'')) The Collegeway L.P.

City of Mississauga

3355 The Collegeway, Proposed Mixed-Use Development

TRANSPORTATION IMPACT ASSESSMENT

9830/200

June 2016



LEA Consulting Ltd.

Consulting Engineers & Planners Suite 900, 625 Cochrane Drive, Markham, ON, L3R 9R9 CANADA Tel: 905-470-0015 Fax: 905-470-0030 www.LEA.ca

Our Ref.:9830/200

June 9th, 2016

Ms. Anna Fagyas 3355 The Collegeway L.P. c/o Sorbara Group of Companies 3700 Steeles Avenue West, Suite 800 Vaughan, ON L4L 8M9

Dear Ms. Fagyas:

Re: Transportation Impact Assessment Proposed Mixed-Use Development 3355 The Collegeway, City of Mississauga

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Assessment for the proposed mixed-use development at 3355 The Collegway in the City of Mississauga. This report's traffic analysis concludes acceptable traffic operations within the study area intersections with the full build out of the development.

Should you have any question regarding this Transportation Impact Assessment, please do not hesitate to contact the undersigned.

Yours very truly,

LEA Consulting Ltd.

Nixon Chan, M.A.Sc., P.Eng., PTOE, PMP Senior Project Manager

Michael McConnell, BES, M Eng. Transportation Planner

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	EXISTING TRANSPORTATION CONDITIONS 2.1 Existing Road Network 2.2 Existing Transit Service 2.3 Traffic Data Collection 2.4 Existing Intersection Capacity Analysis	3 3 4 5 7
3.0	FUTURE BACKGROUND TRANSPORTATION CONDITIONS	9
	3.1 Corridor Growth Rate	9
	3.2 Future Background Intersection Capacity Analysis	
4.0	FUTURE TOTAL TRANSPORTATION CONDITIONS	
	4.1 Site Generated Traffic	
	4.1.1 Vehicular Trip Generation	
	4.1.2 Vehicle Site Trip Distribution and Assignment	
	4.1.3 As-Of-Right Trip Generation	
	4.1.4 Pedestrian Trips	
	4.2 Future Total Intersection Capacity Analysis	
5.0) TRANSPORTATION DEMAND MANAGEMENT PLAN	22
	5.1 Existing Multi-Modal Conditions	
	5.1.1 Existing Modal Split	
	5.1.2 Existing Cycling Network	
	5.2 Sustainable Transportation through Site Design	
	5.5 IDM Programming	
	5.4 I DIVI COliciusions	
6.0) PARKING REVIEW	27
	6.1 Vehicle Minimum By-law Rates	
	6.2 Resident Parking Demand	
	6.3 Other Parking Demand	
	6.4 Supporting Parking Rate Data	
7.0	D LOADING ASSESSMENT	33
8 0	CONCLUSIONS	34
0.0		

LIST OF APPENDICES

APPENDIX A:	Traffic Counts and Signal Timing Plans
APPENDIX B:	Intersection Capacity Analysis Results – Existing Traffic Conditions
APPENDIX C:	Intersection Capacity Analysis Results - Future Background Traffic Conditions
APPENDIX D:	Proxy Survey Rates
APPENDIX E:	Intersection Capacity Analysis Results – Future Total Traffic Conditions
ADDENIDIV E.	Derking Drovy Survey Decults

APPENDIX F: Parking Proxy Survey Results



LIST OF TABLES

Table 1-1: Site Statistics Summary	2
Table 2-1: Surveyed Intersections	5
Table 2-2: Existing Capacity Analysis for Signalized Intersections	7
Table 2-3: Existing Queueing Analysis	7
Table 2-4: Existing Capacity for Unsignalized Intersection	8
Table 3-1: Applied Annual Compound Corridor Growth Rates (Ridgeway Drive & The Collegeway)	9
Table 3-2: Optimized Future Background Capacity Analysis for Signalized Intersections	12
Table 3-3: Future Background Queueing Analysis	12
Table 3-4: Future Background Capacity Analysis for Unsignalized Intersections	13
Table 4-1: Subject Site Residential Vehicle Trip Generation	14
Table 4-2: Subject Site Retail Vehicle Trip Generation	14
Table 4-3: Subject Site Office Vehicle Trip Generation	15
Table 4-4: Net Subject Site Vehicle Trip Generation	15
Table 4-5: Subject Site Trip Assignment	15
Table 4-6: As-of-Right Vehicle Trip Generation Comparison	17
Table 4-7: Multi-Modal Trip Generation-AM Peak Hour	17
Table 4-8: Optimized Future Total Capacity Analysis for Signalized Intersections	19
Table 4-9: Future Total Queueing Analysis	20
Table 4-10: Future Total Capacity Analysis for Unsignalized Intersections	20
Table 5-1: 2011 City of Mississauga Modal Split	23
Table 5-2: TDM Recommendation Summary	26
Table 6-1: Minimum Vehicle Parking Standards	27
Table 6-2: Proxy Parking Demand Survey Results	27
Table 6-3: Resident Peak Parking Demand Application	
Table 6-4: Adjusted Resident Parking Demand	
Table 7-1: Loading Space Rates	

LIST OF FIGURES

Figure 1-2: Site Plan	.2
Figure 2-1: Existing Lane Configuration	.4
Figure 2-2: Existing Transit Service	.4
Figure 2-3: Weekday AM Peak Hour Existing Traffic Volumes	.6
Figure 2-4: Weekday PM Peak Hour Existing Traffic Volumes	.6
Figure 3-1: Weekday AM Peak Hour Corridor Growth	10
Figure 3-2: Weekday PM Peak Hour Corridor Growth	10
Figure 3-3: Weekday AM Peak Hour Future Background Traffic Volumes	11
Figure 3-4: Weekday PM Peak Hour Future Background Traffic Volumes	11
Figure 4-1: Proposed Development Net Vehicle Trips - Weekday AM Peak Hour	16
Figure 4-2: Proposed Development Net Vehicle Trips - Weekday PM Peak Hour	16
Figure 4-3: Weekday AM Peak Hour Future Total Traffic Volumes	18
Figure 4-4: Weekday PM Peak Hour Future Total Traffic Volumes	19
Figure 5-1: Neighborhood Context Map	22
Figure 5-2: Existing Cycling Network	23
Figure 5-3: Pedestrian Desire Lines	24
Figure 6-1: Proxy Site Residential Parking Demands	28
Figure 6-2: Proxy Site Residential Visitor Parking Demand	29
Figure 6-3: Saturday Retail Parking Demand	30
Figure 6-4: Friday Other Parking Demand	31
Figure 6-5: Saturday Other Parking Demand	31



1.0 INTRODUCTION

LEA Consulting Ltd. has been retained by "3355 The Collegeway L.P." to conduct a Transportation Impact Assessment for the proposed redevelopment project located at 3355 The Collegeway, in the City of Mississauga. **Figure 1-1** illustrates the location of the subject site.



Figure 1-1: Site Location

The proposed development comprises of 336 two-bedroom residential stacked townhouses in 11 blocks and a commercial pad containing approximately 950 m² gross floor area of retail and office uses. The proposed development site statistics are summarized in **Table 1-1** and the site plan is provided in **Figure 1-2**.



Lan	d Use	Units or GFA (m ²)	Parking Spaces		
Desidential	Two-Bedroom Units	324	370		
Residential	Three-Bedroom Units	12	379		
	Retail	475			
Commercial/Visitor	Office	475	63		
	Total Commercial	950			

 Table 1-1: Site Statistics Summary



Figure 1-2: Site Plan

As indicated in the site plan above, the proposed development consists of two vehicle accesses. The residential access will be provided via Colonial Drive to the east and the commercial access will be provided via Ridgeway Drive to the west. In comparison to the existing site, there are two accesses on Colonial Drive, one at Ridgeway and two at The Collegeway; this is a reduction of three accesses.



2.0 EXISTING TRANSPORTATION CONDITIONS

The following section provides descriptions and classifications of each roadway associated with the study area and a summary of the multi-modal infrastructure within the vicinity of the site.

2.1 Existing Road Network

The existing road network in the study area includes:

- Colonial Drive & The Collegeway;
- The Collegeway & Ridgeway Drive;
- Existing Driveway #1 & Ridgeway Drive;
- Existing Driveway #2 & The Collegeway;
- Existing Driveway #3 & The Collegeway;
- Existing Driveway #4 & Colonial Drive; and
- Existing Driveway #5 & Colonial Drive.

The corresponding numbered driveways are illustrated in the lane configuration driveway below in **Figure 2-1**. A profile of the corridors (all under the jurisdiction of the City of Mississauga) included in the study area is as follows:

- **The Collegeway** is a two-lane cross-section east-west major collector roadway. This corridor intersects with Ridgeway to the west and Colonial Drive to the east. The posted speed limit is 50km/h.
- **Ridgeway Drive** is a four-lane cross-section north-south major collector which runs parallel with Highway 403. This corridor has a posted speed limit of 60 km/h within the study area. Designated left turning lanes are present for all movements at the intersection of The Collegeway.
- **Colonial Drive** is a two-lane cross-section north-south minor collector operating. It has a posted speed limit of 50km/h. Street parking is permitted for most of the corridor.





Figure 2-1: Existing Lane Configuration

2.2 Existing Transit Service

The existing transit services within the subject site are as follows:

Bus Route 36-Colonial Loop runs from Monday to Sunday. It runs counterclockwise to the area west of Erin Mills Parkway, south of Highway 403 and north of Dundas Street. The service operates with a 15minute headway during the peak periods. The nearest stop is located within 350 m from the subject site.

Bus Route 47-Ridgeway Loop operates during the weekday peak periods only with a 35-minute headway. This service has a stop located 650 meters from the subject site.

An illustration of the bus services is provided in **Figure 2-2.**



Figure 2-2: Existing Transit Service



2.3 Traffic Data Collection

Weekday AM/PM peak period turning movement counts were collected by LEA. These times were chosen as they reflect typical peak hour trips for the proposed site and surrounding road network. **Table 2-1** summarizes the details of the surveys used in this report. The survey counts can be found in **Appendix A**.

Intersections	Dates	Survey Period	Surveyors
Ridgeway & Collegeway	Thursday, February 11 th ,2016	7:00-9:00 AM 4:00-6:00 PM	LEA Consulting Ltd.
Collegeway & Colonial	Thursday, February 11 th ,2016	7:00-9:00 AM 4:00-6:00 PM	LEA Consulting Ltd.
Existing South Site Driveway (#1) &	Thursday, February	7:00-9:00 AM	LEA Consulting Ltd.
Ridgeway Drive	11 th ,2016	4:00-6:00 PM	
Existing West Site Driveway (#2) &	Thursday, February	7:00-9:00 AM	LEA Consulting Ltd.
The Collegeway	11 th ,2016	4:00-6:00 PM	
Existing East Site Driveway (#3) &	Thursday, February	7:00-9:00 AM	LEA Consulting Ltd.
The Collegeway	11 th ,2016	4:00-6:00 PM	
Existing East Site Driveway (#4) &	Thursday, February	7:00-9:00 AM	LEA Consulting Ltd.
Colonial Drive	11 th ,2016	4:00-6:00 PM	
Existing West Site Driveway (#5) &	Thursday, February	7:00-9:00 AM	LEA Consulting Ltd.
Colonial Drive	11 th ,2016	4:00-6:00 PM	

 Table 2-1: Surveyed Intersections

Figure 2-3 and Figure 2-4 illustrates the existing balanced traffic volumes for the weekday AM/PM peak hours of traffic.





Figure 2-3: Weekday AM Peak Hour Existing Traffic Volumes



Figure 2-4: Weekday PM Peak Hour Existing Traffic Volumes



2.4 Existing Intersection Capacity Analysis

The capacity analysis for the study area was undertaken using Synchro version 8.0 based on the Highway Capacity Manual (2000) methodology adhering to the *City of Mississauga - Traffic Impact Study Guidelines* and *Region of Peel – Regional Guideline for Using Synchro, December 2010.* Signal timing plans were received from City staff and applied to Synchro. The signal timing plans are provided in **Appendix A. Table 2-2** below tabulates weekday AM and PM peak hour levels of service under existing traffic conditions for signalized intersections in the study area. Detailed reports are provided in **Appendix B**.

			AM Peak Hour					PM Peak Hour													
Intersection	Movement	Overall			Movements of Interest			Overall			Movements of Interest										
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS								
	EBL			-	0.14	39	D				0.94	73	Е								
	EBTR				0.02	37	D				0.18	30	С								
	WBL													0.63	48	D				0.28	31
Ridgeway Drive &	WBTR	0.40	12	р	0.26	39	D	0.69	21	С	0.08	29	С								
The Collegeway	NBL	0.40	0 13	В	0.05	4	Α	0.08			0.02	8	Α								
	NBTR				0.14	4	Α				0.57	13	В								
	SBL				0.22	5	Α				0.34	14	В								
	SBTR]			0.36	6	A]			0.25	9	A								

Table 2-2: Existing Capacity Analysis for Signalized Intersections

The intersection capacity analysis indicates residual capacity and acceptable levels of service (LOS) for all signalized movements with the expectation of the eastbound left movement during the PM peak hour. This movement is operating with a V/C of 0.94 which is nearing capacity constraints and a 95^{th} percentile queue which extends beyond the storage length. The designated left turn lane continues to a two-way left turning median lane. Therefore, the queue is expected to extend within this lane as opposed to impede the through lanes. The overall v/c of 0.68 for this intersection indicates optimization opportunities.

A SimTraffic queueing analysis was also conducted. The eastbound left movement indicates a 95th percentile queue of 73 m as opposed to 110 m with Synchro. The 73 m queue still exceeds the storage length. However, there is a two-way left turning lane median which can accommodate an additional 37m of eastbound left turning traffic without interfering with any driveways. Therefore, the 95th percentile queueing should not create traffic issues.

Table 2-3 below tabulates weekday AM and PM peak hour SimTraffic queueing analysis for the critical movements under existing traffic conditions. Detailed SimTraffic reports are provided in **Appendix B**.

			AM Pea	ak Hour		PM Peak Hour				
Intersection	Movement of Interest	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	
	NBL	-	-	-	-	-	-	-	-	
Ridgeway Drive	SBL	-	-	-	-	-	-	-	-	
Collegeway	EBL	-	-	-	-	51	65	72	58	
Collegeway	WBL	-	-	-	-	-	-	-	-	

Table 2-3: Existing Queueing Analysis

Table 2-4 below shows existing capacity analysis results for unsignalized intersection and existing site driveways. Detailed reports are provided in **Appendix B**.



T	Movement of	A	AM Peak Hour]	PM Peak Hour		
Intersection	Interest	Control Delay (s)	95th Queue (m)	V/C	LOS	Control Delay (s)	95th Queue (m)	V/C	LOS
Calarial Drive	EBLTR	10	-	-	Α	10	-	-	А
	WBLTR	10	-	-	А	10	-	-	Α
The Collegeway	NBLTR	10	-	-	Α	10	-	-	Α
The Conegeway	SBLTR	10	-	-	Α	9	-	-	Α
	EBL	0	0	0.00	Α	16	1	0.04	С
Ridgoway Drivo	EBTR	13	0	0.00	В	10	1	0.03	В
	WBL	15	1	0.02	В	31	5	0.17	D
a Driveway #1	WBTR	10	0	0.01	Α	10	0	0.00	В
Dirveway #1	NBL	1	0	0.01	Α	0	0	0.01	Α
	SBL	0	0	0.01	Α	3	2	0.08	Α
The Collegeway	EBL	-	-	-	-	3	1	0.04	Α
& Driveway #2	SBL	0	0	0.04	А	10	2	0.08	А
The Collegeway	EBL	-	-	-	-	1	0	0.01	Α
& Driveway #3	SBL	0	0	0.03	А	10	1	0.05	В
Colonial Drive	EBL	0	0	0.00	Α	11	2	0.07	В
& Driveway #4	NBL	-	-	-	-	1	0	0.01	А
Colonial Drive	EBL	12	5	0.18	В	10	0	0.01	Α
& Driveway #5	NBL	3	1	0.05	А	0	0	0.00	А

Table 2-4: Existing Capacity for Unsignalized Intersection

The existing intersection capacity analysis indicates residual capacity and acceptable levels of service for all unsignalized movements.

A SimTraffic queueing analysis was conducted during the existing conditions. The results, similar to the Synchro intersection capacity analysis, indicate no queueing issues for the designated unsignalized turning lanes. Detailed reports are provided in **Appendix B**.



3.0 FUTURE BACKGROUND TRANSPORTATION CONDITIONS

3.1 Corridor Growth Rate

For the analysis of future background traffic conditions, this study considers a five-year horizon to the year 2021. To accommodate new development outside of the study area, a corridor growth rate was applied. The corridor growth rate was provided from City staff and is summarized in **Table 3-1**. The Collegeway corridor is a dead-end after servicing industrial uses to the west of Ridgeway Drive and, therefore, the corridor growth rate along this corridor was distributed via a westbound left and westbound right movement at the intersection of Ridgeway & The Collegeway.

Direction	AM Peak Hour	PM Peak Hour
Northbound	0%	1.0%
Southbound	0.5%	0%
Eastbound	0.5%	2.5%
Westbound	1.0%	1.5%

Table 3-1: Applied Annual Compound Corridor Growth Rates (Ridgeway Drive & The Collegeway)

The corridor growth volumes are illustrated in Figure 3-1 and Figure 3-2.

It is our understanding that no background developments are present in the vicinity of the subject site which may contribute significant traffic volumes to the study area.

The future background traffic volumes were obtained by adding the existing volumes with the applied growth rates for the corresponding horizon year. The future background traffic volumes for the 2021 horizon AM and PM peak hours are illustrated in **Figure 3-3** and **Figure 3-4**.





Figure 3-1: Weekday AM Peak Hour Corridor Growth



Figure 3-2: Weekday PM Peak Hour Corridor Growth





Figure 3-3: Weekday AM Peak Hour Future Background Traffic Volumes



Figure 3-4: Weekday PM Peak Hour Future Background Traffic Volumes



3.2 Future Background Intersection Capacity Analysis

Table 3-2 summarizes the optimized intersection capacity analysis results for the signalized intersections during the weekday AM/PM peak hours under future background traffic conditions. The detailed capacity analysis outputs can be found in **Appendix C**.

				AM Pea	ak Hour	•		PM Peak Hour					
Intersection	Movement	Overall			Movements of Interest			Overall			Movements of Interest		
		V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
	EBL			D	0.14	38	D		21	С	0.87	55	D
	EBTR				0.02	37	D	0.60			0.17	29	С
Didaaman	WBL				0.63	47	D				0.58	47	D
Drive & The	WBTR	0.41	12		0.25	39	D				0.16	39	D
Collogoway	NBL	0.41	15	D	0.05	4	Α	0.09			0.02	8	Α
Conegeway	NBTR				0.13	4	Α				0.59	13	В
	SBL				0.20	5	Α				0.41	17	В
	SBTR				0.36	6	Α				0.26	10	Α

 Table 3-2: Optimized Future Background Capacity Analysis for Signalized Intersections

The optimized intersection capacity analysis indicates residual capacity and acceptable LOS for all movements. The eastbound left movement is expected to operate with a reduced delay of 19 seconds relative to the original signal plan. The overall intersection is expected to operate with similar conditions than original conditions. The optimized intersection signal plan will be carried over to the future total analysis. The 95th percentile queue of the eastbound left is similar in both Synchro and SimTraffic queueing analysis at 71 m which exceeds the storage length. This is not expected to be a problem because:

- 1. The eastbound left phase should clear vehicles exceeding the storage length enough for through vehicles to proceed;
- 2. The two-way left turn lane should provide adequate storage to accommodate the residual eastbound left turning volumes without impacting the through volumes.

Table 3-3 below tabulates weekday AM and PM peak hour SimTraffic queueing analysis for the critical movements under existing traffic conditions. Detailed SimTraffic reports are provided in **Appendix D**.

			AM Pe	ak Hour		PM Peak Hour				
Intersection	Movement of Interest	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	
	NBL	-	-	-	-	-	-	-	-	
Ridgeway Drive	SBL	-	-	-	-	-	-	-	-	
Collogoway	EBL	-	-	-	-	49	65	71	58	
Conegeway	WBL	-	-	-	-	-	-	-	-	

Table 3-3: Future Background Queueing Analysis

Table 3-4 shows the capacity analysis results for the unsignalized intersections and driveway in the vicinity of subject site. The detailed capacity analysis outputs can be found in **Appendix D**.



Tutourottom	Movement	l	AM Peak Hour			I	PM Peak Hour		
Intersection	of Interest	Control Delay (s)	95th Queue (m)	V/C	LOS	Control Delay (s)	95th Queue (m)	V/C	LOS
Colonial Drive	EBLTR	9	-	-	А	11	-	-	В
&	WBLTR	10	-	-	Α	10	-	-	Α
The	NBLTR	9	-	-	Α	10	-	-	Α
Collegeway	SBLTR	10	-	-	Α	9	-	-	Α
	EBL	0	0	0.00	Α	16	1	0.04	С
Didaaman	EBTR	13	0	0.00	В	10	1	0.03	В
Ridgeway	WBL	15	0	0.01	В	31	5	0.17	D
Driveway #4	WBTR	10	0	0.01	Α	10	0	0.00	В
Direway #4	NBL	1	0	0.01	Α	0	0	0.01	Α
	SBL	1	0	0.02	Α	3	2	0.08	Α
The	EBL	1	0	0.0	Α	3	1	0.04	Α
Collegeway & Driveway #1	SBL	10	1	0.04	В	10	2	0.08	А
The	EBL	1	0	0.0	Α	1	0	0.01	Α
Collegeway & Driveway #2	SBL	10	1	0.03	В	10	1	0.05	В
Colonial Drive	EBL	11	1	0.03	В	11	2	0.07	В
& Driveway #4	NBL	1	0	0.0	А	1	0	0.01	А
Colonial Drive	EBL	10	0	0.00	В	10	0	0.01	Α
& Driveway #5	NBL	0	0	0.00	А	0	0	0.00	А

 Table 3-4: Future Background Capacity Analysis for Unsignalized Intersections

The future background unsignalized intersection capacity analysis indicates residual capacity and acceptable levels of service for all movements. The operations are similar to the existing conditions.



4.0 FUTURE TOTAL TRANSPORTATION CONDITIONS

The future total condition includes the proposed development to assess the impacts of the development's trips relative to the future background conditions. Of note, Driveways # 2, 3, and 5 are not included in the proposed development's site plan and thus have been removed.

4.1 Site Generated Traffic

4.1.1 Vehicular Trip Generation

Residential Vehicle Trips

The vehicle trip generation rates for the proposed developments were calculated from proxy surveys conducted at the nearby 2300 South Millway stacked townhouse development on Thursday, February 11^{th} , 2016. This development comprises of approximately 162 residential stacked townhouses with similar transit and active transportation infrastructure in the vicinity. Therefore, the trip rates of the proposed development's stacked townhouses and the proxy site's trip rates should be similar. A summary of the proxy site's vehicle trip generation rates applied to the subject site is provided in **Table 4-1**. The proxy survey results are provided in **Appendix E**.

Itoma	1	AM Peak Hou	ır	PM Peak Hour				
items	Inbound	Outbound	Two-Way	Inbound	Outbound	Two-Way		
Proxy Site Rate	0.222	0.327	0.549	0.333	0.259	0.593		
	Subj	ect Site - 336	Units					
Residential Subject Site Vehicle Trips	75	110	185	112	87	199		

Table 4-1: Subject Site Residential Vehicle Trip Generation

The proposed development's residential component is, therefore, expected to generate 185 two-way vehicle trips in the AM peak hour and 199 two-way vehicle trips in the PM peak hour.

Retail Vehicle Trips

The vehicle trip generation rates for the proposed developments retail component was calculated from the existing commercial development at 3355 The Collegeway. The existing development contains approximately 57, 800 sq. ft. GFA of various retail establishments. As this is the existing subject site, the proposed retail components should have similar rates. The retail trip generation rates are summarized in **Table 4-2**.

Tune		AM Peak Ho	ır	PM Peak Hour				
Туре	Inbound	Outbound	Two-Way	Inbound	Outbound	Two-Way		
Existing Site Trips (57,800 ft ²)	80	77	157	217	179	396		
Existing Site Trips Rate per 1000 ft ²	1.38	1.33	2.71	3.75	3.1	6.85		
Subject Site (5,118 ft ²)	7	7	14	19	16	35		

 Table 4-2: Subject Site Retail Vehicle Trip Generation

The proposed development's retail component is, therefore, expected to generate 14 two-way vehicle trips in the AM peak hour and 35 two-way vehicle trips in the PM peak hour.

Office Vehicle Trips

The existing subject site's retail would not be applicable for the office component of the proposed development and no proxy survey was conducted for the office. Therefore, the trip generation rates from the ITE Trip Generation Manual 9th Edition were used. A summary of the rates is provided in **Table 4-3**.



Tuno		AM Peak		PM Peak			
Туре	Inbound	Outbound	Two-Way	Inbound	Outbound	Two-Way	
ITE Rate	1 27	0.10	1.56	0.25	1.24	1.40	
(General Office-Land Use Code 710)	1.57	0.19	1.50	0.23	1.24	1.49	
Subject Site Office - 5,118 ft ²	7	1	8	1	6	7	

 Table 4-3: Subject Site Office Vehicle Trip Generation

The proposed development's office component is therefore expected to generate 8 two-way vehicle trips in the AM peak hour and 7 two-way vehicle trips in the PM peak hour.

