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Transportation Planning

Traffic Impact Assessment

Parking Assessment

Site Access Design & Review

Site Servicing and Grading

Stormwater Management

Municipal Road Design

Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

1020, 1024, 1028, 1032 and 1042
Sixth Line Road
Town of Oakville, Ontario

October 2016
Project No:NT-16-114

October 3, 2016

Ms. Alyssa Trivelli, Development Manager

Dunpar
105 Six Point Road
Etobicoke, ON M8Z 2X3

**Re: Transportation Impact Study
Proposed Residential Development
1020, 1024, 1028, 1032 and 1042 Sixth Line Road
Town of Oakville, Ontario
Our Project No. NT-16-114**

NexTrans Engineering is pleased to present the enclosed Transportation Impact Study for the above noted site in support of the Official Plan and Zoning By-law Amendment Applications.

The subject development is located at the municipal addresses 1020, 1024, 1028, 1032 and 1042 Sixth Line Road, in the Town of Oakville. The subject development generally bounded to the east by Sixth Line Road, to the south by North Service Road and to the north by Sunny Crest Lane. The proposed development consists of 81 residential condominium townhouse units and the retention of two single family homes at 1024 and 1028 Sixth Line Road. The proposed development provides a total of 179 vehicle parking spaces, including 20 visitor parking spaces. Vehicular accesses are proposed via one main entrance and one laneway onto Sixth Line Road, with one additional emergency access proposed onto Sunny Crest Lane.

The Transportation Impact Study concludes that the development proposal can adequately be accommodated by the existing transportation network in the area. We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS ENGINEERING



Richard Pernicky, CET, MITE
Principal

EXECUTIVE SUMMARY

NexTrans Engineering was retained by Dunpar (the 'Client') to undertake a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment Applications for a proposed residential development. The subject development is located at the municipal addresses 1020, 1024, 1028, 1032 and 1042 Sixth Line Road, in the Town of Oakville. The subject development generally bounded to the east by Sixth Line Road, to the south by North Service Road and to the north by Sunny Crest Lane.

Development Proposal

The proposed development consists of 81 residential condominium townhouse units and the retention of two single family homes at 1024 and 1028 Sixth Line Road.

Development Access

Vehicular accesses are proposed via one main entrance and one laneway onto Sixth Line Road, with one additional emergency access proposed onto Sunny Crest Lane.

Capacity Analysis

The development proposal is expected to generate 34 two-way auto trips (6 inbound and 28 outbound) during the weekday morning peak hour and 40 two-way trips (27 inbound and 13 outbound) during the afternoon peak hour.

Under the existing, future background and future total traffic conditions, all intersections considered in the analysis are expected to operate at acceptable levels of service with no critical movements are identified. As such, no improvements are required to accommodate the proposed improvements.

Vehicle Parking Review

Based on the Town of Oakville's By-law 2014-014 Consolidated to April 4, 2016, a total of 162 parking spaces (including 20 visitor parking spaces) are required for the proposed development. The proposed parking supply of 179 spaces (including 20 visitor parking spaces) meets the Town of Oakville's Zoning By-law requirement.

Transportation Demand Management Measures and Incentives

It is recommended that the applicant to implement the TDM measures and incentives identified in this report to support active transportation, public transit and meet the assumed non-auto modal split used in this report.

Site Plan Review

AutoTURN software was used (HSU TAC-1999) to generate vehicular turning templates to confirm and demonstrate the accessibility of the proposed accesses.

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1.0 INTRODUCTION

NexTrans Engineering was retained by Dunpar (the 'Client') to undertake a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment Applications for a proposed residential development.

The subject development is located at the municipal addresses 1020, 1024, 1028, 1032 and 1042 Sixth Line Road, in the Town of Oakville. The subject development is generally bounded to the east by Sixth Line Road, to the south by North Service Road and to the north by Sunny Crest Lane.

The location of the proposed development is illustrated in **Figure 1-1**.

The proposed development consists of 81 residential condominium townhouse units and the retention of two single family homes at 1024 and 1042 Sixth Line. The proposed site plan is illustrated in **Figure 1-2**.

Vehicular accesses are proposed via one main entrance and one laneway onto Sixth Line Road, with one additional emergency access proposed onto Sunny Crest Lane. The proposed development provides a total of 179 vehicle parking spaces, including 20 visitor parking spaces.

2.0 EXISTING TRAFFIC CONDITIONS

2.1. Existing Road Network

The existing road network, lane configuration and existing traffic control for the study area are shown in **Figure 2-1**. The details area described below:

