/				J Level of Service C	
Analysis Period (min) 15	/ 0			IC	J Level of Service C	
Analysis Feriod (IIIII) 15						
	ladstone					
Snlits and Phases: 8: Metcalfe & G					A	
Splits and Phases: 8: Metcalfe & G						
					Z-024	
1 Ø2 (R)					→ Ø4	
					₩04 39 s	
Ø2 (R)					→Ø4 39 s → Ø8	

lut ava a atta v												
Intersection Int Delay, s/veh	2.2											
ini Deiay, S/veri	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				7							ት ጌ	
Traffic Vol, veh/h	0	0	0	160	0	0	0	0	0	0	1109	50
Future Vol, veh/h	0	0	0	160	0	0	0	0	0	0	1109	50
Conflicting Peds, #/hr	44	0	8	8	0	44	72	0	108	108	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	168	0	0	0	0	0	0	1167	53
Major/Minor				Minor1						Major2		
Conflicting Flow All				592	_	_				iviajui z	_	0
Stage 1				0	-	-				-	-	U
Stage 2				592	-	-				-		-
Critical Hdwy				6.84	-	-				-	-	-
Critical Hdwy Stg 1				0.04		-				-		-
Critical Hdwy Stg 2				5.84	-	-				-	-	-
Follow-up Hdwy				3.52	-	-				-		-
Pot Cap-1 Maneuver				437	0	0				0	-	-
Stage 1				437	0	0				0		-
Stage 1				516	0	0				0	-	-
Platoon blocked. %				010	U	U				U		-
Mov Cap-1 Maneuver				437	0						-	-
					-	_				-	-	-
Mov Cap-2 Maneuver				437	0	-				-	-	-
Stage 1					0	-				-	-	-
Stage 2				516	0	-				-	-	-
Approach				WB						SB		
HCM Control Delay, s				18.3						0		
HCM LOS				С								
Minor Lane/Major Mvmt	1	WBLn1	SBT	SBR								
Capacity (veh/h)		437	-	-								
HCM Lane V/C Ratio		0.385	-	-								
HCM Control Delay (s)		18.3	-	-								
HCM Lane LOS		С	-	-								
HCM 95th %tile Q(veh)		1.8	-	-								
, ,												

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL	€Î	WDI	WDIX	JDL N	JUK
Traffic Vol, veh/h	82	132	0	0	5 2	0
Future Vol, veh/h	82	132	0		52	0
	82 0	132	0	0		0
Conflicting Peds, #/hr				0 Stop	O Ctop	
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	139	0	0	55	0
NA - 1 - 1/NA1 1	NA-14				Mina	
Major/Minor	Major1				Minor2	
Conflicting Flow All	0	0			311	-
Stage 1	-	-			0	-
Stage 2	-	-			311	-
Critical Hdwy	4.12	-			6.42	-
Critical Hdwy Stg 1	-	-			-	-
Critical Hdwy Stg 2	-	-			5.42	-
Follow-up Hdwy	2.218	-			3.518	-
Pot Cap-1 Maneuver	-	_			681	0
Stage 1	_	-			-	0
Stage 2		_			743	0
Platoon blocked, %	-	-			743	U
		-			681	_
Mov Cap-1 Maneuver	-	-				
Mov Cap-2 Maneuver	-	-			681	-
Stage 1	-	-			-	-
Stage 2	-	-			743	-
Approach	EB				SB	
HCM Control Delay, s					10.7	
HCM LOS					10.7 B	
HOW LUS					Б	
Minor Lane/Major Mvmt		EBL	EBT	SBLn1		
Capacity (veh/h)		-	_	681		
HCM Lane V/C Ratio		_	-	0.08		
HCM Control Delay (s)				10.7		
HCM Lane LOS		-	-	В		
LICIVI LAHE LUS		-	-			
HCM 95th %tile Q(veh)				0.3		