<u>Overall</u>

The proposed development is expected to redevelop the existing retail uses. Therefore, these vehicle trips were subtracted from the road network. A summary of the existing trips is provided in the turn diagram above in **Figure 2-3** and **Figure 2-4**. The net vehicle trips, which includes the residential, retail, and office vehicle trips subtract the existing vehicle trips is provide in **Table 4-4**.

Trmo		AM Peak Hou	r	PM Peak Hour				
туре	Inbound	Outbound	Two-Way	Inbound	Outbound	Two-Way		
Residential	75	110	185	112	87	199		
Commercial (Retail + Office)	14	8	22	20	22	42		
Total	89	118	207	132	109	241		
Existing (minus)	80	77	157	217	179	396		
Net	9	41	50	-85	-70	-155		

Table 4-4: Net Subject Site Vehicle Trip Generation

Overall, the proposed development's net vehicle trip generation is 50 two-way vehicle net trips in the AM peak hour and -149 net two-way vehicle trips during the PM peak hour.

4.1.2 Vehicle Site Trip Distribution and Assignment

The trip distribution for these vehicles was calculated using existing travel patterns for the retail and office uses and the 2011 Transportation Tomorrow Survey (TTS) database for residential uses. The results of the TTS pull and existing travel pattern distribution are summarized in **Table 4-5**.

Directions	Reside	ential	Commercial						
Directions	AM/PM Out	AM/ PM In	AM Out	AM In	PM Out	PM In			
Eastbound Collegeway	26%	0%	31%	0%	40%	0%			
Westbound Collegeway	0%	62%	0%	18%	0%	27%			
Southbound Colonial	1%	12%	0%	0%	0%	0%			
Northbound Colonial	45%	0%	0%	0%	0%	0%			
Northbound Ridgeway	8%	14%	47%	38%	31%	32%			
Southbound Ridgeway	21%	12%	22%	45%	29%	42%			
Total	100%	100%	100%	100%	100%	100%			

Table 4-5: Subject Site Trip Assignment

The trip distribution was assigned to the study area road network using the logical and fastest routing. The offpeak residential trip distribution (AM Peak Hour inbound, PM peak hour outbound) were assumed to follow the peak direction for residential uses. This assumption is not applicable for the commercial trips and, therefore, a separate AM and PM distribution was calculated. The net site trips from the subject site are provided in **Figure 4-1** and **Figure 4-2**.





Figure 4-1: Proposed Development Net Vehicle Trips - Weekday AM Peak Hour



Figure 4-2: Proposed Development Net Vehicle Trips - Weekday PM Peak Hour



4.1.3 As-Of-Right Trip Generation

The subject site is zoned as a "C2: Neighborhood Commercial Zone" according to the City of Mississauga Zoning By-law 0225-2007. Accordingly, the proposed development's as-of-right (AOR) development densities are four storeys and 12,000 m² GFA of commercial. The vehicle trip generation of the as-of-right development scenario assuming the peak retail rates from the proxy surveys is provided in **Table 4-6**.

Direction		AM Peak		PM Peak				
Direction	Inbound	Outbound	Two-Way	Inbound	Outbound	Two-Way		
Site Trips Rate Per 1000 Sq. Ft	1.38	1.33	2.71	3.75	3.1	6.85		
As-of-Right Trip Generation	178	172	350	484	400	884		
Subject Site- Generated Traffic (Table 4-4's Total)	89	118	207	132	109	241		
Difference	-89	-54	-143	-352	-291	-643		

Table 4-6: As-of-Right Vehicle Trip Generation Comparison

As indicated by the peak retail rates, the subject sites AOR vehicle trip generation is 350 two-way vehicle trips in the AM peak hour and 884 two-way vehicle trips in the PM peak hour. The proposed developments site statistics indicate a reduced vehicle trip generation of -143 two-way vehicle trips in the AM peak hour and -643 two-way vehicle trips in the PM peak hour from the as-of-right scenario.

4.1.4 Pedestrian Trips

To estimate the pedestrian trips generated from the proposed development, the 2011 TTS dataset was used to pull the modal split for pedestrians. The 2011 TTS dataset is the most recent data available for query.

The vehicle trips generated will be extrapolated to a cumulative total multi-modal trips generated from the proposed development. The pedestrian modal split will be applied to the total multi-modal trip generation of all uses within the proposed development to estimate the pedestrian trip generation. This process is summarized in **Table 4-7**. It is assumed the PM peak hour modal choices will be mirrored from the AM peak hour. Therefore, the AM peak hour is only shown.

	Res	idential	I	Retail	(Office	
	Modal Split	Two-Way Trips	Modal Split	Two-Way Trips	Modal Split	Two-Way Trips	Total
Auto Driver	56%	185	87%	16	88%	9	210
Auto Passenger	12%	38	13%	2	8%	1	41
Transit	16%	52	0%	0	4%	0	52
Pedestrian	3%	9	0%	0	0%	0	9
Other	13%	43	0%	0	0%	0	43
Total	100%	327	100%	18	100%	10	355

Table 4-7: Multi-Modal Trip Generation-AM Peak Hour

This analysis is an approximate representation of the existing (2011) neighborhood travel patterns. It is unreasonable to expect zero pedestrian trips from retail and office uses. However, this analysis provides an indication that the proposed uses will not be a significant pedestrian trip generator.



4.2 Future Total Intersection Capacity Analysis

The future total vehicle volume, which includes the future background vehicle volumes and the net site trips, is provided in **Figure 4-3** and **Figure 4-4**.



Figure 4-3: Weekday AM Peak Hour Future Total Traffic Volumes





Figure 4-4: Weekday PM Peak Hour Future Total Traffic Volumes

Table 4-8 summarizes the intersection capacity analysis results for the signalized intersections during the weekday AM/PM peak hours under future total traffic conditions. The detailed capacity analysis outputs can be found in **Appendix F.**

				Α	M Peak	Hour					P	M Peak	Hour		
		Overall		Movements of Interest			Overall]	Movements of Interest				
Intersection	Movement	V/C	Delay	LOS	V/C	Delay	LOS	Queue (m)	V/C	Delay	LOS	V/C	Delay	LOS	Queue (m)
			(8)			(8)		95th		(8)			(8)		95th
	EBL				0.14	39	D	10				0.90	63	E	77
	EBTR				0.02	37	D	4				0.17	30	С	20
D.1 D.	WBL				0.63	48	D	40				0.46	45	D	23
Ridgeway Drive	WBTR	0.40	12	р	0.26	39	D	20	0.67	21	C	0.23	42	D	16
Collegeway	NBL	0.40	15	D	0.05	4	Α	4	0.07	21	C	0.02	7	Α	3
Conegeway	NBTR				0.14	4	Α	17				0.55	12	В	100
	SBL				0.22	5	Α	21				0.48	18	В	30
	SBTR				0.36	6	Α	51				0.24	9	Α	34

Table 4-8: Optimized Future Total Capacity Analysis for Signalized Intersections

The intersection capacity analysis indicates residual capacity for all movements during the future total conditions. The signalized intersection is operating with similar overall conditions relative to the future background (optimized) intersection capacity analysis. The 95th percentile queues also remain similar for the eastbound left movement during the PM peak hour.

Table 4-9 below tabulates weekday AM and PM peak hour SimTraffic queueing analysis for the critical movements under existing traffic conditions. Detailed SimTraffic reports are provided in **Appendix F**.



			AM Pe	ak Hour		PM Peak Hour				
Intersection	Movement of Interest	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	Average Queue (m)	Max Queue (m)	95 th Queue (m)	Storage Length (m)	
Didaama Daima	NBL	-	-	-	-	-	-	-	-	
Ridgeway Drive	SBL	-	-	-	-	-	-	-	-	
Collegeway	EBL	-	-	-	-	50	65	73	58	
Conegeway	WBL	-	-	-	-	-	-	-	-	

Table 4-9: Future Total Queueing Analysis

Table 4-10 summarizes the intersection capacity analysis results for the signalized intersections during the weekday AM/PM peak hours under future total traffic conditions. The detailed capacity analysis outputs can be found in **Appendix F.**

	Movemen	A	AM Peak Hour			I	PM Peak Hour		
Intersection	t of Interest	Control Delay (s)	95th Queue (m)	V/C	LO S	Control Delay (s)	95th Queue (m)	V/C	LO S
Colonial Drive	EBLTR	10	-	-	Α	11	-	-	В
& The	WBLTR	10	-	-	Α	9	-	-	Α
Collegeway/Th	NBLTR	10	-	-	Α	10	-	-	Α
e Collegeway	SBLTR	10	-	-	Α	10	-	-	Α
	EBL	0	0	0.0 0	А	0	0	0.0 0	Α
	EBTR	13	0	0.0 0	В	10	1	0.0 3	В
Ridgeway Drive	WBL	14	1	0.0 2	В	30	3	0.1 0	D
& Driveway #1	WBTR	10	0	0.0 1	А	11	0	0.0 1	В
	NBL	1	0	0.0 1	А	0	0	0.0 1	Α
	SBL	0	0	0.0 1	А	1	1	0.0 2	Α
Colonial Drive	EBL	12	5	0.2	В	12	4	0.1 4	В
& Driveway #4	NBL	3	1	0.0 5	А	3	2	0.0 7	А

 Table 4-10: Future Total Capacity Analysis for Unsignalized Intersections



The intersection capacity analysis indicates residual capacity and acceptable levels of service for all movements during the future total conditions. The operations during the future total conditions are similar to the operations during the future background conditions. The revised site plan indicates two driveways to and from the non-commercial section of the proposed development. The intersection capacity analysis only analyzed one full movement intersection. However, this intersection is operating with residual capacity and acceptable levels of service. Therefore, the commercial section of the development with two driveways is expected to operate similarly.

Overall the proposed development site traffic will have minimal impacts to the surrounding road network. Further mitigation measures are not required.



5.0 TRANSPORTATION DEMAND MANAGEMENT PLAN

The objective of this section is to integrate travel demand management measures to reduce the number of singleoccupancy vehicle trips to the subject site. The City of Mississauga would like to "Support key environmental initiatives driven by different levels of government through the development of a balanced multi-modal transportation system that reduces energy consumption and vehicle emissions." as per their 'Moving Mississauga' goals.

There are several opportunities to incorporate travel demand management measures in order to promote alternate modes of transportation to/from the proposed development such as improved design, active transportation infrastructure, multi-modal linkages, and Smart Commute Programming.

As mentioned previously, the proposed development contains residential, retail, and office uses. The commercial development is to the west of the subject site and the residential is contained in 11 blocks filling out the rest of the subject site boundaries. A neighborhood map is provided in **Figure 5-1** which outlines the significant land uses and major origins/destinations within the vicinity of the subject site.



Figure 5-1: Neighborhood Context Map

As indicated in the context map, the subject site primarily has employment uses to the south and residential uses to the north, east and west. There are also three schools within walking distance of the subject site.

The schools and employment zones provide the most opportunity for cyclist and pedestrian trips from the subject site and the employment zones and residential provide the most opportunity for cyclist and pedestrian trips to the subject site.



5.1 Existing Multi-Modal Conditions

5.1.1 Existing Modal Split

The existing modal split for the City of Mississauga is provided in **Table 5-1**. This modal split was calculated from the 2011 TTS database.

	All-Day Modal Split	AM Peak Hour	PM Peak Hour
Auto Driver	68%	64%	72%
Auto Passenger	17%	14%	14%
Transit	8%	13%	6%
Pedestrian	4%	6%	1%
Other	3%	4%	6%
Total	100%	100%	100%

Table 5-1: 2011 City of Mississauga Modal Split

The modal split indicates auto dependent travel characteristics with 85% of all trips being made as an auto driver or an auto passenger. To encourage a more balanced modal split, recommendations will be made based upon the site design and potential programming to encourage pedestrian, cyclist, carpool, and transit trips to and from the proposed development

5.1.2 Existing Cycling Network

The existing cycling network, as shown in Figure 7-2, contains a signed bicycle route along Colonial Road.



Figure 5-2: Existing Cycling Network

5.2 Sustainable Transportation through Site Design

Several key site design factors influence the feasibility and utilization of sustainable transportation modes, such as cycling, walking, carpooling, and transit, in the site planning phase. The primary concept behind site design is to provide efficient access to sustainable modes. This means providing efficient linkages and the infrastructure to support smart travel choices. The site plan design features to be analyzed with respect to sustainable transportation modes are as follows:



Site Location within the Community

As indicated in **Figure 5-1**, the subject site is proposed in an established neighborhood. This means existing transit, sidewalks, and neighborhoods are established for the subject sites patrons to utilize.

Development Densities and Land Uses

The proposed development contains 336 two-bedroom stacked townhouse units in 11 blocks and a commercial pad containing approximately 1,100 m² gross floor area of retail and office uses. The proposed mix of uses is certainly compatible with each other. The mix of residential and employment should encourage local commuting patterns which are more susceptive to walking and cycling. The retail component will provide services for both the office and residential land uses.

Building Placement and Entrance Locations

The commercial building pad is located with an orientation to the street to animate the street front, promote pedestrian activity, and enhance street security. The location of the commercial pad is on the street corner where two transit stops are located. Overall, the commercial pad is well located with respects to TDM site design.

The residential blocks are located perpendicular to the central subject site roadway with pedestrian pathways and unit entrances separating the blocks. This should animate the residential corridors and provide 'eyes on the street' which would enhance the security of the residential neighborhood.

Pedestrian Linkages

Site interaction between the proposed uses is expected internally within the site. This means that a strong pedestrian connection should be provided between the residential and commercial pad. Further connections should be provided to the commercial parking lot as the parking spaces will be shared with the residential visitors. Outside of the subject site, there are employment zonings, residential neighbourhoods, and schools which provide opportunities to enhance pedestrian linkages. A summary of the potential pedestrian linkages is provided below in **Figure 5-3**.



Figure 5-3: Pedestrian Desire Lines



The pedestrian desire line process has identified two minor missing links when accessing the commercial uses. The internal resident fastest path would require pedestrian's to walk across the parking lot which could increase vehicle to pedestrian conflicts. A designated pathway is recommended. The second missing link is from the intersection of Ridgeway/Collegeway sidewalk to the commercial development. A path is recommended at this location.

Cycling Infrastructure

The proposed development should accommodate cyclists and the provision of bicycle parking spaces for the commercial pad. One bicycle parking rack with a minimum of seven bicycle parking spaces should sufficiently accommodate the office and retail bicycle parking demand. The location of this bicycle parking facility should be near the entrances, easily visible from the commercial development for security purposes, and covered to protect against the elements. The residential units should have sufficient space to individually satisfactorily accommodate bicycles in their vehicle parking space or within the residential units.

The street network is proposed to have secondary cycling routes along ridgeway, The Collegeway, and Colonial Drive. Secondary Cycling Routes would typically include pavement marking or signed cycling routes.

5.3 TDM Programming

Residential Units

Residential programming to encourage smart travel choices would be difficult to implement as a series of individually owned stacked townhouses without a central administrative system. Typically TDM measures are promoted by the resident's workplace or school.

However, one effective measure would be the separation of the parking space from the unit. This would allow residents to purchase a parking space if needed. More importantly, it would not impede residents who choose to not own a vehicle with the additional costs and provide further trips of more sustainable travel choices.

<u>Retail</u>

Employee Incentives: Retail establishments typically have shift work. Therefore, flexible work hours are adopted as a function of the operations. Employers can also encourage smart travel choices by providing Smart Commute information to their employees.

Customer Incentives: Retail establishments can encourage customers to use smart travel choices through site design such as not providing an oversupply of parking and providing cycling facilities and pedestrian linkages. Paid parking and/or pricing strategies are not a realistic strategy for a site in a suburban environment.

Office

To encourage smart travel choices the office employers should become a Smart Commute Workplace. This will expose the employees to information and programs (such as Carpool Week) to reduce single occupant trips. Providing one carpool space for the office uses in an ideal location is also recommended. These programs would require a Smart Commute Ambassador volunteer for each office firm.



5.4 TDM Conclusions

The Sustainable Transportation through Site Design section identified missing pedestrian links to the commercial pad and the recommendation to increase the proportion of commercial space to residential units to encourage more site interaction. A bicycle parking facility of a minimum of 7 spaces was also recommended. The TDM programming section recommended Smart Commute participation by the retail and office establishments. The office establishments should also provide a carpool space for employees. A summary of the recommendations and responsible party is provided in **Table 5-2**.

TDM Recommendation	Responsibility
Separate Residential Units from Parking	3355 The Collegeway L.P
Missing Pedestrian Links	3355 The Collegeway L.P
Bicycle Parking Facility	3355 The Collegeway L.P
Smart Commute Participation	Establishment Owners

Table 5-2: TDM Recommendation Summary





6.0 PARKING REVIEW

6.1 Vehicle Minimum By-law Rates

The proposed development comprises of 336 residential townhouse units with 379 resident spaces and 63 non-residential/commercial spaces. The applicable By-law rates have been applied to the subject site's statistics and are summarized in **Table 6-1** below.

	By Law Parking								
Type of Use		Proposed	Enll	Shared Parking Formula (%)					Difference
	By-law Rate	Developmen t Site Statistics	Base Standar ds	Morning	Noon	Afternoon	Evening	Provide d	(By-law Evening vs Provided)
Stacked Townhouse	1.5 per	324	486	437	316	437	486	379	-128
	Two-Bedroom Unit			(90%)	(65%)	(90%)	(100%)		
	1.75 per	12	21	19	14	19	21		
	Three-Bedroom Unit			(90%)	(65%)	(90%)	(100%)		
Desidential Visitor	0.05	226	94	17	17	50	84		
Residential visitor	0.25 per Unit	550	64	(20%)	(20%)	(60%)	(100%)		
Retail -549 m ²	4.3 per 100 m ²	540	23	18	21	21	21	63	-44
				(80%)	(90%)	(90%)	(90%)		
Office - 549 m ²	3.2 per 100 m ²	540	17	17	15	16	2		
				(100%)	(90%)	(95%)	(10%)		
Total 6.			631	508	383	543	614	442	-172

 Table 6-1: Minimum Vehicle Parking Standards

The City of Mississauga Zoning By-law 0225-2007 specifies a minimum of 614 parking spaces to be supplied. The site plan provided indicates the provision of 442 parking spaces and is short by 172 parking spaces. A series of residential, visitor and retail proxy surveys were conducted to justify a reduction from the zoning by-law rates.

6.2 Resident Parking Demand

To determine if the proposed supply is adequate to accommodate the parking demand, a series of proxy parking surveys was conducted at a stacked townhouse complex located at 1701 Lampman Ave, Burlington. This location was chosen because the residential unit types and orientation are similar to the proposed development. Furthermore, both locations are located near schools, have some access to retail, are near 400 series highways, are outside of Toronto in low density neighbourhoods, and have access to similar transit service.

The first survey was conducted on Tuesday, March 22, 2016 from 11:00 PM to 2:00 AM to capture the typical resident peak parking demand. To capture the typical visitor peak parking demand, two surveys were conducted on Friday, April 1, 2016 from 6:00 PM to 9:00 PM and again on Saturday, April 2, 2016 from 6:00 PM to midnight. The results of the proxy parking demand surveys are summarized in **Table 6-2**.

Survey Date	Peak Periods	Number of Residential Units	Residential Parking Supply	Max Residential Parking Demand	Proxy Residential Parking Rates	Visitor Parking Supply	Max Visitor Parking Demand	Proxy Visitor Parking Rates
Tuesday, March 22, 2016	Weekday			108	1.23		4	0.05
Friday, April 1, 2016	Washand	88	134	81	0.92	14	6	0.07
Saturday, April 2, 2016			87	0.99		9	0.10	

Table 6-2: Proxy Parking Demand Survey Results



The peak resident parking demand occurred at 12:00-12:30 AM on the Tuesday March 22, 2016 survey with a demand of 108 resident parking spaces for 88 residential units. This equates to a peak parking demand rate of 1.23 parking spaces/unit. **Figure 6-1** summarizes the resident parking demand. **Appendix F** further details the results of the proxy surveys.



Figure 6-1: Proxy Site Residential Parking Demands

The 1.23 peak resident parking demand rate will be applied to the proposed development site statistics to project the parking spaces needed to accommodate the peak parking demand. This is summarized in **Table 6-3**.

Proposed Development	Proxy Resident Parking Rate	Residential Units	Peak Resident Demand	Resident Parking Supply	Difference	
3355 The Collegeway	1.23 spaces per unit	336	413	379	-34	

Table 6-3: Resident Peak Parking Demand Application

The proposed development is, therefore, short 34 spaces from the observed resident peak parking demand. Nonresident proxy surveys will be conducted to determine if there is residual parking supply to be converted to resident spaces.



6.3 Other Parking Demand

The proposed development will provide 63 shared spaces between the retail, residential visitors, and office uses. To estimate the peak visitor parking rates from these uses a series of proxy surveys were conducted at the 1701 Lampman Avenue location (for visitor) and at the existing retail development.

Visitors

The peak visitor parking demand occurred at 12:30-1:30 AM on Saturday, April 2, 2016 with a rate of 0.10. However, survey results indicate this would only occur once a week at 8:30-9:30 PM on a Saturday. Therefore, the much more common visitor parking demand of 0.09 will be utilized. **Figure 6-2** summarizes the visitor parking demand.



Figure 6-2: Proxy Site Residential Visitor Parking Demand

<u>Retail</u>

To estimate the peak parking rates for the retail uses, a series of proxy surveys were conducted at the existing retail development. The existing retail development should exhibit similar parking demand characteristics as the proposed retail development. A summary of the observed retail parking rates are provided in **Figure 6-3**.





Figure 6-3: Saturday Retail Parking Demand

Overall Parking Demand

This retail parking rate was added to the visitor parking rate of 1701 Lampman Avenue over the peak Friday and Saturday periods. The office peak parking demand is expected to be less than the retail and visitor peak parking demand and, therefore, the Friday and Saturday periods represent the overall peak periods for the proposed development. A summary of the results is provided in **Figure 6-4** and **Figure 6-5**. Appendix G provides a raw summary of the survey results.





Figure 6-4: Friday Other Parking Demand



Figure 6-5: Saturday Other Parking Demand



The results of the survey indicate that the proposed other parking demand peaks at 45 spaces for the proposed development. Therefore, 18 residual spaces may be reserved for additional resident parking. This resident parking is located on the commercial side of the proposed development. Thus, these spaces shall be the second parking space per unit available for lease or purchase. A summary of the revised resident parking supply is provided below in **Table 6-4**.

Proposed Development	Existing Resident Spaces	Commercial Parking Space Residual	Adjusted Resident Parking Supply	Resident Parking Demand	Difference	Resident Parking Rate
3355 The Collegeway	379	+ 18	= 397	413	-16	1.18

Table 6-4: Adjusted Resident Parking Demand

The proposed development is now only 16 spaces short from accommodating the parking demand. To mitigate the difference it is recommended that the purchasing of the units be conducted in two phases. The first phase will market the residential units and parking at the proposed 1.18 spaces per residential unit. If the market demand continues to exhibit a resident parking demand similar to 1.18 spaces per unit than the remaining phase will be sold as status quo. If the market demand calls for additional parking, additional options for parking will be assessed to ensure the supply meets the demand.

To further mitigate parking issues, it is recommended that the subject site implement a clause in the purchasing agreement that residents will not be permitted to seek a street parking permit program from the municipality. This clause will ensure minimal impact from the proposed development on the surrounding uses. It is expected that the non-residential parking demand (including visitor) will be accommodated in the 45 supplied parking spaces as indicated in the following section.

6.4 Supporting Parking Rate Data

2700 Aquitaine Avenue, Mississauga

A proxy survey was conducted at the existing 2700 Aquitaine Avenue development in the City of Mississauga on June 11th-16th, 2013 by Crozier & Associates. The site consists of a 161-storey high-rise apartment with 115 dwelling units and a low-rise dwelling unit (similar to the proposed development) with 220 dwelling units. The survey results indicate the peak parking demand (for both visitor and residential) was 1.23 parking spaces per unit. Additional details on this survey are provided in **Appendix G**.

1555-75 Kingston Road, Pickering

This townhouse development was recently approved for a parking rate of 1.0 spaces per residential unit and 0.2 spaces for visitors for a total rate of 1.2 spaces per residential unit. Although the transit levels of service is not as high as the Pickering site, the proposed Collegeway development is providing 1.32 spaces per residential unit for both resident and visitor parking. Additional details on this survey are provided in **Appendix G**.

Draft City Of Vaughan Parking Standards Review

The Draft City of Vaughan Parking Standards Review assessed the parking demand of many multi-dwelling unit sites within the City of Vaughan. The review proposes a base rate of 1.10 parking spaces per residential unit for sites similar to the proposed development. It is our opinion that the lower density areas of Vaughan, with a base rate of 1.10 parking spaces per residential unit, is similar to the lower density areas of Mississauga (subject site). Additional details from this report are provided in **Appendix G**.


7.0 LOADING ASSESSMENT

The proposed development is subject to the rates and standards outlined in the city wide Mississauga Zoning By-law 0225-2007. The minimum parking rates applied to the proposed 336 residential stacked townhouse units and commercial uses are summarized in **Table 7-1**.

Land Use	Proposed Development Site Statistics	By-Law Rates	Loading Spaces Provided
Residential	336 units	None Required	1 Garbage Truck Loading Area
Retail	549 m ²	1 Space	1 Loading Space
Office	549 m ²	None Required	None
Total		1 Space	2 Spaces

 Table 7-1: Loading Space Rates

The By-law outlines a minimum standard of 1 loading space for the proposed development. The site plan indicates the provision of one loading space for the retail/office and a garbage truck loading area for the residential. The proposed development is, therefore, in conformance with the loading rates in the by-law.



33

8.0 CONCLUSIONS

The proposed development comprises of 336 two-bedroom residential stacked townhouses in 11 blocks and a commercial pad containing approximately 950 m² gross floor area of retail and office uses.

During Existing Transportation Conditions:

• The intersection capacity analysis indicates residual capacity and acceptable levels of service (LOS) for all signalized movements with the exception of the eastbound left movement during the PM peak hour. This movement is operating with a V/C of 0.94 which is nearing capacity constraints and a 95th percentile queue which extends beyond the storage length.

During Future Background Transportation Conditions:

• The optimized intersection capacity analysis indicates residual capacity and acceptable LOS for all movements. The previously mentioned eastbound left movement is expected to operate with some 95th percentile queue exceedances during the PM peak hour.

During Future Total Transportation Conditions:

- Overall, the proposed development's net vehicle trip generation is 50 two-way vehicle net trips in the AM peak hour and -149 net two-way vehicle trips during the PM peak hour.
- The intersection capacity analysis indicates residual capacity for all movements during the future total conditions. The signalized intersection is operating with similar overall conditions relative to the future background (optimized) intersection capacity analysis. The 95th percentile queues also remain similar for the eastbound left movement during the PM peak hour.

Parking Conditions

- The site plan indicates the provision of 379 resident parking spaces and 63 visitor/commercial parking spaces.
- The City of Mississauga Zoning By-law 0225-2007 specifies a minimum of 614 parking spaces to be supplied. The proposed development is 172 spaces short of the minimum parking standards and is not in conformance with the by law.
- Proxy surveys, on-street parking, similar developments, nearby transit services, TDM measures, and nearby land uses indicate the parking supply is sufficient to accommodate the peak parking demand.

Loading Conditions

• The proposed development is in compliance with the loading provisions in the zoning by-law.

TDM Conclusion

• The Sustainable Transportation through Site Design section identified missing pedestrian links to the commercial pad and the recommendation to increase the proportion of commercial space to residential units to encourage more site interaction. A bicycle parking facility of a minimum of 7 spaces was also recommended.

APPENDIX A

Traffic Counts and Signal Timing Plans



Signal Timing Plans



?? SHOW TIMING REPORT, ACT1-3, 1844 SCHEDULED DATA INT TIME SELECTION PLANS IN USE ALTERNATES MODE CYC OFF SPLT SPEC DUP MODE CYC OFF SPLT SPEC DUP LEN NO. NO. FUNC ISEC LEN NO. NO. FUNC ISEC / / / / LO 101 2 2 2 844 00:00 / SCHEDULED DATA INT TIME SELECTION PLANS IN USE ALTERNATES MODE CYC OFF SPLT SPEC DUP MODE CYC OFF SPLT SPEC DUP LEN NO. NO. FUNC ISEC LEN NO. NO. FUNC ISEC 844 00:00 / / / / / LO 101 2 2 2 SCHEDULED DATA INT TIME SELECTION PLANS IN USE ALTERNATES CYC OFF SPLT SPEC DUP MODE CYC OFF SPLT SPEC MODE DUP LEN NO. NO. FUNC ISEC LEN NO. NO. FUNC ISEC 844 00:00 / / / / / LO 101 2 2 2 ?? SHOW CDT844 CYCLE DEFINITION TABLE: 844 PHASE DIR VEH PED PED AMBER ALL COMM SPECIAL STREET MIN MIN CLEAR RED DELAY FEATURE NAME 1 1 11 15 4 2 3 1 С RIDGEWAY DR NS 3 1 4 ΕW 11 15 4 3 1 COLLEGEWAY 5 1 6 1 7 1 8 1 VALID SPECIAL FUNCTIONS(Y/N) 1 2 3 1&2 1&3 2&3 ALL Y Y Y Y Y Y ?? SHOW SPF2,1844 SPECIAL FUNCTIONS INTERSECTION 844 RIDGEWAY@COLLEGEWAY SPECIAL IN(Y)/OUT(N) FUNCTION # 1 2 3 NA PED CAL PHASE OMIT BUT SPF2 Y=ON 2 Y N N ??

INT No.: 844

LOCATION: Ridgeway @ The Collegeway

SCHEDULED DATA

Mode	Cycle Length	OFF No.	Split No.	Spec Func	DUP ISEC
LO	101	2	2	2	

PHASING DATA

PHASE	MIN	MAX	WALK	DON'T WALK	AMBER	ALL-RED
2. N/S Ridgeway	45	N/A	30	15	4	2.5
4. E/W The Collegeway	8	25	11	15	4	3

* ALL VALUES IN SECONDS

TMC Counts



Weekday A.M. Peak Hour



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830File Name: 90300016-TheCollegeway&PlazaWestAccess-AMLocation: TheCollegeway&PlazaWestAccessSite Code: 98300016Weather: -14 degreesStart Date: 11/02/2016Surveyor(s): Ujwal PandaPage No: 1

								Groups	s Print	ed- Cars	<u>s - Tru</u>	<u>cks - I</u>	Buses								
		Plaza	West	Acces	S		The	Colleg	geway								The	Colleg	geway		
		Fi	rom No	orth			F	rom E	ast			Fr	om Sc	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	2	0	2	3	7	0	0	1	2	3	0	0	0	0	0	1	0	0	0	1	11
07:15	7	0	2	2	11	0	0	3	2	5	0	0	0	0	0	5	0	0	0	5	21
07:30	5	0	4	3	12	0	0	2	0	2	0	0	0	0	0	2	0	0	5	7	21
07:45	3	0	3	5	11	0	0	3	1	4	0	0	0	0	0	0	0	0	7	7	22
Total	17	0	11	13	41	0	0	9	5	14	0	0	0	0	0	8	0	0	12	20	75
08:00	2	0	6	1	9	0	0	1	3	4	0	0	0	0	0	4	0	0	4	8	21
08:15	3	0	5	6	14	0	0	0	2	2	0	0	0	0	0	2	0	0	2	4	20
08:30	2	0	4	3	9	0	0	5	1	6	0	0	0	0	0	2	0	0	3	5	20
08:45	2	0	3	0	5	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	8
Total	9	0	18	10	37	0	0	7	6	13	0	0	0	0	0	10	0	0	9	19	69
Grand Total	26	0	29	23	78	0	0	16	11	27	0	0	0	0	0	18	0	0	21	39	144
Apprch %	33.3	0	37.2	29.5		0	0	59.3	40.7		0	0	0	0		46.2	0	0	53.8		
Total %	18.1	0	20.1	16	54.2	0	0	11.1	7.6	18.8	0	0	0	0	0	12.5	0	0	14.6	27.1	
Cars	26	0	28	21	75	0	0	16	11	27	0	0	0	0	0	18	0	0	21	39	141
% Cars	100	0	96.6	91.3	96.2	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	97.9
Trucks	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Trucks	0	0	3.4	8.7	3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830	File Name	: 90300016-TheCollegeway&PlazaWestAccess-AM
Location: TheCollegeway&PlazaWestAccess	Site Code	: 98300016
Weather: -14 degrees	Start Date	: 11/02/2016
Surveyor(s): Ujwal Panda	Page No	: 2

				-																	
		Plaza	West	Acces	S		The	Colleg	jeway								The	Colleg	jeway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	uth			Fi	om W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Ar	nalysis	From (07:45 t	o 08:30) - Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 07:4	5															
07:45	3	0	3	5	11	0	0	3	1	4	0	0	0	0	0	0	0	0	7	7	22
08:00	2	0	6	1	9	0	0	1	3	4	0	0	0	0	0	4	0	0	4	8	21
08:15	3	0	5	6	14	0	0	0	2	2	0	0	0	0	0	2	0	0	2	4	20
08:30	2	0	4	3	9	0	0	5	1	6	0	0	0	0	0	2	0	0	3	5	20
Total Volume	10	0	18	15	43	0	0	9	7	16	0	0	0	0	0	8	0	0	16	24	83
% App. Total	23.3	0	41.9	34.9		0	0	56.2	43.8		0	0	0	0		33.3	0	0	66.7		
PHF	.833	.000	.750	.625	.768	.000	.000	.450	.583	.667	.000	.000	.000	.000	.000	.500	.000	.000	.571	.750	.943
Cars	10	0	17	13	40	0	0	9	7	16	0	0	0	0	0	8	0	0	16	24	80
% Cars	100	0	94.4	86.7	93.0	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	96.4
Trucks	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Trucks	0	0	5.6	13.3	7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & Plaza Access Weather: -14 degress Surveyor(s): Mile Mothibe

File Name : 90300018-RidgewayDr&PlazaAccess-AM Site Code : 98300018 Start Date : 11/02/2016 Page No : 1

	_						G	Groups	S Printe	ed- Car	<u>s - Tru</u>	cks - I	Buses			-					
		Ridg	geway	Drive			Pla	za Ac	cess			Ridg	geway	Drive		C	omme	ercial I	Drivew	ay	
		Fr	om No	orth			F	rom E	ast			Fr	om Sc	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	0	0	2	4	6	0	0	0	1	1	0	1	2	0	3	0	0	1	0	1	11
07:15	2	1	1	2	6	2	0	3	0	5	3	0	1	0	4	1	0	1	0	2	17
07:30	2	2	9	2	15	1	0	1	1	3	3	3	1	0	7	1	1	3	0	5	30
07:45	2	2	14	0	18	1	0	2	3	6	1	3	0	0	4	0	0	0	0	0	28
Total	6	5	26	8	45	4	0	6	5	15	7	7	4	0	18	2	1	5	0	8	86
08:00	3	1	8	0	12	0	0	3	0	3	1	0	0	0	1	0	0	1	0	1	17
08:15	3	0	7	3	13	0	2	1	1	4	2	0	2	0	4	0	0	1	1	2	23
08:30	10	0	2	0	12	1	1	1	0	3	5	0	0	0	5	0	0	0	0	0	20
08:45	8	0	6	0	14	0	1	2	1	4	2	0	0	0	2	1	0	0	0	1	21
Total	24	1	23	3	51	1	4	7	2	14	10	0	2	0	12	1	0	2	1	4	81
						I					I										
Grand Total	30	6	49	11	96	5	4	13	7	29	17	7	6	0	30	3	1	7	1	12	167
Apprch %	31.2	6.2	51	11.5		17.2	13.8	44.8	24.1		56.7	23.3	20	0		25	8.3	58.3	8.3		
Total %	18	3.6	29.3	6.6	57.5	3	2.4	7.8	4.2	17.4	10.2	4.2	3.6	0	18	1.8	0.6	4.2	0.6	7.2	
Cars	29	0	49	11	89	5	4	13	7	29	17	0	6	0	23	2	1	7	1	11	152
% Cars	96.7	0	100	100	92.7	100	100	100	100	100	100	0	100	0	76.7	66.7	100	100	100	91.7	91
Trucks	1	6	0	0	7	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	15
<u>% Trucks</u>	3.3	100	0	0	7.3	0	0	0	0	0	0	100	0	0	23.3	33.3	0	0	0	8.3	9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & Plaza Access Weather: -14 degress Surveyor(s): Mile Mothibe File Name : 90300018-RidgewayDr&PlazaAccess-AM Site Code : 98300018 Start Date : 11/02/2016 Page No : 2

		Rido	0.000	Drivo			DIa	72 4 6	2202			Ride	101/21/	Drivo		C	omme	rcial [Tivow	/2\/	í .
		Fr	om No	orth			F	rom E	ast			Fr	om So	uth		U	Fi	om W	est	ay	
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From ()7:45 to	o 08:30) - Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 07:4	5															
07:45	2	2	14	0	18	1	0	2	3	6	1	3	0	0	4	0	0	0	0	0	28
08:00	3	1	8	0	12	0	0	3	0	3	1	0	0	0	1	0	0	1	0	1	17
08:15	3	0	7	3	13	0	2	1	1	4	2	0	2	0	4	0	0	1	1	2	23
08:30	10	0	2	0	12	1	1	1	0	3	5	0	0	0	5	0	0	0	0	0	20
Total Volume	18	3	31	3	55	2	3	7	4	16	9	3	2	0	14	0	0	2	1	3	88
% App. Total	32.7	5.5	56.4	5.5		12.5	18.8	43.8	25		64.3	21.4	14.3	0		0	0	66.7	33.3		
PHF	.450	.375	.554	.250	.764	.500	.375	.583	.333	.667	.450	.250	.250	.000	.700	.000	.000	.500	.250	.375	.786
Cars	17	0	31	3	51	2	3	7	4	16	9	0	2	0	11	0	0	2	1	3	81
% Cars	94.4	0	100	100	92.7	100	100	100	100	100	100	0	100	0	78.6	0	0	100	100	100	92.0
Trucks	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	7
% Trucks	5.6	100	0	0	7.3	0	0	0	0	0	0	100	0	0	21.4	0	0	0	0	0	8.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: TheCollegeway&PlazaEastAccess Weather: -14 degress Surveyor(s): Ashok Panda

File Name : 90300022-TheCollegeway&PlazaEastAccess-AM Site Code : 98300022 Start Date : 11/02/2016

Page No : 1

							G	roups	Printe	d- Car	s - Tru	cks - I	Buses								
		Plaza	East	Access	5		The	Colleg	jeway								The	Colleg	geway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	outh			Fi	om W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	0	0	1	1	2	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	4
07:15	1	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
07:30	2	0	1	2	5	0	0	1	0	1	0	0	0	0	0	1	0	0	1	2	8
07:45	1	0	2	2	5	0	0	1	0	1	0	0	0	0	0	1	0	0	3	4	10
Total	4	0	4	8	16	0	0	3	0	3	0	0	0	0	0	3	0	0	4	7	26
08:00	1	0	4	1	6	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	8
08:15	3	0	2	0	5	0	0	1	1	2	0	0	0	0	0	0	0	0	4	4	11
08:30	5	0	1	0	6	0	0	3	4	7	0	0	0	0	0	3	0	0	1	4	17
08:45	1	0	1	0	2	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	4
Total	10	0	8	1	19	1	0	5	7	13	0	0	0	0	0	3	0	0	5	8	40
Grand Total	14	0	12	9	35	1	0	8	7	16	0	0	0	0	0	6	0	0	9	15	66
Apprch %	40	0	34.3	25.7		6.2	0	50	43.8		0	0	0	0		40	0	0	60		
Total %	21.2	0	18.2	13.6	53	1.5	0	12.1	10.6	24.2	0	0	0	0	0	9.1	0	0	13.6	22.7	
Cars	14	0	12	9	35	1	0	8	5	14	0	0	0	0	0	6	0	0	9	15	64
% Cars	100	0	100	100	100	100	0	100	71.4	87.5	0	0	0	0	0	100	0	0	100	100	97
Trucks	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0	0	28.6	12.5	0	0	0	0	0	0	0	0	0	0	3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: TheCollegeway&PlazaEastAccess Site Code : 98300022 Weather: -14 degress Surveyor(s): Ashok Panda

File Name : 90300022-TheCollegeway&PlazaEastAccess-AM Start Date : 11/02/2016

Page No : 2

		Plaza	East /	Access	5		The	Colleg	geway								The	Colleg	geway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From (07:45 to	o 08:30) - Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 07:4	5															
07:45	1	0	2	2	5	0	0	1	0	1	0	0	0	0	0	1	0	0	3	4	10
08:00	1	0	4	1	6	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	8
08:15	3	0	2	0	5	0	0	1	1	2	0	0	0	0	0	0	0	0	4	4	11
08:30	5	0	1	0	6	0	0	3	4	7	0	0	0	0	0	3	0	0	1	4	17
Total Volume	10	0	9	3	22	1	0	5	6	12	0	0	0	0	0	4	0	0	8	12	46
% App. Total	45.5	0	40.9	13.6		8.3	0	41.7	50		0	0	0	0		33.3	0	0	66.7		
PHF	.500	.000	.563	.375	.917	.250	.000	.417	.375	.429	.000	.000	.000	.000	.000	.333	.000	.000	.500	.750	.676
Cars	10	0	9	3	22	1	0	5	4	10	0	0	0	0	0	4	0	0	8	12	44
% Cars	100	0	100	100	100	100	0	100	66.7	83.3	0	0	0	0	0	100	0	0	100	100	95.7
Trucks	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0	0	33.3	16.7	0	0	0	0	0	0	0	0	0	0	4.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Colonail Dr & The Collegeway Weather: -14 degerees Surveyor(s): Gordana Rakonjac File Name : MERGED-Colonial Dr &TheCollegeway-AM Site Code : 98300029 Start Date : 11/02/2016 Page No : 1

							G	Groups	Print	ed- Car	s - Tru	cks - I	Buses								
		Col	onial l	Drive			The	Colleg	jeway			Col	onial I	Drive			The	Colleg	geway		
		Fr	om No	orth			F	rom E	ast			Fr	om Sc	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	3	10	5	0	18	1	4	0	0	5	3	16	12	2	33	5	11	3	3	22	78
07:15	6	9	8	2	25	6	21	0	1	28	3	14	14	1	32	0	21	3	2	26	111
07:30	8	14	17	1	40	1	29	3	0	33	9	14	19	0	42	3	30	5	4	42	157
07:45	16	18	22	1	57	6	44	9	1	60	12	25	15	2	54	1	34	6	4	45	216
Total	33	51	52	4	140	14	98	12	2	126	27	69	60	5	161	9	96	17	13	135	562
08:00	26	27	18	0	71	4	61	11	0	76	17	19	12	3	51	8	41	10	3	62	260
08:15	11	17	15	2	45	4	45	5	0	54	10	14	16	5	45	7	44	9	5	65	209
08:30	13	21	15	1	50	10	46	13	7	76	15	15	18	10	58	3	28	14	11	56	240
08:45	14	23	18	2	57	7	23	3	5	38	7	30	27	4	68	5	31	1	5	42	205
Total	64	88	66	5	223	25	175	32	12	244	49	78	73	22	222	23	144	34	24	225	914
Grand Total	97	139	118	9	363	39	273	44	14	370	76	147	133	27	383	32	240	51	37	360	1476
Apprch %	26.7	38.3	32.5	2.5		10.5	73.8	11.9	3.8		19.8	38.4	34.7	7		8.9	66.7	14.2	10.3		
Total %	6.6	9.4	8	0.6	24.6	2.6	18.5	3	0.9	25.1	5.1	10	9	1.8	25.9	2.2	16.3	3.5	2.5	24.4	
Cars	96	126	110	9	341	38	268	43	14	363	73	143	121	27	364	27	238	50	37	352	1420
% Cars	99	90.6	93.2	100	93.9	97.4	98.2	97.7	100	98.1	96.1	97.3	91	100	95	84.4	99.2	98	100	97.8	96.2
Trucks	1	1	0	0	2	0	1	0	0	1	0	1	3	0	4	1	0	0	0	1	8
% Trucks	1	0.7	0	0	0.6	0	0.4	0	0	0.3	0	0.7	2.3	0	1	3.1	0	0	0	0.3	0.5
Buses	0	12	8	0	20	1	4	1	0	6	3	3	9	0	15	4	2	1	0	7	48
% Buses	0	8.6	6.8	0	5.5	2.6	1.5	2.3	0	1.6	3.9	2	6.8	0	3.9	12.5	0.8	2	0	1.9	3.3



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Colonail Dr & The Collegeway Weather: -14 degerees Surveyor(s): Gordana Rakonjac File Name : MERGED-Colonial Dr &TheCollegeway-AM Site Code : 98300029 Start Date : 11/02/2016 Page No : 2

		Col	onial [Drive			The	Colleg	jeway			Col	onial I	Drive			The	Colleg	jeway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	outh			Fi	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Ar	nalysis	From ()7:45 to	o 08:30) - Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 07:4	5															
07:45	16	18	22	1	57	6	44	9	1	60	12	25	15	2	54	1	34	6	4	45	216
08:00	26	27	18	0	71	4	61	11	0	76	17	19	12	3	51	8	41	10	3	62	260
08:15	11	17	15	2	45	4	45	5	0	54	10	14	16	5	45	7	44	9	5	65	209
08:30	13	21	15	1	50	10	46	13	7	76	15	15	18	10	58	3	28	14	11	56	240
Total Volume	66	83	70	4	223	24	196	38	8	266	54	73	61	20	208	19	147	39	23	228	925
% App. Total	29.6	37.2	31.4	1.8		9	73.7	14.3	3		26	35.1	29.3	9.6		8.3	64.5	17.1	10.1		
PHF	.635	.769	.795	.500	.785	.600	.803	.731	.286	.875	.794	.730	.847	.500	.897	.594	.835	.696	.523	.877	.889
Cars	66	78	66	4	214	23	192	37	8	260	52	72	54	20	198	17	145	38	23	223	895
% Cars	100	94.0	94.3	100	96.0	95.8	98.0	97.4	100	97.7	96.3	98.6	88.5	100	95.2	89.5	98.6	97.4	100	97.8	96.8
Trucks	0	1	0	0	1	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	4
% Trucks	0	1.2	0	0	0.4	0	0	0	0	0	0	0	4.9	0	1.4	0	0	0	0	0	0.4
Buses	0	4	4	0	8	1	4	1	0	6	2	1	4	0	7	2	2	1	0	5	26
% Buses	0	4.8	5.7	0	3.6	4.2	2.0	2.6	0	2.3	3.7	1.4	6.6	0	3.4	10.5	1.4	2.6	0	2.2	2.8



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & The Collegeway Weather: -14 degrees Surveyor(s): Nikola & Nada Ateljevic File Name : MERGED-RidgewayDr&TheCollegeway-AM Site Code : 98300034 Start Date : 11/02/2016 Page No : 1

	_						G	Groups	S Print	ed- Cars	s - Tru	cks - I	Buses			-					
		Ridg	geway	Drive			The	Colleg	jeway			Ridg	geway	Drive			The	Colleg	jeway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	outh			F	om W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	7	67	18	0	92	11	4	6	3	24	0	33	6	0	39	1	0	2	0	3	158
07:15	13	130	24	0	167	16	9	8	1	34	2	58	9	0	69	3	3	0	0	6	276
07:30	18	146	42	0	206	26	24	13	6	69	7	67	12	0	86	2	3	0	0	5	366
07:45	33	176	45	0	254	20	39	33	9	101	7	61	5	0	73	6	3	0	0	9	437
Total	71	519	129	0	719	73	76	60	19	228	16	219	32	0	267	12	9	2	0	23	1237
08:00	49	175	38	0	262	27	25	50	3	105	4	76	11	4	95	5	1	2	0	8	470
08:15	33	217	31	1	282	41	17	22	11	91	6	77	12	5	100	7	5	0	4	16	489
08:30	26	213	17	0	256	29	18	21	4	72	4	98	10	3	115	2	0	5	1	8	451
08:45	16	185	27	0	228	26	11	15	6	58	3	66	7	1	77	10	4	2	1	17	380
Total	124	790	113	1	1028	123	71	108	24	326	17	317	40	13	387	24	10	9	6	49	1790
Grand Total	195	1309	242	1	1747	196	147	168	43	554	33	536	72	13	654	36	19	11	6	72	3027
Apprch %	11.2	74.9	13.9	0.1		35.4	26.5	30.3	7.8		5	82	11	2		50	26.4	15.3	8.3		
Total %	6.4	43.2	8	0	57.7	6.5	4.9	5.6	1.4	18.3	1.1	17.7	2.4	0.4	21.6	1.2	0.6	0.4	0.2	2.4	
Cars	194	1303	242	1	1740	193	146	166	43	548	33	531	69	13	646	32	19	10	6	67	3001
% Cars	99.5	99.5	100	100	99.6	98.5	99.3	98.8	100	98.9	100	99.1	95.8	100	98.8	88.9	100	90.9	100	93.1	99.1
Trucks	0	3	0	0	3	1	1	0	0	2	0	3	0	0	3	4	0	1	0	5	13
% Trucks	0	0.2	0	0	0.2	0.5	0.7	0	0	0.4	0	0.6	0	0	0.5	11.1	0	9.1	0	6.9	0.4
Buses	1	3	0	0	4	2	0	2	0	4	0	2	3	0	5	0	0	0	0	0	13
% Buses	0.5	0.2	0	0	0.2	1	0	1.2	0	0.7	0	0.4	4.2	0	0.8	0	0	0	0	0	0.4



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & The Collegeway Weather: -14 degrees Surveyor(s): Nikola & Nada Ateljevic File Name : MERGED-RidgewayDr&TheCollegeway-AM Site Code : 98300034 Start Date : 11/02/2016 Page No : 2

		Ridg	eway	Drive			The	Colleg	jeway			Ridg	geway	Drive			The	Colleg	jeway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	uth			Fi	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From (07:00 to	08:45	- Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection I	Begins	at 07:45	5															
07:45	33	176	45	0	254	20	39	33	9	101	7	61	5	0	73	6	3	0	0	9	437
08:00	49	175	38	0	262	27	25	50	3	105	4	76	11	4	95	5	1	2	0	8	470
08:15	33	217	31	1	282	41	17	22	11	91	6	77	12	5	100	7	5	0	4	16	489
08:30	26	213	17	0	256	29	18	21	4	72	4	98	10	3	115	2	0	5	1	8	451
Total Volume	141	781	131	1	1054	117	99	126	27	369	21	312	38	12	383	20	9	7	5	41	1847
% App. Total	13.4	74.1	12.4	0.1		31.7	26.8	34.1	7.3		5.5	81.5	9.9	3.1		48.8	22	17.1	12.2		
PHF	.719	.900	.728	.250	.934	.713	.635	.630	.614	.879	.750	.796	.792	.600	.833	.714	.450	.350	.313	.641	.944
Cars	140	777	131	1	1049	115	99	125	27	366	21	308	37	12	378	18	9	6	5	38	1831
% Cars	99.3	99.5	100	100	99.5	98.3	100	99.2	100	99.2	100	98.7	97.4	100	98.7	90.0	100	85.7	100	92.7	99.1
Trucks	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	2	0	1	0	3	9
% Trucks	0	0.4	0	0	0.3	0.9	0	0	0	0.3	0	0.6	0	0	0.5	10.0	0	14.3	0	7.3	0.5
Buses	1	1	0	0	2	1	0	1	0	2	0	2	1	0	3	0	0	0	0	0	7
% Buses	0.7	0.1	0	0	0.2	0.9	0	0.8	0	0.5	0	0.6	2.6	0	0.8	0	0	0	0	0	0.4