Appendix G MMLoS Analysis



Multi-Modal Level of Service - Intersections Form

Consultant	PARSONS	Project
Scenario	267 O'Connor TIA	Date
Comments		

477191-01000	
Aug-20	

	INTERSECTIONS		Sommerse	t/O'Connor			Gilmour/	O'Connor		
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	
	Lanes	3	3	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	
	Median	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	No Median - 2.4 m	No Median - 2.4 m	
	Conflicting Left Turns	No left turn / Prohib.	Protected/ Permissive	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.	Permissive	No left turn / Prohib.	
	Conflicting Right Turns	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	No right turn	Permissive or yield control	
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	
	Ped Signal Leading Interval?	No	No	Yes	Yes	No	No	Yes	Yes	
rian	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Channel	No Right Turn	No Channel	
St	Corner Radius	5-10m	5-10m	5-10m	5-10m	No Right Turn	5-10m	No Right Turn	3-5m	
Pedestrian	Crosswalk Type	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	
_	PETSI Score	84	71	91	99	111	97	108	97	
	Ped. Exposure to Traffic LoS	В	С	Α	Α	Α	Α	Α	Α	
	Cycle Length	75	75	75	75	75	75	75	75	
	Effective Walk Time	24	8	26	26	8	8	44	44	
	Average Pedestrian Delay	17 B	30 D	16 B	16 B	30	30 D	6	6	
	Pedestrian Delay LoS					D		A	A	
	Level of Comice	В	D	В	В	D	D	Α	Α	
	Level of Service		I	ס		D				
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	
	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP		Mixed Traffic	
	Right Turn Lane Configuration			≤ 50 m	≤ 50 m	Not Applicable	Not Applicable		≤ 50 m	
	Right Turning Speed			≤ 25 km/h	≤ 25 km/h	Not Applicable	Not Applicable		≤ 25 km/h	
<u>o</u>	Cyclist relative to RT motorists	Not Applicable	Not Applicable	D	D	Not Applicable	Not Applicable	-	D	
)cl	Separated or Mixed Traffic	Separated	Separated	Mixed Traffic	Mixed Traffic	Separated	Separated	•	Mixed Traffic	
Bicycle	Left Turn Approach	2-stage, LT box	2-stage, LT box	No lane crossed	No lane crossed	2-stage, LT box	2-stage, LT box		No lane crossed	
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≤ 40 km/h	≤ 40 km/h	> 40 to ≤ 50 km/h	≤ 40 km/h		≤ 40 km/h	
	Left Turning Cyclist	A	A	В	B	A	A	-	В	
		Α	Α	D	D	Α	Α	-	D	
	Level of Service		I)			I)		
	Average Signal Delay									
sit	Twerage digital Belay	_								
Transit	Level of Service	-				-				
	Effective Corner Radius	< 10 m			< 10 m	< 10 m			< 10 m	
¥	Number of Receiving Lanes on Departure from Intersection	1			≥ 2	≥2			≥ 2	
Truck		F	-	-	D	D	-	-	D	
_	Level of Service			F		D D				
0	Volume to Capacity Ratio									
Auto										
Ā	Level of Service									

Modera Car C	Gladstone/O'Connor					Somerse	t/Metcalfe		MacLaren/Metcalfe		
No Modern 14 mole No Modern 14 mole No Modern 14 mole No Medern 14 mole	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST
No left turn / Prohib Permissive Permi	0 - 2	0 - 2	0 - 2	0 - 2	3	3	0 - 2	0 - 2	3	3	0 - 2
No right tum	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	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
RTOR allowed RTO	No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.	Permissive	No left turn / Prohib.	No left turn / Prohib.	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.
No	No right turn		No right turn			No right turn		No right turn		No right turn	No right turn
No Channel No Channel No Channel No Channel No Channel No Channel S-10m S-10m S-10m No Right Tum No Right Tum Solt Innovance Self Inn	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited
S-10m	No	No	Yes	Yes	No	No	No	No	No	No	No
Std transverse Std transverse Std transverse markings markings mark	No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Right Turn	No Right Turn	No Channel
markings markings	5-10m	5-10m	No Right Turn	5-10m	5-10m	5-10m	3-5m	No Right Turn	No Right Turn	No Right Turn	3-5m
99	Std transverse	Std transverse	Textured/coloured	Textured/coloured	Std transverse	Std transverse	Std transverse	Textured/coloured	Std transverse	Std transverse	Std transverse
A	markings	markings	pavement	pavement	markings	markings	markings	pavement	markings	markings	markings
75	99	86	108	99	71	84	95	106	88	96	103
12	Α	В	Α	Α	С	В	Α	Α	В	Α	Α
26	75	75	75	75	75	75	75	75	75	75	75
C	12	12	28	28	28	28	24	24	12	12	40
C	26	26	15	15	15	15	17	17	26	26	8
NORTH SOUTH EAST WEST NORTH SOUTH EAST WEST NORTH SOUTH EAST WEST NORTH SOUTH EAST	С	С	В	В	В	В	В	В	С	С	Α
NORTH SOUTH EAST WEST NORTH SOUTH EAST WEST NORTH SOUTH EAST Cub Bike Lane, Cycletrack or MUP Cub Bike Lane, Cycletrack or MUP Mixed Traffic S50 m ≤ 55 m/h ≤ 25 km/h ≤ 25 km/	С	C	В	В	С	В	В	В	С	С	Α
Curb Bike Lane, Cycletrack or MUP Curb Bike Lane, Cycletrack or MUP Mixed Traffic x 50 m ≤ 50 mm ≤ 60 mm Mixed Traffic		(C				С		
Cycletrack or MUP Cycletrack or MUP Cycletrack or MUP Mixed Iraffic S 50 m ≤ 25 km/h © 0 < 10 m € 10 m	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST
Not Applicable Not Applicable #N/A D - D D D D D			Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic				Mixed Traffic
Not Applicable Separated Wot Applicable Separated #N/A Mixed Traffic D - D - - - D Separated Separated Mixed Traffic Mixed Traffic Mixed Traffic Mixed Traffic - - - Mixed Traffic 2-stage, LT box 2-stage, LT box No lane crossed One lane crossed No lane crossed One lan				≤ 50 m		≤ 50 m	≤ 50 m				≤ 50 m
Separated Separated Mixed Traffic Mixed Traffic - Mixed Traffic Mixed Traffic Mixed Traffic Mixed Traffic Mixed Traffic				≤ 25 km/h		≤ 25 km/h	≤ 25 km/h				≤ 25 km/h
2-stage, LT box 2-stage, LT box No lane crossed No lane crossed > 40 to ≤ 50 km/h	Not Applicable	Not Applicable	#N/A	D	-	D	D	-	-	-	D
> 40 to ≤ 50 km/h > 40 to ≤ 50 km/h ≤ 40 km/h ≤ 40 km/h > 40 to ≤ 50 km/h	Separated	Separated	Mixed Traffic	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	-	-	-	Mixed Traffic
A A B B - D - B - D -	2-stage, LT box	2-stage, LT box	No lane crossed	No lane crossed		One lane crossed		No lane crossed		One lane crossed	
A A #N/A D - D - <td>> 40 to ≤ 50 km/h</td> <td>> 40 to ≤ 50 km/h</td> <td>≤ 40 km/h</td> <td>≤ 40 km/h</td> <td></td> <td>> 40 to ≤ 50 km/h</td> <td></td> <td>> 40 to ≤ 50 km/h</td> <td></td> <td>> 40 to ≤ 50 km/h</td> <td></td>	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≤ 40 km/h	≤ 40 km/h		> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h	
#N/A	Α	Α	В	В	-	D	-	В	-	D	-
≤ 40 sec > 40 sec - E F - - - - - - F - <td>Α</td> <td>Α</td> <td>#N/A</td> <td>D</td> <td>-</td> <td>D</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>	Α	Α	#N/A	D	-	D	-	-	-	-	-
- - E F -	#N/A				D						-
F - </th <th></th> <th></th> <th>≤ 40 sec</th> <th>> 40 sec</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>			≤ 40 sec	> 40 sec							
<10 m	-	-	E	F	-	-	-	-	-	-	-
1 ≥2 1 ≥2 1 ≥2 F D - F D F D	F					-				-	
F D - F D F D	< 10 m			< 10 m		< 10 m	< 10 m			< 10 m	< 10 m
	1			≥2		1	≥2			1	≥2
F F F	F	-	-	D	-	F	D	-	-	F	D
		ı	=		F				F		
			-				-				-