TABULAR SUMMARY OF TRIP GENERATION COUNT

ROJECT # :	9830.200			N/S	STREET:	Colonial Dr	ive				AREA:	Mississau	ja
BSERVER	ML			E/W	STREET:	Plaza Acce	ss Front &	Rear Loadi	ing Area		PROV.:	ONTARIC	
		Plaza Acc	ess Front		Plaza	Access Res	ar - Loadin	a Area					
TIME	INBO				INBO					TOT	ΓAL		
BEGIN	Left	Right	Left	Right	Left	Right	Left	Right	IB	OB	ALL	HOURLY	
07:00	0	0	2	2	0	1	0	0	1	4	5		
07:15	0	4	4	0	0	0	0	0	4	4	8		
07:30	1	3	2	0	0	0	0	0	4	2	6		
07:45	3	7	3	1	2	1	1	1	13	6	19	38	
08:00	6	4	3	1	0	0	0	0	10	4	14	47	
08:15	0	4	5	1	0	0	0	0	4	6	10	49	
08:30	1	5	5	0	0	1	0	0	7	5	12	55	<peak hou<="" td=""></peak>
08:45	2	2	4	1	0	1	0	0	5	5	10	46	
									0	0	0		
16:00	6	10	9	3	0	0	1	0	16	13	29		
16:15	3	9	8	2	0	0	1	2	12	13	25		
16:30	6	10	8	3	1	0	1	2	17	14	31		
16:45	3	8	6	6	0	0	0	0	11	12	23	108	
17:00	6	10	5	7	0	1	0	0	17	12	29	108	
17:15	3	3	7	2	0	0	1	0	6	10	16	99	<peak hou<="" td=""></peak>
17:30	3	8	8	3	1	0	4	3	12	18	30	98	
17:45	5	13	8	0	0	0	0	0	18	8	26	101	
TOTAL	48	100	87	32	4	5	9	8	157	136	293		
	10	20	16	0	2	2	4	4	24	24	==	1	
	10	20	26	ى 19	∠ 1	∠ 1	ا د	2	54	ا ∠ ⁄۱۹	00		

TIME BEGIN	Pedestrian Crossing Front Access	Pedestrian Crossing Rear Access
07:00	0	0
07:15	2	2
07:30	1	1
07:45	4	5
08:00	2	3
08:15	12	13
08:30	9	9
08:45	5	6
16:00	2	5
16:15	2	5
16:30	2	5
16:45	2	5
17:00	2	3
17:15	4	8
17:30	3	7
17:45	4	6
TOTAL	56	83
AM PEAK	27	30
PM PEAK	10	21

phf	0.41667	0.71429	0.8	0.75	0.25	0.5	0.25	0.25
	0.75	0.775	0.8125	0.64286	0.25	0.25	0.5	0.25
avg phf	0.67024				0.3125			
	0.74509				0.3125			

Weekday P.M. Peak Hour



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830File Name: 90300016-TheCollegeway&PlazaWestAccess-PMLocation: TheCollegeway&PlazaWestAccessSite Code: 98300016Weather: -14 degreesStart Date: 11/02/2016Surveyor(s): Ujwal PandaPage No: 1

							G	Groups	Printe	ed- Cars	s - Tru	cks - I	Buses								
		Plaza	West	Acces	s		The	Colleg	jeway								The	Colleg	geway		
		Fi	rom No	orth			F	rom E	ast			Fr	om So	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	11	0	7	1	19	0	0	7	0	7	0	0	0	0	0	13	0	0	1	14	40
16:15	8	0	10	1	19	0	0	11	1	12	0	0	0	0	0	9	0	0	4	13	44
16:30	3	0	10	1	14	0	0	11	1	12	0	0	0	0	0	9	0	0	1	10	36
16:45	5	0	8	0	13	0	0	5	2	7	0	0	0	0	0	12	0	0	3	15	35
Total	27	0	35	3	65	0	0	34	4	38	0	0	0	0	0	43	0	0	9	52	155
17:00	8	0	15	4	27	0	0	8	1	9	0	0	0	0	0	23	0	0	1	24	60
17:15	6	0	7	1	14	0	0	8	1	9	0	0	0	0	0	8	0	0	1	9	32
17:30	7	0	10	1	18	0	0	7	0	7	0	0	0	0	0	15	0	0	6	21	46
17:45	6	0	10	2	18	0	0	7	2	9	0	0	0	0	0	15	0	0	2	17	44
Total	27	0	42	8	77	0	0	30	4	34	0	0	0	0	0	61	0	0	10	71	182
Grand Total	54	0	77	11	142	0	0	64	8	72	0	0	0	0	0	104	0	0	19	123	337
Apprch %	38	0	54.2	7.7		0	0	88.9	11.1		0	0	0	0		84.6	0	0	15.4		
Total %	16	0	22.8	3.3	42.1	0	0	19	2.4	21.4	0	0	0	0	0	30.9	0	0	5.6	36.5	
Cars	54	0	77	11	142	0	0	64	8	72	0	0	0	0	0	104	0	0	19	123	337
% Cars	100	0	100	100	100	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830	File Name	: 90300016-TheCollegeway&PlazaWestAccess-PM
Location: TheCollegeway&PlazaWestAccess	Site Code	: 98300016
Weather: -14 degrees	Start Date	: 11/02/2016
Surveyor(s): Ujwal Panda	Page No	:2

		Plaza	West	Acces	s		The	Colleg	jeway								The	Colleg	jeway		
		Fr	om No	orth			F	rom E	ast			Fr	om So	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Ar	nalysis	From ²	16:30 t	o 17:15	5 - Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 16:30	C															
16:30	3	0	10	⁻ 1	14	0	0	11	1	12	0	0	0	0	0	9	0	0	1	10	36
16:45	5	0	8	0	13	0	0	5	2	7	0	0	0	0	0	12	0	0	3	15	35
17:00	8	0	15	4	27	0	0	8	1	9	0	0	0	0	0	23	0	0	1	24	60
17:15	6	0	7	1	14	0	0	8	1	9	0	0	0	0	0	8	0	0	1	9	32
Total Volume	22	0	40	6	68	0	0	32	5	37	0	0	0	0	0	52	0	0	6	58	163
% App. Total	32.4	0	58.8	8.8		0	0	86.5	13.5		0	0	0	0		89.7	0	0	10.3		
PHF	.688	.000	.667	.375	.630	.000	.000	.727	.625	.771	.000	.000	.000	.000	.000	.565	.000	.000	.500	.604	.679
Cars	22	0	40	6	68	0	0	32	5	37	0	0	0	0	0	52	0	0	6	58	163
% Cars	100	0	100	100	100	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & Plaza Access Weather: -14 degress Surveyor(s): Mile Mothibe

File Name : 90300018-RidgewayDr&PlazaAccess-PM Site Code : 98300018 Start Date : 11/02/2016 Page No : 1

							0	Groups	s Print	ed- Car	<u>s - Tru</u>	cks - I	Buses								
		Ridg	geway	Drive			Pla	aza Ac	cess			Ridg	geway	Drive		C	omme	ercial I	Drivew	ay	
		Fr	om No	orth			F	rom E	ast			Fr	om Sc	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	8	0	2	0	10	0	0	2	1	3	3	0	4	2	9	6	0	7	0	13	35
16:15	4	0	3	0	7	1	0	3	0	4	1	0	2	0	3	4	0	2	0	6	20
16:30	9	0	1	0	10	2	0	10	3	15	3	0	1	0	4	3	0	7	0	10	39
16:45	9	0	1	0	10	1	0	8	0	9	1	0	1	0	2	1	0	2	0	3	24
Total	30	0	7	0	37	4	0	23	4	31	8	0	8	2	18	14	0	18	0	32	118
17:00	14	0	1	0	15	0	0	8	0	8	1	0	0	0	1	5	0	11	0	16	40
17:15	9	0	0	1	10	0	0	3	1	4	5	0	4	0	9	3	0	2	0	5	28
17:30	10	0	3	0	13	1	0	11	0	12	2	0	4	0	6	5	0	8	0	13	44
17:45	13	0	1	1	15	0	0	8	1	9	1	0	1	0	2	1	0	4	0	5	31
Total	46	0	5	2	53	1	0	30	2	33	9	0	9	0	18	14	0	25	0	39	143
Grand Total	76	0	12	2	90	5	0	53	6	64	17	0	17	2	36	28	0	43	0	71	261
Apprch %	84.4	0	13.3	2.2		7.8	0	82.8	9.4		47.2	0	47.2	5.6		39.4	0	60.6	0		
Total %	29.1	0	4.6	0.8	34.5	1.9	0	20.3	2.3	24.5	6.5	0	6.5	0.8	13.8	10.7	0	16.5	0	27.2	
Cars	76	0	11	2	89	5	0	53	6	64	15	0	17	2	34	27	0	42	0	69	256
% Cars	100	0	91.7	100	98.9	100	0	100	100	100	88.2	0	100	100	94.4	96.4	0	97.7	0	97.2	98.1
Trucks	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	1	0	1	0	2	5
% Trucks	0	0	8.3	0	1.1	0	0	0	0	0	11.8	0	0	0	5.6	3.6	0	2.3	0	2.8	1.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & Plaza Access Weather: -14 degress Surveyor(s): Mile Mothibe File Name : 90300018-RidgewayDr&PlazaAccess-PM Site Code : 98300018 Start Date : 11/02/2016 Page No : 2

		Ridg	eway	Drive			Pla	za Ac	cess			Rido	ieway	Drive		С	omme	ercial I	Drivew	av	
		Fr	om Ńo	rth			F	rom E	ast			Fr	om So	outh			Fi	om W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From 1	6:30 to	0 17:15	- Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection I	Begins	at 16:3	0															
16:30	9	0	1	0	10	2	0	10	3	15	3	0	1	0	4	3	0	7	0	10	39
16:45	9	0	1	0	10	1	0	8	0	9	1	0	1	0	2	1	0	2	0	3	24
17:00	14	0	1	0	15	0	0	8	0	8	1	0	0	0	1	5	0	11	0	16	40
17:15	9	0	0	1	10	0	0	3	1	4	5	0	4	0	9	3	0	2	0	5	28
Total Volume	41	0	3	1	45	3	0	29	4	36	10	0	6	0	16	12	0	22	0	34	131
% App. Total	91.1	0	6.7	2.2		8.3	0	80.6	11.1		62.5	0	37.5	0		35.3	0	64.7	0		
PHF	.732	.000	.750	.250	.750	.375	.000	.725	.333	.600	.500	.000	.375	.000	.444	.600	.000	.500	.000	.531	.819
Cars	41	0	3	1	45	3	0	29	4	36	8	0	6	0	14	11	0	21	0	32	127
% Cars	100	0	100	100	100	100	0	100	100	100	80.0	0	100	0	87.5	91.7	0	95.5	0	94.1	96.9
Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0	1	0	2	4
% Trucks	0	0	0	0	0	0	0	0	0	0	20.0	0	0	0	12.5	8.3	0	4.5	0	5.9	3.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: TheCollegeway&PlazaEastAccess Weather: -14 degress Surveyor(s): Ashok Panda

File Name : 90300022-TheCollegeway&PlazaEastAccess-PM Site Code : 98300022 Start Date : 11/02/2016

Page No : 1

		Plaza	East	Access	5		The	Collec	iewav								The	Collec	aewav]
		F	om No	orth	-		F	rom E	ast			Fr	rom So	outh			F	rom W	lest		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Tota
16:00	2	0	1	1	4	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	g
16:15	5	0	3	1	9	0	0	4	0	4	0	0	0	0	0	1	0	0	1	2	15
16:30	7	0	3	1	11	0	0	6	0	6	0	0	0	0	0	1	0	0	0	1	18
16:45	8	0	3	0	11	0	0	4	1	5	0	0	0	0	0	4	0	0	0	4	20
Total	22	0	10	3	35	0	0	19	1	20	0	0	0	0	0	6	0	0	1	7	62
17:00	9	0	2	3	14	0	0	5	0	5	0	0	0	0	0	2	0	0	0	2	21
17:15	4	0	1	0	5	0	0	11	4	15	0	0	0	0	0	2	0	0	2	4	24
17:30	5	0	2	0	7	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	10
17:45	5	0	0	0	5	0	0	16	1	17	0	0	0	0	0	2	0	0	6	8	30
Total	23	0	5	3	31	0	0	34	5	39	0	0	0	0	0	7	0	0	8	15	85
Grand Total	45	0	15	6	66	0	0	53	6	59	0	0	0	0	0	13	0	0	9	22	147
Apprch %	68.2	0	22.7	9.1		0	0	89.8	10.2		0	0	0	0		59.1	0	0	40.9		
Total %	30.6	0	10.2	4.1	44.9	0	0	36.1	4.1	40.1	0	0	0	0	0	8.8	0	0	6.1	15	
Cars	45	0	15	6	66	0	0	53	6	59	0	0	0	0	0	13	0	0	9	22	147
% Cars	100	0	100	100	100	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: TheCollegeway&PlazaEastAccess Site Code : 98300022 Weather: -14 degress Surveyor(s): Ashok Panda

File Name : 90300022-TheCollegeway&PlazaEastAccess-PM Start Date : 11/02/2016

Page No : 2

		Plaza	East /	Access	5		The	Colleg	geway ast			Fr	om So	uth			The	Colleg	geway		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From	16:30 t	o 17:15	- Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection	Begins	at 16:3	C															
16:30	7	0	3	<u>1</u>	11	0	0	6	0	6	0	0	0	0	0	1	0	0	0	1	18
16:45	8	0	3	0	11	0	0	4	1	5	0	0	0	0	0	4	0	0	0	4	20
17:00	9	0	2	3	14	0	0	5	0	5	0	0	0	0	0	2	0	0	0	2	21
17:15	4	0	1	0	5	0	0	11	4	15	0	0	0	0	0	2	0	0	2	4	24
Total Volume	28	0	9	4	41	0	0	26	5	31	0	0	0	0	0	9	0	0	2	11	83
% App. Total	68.3	0	22	9.8		0	0	83.9	16.1		0	0	0	0		81.8	0	0	18.2		
PHF	.778	.000	.750	.333	.732	.000	.000	.591	.313	.517	.000	.000	.000	.000	.000	.563	.000	.000	.250	.688	.865
Cars	28	0	9	4	41	0	0	26	5	31	0	0	0	0	0	9	0	0	2	11	83
% Cars	100	0	100	100	100	0	0	100	100	100	0	0	0	0	0	100	0	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Colonail Dr & The Collegeway Weather: -14 degerees Surveyor(s): Gordana Rakonjac

File Name : MERGED-Colonial Dr &TheCollegeway-PM Site Code : 98300029 Start Date : 11/02/2016 Page No : 1

	Groups Printed- Cars - Trucks - Buses														_						
		Co	lonial	Drive			The	Colleg	geway			Co	onial	Drive			The	Colleg	jeway		
		Fr	rom No	orth			F	rom E	ast			Fr	om So	outh			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	6	20	7	0	33	10	24	7	3	44	6	31	6	5	48	12	44	11	3	70	195
16:15	9	28	16	0	53	11	41	6	0	58	7	17	12	0	36	11	32	10	2	55	202
16:30	8	18	11	6	43	18	38	16	8	80	11	25	4	5	45	18	57	17	7	99	267
16:45	5	19	15	0	39	12	35	7	1	55	8	24	15	1	48	14	35	12	1	62	204
Total	28	85	49	6	168	51	138	36	12	237	32	97	37	11	177	55	168	50	13	286	868
17:00	9	15	14	1	39	11	38	8	1	58	8	24	6	2	40	23	70	9	11	113	250
17:15	11	15	10	1	37	12	47	14	1	74	14	31	10	8	63	18	53	8	13	92	266
17:30	8	28	9	1	46	15	45	12	1	73	5	18	12	0	35	13	46	9	4	72	226
17:45	9	15	11	1	36	18	38	12	2	70	14	25	12	2	53	16	34	10	3	63	222
Total	37	73	44	4	158	56	168	46	5	275	41	98	40	12	191	70	203	36	31	340	964
Grand Total	65	158	93	10	326	107	306	82	17	512	73	195	77	23	368	125	371	86	44	626	1832
Apprch %	19.9	48.5	28.5	3.1		20.9	59.8	16	3.3		19.8	53	20.9	6.2		20	59.3	13.7	7		
Total %	3.5	8.6	5.1	0.5	17.8	5.8	16.7	4.5	0.9	27.9	4	10.6	4.2	1.3	20.1	6.8	20.3	4.7	2.4	34.2	
Cars	65	155	85	10	315	105	304	81	17	507	73	194	73	23	363	121	369	86	44	620	1805
% Cars	100	98.1	91.4	100	96.6	98.1	99.3	98.8	100	99	100	99.5	94.8	100	98.6	96.8	99.5	100	100	99	98.5
Trucks	0	1	0	0	1	1	2	0	0	3	0	1	0	0	1	0	2	0	0	2	7
% Trucks	0	0.6	0	0	0.3	0.9	0.7	0	0	0.6	0	0.5	0	0	0.3	0	0.5	0	0	0.3	0.4
Buses	0	2	8	0	10	1	0	1	0	2	0	0	4	0	4	4	0	0	0	4	20
% Buses	0	1.3	8.6	0	3.1	0.9	0	1.2	0	0.4	0	0	5.2	0	1.1	3.2	0	0	0	0.6	1.1



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Colonail Dr & The Collegeway Weather: -14 degerees Surveyor(s): Gordana Rakonjac File Name : MERGED-Colonial Dr &TheCollegeway-PM Site Code : 98300029 Start Date : 11/02/2016 Page No : 2

	Colonial Drive						The	Colleg	eway			Col	onial I	Drive			The	Colleg	eway		
		Fr	om No	orth			F	rom E	ast			Fr	om Sc	uth			F	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour A	nalysis	From 1	16:30 to	o 17:15	- Peak	1 of 1															
Peak Hour fo	r Entire	Inters	ection I	Begins	at 16:30)															
16:30	8	18	11	6	43	18	38	16	8	80	11	25	4	5	45	18	57	17	7	99	267
16:45	5	19	15	0	39	12	35	7	1	55	8	24	15	1	48	14	35	12	1	62	204
17:00	9	15	14	1	39	11	38	8	1	58	8	24	6	2	40	23	70	9	11	113	250
17:15	11	15	10	1	37	12	47	14	1	74	14	31	10	8	63	18	53	8	13	92	266
Total Volume	33	67	50	8	158	53	158	45	11	267	41	104	35	16	196	73	215	46	32	366	987
% App. Total	20.9	42.4	31.6	5.1		19.9	59.2	16.9	4.1		20.9	53.1	17.9	8.2		19.9	58.7	12.6	8.7		
PHF	.750	.882	.833	.333	.919	.736	.840	.703	.344	.834	.732	.839	.583	.500	.778	.793	.768	.676	.615	.810	.924
Cars	33	65	46	8	152	52	157	45	11	265	41	104	33	16	194	71	213	46	32	362	973
% Cars	100	97.0	92.0	100	96.2	98.1	99.4	100	100	99.3	100	100	94.3	100	99.0	97.3	99.1	100	100	98.9	98.6
Trucks	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
% Trucks	0	1.5	0	0	0.6	0	0.6	0	0	0.4	0	0	0	0	0	0	0.9	0	0	0.5	0.4
Buses	0	1	4	0	5	1	0	0	0	1	0	0	2	0	2	2	0	0	0	2	10
% Buses	0	1.5	8.0	0	3.2	1.9	0	0	0	0.4	0	0	5.7	0	1.0	2.7	0	0	0	0.5	1.0



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & The Collegeway Weather: -14 degrees Surveyor(s): Nikola Ateljevic File Name : MERGED-RidgewayDr&TheCollegeway-PM Site Code : 98300034 Start Date : 11/02/2016 Page No : 1

Groups	Printed-	Cars	- Trucks -	Buses	

	Ridgeway Drive From North					The F	Colleg	geway ast			Rido Fr	geway om So	Drive outh			The Fi	Colleg rom W	jeway est			
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	16	110	14	0	140	16	4	19	6	45	3	190	30	0	223	62	27	8	0	97	505
16:15	13	86	15	1	115	24	10	23	5	62	6	211	22	0	239	34	14	8	0	56	472
16:30	22	115	16	0	153	15	11	23	7	56	0	254	20	0	274	79	46	21	0	146	629
16:45	11	110	15	1	137	27	13	16	1	57	4	251	42	0	297	51	22	3	0	76	567
Total	62	421	60	2	545	82	38	81	19	220	13	906	114	0	1033	226	109	40	0	375	2173
17:00	20	120	25	2	167	15	6	28	6	55	5	323	52	3	383	86	46	8	2	142	747
17:15	11	120	26	1	158	23	14	26	2	65	0	277	41	0	318	77	26	9	0	112	653
17:30	22	144	16	0	182	26	4	26	1	57	1	258	32	0	291	41	23	9	0	73	603
17:45	13	118	8	0	139	18	4	20	5	47	5	274	56	1	336	39	13	6	0	58	580
Total	66	502	75	3	646	82	28	100	14	224	11	1132	181	4	1328	243	108	32	2	385	2583
				_															-		
Grand Total	128	923	135	5	1191	164	66	181	33	444	24	2038	295	4	2361	469	217	72	2	760	4756
Apprch %	10.7	77.5	11.3	0.4		36.9	14.9	40.8	7.4		1	86.3	12.5	0.2		61.7	28.6	9.5	0.3		
Total %	2.7	19.4	2.8	0.1	25	3.4	1.4	3.8	0.7	9.3	0.5	42.9	6.2	0.1	49.6	9.9	4.6	1.5	0	16	
Cars	128	907	128	5	1168	155	66	181	33	435	24	2034	292	4	2354	469	217	72	2	760	4717
% Cars	100	98.3	94.8	100	98.1	94.5	100	100	100	98	100	99.8	99	100	99.7	100	100	100	100	100	99.2
Trucks	0	13	7	0	20	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	25
% Trucks	0	1.4	5.2	0	1.7	0.6	0	0	0	0.2	0	0.2	0	0	0.2	0	0	0	0	0	0.5
Buses	0	3	0	0	3	8	0	0	0	8	0	0	3	0	3	0	0	0	0	0	14
% Buses	0	0.3	0	0	0.3	4.9	0	0	0	1.8	0	0	1	0	0.1	0	0	0	0	0	0.3



625 Cochrane Drive 9th Floor Markham, Ontario, L3R 9R9

Project No: 9830 Location: Ridgeway Dr & The Collegeway Weather: -14 degrees Surveyor(s): Nikola Ateljevic File Name : MERGED-RidgewayDr&TheCollegeway-PM Site Code : 98300034 Start Date : 11/02/2016 Page No : 2

		Ridg	geway	Drive			The	Colleg	jeway			Ridg	geway	Drive			The	Colleg	jeway		
		Fr	om No	orth			F	rom Ea	ast			Fr	om So	uth			Fi	rom W	est		
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Ar	nalysis	From '	16:00 to	o 17:45	- Peak	1 of 1															
Peak Hour for	r Entire	Inters	ection	Begins	at 16:3	0															
16:30	22	115	16	0	153	15	11	23	7	56	0	254	20	0	274	79	46	21	0	146	629
16:45	11	110	15	1	137	27	13	16	1	57	4	251	42	0	297	51	22	3	0	76	567
17:00	20	120	25	2	167	15	6	28	6	55	5	323	52	3	383	86	46	8	2	142	747
17:15	11	120	26	1	158	23	14	26	2	65	0	277	41	0	318	77	26	9	0	112	653
Total Volume	64	465	82	4	615	80	44	93	16	233	9	1105	155	3	1272	293	140	41	2	476	2596
% App. Total	10.4	75.6	13.3	0.7		34.3	18.9	39.9	6.9		0.7	86.9	12.2	0.2		61.6	29.4	8.6	0.4		
PHF	.727	.969	.788	.500	.921	.741	.786	.830	.571	.896	.450	.855	.745	.250	.830	.852	.761	.488	.250	.815	.869
Cars	64	452	78	4	598	76	44	93	16	229	9	1104									
% Cars	100	97.2	95.1	100	97.2	95.0	100	100	100	98.3	100	99.9	99.4	100	99.8	100	100	100	100	100	99.1
Trucks	0	12	4	0	16	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	17
% Trucks	0	2.6	4.9	0	2.6	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0.7
Buses	0	1	0	0	1	4	0	0	0	4	0	0	1	0	1	0	0	0	0	0	6
% Buses	0	0.2	0	0	0.2	5.0	0	0	0	1.7	0	0	0.6	0	0.1	0	0	0	0	0	0.2



APPENDIX B

Intersection Capacity Analysis - Existing Traffic Conditions



Weekday A.M. Peak Hour



	۶	-	-	+	-	†	1	÷.	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	۲	<u></u>	٦	- † Þ	۲	<u></u>	٦	∱ ⊅	
Volume (vph)	20	9	117	99	21	312	141	781	
Lane Group Flow (vph)	20	16	117	225	21	350	141	912	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	2	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	33.0	33.0	33.0	33.0	68.0	68.0	68.0	68.0	
Total Split (%)	32.7%	32.7%	32.7%	32.7%	67.3%	67.3%	67.3%	67.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.14	0.04	0.62	0.40	0.05	0.14	0.19	0.35	
Control Delay	37.9	25.8	54.6	18.8	5.4	4.5	5.9	5.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.9	25.8	54.6	18.8	5.4	4.5	5.9	5.7	
Queue Length 50th (m)	3.7	0.8	23.1	9.6	1.1	9.0	7.9	29.4	
Queue Length 95th (m)	10.2	3.8	39.3	19.5	4.0	16.9	18.6	48.8	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	268	822	348	943	406	2579	725	2578	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.02	0.34	0.24	0.05	0.14	0.19	0.35	
Intersection Summary									
Cycle Length: 101									
Actuated Cycle Length: 10	1								
Offset: 2 (2%), Referenced	I to phase	4:SBTL a	and 8:NB	TL, Star	t of Greer	ı			

Natural Cycle: 85 Control Type: Actuated-Coordinated

Splits and Phases: 1: Ridgeway Drive & The Collegeway

↓ _{ø2}	ø4 (R)
33 s	68 s
₩ ø6	▶ 1 ø8 (R)
33 s	68 s

	≯	-	\mathbf{r}	-	-	*	1	†	1	1	÷.	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	<u></u>		٦	∱1 ≱		٦	<u></u>		٦	≜ 1≱	
Volume (vph)	20	9	7	117	99	126	21	312	38	141	781	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.93		1.00	0.92		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1621	3178		1726	3300		1783	3536		1748	3534	
Flt Permitted	0.61	1.00		0.75	1.00		0.30	1.00		0.54	1.00	
Satd. Flow (perm)	1043	3178		1356	3300		559	3536		997	3534	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	9	7	117	99	126	21	312	38	141	781	131
RTOR Reduction (vph)	0	6	0	0	109	0	0	7	0	0	9	0
Lane Group Flow (vph)	20	10	0	117	116	0	21	343	0	141	903	0
Confl. Peds. (#/hr)	1		12	12		1	5		27	27		5
Heavy Vehicles (%)	10%	0%	14%	2%	0%	1%	0%	1%	3%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	14.0	14.0		14.0	14.0		73.5	73.5		73.5	73.5	
Effective Green, g (s)	14.0	14.0		14.0	14.0		73.5	73.5		73.5	73.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	440		187	457		406	2573		725	2571	
v/s Ratio Prot		0.00			0.04			0.10			c0.26	
v/s Ratio Perm	0.02			c0.09			0.04			0.14		
v/c Ratio	0.14	0.02		0.63	0.25		0.05	0.13		0.19	0.35	
Uniform Delay, d1	38.2	37.6		41.0	38.8		3.9	4.1		4.4	5.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		6.4	0.3		0.2	0.1		0.6	0.4	
Delay (s)	38.6	37.6		47.4	39.1		4.1	4.3		5.0	5.4	
Level of Service	D	D		D	D		А	А		А	А	
Approach Delay (s)		38.2			42.0			4.2			5.3	
Approach LOS		D			D			А			А	
Intersection Summary												
HCM 2000 Control Delay			12.7	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Cap	acity ratio		0.39									
Actuated Cycle Length (s)	,		101.0	S	um of los	t time (s)			13.5			
Intersection Capacity Utiliz	ation	1	10.0%	IC	CU Level	of Servic	е		Н			
Analysis Period (min)			15									

c Critical Lane Group

	۶	-	$\mathbf{\hat{z}}$	4	+	*	٩.	1	1	1	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ፋጉ			ፋጉ			ፋጉ			ፋጉ	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	138	39	24	207	38	52	72	54	66	83	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	138	39	24	207	38	52	72	54	66	83	70
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	88	108	128	142	88	90	108	112				
Volume Left (vph)	19	0	24	0	52	0	66	0				
Volume Right (vph)	0	39	0	38	0	54	0	70				
Hadj (s)	0.13	-0.17	0.13	-0.15	0.34	-0.31	0.35	-0.34				
Departure Headway (s)	6.1	5.8	6.0	5.7	6.4	5.7	6.3	5.6				
Degree Utilization, x	0.15	0.17	0.21	0.22	0.16	0.14	0.19	0.17				
Capacity (veh/h)	558	590	571	601	533	589	538	602				
Control Delay (s)	8.9	8.8	9.4	9.1	9.3	8.5	9.6	8.6				
Approach Delay (s)	8.8		9.3		8.9		9.1					
Approach LOS	А		А		А		А					
Intersection Summary												
Delay			9.0									
Level of Service			А									
Intersection Capacity Utiliza	tion		47.5%	IC	CU Level	of Service	è		А			
Analysis Period (min)			15									

	≯	-	\rightarrow	-	-	*	1	†	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5		1	ሻ		1		đ þ			đ þ	
Volume (veh/h)	0	0	2	2	0	7	9	447	2	18	1049	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	2	2	0	7	9	447	2	18	1049	31
Pedestrians		1									3	
Lane Width (m)		3.5									3.7	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	1353	1568	541	1028	1583	228	1081			449		
vC1, stage 1 conf vol	1102	1102		466	466							
vC2, stage 2 conf vol	252	467		562	1117							
vCu, unblocked vol	1336	1554	541	1009	1569	200	1081			423		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	99			98		
cM capacity (veh/h)	217	261	490	389	251	804	652			1135		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	0	2	2	7	232	226	542	556				
Volume Left	0	0	2	0	9	0	18	0				
Volume Right	0	2	0	7	0	2	0	31				
cSH	1700	490	389	804	652	1700	1135	1700				
Volume to Capacity	0.00	0.00	0.01	0.01	0.01	0.13	0.02	0.33				
Queue Length 95th (m)	0.0	0.1	0.1	0.2	0.3	0.0	0.4	0.0				
Control Delay (s)	0.0	12.4	14.3	9.5	0.6	0.0	0.5	0.0				
Lane LOS	А	В	В	А	А		Α					
Approach Delay (s)	12.4		10.6		0.3		0.2					
Approach LOS	В		В									
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization	ation		52.8%	IC	CU Level	of Servic	е		А			
Analysis Period (min)			15									
	۶	-	+	*	1	1						
--------------------------------	------	-------	-------------	-----------	-----------	------------	--					
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations			∱î ≽		Y							
Volume (veh/h)	8	180	324	9	10	18						
Sign Control		Free	Free		Stop							
Grade		0%	0%		0%							
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00						
Hourly flow rate (vph)	8	180	324	9	10	18						
Pedestrians		16	7		15							
Lane Width (m)		3.7	3.7		3.5							
Walking Speed (m/s)		1.2	1.2		1.2							
Percent Blockage		1	1		1							
Right turn flare (veh)												
Median type		TWLTL	TWLTL									
Median storage veh)		2	2									
Upstream signal (m)		109										
pX, platoon unblocked												
vC, conflicting volume	348				456	198						
vC1, stage 1 conf vol					344							
vC2, stage 2 conf vol					113							
vCu, unblocked vol	348				456	198						
tC, single (s)	4.1				6.9	6.9						
tC, 2 stage (s)					5.9							
tF (s)	2.2				3.6	3.3						
p0 queue free %	99				98	98						
cM capacity (veh/h)	1207				636	796						
Direction Lane #	FR 1	FR 2	\//R 1	W/R 2	SR 1							
	68	120	216	117	201							
Volume Left	00	120	210	0	20							
Volume Right	0	0	0	0	10							
	1207	1700	1700	7 1700	720							
LON Volume to Canacity	0.01	0.07	0.12	0.07	730							
Oucue Longth OEth (m)	0.01	0.07	0.13	0.07	0.04							
Control Dolou (c)	0.2	0.0	0.0	0.0	10.1							
Control Delay (S)	1.0	0.0	0.0	0.0	10.1 D							
Lane LUS	A		0.0		D							
Approach LOS	0.4		0.0		IU.I							
Approach LOS					В							
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilizat	tion		25.0%	IC	U Level	of Service						
Analysis Period (min)			15									

	۶	-	+	*	1	-	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations			↑ ĵ≽		Y		
Volume (veh/h)	4	186	324	5	10	9	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	4	186	324	5	10	9	
Pedestrians		8	6		3		
Lane Width (m)		3.7	3.7		3.5		
Walking Speed (m/s)		1.2	1.2		1.2		
Percent Blockage		1	1		0		
Right turn flare (veh)							
Median type		TWLTL	None				
Median storage veh)		2					
Upstream signal (m)		200					
pX, platoon unblocked							
vC, conflicting volume	332				436	176	
vC1, stage 1 conf vol					330		
vC2, stage 2 conf vol					107		
vCu, unblocked vol	332				436	176	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)					5.8		
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				99	99	
cM capacity (veh/h)	1236				670	836	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1		
Volume Total	66	124	216	113	19		
Volume Left	4	0	0	0	10		
Volume Right	0	0	0	5	9		
cSH	1236	1700	1700	1700	740		
Volume to Capacity	0.00	0.07	0.13	0.07	0.03		
Oueue Length 95th (m)	0.1	0.0	0.0	0.0	0.6		
Control Delay (s)	0.5	0.0	0.0	0.0	10.0		
Lane LOS	A	010	0.0	0.0	A		
Approach Delay (s)	0.2		0.0		10.0		
Approach LOS	0.2		0.0		A		
Intersection Summary							
Average Delay			0.4				
Intersection Canacity Utilizat	ion		21.0%	10		of Service	
Analysis Period (min)	.1011		15	IC.	O LEVEL	JE JEI VICE	

	۶	\mathbf{i}	•	1	Ŧ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्स	4Î	
Volume (veh/h)	16	3	10	119	216	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	3	10	119	216	20
Pedestrians	27				27	
Lane Width (m)	3.5				3.7	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	2				2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					26	
pX, platoon unblocked						
vC, conflicting volume	419	253	263			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419	253	263			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	99			
cM capacity (veh/h)	564	773	1284			
	ED I	100	201			
Volume Lotal	19	129	236			
Volume Left	16	10	0			
Volume Right	3	0	20			
CSH	589	1284	1/00			
Volume to Capacity	0.03	0.01	0.14			
Queue Length 95th (m)	0.8	0.2	0.0			
Control Delay (s)	11.3	0.7	0.0			
Lane LOS	В	A				
Approach Delay (s)	11.3	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilizat	tion		24.5%	10	CU Level	of Service
Analysis Period (min)			15			

	۶	$\mathbf{\hat{z}}$	•	Ť	Ļ	∢		
Vovement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	Υ Y			4	4			
Volume (veh/h)	1	1	2	133	235	2		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	1	1	2	133	235	2		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	373	236	237					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	373	236	237					
tC, single (s)	6.4	6.2	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	100	100	100					
cM capacity (veh/h)	631	808	1342					
Direction, Lane #	EB 1	NB 1	SB 1					
Volume Total	2	135	237					
Volume Left	1	2	0					
Volume Right	1	0	2					
cSH	709	1342	1700					
Volume to Capacity	0.00	0.00	0.14					
Queue Length 95th (m)	0.1	0.0	0.0					
Control Delay (s)	10.1	0.1	0.0					
Lane LOS	В	А						
Approach Delay (s)	10.1	0.1	0.0					
Approach LOS	В							
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utiliz	zation		22.5%	IC	CU Level	of Service	А	
Analysis Period (min)			15					

Summary of All Intervals

Run Number	1	2	3	AM	Avg	
Start Time	7:30	7:30	7:30	7:30	7:30	
End Time	8:45	8:45	8:45	8:45	8:45	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	2371	2361	2349	2386	2366	
Vehs Exited	2372	2357	2343	2373	2363	
Starting Vehs	27	27	20	24	22	
Ending Vehs	26	31	26	37	26	
Travel Distance (km)	907	908	906	920	911	
Travel Time (hr)	27.8	27.7	28.3	28.8	28.2	
Total Delay (hr)	8.8	8.7	9.4	9.5	9.1	
Total Stops	1731	1701	1744	1826	1749	
Fuel Used (I)	89.4	88.8	90.1	91.4	89.9	

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15
Volumes adjusted by Growth F	actors.
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45		
End Time	8:45		
Total Time (min)	60		
Volumes adjusted by Gro	wth Factors.		

Run Number	1	2	3	AM	Avg	
Vehs Entered	2371	2361	2349	2386	2366	
Vehs Exited	2372	2357	2343	2373	2363	
Starting Vehs	27	27	20	24	22	
Ending Vehs	26	31	26	37	26	
Travel Distance (km)	907	908	906	920	911	
Travel Time (hr)	27.8	27.7	28.3	28.8	28.2	
Total Delay (hr)	8.8	8.7	9.4	9.5	9.1	
Total Stops	1731	1701	1744	1826	1749	
Fuel Used (I)	89.4	88.8	90.1	91.4	89.9	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	20.5	9.0	14.6	45.4	27.6	41.6	16.9	33.3	23.8	35.0	52.1	49.8
Average Queue (m)	5.4	1.4	2.9	22.0	12.4	18.4	4.4	14.1	5.8	16.0	29.5	22.0
95th Queue (m)	15.5	6.5	10.4	38.0	23.7	34.3	13.4	29.4	16.8	30.7	50.0	41.8
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.2	98.2
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Colonial Drive & The Collegeway

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	16.7	18.4	22.6	21.4	19.6	19.9	25.1	23.3
Average Queue (m)	8.5	8.2	9.7	7.9	11.3	9.9	12.0	10.0
95th Queue (m)	13.0	14.1	17.1	16.1	17.6	17.2	19.8	17.3
Link Distance (m)	44.9	44.9	68.9	68.9	75.2	75.2	83.9	83.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Ridgeway Drive & Driveway #1

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	R	L	R	LT	TR	LT	TR
Maximum Queue (m)	6.4	6.4	8.1	18.7	7.4	23.4	2.1
Average Queue (m)	0.8	0.4	1.7	2.5	0.2	3.7	0.1
95th Queue (m)	4.8	3.3	7.1	11.7	4.7	14.6	1.3
Link Distance (m)	41.8	59.2	59.2	98.2	98.2	101.0	101.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: The Collegeway & Driveway #2

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	12.6	6.7	4.6	6.8	12.9
Average Queue (m)	1.2	0.5	0.3	0.3	5.6
95th Queue (m)	6.7	3.9	3.0	3.0	13.3
Link Distance (m)	86.2	86.2	74.6	74.6	44.5
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: The Collegeway & Driveway #3

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	6.6	2.3	9.2	2.3	8.8
Average Queue (m)	0.5	0.1	0.4	0.2	3.7
95th Queue (m)	3.9	1.4	3.7	2.5	10.8
Link Distance (m)	74.6	74.6	44.9	44.9	40.7
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Colonial Drive & Driveway #4

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	10.1	12.4	15.7
Average Queue (m)	3.9	0.9	0.9
95th Queue (m)	10.9	5.7	6.7
Link Distance (m)	38.5	83.9	9.5
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Colonial Drive & Driveway #5

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	3.7	2.3	4.5
Average Queue (m)	0.3	0.1	0.2
95th Queue (m)	2.7	1.5	2.6
Link Distance (m)	45.8	9.5	56.4
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Weekday P.M. Peak Hour



	۶	-	-	+	-	†	×	÷.	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	5	44	5	41	5	**	5	41	
Volume (vph)	293	140	80	44	9	1105	64	465	
Lane Group Flow (vph)	293	181	80	137	9	1260	64	547	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	2	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	33.0	33.0	33.0	33.0	68.0	68.0	68.0	68.0	
Total Split (%)	32.7%	32.7%	32.7%	32.7%	67.3%	67.3%	67.3%	67.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.93	0.20	0.28	0.15	0.02	0.57	0.34	0.26	
Control Delay	74.7	24.1	33.2	11.9	8.0	12.7	16.1	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	74.7	24.1	33.2	11.9	8.0	12.7	16.1	8.7	
Queue Length 50th (m)	58.8	12.2	13.2	3.7	0.7	74.3	6.0	23.5	
Queue Length 95th (m)	#109.9	21.3	26.7	11.4	2.7	93.4	16.6	32.3	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	320	931	293	901	508	2201	187	2130	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.92	0.19	0.27	0.15	0.02	0.57	0.34	0.26	
Intersection Summarv									
Cycle Length: 101									
Actuated Cycle Length 10)1								
Offset: 2 (2%). Reference	d to phase	4:SBTL	and 8:NB	TL, Star	t of Gree	1			
Natural Cycle: 85				, otan		-			
Control Type: Actuated-Co	pordinated								
<pre># 95th percentile volume</pre>	e exceeds	capacity.	queue m	av be lo	naer.				
Oueue shown is maxin	num after t	wo cycle	S.	,	3 .				

Splits and Phases: 1: Ridgeway Drive & The Collegeway

→ _{ø2}	● ● Ø4 (R)	
33 s	68 s	
₩ ø6	● ▲ ● Ø8 (R)	
33 s	68 s	

	≯	-	$\mathbf{\hat{z}}$	4	+	*	1	1	1	1	÷.	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	5	^		5	4 14		ኘ	^		7	4 14	
Volume (vph)	293	140	41	80	44	93	9	1105	155	64	465	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.90		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3514		1695	3242		1784	3568		1782	3447	
Flt Permitted	0.67	1.00		0.64	1.00		0.44	1.00		0.16	1.00	
Satd. Flow (perm)	1245	3514		1138	3242		828	3568		306	3447	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	293	140	41	80	44	93	9	1105	155	64	465	82
RTOR Reduction (vph)	0	27	0	0	68	0	0	11	0	0	14	0
Lane Group Flow (vph)	293	154	0	80	69	0	9	1249	0	64	533	0
Confl. Peds. (#/hr)	4		3	3		4	2		16	16		2
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	1%	0%	3%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.5	25.5		25.5	25.5		62.0	62.0		62.0	62.0	
Effective Green, g (s)	25.5	25.5		25.5	25.5		62.0	62.0		62.0	62.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.61	0.61		0.61	0.61	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	887		287	818		508	2190		187	2115	
v/s Ratio Prot		0.04			0.02			c0.35			0.15	
v/s Ratio Perm	c0.24			0.07			0.01			0.21		
v/c Ratio	0.93	0.17		0.28	0.08		0.02	0.57		0.34	0.25	
Uniform Delay, d1	36.9	29.5		30.4	28.8		7.6	11.6		9.5	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.6	0.1		0.5	0.0		0.1	1.1		4.9	0.3	
Delay (s)	70.5	29.6		30.9	28.9		7.7	12.7		14.5	9.2	
Level of Service	E	С		С	С		А	В		В	А	
Approach Delay (s)		54.9			29.6			12.6			9.7	
Approach LOS		D			С			В			А	
Intersection Summary												
HCM 2000 Control Delay			21.2	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Cap	oacity ratio		0.68									
Actuated Cycle Length (s)			101.0	S	um of los	st time (s)			13.5			
Intersection Capacity Utiliz	zation		95.0%	IC	CU Level	of Servic	е		F			
Analysis Period (min)			15									

c Critical Lane Group

	۶	-	$\mathbf{\hat{z}}$	4	+	*	٩.	1	1	1	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ፋጉ			ፋጉ			ፋጉ			ብጉ	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	73	229	46	53	135	45	41	104	33	33	67	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	73	229	46	53	135	45	41	104	33	33	67	50
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	188	161	121	113	93	85	67	84				
Volume Left (vph)	73	0	53	0	41	0	33	0				
Volume Right (vph)	0	46	0	45	0	33	0	50				
Hadj (s)	0.22	-0.19	0.24	-0.27	0.22	-0.23	0.27	-0.32				
Departure Headway (s)	6.0	5.5	6.1	5.6	6.4	6.0	6.5	5.9				
Degree Utilization, x	0.31	0.25	0.20	0.18	0.17	0.14	0.12	0.14				
Capacity (veh/h)	577	621	559	610	526	563	514	565				
Control Delay (s)	10.4	9.2	9.5	8.6	9.5	8.7	9.2	8.7				
Approach Delay (s)	9.8		9.1		9.1		8.9					
Approach LOS	А		А		А		А					
Intersection Summary												
Delay			9.3									
Level of Service			А									
Intersection Capacity Utilizat	tion		51.5%	IC	CU Level	of Service	è		А			
Analysis Period (min)			15									

	≯	-	$\mathbf{\hat{z}}$	4	+	*	٠	†	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ		1	۲		1		đ þ			4 þ	
Volume (veh/h)	12	0	22	29	0	3	8	1477	6	41	560	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	0	22	29	0	3	8	1477	6	41	560	3
Pedestrians					4						1	
Lane Width (m)					3.5						3.7	
Walking Speed (m/s)					1.2						1.2	
Percent Blockage					0						0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.79	0.79		0.79	0.79	0.79				0.79		
vC, conflicting volume	1402	2146	282	1884	2145	746	563			1487		
vC1, stage 1 conf vol	644	644		1500	1500							
vC2, stage 2 conf vol	758	1503		384	645							
vCu, unblocked vol	988	1925	282	1595	1923	162	563			1095		
tC, single (s)	7.7	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)	6.7	5.5		6.5	5.5							
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	96	100	97	83	100	100	99			92		
cM capacity (veh/h)	334	168	722	167	197	680	890			511		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	12	22	29	3	746	744	321	283				
Volume Left	12	0	29	0	8	0	41	0				
Volume Right	0	22	0	3	0	6	0	3				
cSH	334	722	167	680	890	1700	511	1700				
Volume to Capacity	0.04	0.03	0.17	0.00	0.01	0.44	0.08	0.17				
Queue Length 95th (m)	0.9	0.8	4.9	0.1	0.2	0.0	2.1	0.0				
Control Delay (s)	16.2	10.1	31.0	10.3	0.2	0.0	2.7	0.0				
Lane LOS	С	В	D	В	А		A					
Approach Delay (s)	12.3		29.1		0.1		1.4					
Approach LOS	В		D									
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utiliz	ation		58.2%	IC	CU Level	of Service	9		В			
Analysis Period (min)			15									

	≯	-	+	*	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		-4 †	∱1 ≱		Y		
Volume (veh/h)	52	307	177	32	22	40	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	52	307	177	32	22	40	
Pedestrians		6	6		6		
Lane Width (m)		3.7	3.7		3.5		
Walking Speed (m/s)		1.2	1.2		1.2		
Percent Blockage		1	1		0		
Right turn flare (veh)							
Median type		TWLTL	TWLTL				
Median storage veh)		2	2				
Upstream signal (m)		109					
pX, platoon unblocked					0.99		
vC, conflicting volume	215				462	116	
vC1, stage 1 conf vol					199		
vC2, stage 2 conf vol					264		
vCu, unblocked vol	215				436	116	
tC, single (s)	4.1				6.9	6.9	
tC, 2 stage (s)					5.9		
tF (s)	2.2				3.6	3.3	
p0 queue free %	96				97	96	
cM capacity (veh/h)	1360				658	911	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1		
Volume Total	154	205	118	91	62		
Volume Left	52	0	0	0	22		
Volume Right	0	0	0	32	40		
cSH	1360	1700	1700	1700	802		
Volume to Capacity	0.04	0.12	0.07	0.05	0.08		
Queue Length 95th (m)	1.0	0.0	0.0	0.0	2.0		
Control Delay (s)	2.8	0.0	0.0	0.0	9.9		
Lane LOS	Δ.5	0.0	0.0	0.0	A		
Approach Delay (s)	12		0.0		99		
Approach LOS	1.2		0.0		A		
							_
Intersection Summary			17				
Average Deidy	ration		1./ 22 10/	10		of Soniloo	
Analysis Dariad (min)	.d(1011		33.1% 1E	IC	U Level (of Service	
Analysis Period (min)			15				

	≯	-	+	*	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations			† 1>		Y		
Volume (veh/h)	9	320	200	26	28	9	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	9	320	200	26	28	9	
Pedestrians		4	4		4		
Lane Width (m)		3.7	3.7		3.5		
Walking Speed (m/s)		1.2	1.2		1.2		
Percent Blockage		0	0		0		
Right turn flare (veh)							
Median type		TWLTL	None				
Median storage veh)		2					
Upstream signal (m)		200					
pX, platoon unblocked							
vC, conflicting volume	230				399	121	
vC1, stage 1 conf vol					217		
vC2, stage 2 conf vol					182		
vCu, unblocked vol	230				399	121	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)					5.8		
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				96	99	
cM capacity (veh/h)	1345				717	908	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1		
Volume Total	116	213	133	93	37		
Volume Left	9	0	0	0	28		
Volume Right	0	0	0	26	9		
cSH	1345	1700	1700	1700	756		
Volume to Capacity	0.01	0.13	0.08	0.05	0.05		
Queue Length 95th (m)	0.2	0.0	0.0	0.0	1.2		
Control Delay (s)	0.6	0.0	0.0	0.0	10.0		
Lane LOS	А				В		
Approach Delay (s)	0.2		0.0		10.0		
Approach LOS					В		
Intersection Summary							
Average Delay			0.8				
Intersection Capacity Utiliz	ation		26.6%	IC	U Level	of Service	
Analysis Period (min)			15				

	۶	\mathbf{r}	•	1	Ŧ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			ર્સ	4Î	
Volume (veh/h)	26	18	18	204	132	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	18	18	204	132	31
Pedestrians	10			10	10	
Lane Width (m)	3.5			3.7	3.7	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	408	168	173			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	408	168	173			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	586	867	1405			
Direction Lane #	FR 1	MR 1	SR 1			
Volumo Total		1 01	162			
Volume Loft	44	10	103			
Volume Dight	20	δI	0			
	18	1405	3 I 1700			
CSH Maharan ta Canadita	6/6	1405	1/00			
Volume to Capacity	0.07	0.01	0.10			
Queue Length 95th (m)	1.7	0.3	0.0			
Control Delay (s)	10.7	0.7	0.0			
Lane LUS	10 J	A	0.0			
Approach Delay (S)	10.7	0.7	0.0			
Approach LUS	В					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utiliza	tion		38.1%	IC	CU Level	of Service
Analysis Period (min)			15			

	۶	\mathbf{r}	•	Ť	Ļ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	4î	
Volume (veh/h)	2	2	1	229	161	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	2	1	229	161	1
Pedestrians	21			21	21	
Lane Width (m)	3.5			3.7	3.7	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	2			2	2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	434	204	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	204	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	562	813	1380			
Direction Lane #	ER 1	NR 1	CR 1			
Volumo Total		1 011	140			
Volume Loft	4	230	102			
Volume Dight	2	1	1			
	2	1200	1700			
CSH Maharan ta Canaaita	665	1380	1/00			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (S)	10.5	0.0	0.0			
Lane LUS	B	A	0.0			
Approach Delay (s)	10.5	0.0	0.0			
Approach LUS	В					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizat	tion		27.9%	10	CU Level	of Service
Analysis Period (min)			15			

Summary of All Intervals

Run Number	1	2	3	PM	Avg	
Start Time	4:15	4:15	4:15	4:15	4:15	
End Time	5:30	5:30	5:30	5:30	5:30	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	3182	3277	3207	3228	3227	
Vehs Exited	3164	3277	3230	3221	3224	
Starting Vehs	33	50	54	40	36	
Ending Vehs	51	50	31	47	41	
Travel Distance (km)	1198	1245	1220	1219	1220	
Travel Time (hr)	44.0	47.6	44.6	42.9	44.8	
Total Delay (hr)	19.1	21.7	19.4	17.7	19.5	
Total Stops	2501	2657	2568	2476	2554	
Fuel Used (I)	129.8	136.5	131.7	129.2	131.8	

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15
Volumes adjusted by Growth F	actors.
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:30	
End Time	5:30	
Total Time (min)	60	
Volumes adjusted by	Growth Factors.	