		Gilmour	/Metcalfe		Gladstone/Metcalfe					
WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST		
0 - 2	3	3	0 - 2	0 - 2	3	3	0 - 2	0 - 2		
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	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		
Permissive	Permissive	No left turn / Prohib.	No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.	No left turn / Prohib.	Permissive		
No right turn	No right turn	No right turn	Permissive or yield control	No right turn	Permissive or yield control	No right turn	Permissive or yield control	No right turn		
RTOR prohibited	RTOR allowed RTOR prohibited		RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited		
No	No	No	No	No	No	No	No	No		
No Right Turn	No Right Turn	No Right Turn	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Right Turn		
No Right Turn	No Right Turn	No Right Turn	5-10m	No Right Turn	3-5m	3-5m	3-5m	No Right Turn		
Std transverse markings	Zebra stripe hi-vis Zebra stripe hi-vis markings markings				Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement		
103	88	99	100	100	72	85	98	106		
Α	В	Α	Α	Α	С	В	Α	Α		
75	75	75	75	75	75	75	75	75		
40	13	13	37	37	25	25	18	18		
8	26	26	10	10	17	17	22	22		
Α	С	С	В	В	В	В	С	С		
Α	С	С	В	В	С	В	С	С		
		(C		С					
WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST		
		Mixed Traffic	Mixed Traffic			Mixed Traffic	Mixed Traffic			
		≤ 50 m	≤ 50 m			≤ 50 m	≤ 50 m			
		≤ 25 km/h	≤ 25 km/h			≤ 25 km/h	≤ 25 km/h			
-	-	D	D	-	-	D	D	-		
-	-	Mixed Traffic	Mixed Traffic	-	-	Mixed Traffic	Mixed Traffic	-		
				No lane crossed		One lane crossed		No lane crossed		
				> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h		
-	-	•	-	В	-	D	-	В		
-	-	-	-	-	-	D	-	-		
			-		D					
							≤ 30 sec	> 40 sec		
-	-	-	-	-	-	-	D	F		
			-			Į.	F			
		< 10 m		< 10 m		< 10 m	< 10 m			
		≥ 2		≥2		1	≥ 2			
-	-	D		D	-	F	D			
		ı	D			F				
			-				-			