Run Number	1	2	3	PM	Avg	
Vehs Entered	3182	3277	3207	3228	3227	
Vehs Exited	3164	3277	3230	3221	3224	
Starting Vehs	33	50	54	40	36	
Ending Vehs	51	50	31	47	41	
Travel Distance (km)	1198	1245	1220	1219	1220	
Travel Time (hr)	44.0	47.6	44.6	42.9	44.8	
Total Delay (hr)	19.1	21.7	19.4	17.7	19.5	
Total Stops	2501	2657	2568	2476	2554	
Fuel Used (I)	129.8	136.5	131.7	129.2	131.8	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	65.2	85.0	45.4	43.0	20.5	32.8	10.6	85.8	74.0	37.3	48.0	40.9
Average Queue (m)	51.3	32.9	13.9	16.4	5.6	13.2	1.3	51.1	41.5	16.2	24.7	19.2
95th Queue (m)	72.5	80.6	30.5	33.1	15.0	25.1	6.8	77.8	69.8	32.4	43.0	35.9
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.5	98.5
Upstream Blk Time (%)		4	0									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)	15							0				
Queuing Penalty (veh)	10							0				

Intersection: 2: Colonial Drive & The Collegeway

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	24.2	20.1	14.8	18.3	19.4	16.6	18.5	23.7
Average Queue (m)	12.1	10.6	7.7	7.1	11.1	6.4	9.8	9.1
95th Queue (m)	19.7	17.9	13.6	13.2	17.0	13.5	15.4	17.8
Link Distance (m)	44.9	44.9	68.9	68.9	75.2	75.2	83.9	83.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Ridgeway Drive & Driveway #1

Movement	FB	FB	WB	WB	NB	NB	SB	SB
Directions Served	L	R	L	R	LT	TR	LT	TR
Maximum Queue (m)	15.5	10.7	26.7	10.3	25.4	3.8	62.0	37.1
Average Queue (m)	4.0	5.4	8.5	1.1	1.7	0.1	17.4	1.6
95th Queue (m)	12.9	12.8	21.6	6.0	10.9	2.4	46.3	16.1
Link Distance (m)	49.9	49.9	26.5	26.5	98.5	98.5	101.4	101.4
Upstream Blk Time (%)			4					
Queuing Penalty (veh)			0					
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: The Collegeway & Driveway #2

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	19.6	8.8	2.3	8.2	17.4
Average Queue (m)	3.9	0.4	0.1	0.4	8.5
95th Queue (m)	13.7	4.1	1.5	3.7	15.2
Link Distance (m)	86.2	86.2	74.6	74.6	44.5
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: The Collegeway & Driveway #3

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	12.5	6.4	4.4	4.4	14.3
Average Queue (m)	0.7	0.4	0.2	0.1	6.4
95th Queue (m)	5.5	3.8	2.2	2.0	13.5
Link Distance (m)	74.6	74.6	44.9	44.9	40.7
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Colonial Drive & Driveway #4

Movement	EB	ovement	NB	SB
Directions Served	LR	irections Served	LT	TR
Maximum Queue (m)	17.0	aximum Queue (m)	13.8	6.4
Average Queue (m)	7.1	verage Queue (m)	1.4	0.5
95th Queue (m)	14.1	5th Queue (m)	7.3	4.6
Link Distance (m)	38.5	nk Distance (m)	83.9	27.5
Upstream Blk Time (%)		pstream Blk Time (%)		
Queuing Penalty (veh)		ueuing Penalty (veh)		
Storage Bay Dist (m)		torage Bay Dist (m)		
Storage Blk Time (%)		torage Blk Time (%)		
Queuing Penalty (veh)		ueuing Penalty (veh)		
Queuing Penalty (veh) Storage Bay Dist (m) Storage Blk Time (%) Queuing Penalty (veh)		ueuing Penalty (veh) torage Bay Dist (m) torage Blk Time (%) ueuing Penalty (veh)		

Intersection: 7: Colonial Drive & Driveway #5

Movement	EB
Directions Served	LR
Maximum Queue (m)	9.1
Average Queue (m)	1.0
95th Queue (m)	5.8
Link Distance (m)	66.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 10

APPENDIX C

Intersection Capacity Analysis Results – Future Background Traffic Conditions



Weekday A.M. Peak Hour



	≯	-	1	-	- 1	† _	1	÷.	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	ኘ	<u></u>	ሻ	≜ ⊅	٦	<u></u>	ሻ	∱ ⊅	
Volume (vph)	20	9	123	99	21	312	145	801	
Lane Group Flow (vph)	20	16	123	231	21	351	145	932	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	2	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	33.0	33.0	33.0	33.0	68.0	68.0	68.0	68.0	
Total Split (%)	32.7%	32.7%	32.7%	32.7%	67.3%	67.3%	67.3%	67.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.14	0.03	0.63	0.40	0.05	0.14	0.20	0.36	
Control Delay	37.3	25.4	54.6	18.1	5.7	4.6	6.1	6.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.3	25.4	54.6	18.1	5.7	4.6	6.1	6.0	
Queue Length 50th (m)	3.6	0.8	24.2	9.6	1.1	9.2	8.3	31.1	
Queue Length 95th (m)	10.2	3.7	40.8	19.5	4.2	17.3	19.5	51.4	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	267	822	348	945	393	2561	719	2566	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.02	0.35	0.24	0.05	0.14	0.20	0.36	
Intersection Summary									
Cycle Length: 101									
Actuated Cycle Length: 10	1								
Offset: 2 (2%), Referenced	I to phase	4:SBTL	and 8:NB	TL, Starl	of Green	า			
Natural Cycle: 85									

Control Type: Actuated-Coordinated

Splits and Phases:	1: Ridgeway Drive &	The Collegeway	
_{ø2}		💵 🗣 🖉 🖉	
33 s		68 s	
₹ø6		∎ 1 ø8 (R)	
33 s		68 s	

	≯	-	\rightarrow	-	-	*	1	- † .	1	1	÷.	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲.	^		<u> </u>	≜1 ≱		<u> </u>	^		۲.	≜1 ≱	
Volume (vph)	20	9	7	123	99	132	21	312	39	145	801	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1621	3178		1726	3293		1783	3534		1748	3536	
Flt Permitted	0.61	1.00		0.75	1.00		0.29	1.00		0.54	1.00	
Satd. Flow (perm)	1037	3178		1356	3293		544	3534		996	3536	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	9	7	123	99	132	21	312	39	145	801	131
RTOR Reduction (vph)	0	6	0	0	113	0	0	7	0	0	9	0
Lane Group Flow (vph)	20	10	0	123	118	0	21	344	0	145	923	0
Confl. Peds. (#/hr)	1		12	12		1	5		27	27		5
Heavy Vehicles (%)	10%	0%	14%	2%	0%	1%	0%	1%	3%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	14.5	14.5		14.5	14.5		73.0	73.0		73.0	73.0	
Effective Green, g (s)	14.5	14.5		14.5	14.5		73.0	73.0		73.0	73.0	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	456		194	472		393	2554		719	2555	
v/s Ratio Prot		0.00			0.04			0.10			c0.26	
v/s Ratio Perm	0.02			c0.09			0.04			0.15		
v/c Ratio	0.14	0.02		0.63	0.25		0.05	0.13		0.20	0.36	
Uniform Delay, d1	37.8	37.2		40.8	38.4		4.0	4.3		4.5	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		6.6	0.3		0.3	0.1		0.6	0.4	
Delay (s)	38.2	37.2		47.4	38.7		4.3	4.4		5.2	5.7	
Level of Service	D	D		D	D		А	А		А	А	
Approach Delay (s)		37.7			41.7			4.4			5.6	
Approach LOS		D			D			А			А	
Intersection Summary												
HCM 2000 Control Delay			12.9	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Cap	acity ratio		0.41									
Actuated Cycle Length (s)	,		101.0	S	um of los	t time (s)			13.5			
Intersection Capacity Utiliz	ation	1	110.0%	IC	CU Level	of Servic	е		Н			
Analysis Period (min)			15									

c Critical Lane Group

	۶	-	$\mathbf{\hat{z}}$	4	+	*	1	1	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ፋጉ			ፋጉ			ፋጉ			ፋጉ	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	143	39	24	219	38	52	72	54	66	83	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	143	39	24	219	38	52	72	54	66	83	70
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	91	111	134	148	88	90	108	112				
Volume Left (vph)	19	0	24	0	52	0	66	0				
Volume Right (vph)	0	39	0	38	0	54	0	70				
Hadj (s)	0.13	-0.17	0.13	-0.14	0.34	-0.31	0.35	-0.34				
Departure Headway (s)	6.1	5.8	6.0	5.7	6.4	5.8	6.4	5.7				
Degree Utilization, x	0.15	0.18	0.22	0.23	0.16	0.14	0.19	0.18				
Capacity (veh/h)	556	587	571	599	528	584	534	597				
Control Delay (s)	9.0	8.8	9.5	9.3	9.4	8.5	9.7	8.7				
Approach Delay (s)	8.9		9.4		9.0		9.2					
Approach LOS	А		А		А		А					
Intersection Summary												
Delay			9.1									
Level of Service			А									
Intersection Capacity Utiliza	ation		47.9%	IC	CU Level	of Service	е		А			
Analysis Period (min)			15									

	≯	→	\rightarrow	1	-	*	1	†	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<u> </u>		1	ሻ		1		đ þ			ፋጉ	
Volume (veh/h)	0	0	2	2	0	7	9	453	2	18	1073	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	2	2	0	7	9	453	2	18	1073	31
Pedestrians		1									3	
Lane Width (m)		3.5									3.7	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	1380	1598	553	1046	1613	230	1105			455		
vC1, stage 1 conf vol	1126	1126		472	472							
vC2, stage 2 conf vol	254	473		574	1141							
vCu, unblocked vol	1363	1583	553	1025	1598	201	1105			428		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	99			98		
cM capacity (veh/h)	210	254	481	383	245	802	639			1130		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	0	2	2	7	236	228	554	568				
Volume Left	0	0	2	0	9	0	18	0				
Volume Right	0	2	0	7	0	2	0	31				
cSH	1700	481	383	802	639	1700	1130	1700				
Volume to Capacity	0.00	0.00	0.01	0.01	0.01	0.13	0.02	0.33				
Queue Length 95th (m)	0.0	0.1	0.1	0.2	0.3	0.0	0.4	0.0				
Control Delay (s)	0.0	12.5	14.5	9.5	0.6	0.0	0.5	0.0				
Lane LOS	А	В	В	А	А		А					
Approach Delay (s)	12.5		10.6		0.3		0.2					
Approach LOS	В		В									
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utiliz	ation		53.5%	IC	CU Level	of Servic	е		А			
Analysis Period (min)			15									

	۶	-	+	*	5	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		-fî†	≜ †⊅		Y	
Volume (veh/h)	8	185	336	9	10	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	185	336	9	10	18
Pedestrians		16	7		15	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		109				
pX, platoon unblocked						
vC, conflicting volume	360				471	204
vC1, stage 1 conf vol					356	
vC2, stage 2 conf vol					116	
vCu, unblocked vol	360				471	204
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.6	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1195				627	789
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	70	123	224	121	28	
Volume Left	8	0	0	0	10	
Volume Right	0	0	0	9	18	
cSH	1195	1700	1700	1700	722	
Volume to Capacity	0.01	0.07	0.13	0.07	0.04	
Oueue Length 95th (m)	0.2	0.0	0.0	0.0	1.0	
Control Delay (s)	1.0	0.0	0.0	0.0	10.2	
Lane LOS	A				В	
Approach Delay (s)	0.4		0.0		10.2	
Approach LOS	011		0.0		B	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utiliza	ation		25.2%	IC	U Level (of Service
Analysis Period (min)			15			

	۶	-	-	*	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		- 4ħ	↑ ĵ≽		Y		
Volume (veh/h)	4	191	336	5	10	9	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	4	191	336	5	10	9	
Pedestrians		8	6		3		
Lane Width (m)		3.7	3.7		3.5		
Walking Speed (m/s)		1.2	1.2		1.2		
Percent Blockage		1	1		0		
Right turn flare (veh)							
Median type		TWLTL	None				
Median storage veh)		2					
Upstream signal (m)		200					
pX, platoon unblocked							
vC, conflicting volume	344				451	182	
vC1, stage 1 conf vol					342		
vC2, stage 2 conf vol					110		
vCu, unblocked vol	344				451	182	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)					5.8		
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				98	99	
cM capacity (veh/h)	1223				661	829	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1		
Volume Total	68	127	224	117	19		
Volume Left	4	0	0	0	10		
Volume Right	0	0	0	5	9		
cSH	1223	1700	1700	1700	731		
Volume to Capacity	0.00	0.07	0.13	0.07	0.03		
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.6		
Control Delay (s)	0.5	0.0	0.0	0.0	10.1		
Lane LOS	А				В		
Approach Delay (s)	0.2		0.0		10.1		
Approach LOS					В		
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilizati	ion		22.2%	IC	U Level	of Service	
Analysis Period (min)			15				

	۶	$\mathbf{\hat{z}}$	•	Ť	Ļ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	4î	
Volume (veh/h)	16	3	10	119	216	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	3	10	119	216	20
Pedestrians	27				27	
Lane Width (m)	3.5				3.7	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	2				2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	419	253	263			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419	253	263			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	99			
cM capacity (veh/h)	564	773	1284			
	EB I		2B			
Volume Total	19	129	236			
Volume Left	16	10	0			
Volume Right	3	0	20			
CSH	589	1284	1/00			
Volume to Capacity	0.03	0.01	0.14			
Queue Length 95th (m)	0.8	0.2	0.0			
Control Delay (s)	11.3	0.7	0.0			
Lane LOS	В	A				
Approach Delay (s)	11.3	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization	tion		24.5%	10	CU Level	of Service
Analysis Period (min)			15			

	≯	\mathbf{r}	•	Ť	Ļ	∢	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y			र्स	4Î		
Volume (veh/h)	1	1	2	133	235	2	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	1	1	2	133	235	2	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	373	236	237				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	373	236	237				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	100	100				
cM capacity (veh/h)	631	808	1342				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	2	135	237				
Volume Left	1	2	0				
Volume Right	1	0	2				
cSH	709	1342	1700				
Volume to Capacity	0.00	0.00	0.14				
Queue Length 95th (m)	0.1	0.0	0.0				
Control Delay (s)	10.1	0.1	0.0				
Lane LOS	В	А					
Approach Delay (s)	10.1	0.1	0.0				
Approach LOS	В						
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilizat	tion		22.5%	10	CU Level	of Service	
Analysis Period (min)			15				

Summary of All Intervals

Run Number	1	2	3	AM	Avg	
Start Time	7:30	7:30	7:30	7:30	7:30	
End Time	8:45	8:45	8:45	8:45	8:45	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	2344	2413	2284	2338	2344	
Vehs Exited	2347	2397	2288	2334	2341	
Starting Vehs	23	21	44	31	26	
Ending Vehs	20	37	40	35	26	
Travel Distance (km)	906	940	894	898	909	
Travel Time (hr)	27.6	28.9	27.5	28.1	28.0	
Total Delay (hr)	8.7	9.4	8.9	9.4	9.1	
Total Stops	1673	1796	1727	1786	1743	
Fuel Used (I)	88.4	92.3	88.3	89.9	89.7	

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15
Volumes adjusted by Growth F	actors.
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45		
End Time	8:45		
Total Time (min)	60		
Volumes adjusted by Grow	th Factors.		

Run Number	1	2	3	AM	Avg	
Vehs Entered	2344	2413	2284	2338	2344	
Vehs Exited	2347	2397	2288	2334	2341	
Starting Vehs	23	21	44	31	26	
Ending Vehs	20	37	40	35	26	
Travel Distance (km)	906	940	894	898	909	
Travel Time (hr)	27.6	28.9	27.5	28.1	28.0	
Total Delay (hr)	8.7	9.4	8.9	9.4	9.1	
Total Stops	1673	1796	1727	1786	1743	
Fuel Used (I)	88.4	92.3	88.3	89.9	89.7	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	14.7	12.1	14.6	45.6	25.8	45.3	10.6	35.8	18.4	38.4	59.3	55.1
Average Queue (m)	4.6	1.9	1.9	22.2	11.5	19.4	3.6	14.9	5.6	16.8	29.6	25.6
95th Queue (m)	12.6	8.1	8.6	39.2	21.5	36.7	10.5	29.5	14.9	32.2	51.6	48.1
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.2	98.2
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 2: Colonial Drive & The Collegeway

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	17.9	25.9	20.7	14.8	22.0	20.0	22.9	19.1
Average Queue (m)	9.1	10.3	10.2	7.3	10.8	8.5	12.0	9.0
95th Queue (m)	14.5	19.3	18.3	13.4	17.6	16.6	19.5	16.3
Link Distance (m)	44.9	44.9	68.9	68.9	75.2	75.2	83.9	83.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Ridgeway Drive & Driveway #1

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	R	L	R	LT	TR	LT	TR
Maximum Queue (m)	6.4	6.4	8.2	15.6	3.8	31.5	11.0
Average Queue (m)	0.6	0.5	2.4	2.0	0.1	3.3	0.4
95th Queue (m)	4.0	3.6	8.4	10.3	2.4	16.8	7.1
Link Distance (m)	41.8	59.2	59.2	98.2	98.2	101.0	101.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: The Collegeway & Driveway #2

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	11.0	8.5	6.8	12.3	15.7
Average Queue (m)	1.4	0.4	0.2	0.7	6.1
95th Queue (m)	6.9	4.0	2.5	5.4	13.5
Link Distance (m)	86.2	86.2	74.6	74.6	44.5
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: The Collegeway & Driveway #3

Movement	EB	EB	WB	WB	SB
Directions Served	LT	Т	Т	TR	LR
Maximum Queue (m)	4.5	2.3	6.6	9.2	10.4
Average Queue (m)	0.1	0.1	0.2	0.8	4.4
95th Queue (m)	2.0	1.5	2.5	5.1	11.6
Link Distance (m)	74.6	74.6	44.9	44.9	40.7
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Colonial Drive & Driveway #4

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	17.6	8.4	8.4
Average Queue (m)	4.5	0.9	0.5
95th Queue (m)	12.8	5.6	4.3
Link Distance (m)	38.5	83.9	9.5
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Colonial Drive & Driveway #5

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	7.3	4.8	2.3
Average Queue (m)	0.5	0.2	0.1
95th Queue (m)	3.5	2.6	1.4
Link Distance (m)	45.8	9.5	56.4
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Weekday P.M. Peak Hour


	۶	-	4	+	1	1	1	÷.	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	ኘ	<u>^</u>	1	≜ î≽	1	<u>^</u>	ሻ	A	
Volume (vph)	293	140	86	44	9	1105	72	465	
Lane Group Flow (vph)	293	181	86	144	9	1280	72	547	
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases	5	2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	5	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	13.0	46.0	33.0	33.0	55.0	55.0	55.0	55.0	
Total Split (%)	12.9%	45.5%	32.7%	32.7%	54.5%	54.5%	54.5%	54.5%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.78	0.19	0.58	0.29	0.02	0.59	0.41	0.26	
Control Delay	44.6	21.9	55.7	18.0	9.8	14.0	20.9	9.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.6	21.9	55.7	18.0	9.8	14.0	20.9	9.7	
Queue Length 50th (m)	50.8	11.7	17.0	5.6	0.7	76.5	7.1	23.9	
Queue Length 95th (m)	70.7	19.0	31.1	13.9	3.1	113.8	23.7	38.8	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	378	1382	293	896	501	2168	177	2103	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.78	0.13	0.29	0.16	0.02	0.59	0.41	0.26	
Intersection Summary									

Cycle Length: 101 Actuated Cycle Length: 101 Offset: 0 (0%), Referenced to phase 4:SBTL and 8:NBTL, Start of Green Natural Cycle: 95 Control Type: Actuated-Coordinated

Splits and Phases: 1: Ridgeway Drive & The Collegeway



	۶	-	$\mathbf{\hat{z}}$	4	+	*	1	1	1	1	÷.	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	^		5	4 12		ኘ	^		۲.	4 12	
Volume (vph)	293	140	41	86	44	100	9	1105	175	72	465	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.90		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1782	3514		1695	3232		1784	3559		1782	3447	
Flt Permitted	0.54	1.00		0.64	1.00		0.44	1.00		0.16	1.00	
Satd. Flow (perm)	1010	3514		1138	3232		826	3559		292	3447	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	293	140	41	86	44	100	9	1105	175	72	465	82
RTOR Reduction (vph)	0	30	0	0	75	0	0	9	0	0	11	0
Lane Group Flow (vph)	293	151	0	86	69	0	9	1271	0	72	536	0
Confl. Peds. (#/hr)	4		3	3		4	2		16	16		2
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	1%	0%	3%	5%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.2	26.2		13.2	13.2		61.3	61.3		61.3	61.3	
Effective Green, g (s)	26.2	26.2		13.2	13.2		61.3	61.3		61.3	61.3	
Actuated g/C Ratio	0.26	0.26		0.13	0.13		0.61	0.61		0.61	0.61	
Clearance Time (s)	3.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	338	911		148	422		501	2160		177	2092	
v/s Ratio Prot	c0.09	0.04			0.02			c0.36			0.16	
v/s Ratio Perm	c0.14			0.08			0.01			0.25		
v/c Ratio	0.87	0.17		0.58	0.16		0.02	0.59		0.41	0.26	
Uniform Delay, d1	34.5	28.9		41.3	39.0		7.9	12.1		10.4	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.1	0.1		5.7	0.2		0.1	1.2		6.8	0.3	
Delay (s)	54.6	29.0		47.0	39.2		8.0	13.3		17.2	9.5	
Level of Service	D	С		D	D		А	В		В	А	
Approach Delay (s)		44.8			42.1			13.3			10.4	
Approach LOS		D			D			В			В	
Intersection Summary												
HCM 2000 Control Delay			20.9	Н	CM 2000) Level of	Service		С			
HCM 2000 Volume to Cap	pacity ratio		0.69									
Actuated Cycle Length (s))		101.0	S	um of los	st time (s)			16.5			
Intersection Capacity Utili	zation		99.2%	IC	CU Level	of Servic	е		F			
Analysis Period (min)			15									

c Critical Lane Group

	۶	-	$\mathbf{\hat{z}}$	4	-	*	1	1	1	1	Ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4î b			4î b			4î b			सी कि	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	73	257	46	53	148	45	41	104	33	33	67	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	73	257	46	53	148	45	41	104	33	33	67	50
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	202	175	127	119	93	85	67	84				
Volume Left (vph)	73	0	53	0	41	0	33	0				
Volume Right (vph)	0	46	0	45	0	33	0	50				
Hadj (s)	0.21	-0.17	0.23	-0.25	0.22	-0.23	0.27	-0.32				
Departure Headway (s)	6.0	5.6	6.2	5.7	6.5	6.1	6.6	6.0				
Degree Utilization, x	0.33	0.27	0.22	0.19	0.17	0.14	0.12	0.14				
Capacity (veh/h)	576	617	556	603	517	552	505	554				
Control Delay (s)	10.8	9.5	9.7	8.8	9.6	8.9	9.3	8.8				
Approach Delay (s)	10.2		9.2		9.3		9.0					
Approach LOS	В		А		А		А					
Intersection Summary												
Delay			9.6									
Level of Service			А									
Intersection Capacity Utiliza	ation		52.3%	IC	CU Level	of Servic	е		А			
Analysis Period (min)			15									

	≯	-	\mathbf{r}	-	+	*	1	†	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ		1	ሻ		1		-a†			4 12	
Volume (veh/h)	12	0	22	29	0	3	8	1484	6	41	568	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	0	22	29	0	3	8	1484	6	41	568	3
Pedestrians											1	
Lane Width (m)											3.7	
Walking Speed (m/s)											1.2	
Percent Blockage											0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.79	0.79		0.79	0.79	0.79				0.79		
vC, conflicting volume	1414	2158	286	1891	2156	746	571			1490		
vC1, stage 1 conf vol	652	652		1503	1503							
vC2, stage 2 conf vol	762	1506		388	653							
vCu, unblocked vol	991	1933	286	1596	1931	146	571			1088		
tC, single (s)	7.7	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)	6.7	5.5		6.5	5.5							
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	96	100	97	83	100	100	99			92		
cM capacity (veh/h)	332	168	717	168	198	695	883			512		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	12	22	29	3	750	748	325	287				
Volume Left	12	0	29	0	8	0	41	0				
Volume Right	0	22	0	3	0	6	0	3				
cSH	332	717	168	695	883	1700	512	1700				
Volume to Capacity	0.04	0.03	0.17	0.00	0.01	0.44	0.08	0.17				
Queue Length 95th (m)	0.9	0.8	4.8	0.1	0.2	0.0	2.1	0.0				
Control Delay (s)	16.3	10.2	30.8	10.2	0.2	0.0	2.7	0.0				
Lane LOS	С	В	D	В	А		A					
Approach Delay (s)	12.3		28.9		0.1		1.4					
Approach LOS	В		D									
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utiliz	ation		58.1%	IC	CU Level	of Service	е		В			
Analysis Period (min)			15									

	۶	-	-	*	1	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4ħ	A		Y	
Volume (veh/h)	52	335	190	32	22	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	52	335	190	32	22	40
Pedestrians		6	6		6	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		109				
pX, platoon unblocked					0.99	
vC, conflicting volume	228				490	123
vC1, stage 1 conf vol					212	
vC2, stage 2 conf vol					278	
vCu, unblocked vol	228				463	123
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.6	3.3
p0 queue free %	96				97	96
cM capacity (veh/h)	1346				644	902
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	164	223	127	95	62	
Volume Left	52	0	0	0	22	
Volume Right	0	0	0	32	40	
cSH	1346	1700	1700	1700	790	
Volume to Capacity	0.04	0.13	0.07	0.06	0.08	
Queue Length 95th (m)	1.0	0.0	0.0	0.0	2.0	
Control Delay (s)	2.7	0.0	0.0	0.0	9.9	
Lane LOS	А				А	
Approach Delay (s)	1.1		0.0		9.9	
Approach LOS					А	
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utiliza	tion		34.2%	IC	U Level	of Service
Analysis Period (min)			15			

	≯	-	-	*	1	~	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		-fî†	† 12		Y		
Volume (veh/h)	9	348	213	26	28	9	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	9	348	213	26	28	9	
Pedestrians		4	4		4		
Lane Width (m)		3.7	3.7		3.5		
Walking Speed (m/s)		1.2	1.2		1.2		
Percent Blockage		0	0		0		
Right turn flare (veh)							
Median type		TWLTL	None				
Median storage veh)		2					
Upstream signal (m)		200					
pX, platoon unblocked							
vC, conflicting volume	243				426	128	
vC1, stage 1 conf vol					230		
vC2, stage 2 conf vol					196		
vCu, unblocked vol	243				426	128	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)					5.8		
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				96	99	
cM capacity (veh/h)	1331				702	899	
Direction, Lane #	FB 1	FB 2	WB 1	WB 2	SB 1		
Volume Total	125	232	142	97	37		
Volume Left	9	0	0	0	28		
Volume Right	0	0	0	26	9		
cSH	1331	1700	1700	1700	742		
Volume to Capacity	0.01	0.14	0.08	0.06	0.05		
Queue Length 95th (m)	0.01	0.0	0.00	0.0	1 3		
Control Delay (s)	0.2	0.0	0.0	0.0	10.1		
Lane LOS	Δ	0.0	0.0	0.0	R		
Approach Delay (s)	0.2		0.0		10.1		
Approach LOS	0.2		0.0		B		
					U		
Intersection Summary			0.7				
Average Delay			0.7	10			
Intersection Capacity Utiliza	ation		27.3%	IC	U Level	of Service	
Analysis Period (min)			15				

	۶	\mathbf{r}	•	Ť	Ŧ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	4	
Volume (veh/h)	26	18	18	204	132	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	18	18	204	132	31
Pedestrians	10			10	10	
Lane Width (m)	3.5			3.7	3.7	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	408	168	173			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	408	168	173			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	586	867	1405			
Direction Long #		ND 1	CD 1			
Direction, Lane #	EBI	INR I	SR I			
Volume Lotal	44	222	163			
Volume Left	26	18	0			
Volume Right	18	0	31			
cSH	676	1405	1700			
Volume to Capacity	0.07	0.01	0.10			
Queue Length 95th (m)	1.7	0.3	0.0			
Control Delay (s)	10.7	0.7	0.0			
Lane LOS	В	А				
Approach Delay (s)	10.7	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilizat	tion		38.1%	10	CU Level	of Service
Analysis Period (min)			15			2

	۶	\mathbf{r}	•	Ť	Ŧ	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4Î	
Volume (veh/h)	2	2	1	229	161	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	2	1	229	161	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	392	162	162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392	162	162			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	615	889	1429			
Direction Lane #	FR 1	NR 1	SR 1			
Volumo Total		220	162			
Volume Loft	4	230	102			
Volume Lett	2		1			
	2	1420	1700			
CSH Maluma ta Canaditu	121	1429	1/00			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	10.0	0.0	0.0			
Lane LOS	A	A	0.0			
Approach Delay (s)	10.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizat	tion		22.8%	IC	CU Level	of Service
Analysis Period (min)			15			

Summary of All Intervals

Run Number	1	2	PM	(Optimized)	Avg	
Start Time	4:15	4:15	4:15	4:15	4:15	
End Time	5:30	5:30	5:30	5:30	5:30	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	3308	3283	3261	3238	3276	
Vehs Exited	3286	3295	3255	3215	3263	
Starting Vehs	42	67	44	34	40	
Ending Vehs	64	55	50	57	52	
Travel Distance (km)	1256	1261	1237	1220	1243	
Travel Time (hr)	48.1	49.0	47.2	45.8	47.5	
Total Delay (hr)	22.1	22.8	21.6	20.3	21.7	
Total Stops	2818	2839	2767	2759	2798	
Fuel Used (I)	138.6	140.2	135.6	133.9	137.1	

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15
Volumes adjusted by Growth	Factors.
No data recorded this interval	

Interval #1 Information Recording

Start Time	4:30	
End Time	5:30	
Total Time (min)	60	
Volumes adjusted by G	Growth Factors.	

Run Number	1	2	PM	(Optimized)	Avg	
Vehs Entered	3308	3283	3261	3238	3276	
Vehs Exited	3286	3295	3255	3215	3263	
Starting Vehs	42	67	44	34	40	
Ending Vehs	64	55	50	57	52	
Travel Distance (km)	1256	1261	1237	1220	1243	
Travel Time (hr)	48.1	49.0	47.2	45.8	47.5	
Total Delay (hr)	22.1	22.8	21.6	20.3	21.7	
Total Stops	2818	2839	2767	2759	2798	
Fuel Used (I)	138.6	140.2	135.6	133.9	137.1	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	65.4	84.1	57.6	51.3	18.4	32.2	9.1	95.5	89.9	38.8	53.5	51.5
Average Queue (m)	51.4	30.0	15.9	19.3	6.6	14.0	1.3	58.3	49.2	18.6	26.1	22.3
95th Queue (m)	73.7	77.3	39.7	38.4	15.6	25.3	6.2	86.8	81.4	35.4	45.5	42.1
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.5	98.5
Upstream Blk Time (%)		3	0									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)	13			0				0			0	
Queuing Penalty (veh)	9			0				0			0	

APPENDIX D

Proxy Survey Rates



TABULAR SUMMARY OF VEHICULAR MOVEMENT COUNT

COUNT DATE:	Thursday February 11, 2016					
PROJECT # :	9831.200	N / S STREET:	Midwich Housing	AREA:	Mississauga	
OBSERVER	Anthony Marinovic/Dominic Cho	E / W STREET:	South Millway	PROV.:	ONTARIO	

		Front Er	ntrance			Rear E	ntrance		Ve	ehicles Pedestrians							
TIME	VEHI	CLES	PEDES	TRIANS	VEH	CLES	PEDES1	RIANS	Т	otal	Tot	al	TOTAL	TOTAL	ALL	HOURLY	
BEGIN	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IB	OB	IB	OB	IB	OB	TOTAL	TOTAL	
07:00	2	3	0	2	0	5	0	6	2	8	0	8	2	16	18		
07:15	3	1	0	2	2	6	0	1	5	7	0	3	5	10	15		
07:30	3	8	2	7	0	6	0	1	3	14	2	8	5	22	27		
07:45	1	5	0	2	4	10	0	1	5	15	0	3	5	18	23	83	
08:00	4	1	0	5	3	15	1	4	7	16	1	9	8	25	33	98	
08:15	2	3	0	9	5	5	1	6	7	8	1	15	8	23	31	114	
08:30	2	7	0	6	6	8	0	8	8	15	0	14	8	29	37	124	
08:45	7	6	1	7	7	8	3	0	14	14	4	7	18	21	39	140	<peak hour<="" td=""></peak>
16:00	2	1	1	5	4	4	1	0	6	5	2	5	8	10	18		
16:15	3	1	2	5	5	6	0	0	8	7	2	5	10	12	22		
16:30	1	3	1	2	9	6	0	0	10	9	1	2	11	11	22		
16:45	1	1	3	3	5	10	0	0	6	11	3	3	9	14	23	85	
17:00	5	4	2	6	4	6	0	0	9	10	2	6	11	16	27	94	
17:15	6	5	2	3	12	5	0	0	18	10	2	3	20	13	33	105	
17:30	4	7	3	4	11	4	0	0	15	11	3	4	18	15	33	116	
17:45	5	5	4	2	7	6	0	0	12	11	4	2	16	13	29	122	<peak hour<="" td=""></peak>
TOTAL	51	61	21	70	84	110	6	27	135	171	27	97	162	268	430		
AM PEAK	15	17	1	27	21	36	5	18	36	53	6	45	42	98	140		
PM PEAK	20	21	11	15	34	21	0	0	54	42	11	15	65	57	122		

AM Peak

Г

Outbound (Veh)		Inboun	d (Veh)
← 17		←	21
Outbound (Ped)		Inboun	d (Ped)
← 27	Proxy Site	÷	5
Inbound (Veh)		Outbou	nd (Veh)
→ 15		→	36
Inbound (Ped)		Outbou	nd (Ped)
→ 1		→	18

PM Peak

Outbour	d (Veh)		Inbour	d (Veh)
÷	21		÷	34
Outbour	d (Ped)		Inbour	d (Ped)
÷	15	Proxy Site	÷	0
Inbound	d (Veh)		Outbou	nd (Veh)
→	20		→	21
Inbound	d (Ped)		Outbou	nd (Ped)
	· · ·			· · ·

APPENDIX E

Intersection Capacity Analysis Results – Future Total Traffic Conditions



Weekday A.M. Peak Hour



Queues 1: Ridgeway Drive & The Collegeway

	≯	-	-	+	-	†	1	- ŧ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	5	* *	5	≜ t≽	5	44	5	≜ t≽	
Volume (vph)	20	9	120	99	21	316	157	801	
Lane Group Flow (vph)	20	16	120	242	21	354	157	932	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases		2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	2	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	33.0	33.0	33.0	33.0	68.0	68.0	68.0	68.0	
Total Split (%)	32.7%	32.7%	32.7%	32.7%	67.3%	67.3%	67.3%	67.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.14	0.04	0.63	0.41	0.05	0.14	0.22	0.36	
Control Delay	37.6	25.6	54.8	17.7	5.5	4.6	6.2	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.6	25.6	54.8	17.7	5.5	4.6	6.2	5.9	
Queue Length 50th (m)	3.7	0.8	23.7	9.6	1.1	9.2	9.0	30.6	
Queue Length 95th (m)	10.2	3.7	40.0	19.8	4.1	17.3	21.0	50.8	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	264	822	348	950	394	2572	720	2574	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.02	0.34	0.25	0.05	0.14	0.22	0.36	
Intersection Summary									
Cycle Length: 101									
Actuated Cycle Length: 101									
Offset: 2 (2%) Referenced to	nhase /	SBTL ar	nd 8·NRTI	Start of	f Green				
Natural Cycle: 85				_, Start 0	OICCII				
Control Type: Actuated-Coord	dinated								
Some Type Actualed -0001	anatou								
Splits and Phases: 1: Rido	iewav Dri	ve & The	Collegev	/av					

opilo ana maoosi minagona jenito a m	no conceptual	
	ø4 (R)	
33 s	68 s	
4 ▼ ø6	ø8 (R)	
33 s	68 s	

HCM Signalized Intersection Capacity Analysis 1: Ridgeway Drive & The Collegeway

	≯	-	\mathbf{i}	4	-	*	1	1	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	^		1	∱1 ≽		۲.	<u>^</u>		ሻ	∱1 ≽	
Volume (vph)	20	9	7	120	99	143	21	316	38	157	801	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1621	3178		1726	3281		1783	3537		1748	3536	
Flt Permitted	0.60	1.00		0.75	1.00		0.29	1.00		0.54	1.00	
Satd. Flow (perm)	1026	3178		1356	3281		545	3537		993	3536	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	9	7	120	99	143	21	316	38	157	801	131
RTOR Reduction (vph)	0	6	0	0	123	0	0	6	0	0	9	0
Lane Group Flow (vph)	20	10	0	120	119	0	21	348	0	157	923	0
Confl. Peds. (#/hr)	1		12	12		1	5		27	27		5
Heavy Vehicles (%)	10%	0%	14%	2%	0%	1%	0%	1%	3%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		73.3	73.3		73.3	73.3	
Effective Green, g (s)	14.2	14.2		14.2	14.2		73.3	73.3		73.3	73.3	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	446		190	461		395	2566		720	2566	
v/s Ratio Prot		0.00			0.04			0.10			c0.26	
v/s Ratio Perm	0.02			c0.09			0.04			0.16		
v/c Ratio	0.14	0.02		0.63	0.26		0.05	0.14		0.22	0.36	
Uniform Delay, d1	38.0	37.4		40.9	38.7		4.0	4.2		4.5	5.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		6.7	0.3		0.3	0.1		0.7	0.4	
Delay (s)	38.5	37.4		47.6	39.0		4.2	4.3		5.2	5.5	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s)		38.0			41.9			4.3			5.5	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			13.0	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	acity ratio		0.40									
Actuated Cycle Length (s)			101.0	S	um of los	t time (s)			13.5			
Intersection Capacity Utiliza	ation		110.0%	IC	CU Level	of Service)		Н			
Analysis Period (min)			15									

c Critical Lane Group

	≯	-	$\mathbf{\hat{z}}$	4	+	*	٠	1	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स कि			đĥ-			đĥ-			đ þ	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	39	126	39	24	208	85	52	60	54	94	80	102
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	39	126	39	24	208	85	52	60	54	94	80	102
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	102	102	128	189	82	84	134	142				
Volume Left (vph)	39	0	24	0	52	0	94	0				
Volume Right (vph)	0	39	0	85	0	54	0	102				
Hadj (s)	0.22	-0.19	0.13	-0.27	0.37	-0.33	0.38	-0.40				
Departure Headway (s)	6.4	6.0	6.2	5.7	6.7	6.0	6.5	5.7				
Degree Utilization, x	0.18	0.17	0.22	0.30	0.15	0.14	0.24	0.23				
Capacity (veh/h)	530	567	556	598	508	563	522	592				
Control Delay (s)	9.6	9.0	9.7	10.0	9.6	8.7	10.4	9.2				
Approach Delay (s)	9.3		9.9		9.2		9.8					
Approach LOS	А		А		А		А					
Intersection Summary												
Delay			9.6									
Level of Service			А									
Intersection Capacity Utilizat	ion		50.5%	IC	U Level	of Service			А			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 3: Ridgeway Drive & Driveway #1

	≯	-	$\mathbf{\hat{z}}$	4	+	*	1	1	1	1	Ļ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦		1	۲		1		ፋቡ			ፋቡ	
Volume (veh/h)	0	0	2	5	0	4	9	461	9	7	1082	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	2	5	0	4	9	461	9	7	1082	31
Pedestrians		1									3	
Lane Width (m)		3.5									3.7	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	1368	1600	558	1040	1612	238	1114			470		
vC1, stage 1 conf vol	1112	1112		484	484							
vC2, stage 2 conf vol	256	488		557	1128							
vCu, unblocked vol	1350	1585	558	1019	1596	207	1114			442		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	99			99		
cM capacity (veh/h)	216	260	478	389	250	794	634			1116		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	0	2	5	4	240	240	548	572				
Volume Left	0	0	5	0	9	0	7	0				
Volume Right	0	2	0	4	0	9	0	31				
cSH	1700	478	389	794	634	1700	1116	1700				
Volume to Capacity	0.00	0.00	0.01	0.01	0.01	0.14	0.01	0.34				
Queue Length 95th (m)	0.0	0.1	0.3	0.1	0.3	0.0	0.2	0.0				
Control Delay (s)	0.0	12.6	14.4	9.6	0.6	0.0	0.2	0.0				
Lane LOS	А	В	В	А	А		А					
Approach Delay (s)	12.6		12.2		0.3		0.1					
Approach LOS	В		В									
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization	on		47.8%	IC	U Level	of Service			А			
Analysis Period (min)			15									

	- ×	\rightarrow	1	- Ť.	- ŧ	-
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Υ.			स्	4Î	
Volume (veh/h)	50	61	66	117	215	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	50	61	66	117	215	9
Pedestrians	27				27	
Lane Width (m)	3.5				3.7	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	2				2	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	522	246	251			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	246	251			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	92	95			
cM capacity (veh/h)	470	780	1297			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	111	183	224			
Volume Left	50	66	0			
Volume Right	61	0	9			
cSH	601	1297	1700			
Volume to Capacity	0.18	0.05	0.13			
Queue Length 95th (m)	5.4	1.3	0.0			
Control Delay (s)	12.3	3.1	0.0			
Lane LOS	В	А				
Approach Delay (s)	12.3	3.1	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utiliz	zation		39.1%	10	CU Level o	of Service
Analysis Period (min)			15			
Average Delay Intersection Capacity Utiliz Analysis Period (min)	zation		3.8 39.1% 15	IC	CU Level o	of Service

Summary of All Intervals

Run Number	1	2	3	AM	Avg	
Start Time	7:30	7:30	7:30	7:30	7:30	
End Time	8:45	8:45	8:45	8:45	8:45	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	2416	2400	2416	2402	2406	
Vehs Exited	2417	2396	2433	2389	2409	
Starting Vehs	34	31	40	25	30	
Ending Vehs	33	35	23	38	28	
Travel Distance (km)	940	930	956	933	940	
Travel Time (hr)	30.0	28.7	29.5	29.4	29.4	
Total Delay (hr)	9.9	9.1	9.2	9.5	9.4	
Total Stops	1961	1844	1944	1940	1920	
Fuel Used (I)	94.5	91.5	95.7	93.5	93.8	

Interval #0 Information Seeding

Start Time	7:30		
End Time	7:45		
Total Time (min)	15		
Volumes adjusted by Gr	rowth Factors.		
No data recorded this in	terval.		

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60
Volumes adjusted by Growth F	actors.

Run Number	1	2	3	AM	Avg	
Vehs Entered	2416	2400	2416	2402	2406	
Vehs Exited	2417	2396	2433	2389	2409	
Starting Vehs	34	31	40	25	30	
Ending Vehs	33	35	23	38	28	
Travel Distance (km)	940	930	956	933	940	
Travel Time (hr)	30.0	28.7	29.5	29.4	29.4	
Total Delay (hr)	9.9	9.1	9.2	9.5	9.4	
Total Stops	1961	1844	1944	1940	1920	
Fuel Used (I)	94.5	91.5	95.7	93.5	93.8	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	24.8	13.7	15.3	47.6	31.6	53.9	14.0	34.6	20.3	43.5	50.6	46.5
Average Queue (m)	6.0	2.1	2.7	23.2	13.0	19.3	4.3	14.5	6.3	15.9	29.1	23.0
95th Queue (m)	18.3	8.9	10.6	40.4	24.0	38.9	12.4	28.7	16.0	31.5	48.2	42.6
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.2	98.2
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 2: Colonial Drive & The Collegeway

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (m)	18.1	20.8	23.2	22.4	20.2	19.3	22.1	21.6
Average Queue (m)	8.8	8.7	9.9	9.7	10.1	8.9	11.6	11.6
95th Queue (m)	14.5	15.5	17.8	18.0	17.0	15.8	18.7	17.8
Link Distance (m)	44.9	44.9	68.9	68.9	75.2	75.2	83.9	83.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Ridgeway Drive & Driveway #1

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	R	L	R	LT	TR	LT	TR
Maximum Queue (m)	6.4	10.2	8.1	17.0	6.2	25.6	15.9
Average Queue (m)	0.5	1.2	1.0	2.8	0.2	1.3	0.5
95th Queue (m)	3.8	6.2	5.3	11.8	2.9	9.9	6.2
Link Distance (m)	41.8	59.2	59.2	98.2	98.2	101.0	101.0
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Colonial Drive & Driveway #4

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	21.9	15.4	18.7
Average Queue (m)	11.0	4.1	1.4
95th Queue (m)	18.1	12.6	8.8
Link Distance (m)	38.5	83.9	9.5
Upstream Blk Time (%)			0
Queuing Penalty (veh)			1
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1

Weekday P.M. Peak Hour



Queues 1: Ridgeway Drive & The Collegeway

	≯	-	-	-	-	†	1	÷.	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	5	44	5	≜ 1≽	5	44	5	≜ t≽	
Volume (vph)	293	140	56	44	9	1106	95	443	
Lane Group Flow (vph)	293	181	56	157	9	1236	95	525	
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	
Protected Phases	5	2		6		8		4	
Permitted Phases	2		6		8		4		
Detector Phase	5	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	8.0	8.0	8.0	45.0	45.0	45.0	45.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	51.5	51.5	51.5	51.5	
Total Split (s)	14.0	47.0	33.0	33.0	54.0	54.0	54.0	54.0	
Total Split (%)	13.9%	46.5%	32.7%	32.7%	53.5%	53.5%	53.5%	53.5%	
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	7.0	7.0	7.0	6.5	6.5	6.5	6.5	
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	
v/c Ratio	0.81	0.20	0.46	0.37	0.02	0.56	0.47	0.24	
Control Delay	49.2	23.1	53.6	21.4	8.7	12.5	21.5	8.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.2	23.1	53.6	21.4	8.7	12.5	21.5	8.8	
Queue Length 50th (m)	52.0	12.0	11.1	7.0	0.7	69.1	9.5	21.5	
Queue Length 95th (m)	#76.7	19.8	22.9	16.1	2.9	100.4	30.1	34.4	
Internal Link Dist (m)		70.7		84.6		155.9		98.3	
Turn Bay Length (m)	58.0		74.0		100.0		66.0		
Base Capacity (vph)	363	1416	293	893	528	2226	200	2147	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.81	0.13	0.19	0.18	0.02	0.56	0.47	0.24	
Intersection Summary									
Cycle Length: 101									
Actuated Cycle Length: 101									
Offset: 0 (0%), Referenced	to phase 4	SBTL ar	nd 8:NBTI	_, Start o	f Green				
Natural Cycle: 95									
Control Type: Actuated-Coo	rdinated								
# 95th percentile volume e	exceeds ca	apacity, q	ueue mag	y be long	er.				
Queue shown is maximu	m after tw	o cycles.							

Splits and Phases: 1: Ridgeway Drive & The Collegeway

		ø4 (R)
47 s		54 s
≠ ø5	₩ ø6	ø8 (R)
14 s	33 s	54 s

HCM Signalized Intersection Capacity Analysis 1: Ridgeway Drive & The Collegeway

	۶	-	\mathbf{F}	∢	-	*	1	1	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	<u></u>		۲	A⊅		۲	<u></u>		۲	A	
Volume (vph)	293	140	41	56	44	113	9	1106	130	95	443	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0		7.0	7.0		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.89		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1782	3514		1695	3217		1784	3580		1782	3443	
Fit Permitted	0.51	1.00		0.64	1.00		0.45	1.00		0.17	1.00	
Satd. Flow (perm)	958	3514		1138	3217		853	3580		322	3443	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	293	140	41	56	44	113	9	1106	130	95	443	82
RTOR Reduction (vph)	0	31	0	0	79	0	0	6	0	0	11	0
Lane Group Flow (vph)	293	150	0	56	78	0	9	1230	0	95	514	0
Confl. Peds. (#/hr)	4	00/	3	3	00/	4	2	00/	16	16	00/	2
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	0%	1%	0%	3%	5%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		,	6		0	8			4	_
Permitted Phases	2			6	10.0		8	(0.7		4	(0.7	
Actuated Green, G (s)	24.8	24.8		10.8	10.8		62.7	62.7		62.7	62.7	
Effective Green, g (s)	24.8	24.8		10.8	10.8		62.7	62.7		62.7	62.7	
Actuated g/C Ratio	0.25	0.25		0.11	0.11		0.62	0.62		0.62	0.62	
Clearance Time (S)	3.0	7.0		7.0	7.0		0.5	0.5		0.5	0.5	
Vehicle Extension (S)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vpn)	324	862		121	343		529	2222		199	2137	
V/S Ratio Prot	CU. IU	0.04		0.05	0.02		0.01	CU.34		0.20	0.15	_
V/S Ralio Perm	CU.12	0.17		0.05	0.00		0.01			0.30	0.24	
V/C KallU Uniform Dolov, d1	0.90 25 5	0.17		0.40	0.23		0.02	0.00		0.48	0.24	
Dregrossien Easter	30.0 1.00	30.0		42.4	41.3		1.3	11.1		10.3	0.0 1.00	
Progression Facion	1.00	0.1		1.00 2 0	1.00		0.1	1.00		0.0	1.00	
Dolay (s)	62.6	20.1		2.0 15.2	0.3 /1.6		0.1 7.4	1.0		0.0 10.2	0.3	
Lovel of Service	02.0 F	JU.1		4J.Z	41.0 D		7.4	12.1 R		10.5 R	٥.٥	
Approach Delay (s)	L	50.2		D	12.6		A	12.0		D	10 3	
Approach LOS		JU.2			42.0 D			12.0 R			10.3 R	
Appidacii LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			21.2	H		С						
HCM 2000 Volume to Cap	acity ratio		0.67									
Actuated Cycle Length (s)			101.0	Si	um of los	t time (s)			16.5			
Intersection Capacity Utiliz	ation		118.3%	IC	U Level	of Service			Н			
Analysis Period (min)			15									

c Critical Lane Group

	≯	-	$\mathbf{\hat{z}}$	4	+	*	٠.	1	1	1	Ļ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स कि			4î b			ፋጉ			ፋጉ	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	102	217	46	53	96	114	41	85	33	55	48	75
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	102	217	46	53	96	114	41	85	33	55	48	75
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total (vph)	211	155	101	162	84	76	79	99				
Volume Left (vph)	102	0	53	0	41	0	55	0				
Volume Right (vph)	0	46	0	114	0	33	0	75				
Hadj (s)	0.28	-0.20	0.29	-0.49	0.25	-0.26	0.36	-0.41				
Departure Headway (s)	6.1	5.6	6.2	5.5	6.6	6.1	6.7	5.9				
Degree Utilization, x	0.36	0.24	0.18	0.25	0.15	0.13	0.15	0.16				
Capacity (veh/h)	566	614	549	627	509	548	501	565				
Control Delay (s)	11.2	9.2	9.4	9.0	9.6	8.8	9.6	8.9				
Approach Delay (s)	10.4		9.2		9.2		9.2					
Approach LOS	В		А		А		А					
Intersection Summary												
Delay			9.6									
Level of Service			А									
Intersection Capacity Utilization	1		52.9%	IC	U Level	of Service			А			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 3: Ridgeway Drive & Driveway #1

	۶	-	\mathbf{F}	*	-	*	1	1	1	1	÷.	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<u>۲</u>		1	<u>۲</u>		1					∱1 ≽	
Volume (veh/h)	0	0	22	17	0	8	8	1491	13	10	581	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	22	17	0	8	8	1491	13	10	581	3
Pedestrians											1	
Lane Width (m)											3.7	
Walking Speed (m/s)											1.2	
Percent Blockage											0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)								122				
pX, platoon unblocked	0.80	0.80		0.80	0.80	0.80				0.80		
vC, conflicting volume	1373	2122	292	1846	2118	753	584			1504		
vC1, stage 1 conf vol	602	602		1514	1514							
vC2, stage 2 conf vol	770	1520		332	604							
vCu, unblocked vol	974	1907	292	1563	1901	201	584			1137		
tC, single (s)	7.7	6.5	6.9	7.5	6.5	6.9	4.5			4.1		
tC, 2 stage (s)	6.7	5.5		6.5	5.5							
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	97	90	100	99	99			98		
cM capacity (veh/h)	363	189	710	163	198	651	873			499		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	0	22	17	8	754	758	300	294				
Volume Left	0	0	17	0	8	0	10	0				
Volume Right	0	22	0	8	0	13	0	3				
cSH	1700	710	163	651	873	1700	499	1700				
Volume to Capacity	0.00	0.03	0.10	0.01	0.01	0.45	0.02	0.17				
Queue Length 95th (m)	0.0	0.8	2.7	0.3	0.2	0.0	0.5	0.0				
Control Delay (s)	0.0	10.2	29.6	10.6	0.2	0.0	0.7	0.0				
Lane LOS	А	В	D	В	А		А					
Approach Delay (s)	10.2		23.5		0.1		0.4					
Approach LOS	В		С									
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilizati	on		57.2%	IC	U Level	of Service			В			
Analysis Period (min)			15									

	≯	-	+	*	1	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- 4 ↑	A		Y	
Volume (veh/h)	0	365	212	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	365	212	0	0	0
Pedestrians		6	6		6	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		0	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		109				
pX, platoon unblocked					0.99	
vC, conflicting volume	218				406	118
vC1, stage 1 conf vol					218	
vC2, stage 2 conf vol					188	
vCu, unblocked vol	218				378	118
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.6	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1357				709	909
Direction, Lane #	<u>EB 1</u>	EB 2	<u>WB 1</u>	WB 2	SB 1	
Volume Total	122	243	141	71	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1357	1700	1700	1700	1700	
Volume to Capacity	0.00	0.14	0.08	0.04	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS					А	
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS					А	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utiliz	zation		21.9%	IC	U Level o	of Service
Analysis Period (min)			15			
			10			

	۶	-	-	*	1	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4ħ	t₽		Y	
Volume (veh/h)	0	365	212	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	365	212	0	0	0
Pedestrians		4	4		4	
Lane Width (m)		3.7	3.7		3.5	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		TWLTL	None			
Median storage veh)		2				
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	216				402	114
vC1, stage 1 conf vol					216	
vC2, stage 2 conf vol					186	
vCu, unblocked vol	216				402	114
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1361				718	917
Direction. Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	122	243	141	71	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
c.SH	1361	1700	1700	1700	1700	
Volume to Capacity	0.00	0.14	0.08	0.04	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	0.0	0.0	0.0	0.0	A	
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	0.0		0.0		A	
Intersection Summary						
Average Delav			0.0			
Intersection Capacity Util	ization		21.3%	IC	U Level o	of Service
Analysis Period (min)			15			
			10			

	۶	$\mathbf{\hat{z}}$	•	1	Ļ	-
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्स	eî.	
Volume (veh/h)	39	48	99	203	130	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	39	48	99	203	130	13
Pedestrians	10			10	10	
Lane Width (m)	3.5			3.7	3.7	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	558	156	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	558	156	153			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	95	93			
cM capacity (veh/h)	453	880	1428			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	87	302	143			
Volume Left	39	99	0			
Volume Right	48	0	13			
cSH	618	1428	1700			
Volume to Capacity	0.14	0.07	0.08			
Queue Length 95th (m)	3.9	1.8	0.0			
Control Delay (s)	11.8	2.9	0.0			
Lane LOS	В	А				
Approach Delay (s)	11.8	2.9	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.6			
Intersection Capacity Utilizati	on		43.3%	10	CU Level o	of Service
Analysis Period (min)			15			

	≯	$\mathbf{\hat{z}}$	•	Ť	Ļ	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y			र्स	eî 👘		
Volume (veh/h)	0	0	0	242	143	0	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	0	0	242	143	0	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	385	143	143				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	385	143	143				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)	0.5	0.0	0.0				
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	100	100				
civi capacity (ven/h)	622	910	1452				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	0	242	143				
Volume Left	0	0	0				
Volume Right	0	0	0				
cSH	1700	1452	1700				
Volume to Capacity	0.00	0.00	0.08				
Queue Length 95th (m)	0.0	0.0	0.0				
Control Delay (s)	0.0	0.0	0.0				
Lane LOS	А						
Approach Delay (s)	0.0	0.0	0.0				
Approach LOS	А						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilizat	tion		16.1%	IC	CU Level o	of Service	
Analysis Period (min)			15				

Summary of All Intervals

Run Number	1	2	3	PM	Avg	
Start Time	4:15	4:15	4:15	4:15	4:15	
End Time	5:30	5:30	5:30	5:30	5:30	
Total Time (min)	75	75	75	75	75	
Time Recorded (min)	60	60	60	60	60	
# of Intervals	2	2	2	2	2	
# of Recorded Intervals	1	1	1	1	1	
Vehs Entered	3132	3059	3131	3125	3110	
Vehs Exited	3118	3044	3139	3128	3108	
Starting Vehs	36	42	54	33	35	
Ending Vehs	50	57	46	30	42	
Travel Distance (km)	1220	1199	1226	1218	1216	
Travel Time (hr)	44.6	43.4	45.6	46.6	45.0	
Total Delay (hr)	19.3	18.4	20.2	21.3	19.8	
Total Stops	2588	2538	2546	2562	2554	
Fuel Used (I)	131.4	128.3	131.7	132.4	130.9	

Interval #0 Information Seeding

Start Time	4:15		
End Time	4:30		
Total Time (min)	15		
Volumes adjusted by Gr	rowth Factors.		
No data recorded this in	iterval.		

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60
Volumes adjusted by Grov	wth Factors.

Run Number	1	2	3	PM	Avg	
Vehs Entered	3132	3059	3131	3125	3110	
Vehs Exited	3118	3044	3139	3128	3108	
Starting Vehs	36	42	54	33	35	
Ending Vehs	50	57	46	30	42	
Travel Distance (km)	1220	1199	1226	1218	1216	
Travel Time (hr)	44.6	43.4	45.6	46.6	45.0	
Total Delay (hr)	19.3	18.4	20.2	21.3	19.8	
Total Stops	2588	2538	2546	2562	2554	
Fuel Used (I)	131.4	128.3	131.7	132.4	130.9	

Intersection: 1: Ridgeway Drive & The Collegeway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	Т	TR	L	Т	TR	L	Т	TR	L	Т	TR
Maximum Queue (m)	65.3	83.0	44.5	32.7	17.8	38.8	9.0	94.8	94.2	48.5	49.6	45.5
Average Queue (m)	50.1	32.1	15.5	13.2	7.2	15.1	1.4	54.8	46.0	21.7	24.5	18.5
95th Queue (m)	72.5	80.9	32.2	26.9	15.8	28.7	6.6	81.0	77.4	41.3	42.9	36.8
Link Distance (m)		80.4	80.4		86.2	86.2		165.3	165.3		98.5	98.5
Upstream Blk Time (%)		6	0									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	58.0			74.0			100.0			66.0		
Storage Blk Time (%)	15							0				
Queuing Penalty (veh)	11							0				

APPENDIX F

Parking Proxy Survey Results



9830 - 3555 The Collegeway Parking Demand Survey

(Illegally Parked Vehicles Included)

3555 The Collegeway, Mississauga

Size SQ. metres:
Max. Supply Ratio:
Max. Parking Supply:
Max. Demand Ratio:
Max. Parking Demand:
Survey Date(s):

Sq. Metres	Sq. Feet							
5,565	59,905							
8.37	7.78							
4	66							
4.58	4.26							
255								

Friday-Saturday, April 1-2, Saturday, April 18, 2016

Time	# of	Occupied Spa	ices		% Occupancy		# of Occu	pied Spaces pe	er 100 Sq.
Beginning	Fri. Apr 01	Sat. Apr 02	Sat. Apr 16	Fri. Apr 01	Sat. Apr 02	Sat. Apr 16	Fri, Apr 01	Sat. Apr 02	Sat. Apr 16
11:00			188			40.3%			3.38
11:30			191			41.0%			3.43
12:00			209			44.8%			3.76
12:30			200			42.9%			3.59
13:00			171			36.7%			3.07
13:30			173			37.1%			3.11
14:00			206			44.2%			3.70
14:30			178			38.2%			3.20
15:00			158			33.9%			2.84
15:30			149			32.0%			2.68
16:00			160			34.3%			2.87
16:30			153			32.8%			2.75
17:00			159			34.1%			2.86
17:30			139			29.8%			2.50
18:00	255	153		54.7%	32.8%		4.58	2.75	
18:30	231	157		49.6%	33.7%		4.15	2.82	
19:00	204	150		43.8%	32.2%		3.67	2.70	
19:30	208	139		44.6%	29.8%		3.74	2.50	
20:00	187	109		40.1%	23.4%		3.36	1.96	
20:30	186	82		39.9%	17.6%		3.34	1.47	
21:00	190	81		40.8%	17.4%		3.41	1.46	
21:30	234	76	_	50.2%	16.3%		4.20	1.37	
22:00	179	59		38.4%	12.7%		3.22	1.06	
22:30	181	61		38.8%	13.1%		3.25	1.10	
23:00	170	62		36.5%	13.3%		3.05	1.11	
23:30	102	57		21.9%	12.2%		1.83	1.02	

Note: Peak Demand Intervals are shown in bold font



EXHIBIT 1



1701 Lampman - Weekday March 22nd						
	Resident	Visitor	Total	Resident	Visitor	Total
Supply	134	14	148	100%	100%	100%
18:00	0	0	0	0%	0%	0%
18:30	0	0	0	0%	0%	0%
19:00	0	0	0	0%	0%	0%
19:30	0	0	0	0%	0%	0%
20:00	0	0	0	0%	0%	0%
20:30	0	0	0	0%	0%	0%
21:00	0	0	0	0%	0%	0%
21:30	0	0	0	0%	0%	0%
22:00	0	0	0	0%	0%	0%
22:30	0	0	0	0%	0%	0%
23:00	95	2	97	71%	14%	66%
23:30	104	4	108	78%	29%	73%
0:00	108	3	111	81%	21%	75%
0:30	101	2	103	75%	14%	70%
1:00	99	1	100	74%	7%	68%
1:30	100	1	101	75%	7%	68%

Units	88						
	Resident	Visitor	Total				
Spaces/Unit	1.52	0.16	1.68				
Demand/Unit	1.23	0.03	1.15				

1701 Lampman Ave Friday April 1st						
	Resident	Visitor	Total	Resident	Visitor	Total
Supply	134	14	148	100%	100%	100%
18:00	38	4	42	28%	29%	28%
18:30	52	4	56	39%	29%	38%
19:00	64	4	68	48%	29%	46%
19:30	76	4	80	57%	29%	54%
20:00	81	6	87	60%	43%	59%
20:30	80	4	84	60%	29%	57%
21:00	78	4	82	58%	29%	55%

Units	88						
	Resident	Visitor	Total				
Spaces/Unit	1.52	0.16	1.68				
Demand/Unit	0.92	0.07	0.99				

1701 Lampman Ave Saturday April 2nd						
	Resident	Parking D	Total	Resident	Visitor	Total
Supply	134	14	148	100%	100%	100%
18:00	67	6	73	50%	43%	49%
18:30	67	7	74	50%	50%	50%
19:00	61	8	69	46%	57%	47%
19:30	65	8	73	49%	57%	49%
20:00	66	8	74	49%	57%	50%
20:30	71	9	80	53%	64%	54%
21:00	74	9	83	55%	64%	56%
21:30	82	8	90	61%	57%	61%
22:00	80	6	86	60%	43%	58%
22:30	83	5	88	62%	36%	59%
23:00	86	4	90	64%	29%	61%
23:30	87	3	90	65%	21%	61%

Units	88																
	Resident	Visitor	Total														
Spaces/Unit	1.52	0.16	1.68														
Demand/Unit	0.99	0.10	1.02														
Parking I 2277 Sout	nventory: th Millway		Project: 9831		DATE:				2-Apr-16				Surv	eyor:	Ν	/lel Raymor	ıd
-------------------------------	-------------------------	----------------------	--------------------------	------------------------	-------	-------	-------	-------	----------	---------	--------	-------	-------	-------	-------	-------------	----------------------
		Supply from	Supply from	Supply from		·				PARKING	DEMAND		·		·		Parking
Parking	Location	Surveyor Estimate	Google Earth (metres)	Google Earth (Cars)	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	Signs
	W1	4	42	6	0	0	0	0	0	0	0	0	0	1	1	1	
	W2	2	8	1	0	0	0	0	0	0	0	0	0	0	0	0	
	W3	2	12	1	0	0	0	0	0	0	0	0	0	0	0	0	
SOUTH	W4	2	10	1	0	0	0	0	0	0	0	0	0	0	0	0	Not
WEST SIDE	W5	2	7	1	0	0	0	0	0	0	0	0	0	0	0	0	Enforced
	W6	2	14	2	0	0	0	0	0	0	0	0	0	0	0	0	
	W7	2	14	2	0	0	0	0	0	0	0	0	0	0	0	0	
	TOTAL	16	107	14	0	0	0	0	0	0	o	0	0	1	1	1	
			1								1			1			
	E1	12	75	11	1	1	3	3	3	3	2	2	2	3	3	3	
SOUTH MILLWAY EAST SIDE	E2	6	48	7	0	0	0	1	0	0	0	1	1	0	0	0	15 Hr Max Parking
	TOTAL	18	124	18	1	1	3	4	3	3	2	3	3	3	3	3	
	1		1	[1	1	1	1	1	1			1	1	1	
SOUTH MILLWAY	\$1	7	45	6	2	3	3	3	4	4	3	3	3	4	3	3	15 Hr Max
SOUTH SIDE	TOTAL	7	45	6	2	3	3	3	4	4	3	3	3	4	3	3	Parking
						1	1	1	1	1	1			1	1	1	1
SOUTH	N1	8	48	7	0	0	0	0	0	0	0	0	0	0	0	0	Not
NORTH	N2	12	40	6	0	2	0	0	0	0	0	0	0	0	0	0	Enforced
	TOTAL	20	88	13	0	2	0	0	0	0	0	0	0	0	0	0	

APPENDIX G

Supplementary Parking Information



		••••••••						
Puilding	Storoug	Rental Apartment Unit Type						
Building	Sloreys	One Bedroom	Two Bedroom	Three Bedroom				
А	3		24	12				
В	3	24	12	-				
С	3		24	12				
D	16	56	59					
E	3		24	16 (4 townhouses)				
F	3	24	24	-				
G	3		18	6				
Total	(ae	104	185	46				

Table 1 Unit Mix

The lands are accessed by two full moves accesses to Aquitaine Avenue. The accesses are stopcontrolled, while Aquitaine Avenue has no restriction to free flow.

Above and below ground parking areas exist throughout the site. The above ground parking consists of 95 spaces assigned to residents of the apartments with 55 designated visitor parking spaces and four office parking spaces. The below ground parking requires an access card for entry. Due to construction in the underground parking garage, an accurate count could not be conducted. Parking information was provided by management stating that the underground parking consists of 188 parking spaces on the first level (P1) and 185 spaces on the second level (P2). In total, 527 parking spaces are provided at the site.

The subject property is currently designated in the City of Mississauga Zoning By-Law, Section 4.15 as Residential - RA4 subject to exception 32.

2.2 Existing Parking Demand

To determine the existing parking demand at 2700 Aquitaine Avenue, Ontario Traffic Inc. (OTI) staff undertook parking surveys at the site between 1:00 a.m. and 3:00 a.m. on Tuesday June 11, Wednesday June 12, Thursday June 13, Saturday June 15 and Sunday, June 16 as well as between 7:00 p.m. and 9:00 p.m. on Friday June 14, 2013. This timing of the surveys was advised by City of Mississauga staff in order to attain the peak parking demand at the site at a time when most residents are home. Two parking surveys were conducted on each day. The parking survey results are provided in Appendix C. The parking demand was found to be consistent during the weekday early morning surveys, with a peak parking demand of 413 occupied spaces recorded on Tuesday, June 11, and the minimum parking demand of 402 occupied spaces recorded on Wednesday, June 12.

The weekend surveys demonstrated significantly lower parking demands, ranging from a low of 189 occupied spaces on Saturday, June 15 to a high of 313 occupied spaces on Sunday June 16.

The recorded parking demands are tabulated in Table 2, with the corresponding parking demand rates as applied to the existing 335 apartment units at the site.

Date / Time	Survey	Occupied Parking Spaces	Corresponding Vacant Parking Spaces	Parking Demand Rate (per unit)
Tuesday June 11,	1	413	114	1.23 spaces/unit
1:00 – 3:00 a.m.	2	403	124	1.20 spaces/unit
Wednesday June 12,	1	402	125	1.20 spaces/unit
1:00 – 3:00 a.m.	2	410	117	1.22 spaces/unit
Thursday June 13,	1	404	123	1.21 spaces/unit
1:00 – 3:00 a.m.	2	406	121	1.21 spaces/unit
Friday June 14,]	240	287	0.72 spaces/unit
7:00 – 9:00 p.m.	2	236	291	0.70 spaces/unit
Saturday June 15,	1	189	338	0.56 spaces/unit
1:00 – 3:00 a.m.	2	201	326	0.60 spaces/unit
Sunday June 16,	1	312	215	0.93 spaces/unit
1:00 – 3:00 a.m.	2	313	214	0.93 spaces/unit

Table 2 Peak Parking Demand Rates



3. PROPOSED DEVELOPMENT

The proposed site plan, shown in Figure 2, includes five townhouse blocks with a total of 136 townhouse units:

- Blocks one and two 26 units per block
- Block three and four 24 units per block
- Block five 36 units

Access to the site is proposed via a public right-of-way adjacent west of the site, known as Lane A, which would intersect with Kingston Road.

The total on-site parking supply is 164 spaces: 131 spaces for residents in one level of underground parking and 33 surface parking spaces (5 resident parking spaces and 28 visitor parking spaces), for an overall supply ratio of approximately 1.21 spaces per residential unit. An additional 11 on-street parking spaces along Lane A may be available for the development, which will be determined after the adjacent site to the west is developed.

When the proposed residential development at 1505 Kingston Road is constructed, Lane A would be shared by both properties. Additionally, the site at 1505 Kingston Road may have access at Valley Farm Road, south of Kingston Road, which could be shared internally by both developments.

4. EXISTING CONDITIONS

4.1 Road Network

The boundary roadways located in the study area are described as follows:

Kingston Road is a four-lane east-west regional arterial roadway under the jurisdiction of the Region of Durham. Approaching the intersection with Valley Farm Road/Orchard Valley Court, exclusive left and right turn lanes with channelization are provided. A centre lane is provided along Kingston Road to allow left turns at site driveway for developments located along the roadway. The posted speed limit on Kingston Road is 60km/h.

Valley Farm Road is a collector roadway under the jurisdiction of the City of Pickering. The road spans in the north-south direction and consist of two lanes; one per direction. Approaching the intersection with Kingston Road, exclusive left turn lanes are provided. The posted speed limit is 40km/h in the vicinity of the site.

Orchard Valley Court is a local roadway / laneway under the jurisdiction of the City of Pickering, providing access to a townhouse complex, north of Kingston Road. Orchard Valley Court has two travel lanes; one per direction and the speed limit is unposted (assumed to be 40km/h).

Avonmore Square is a local roadway under the jurisdiction of the City of Pickering. Avonmore Square is located south of the Valley Farm Road and Kingston Road intersection and consist of two lanes; one per direction. Avonmore Square provides a connection to residential developments located at the rear of the subject site. The posted speed limit on Avonmore Square is 40km/h.

Guild Road / Denmar Road are local roads under the jurisdiction of the City of Pickering. Guild road is spans in the north-south direction, intersecting with Kingston Road to the east of the subject site. Guild



CITY OF VAUGHAN REVIEW OF PARKING STANDARDS CONTAINED WITHIN THE CITY OF VAUGHAN'S COMPREHENSIVE ZONING BY-LAW: FINAL REPORT

(1) Required parking for auxiliary uses, such as residences, schools and day cares should be based on the specific requirements for these uses

(2) Due to the variation in hospital parking requirements, it is recommended not specify a standard for hospital land uses, as is practiced in the City of Toronto

(3) Secondary, Public, or Commercial School

				Proposed Sta	indards (sp	aces per ur	hit)		
Use Category	Description	Existing Standard (Minimum)	Base (Other Areas)	High-Order Hub	Transit	Local C	entres	Prima Centres/F Intensifi	ary rrimary cation Is
			Min	Min	Max	Min	Мах	Min	Max
Detached; Semi- Detached; Street Townhouse		2-3	2 per unit, with tandem parking permitted	1 per unit		1 per unit		1 per unit	
	Bachelor/1 Bedroom		0.9	0.7	-	0.8	1.2	0.85	1.2
Multiple Family	2 Bedrooms	1.75 (1.5 +	1.1	0.9	1.3	-	1.4	0.95	1.4
Dwelling	3 Bedrooms	visitor/unit)	1.2	Ţ	1.5	1.1	1.7	1.15	1.7
	Visitor	-	0.2	0.15	0.15	0.2	0.2	0.2	0.2
Residential - Senior	Bachelor/1 Bedroom		0.6	0.45		0.5		0.5	
Citizen's Dwelling -	2 Bedrooms	1 per unit	0.8	0.6		0.7		0.7	
Independent	3 + bedrooms	_	0.95	0.8		0.85		0.85	
Senior Citizens Dwelling - Supportive	Supportive: seniors- oriented multi-family housing with some services provided	1 per unit	0.5	0.4	,	0.45		0.45	
Senior Citizens Nursing Home	Nursing home: with full services provided	0.5 per bed	0.25/bed	0.2/bed		0.25/bed	ı	0.25/bed	
Senior Citizens Visitor ⁽¹⁾	Applies to all SC dwelling types		0.2	0.15		0.2		0.2	
Home Occupation	Cottage Industry, Home Occupation, Private Tutor	1-2 in addition to res. requirements	1 in addition to residential requirements (can be tandem)						

Exhibit ES-4: Summary of Proposed Parking Standards – Residential Uses

(1) Applied per bed in the case of nursing homes.