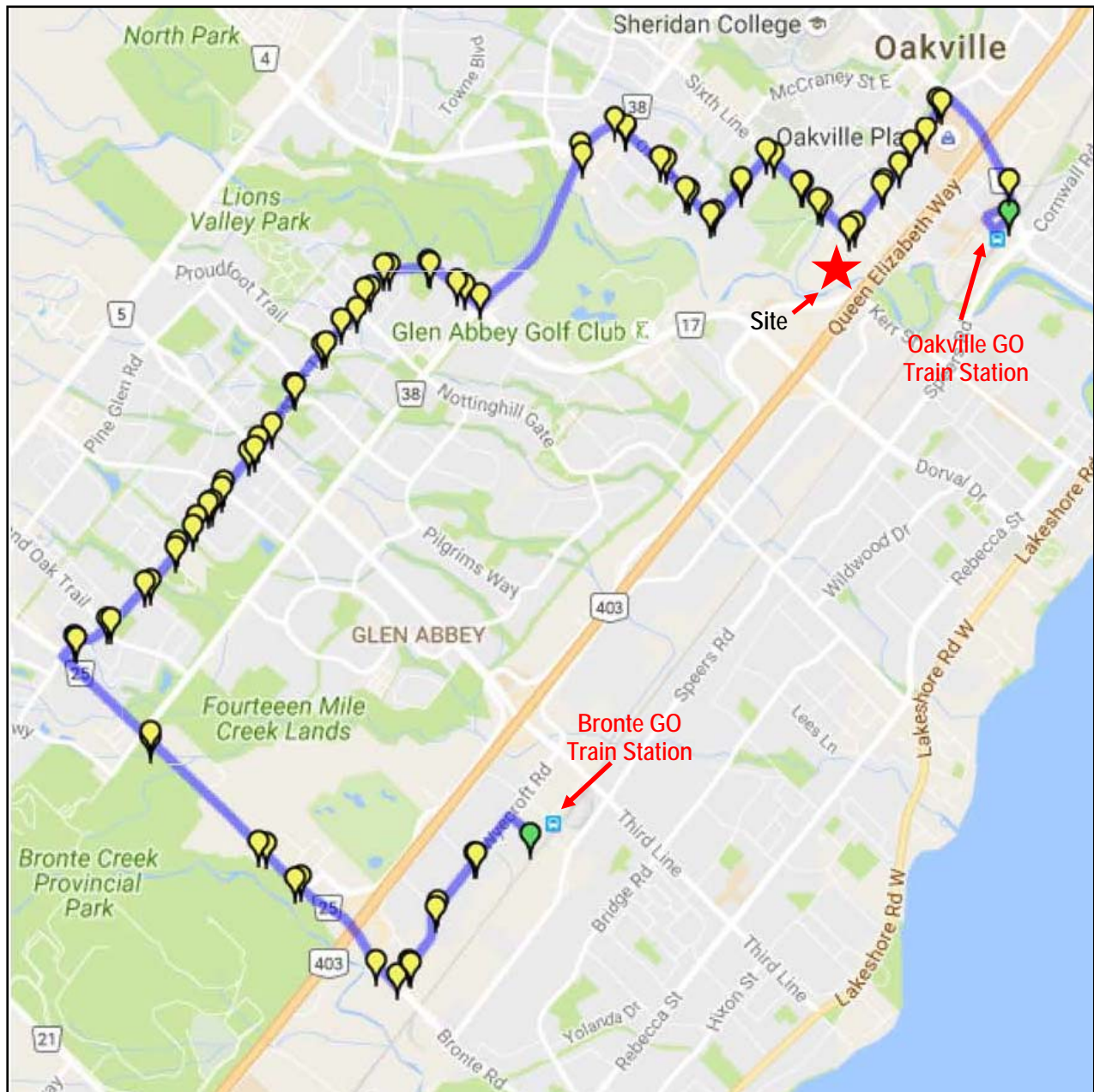
- **Sixth Line Road/North Service Road:** is a north-south to east-west collector road under the jurisdiction of the Town of Oakville. It has two general purpose lanes and it maintains a posted speed limit of 50 km/h in the vicinity of the subject site.
- **Rancliffe Road/Leighland Avenue:** is an east-west collector road under the jurisdiction of the Town of Oakville. It has two general purpose lanes and it maintains a posted speed limit of 50 km/h.
- **Sunny Crest Lane:** is an existing gravel lane that services sixth existing homes.
- **Germorda Drive:** is an existing local road under the jurisdiction of the Town of Oakville. It has two general purpose lanes.

2.2. Existing Transit Network

The proposed development is located approximately 250 m (about 5-minute walk) from Route 13 Westoak Trails bus stops at the Sixth Line Road/Rancliffe Road/Leighland Avenue intersection. Route 13 Westoak Trails is currently operating between Oakville GO Train and Bronte GO Train stations. The frequency is 15 minutes during the morning and afternoon peak periods and 30 minutes frequency during the off peak periods.

Figure 2-2 illustrates the existing Bus Route 13 Westoak Trails and existing GO Train stations.

Figure 2-2 – Bus Route 13 Westoak Trails and Existing GO Train Stations



Source: Oakville Transit Website

2.3. Existing Active Transportation Network

Sidewalks

Currently, there are sidewalks located on both sides of Sixth Line Road vicinity of the proposed development. However, along North Service Road, only the north side currently has sidewalk.

Leighland Avenue currently has sidewalks on both sides east of Sixth Line Road, however Rancliffe Road does not have sidewalks under the existing conditions.

Sidewalks are not currently available on Sunny Crest Lane.

Bicycle Lanes

Currently, Sixth Line Road has dedicated bicycle lanes on both sides in the vicinity of the proposed development. The bicycle lanes end at North Service Road.

There are no dedicated bicycles on Rancliffe Road/Leighland Avenue and Sunny Crest Lane.

2.4. Existing Traffic Volumes

Existing traffic volumes at the study area intersections were undertaken by Spectrum on Wednesday September 21, 2016 during the morning (7:00 a.m. to 10:00 a.m.) and afternoon (4:00 p.m. to 7:00 p.m.) peak periods. Turning movement count summaries are provided in **Appendix A**.

2.5. Existing Traffic Assessment

The existing volumes are illustrated in **Figure 2-3**, and were analyzed using Synchro 9 software. The methodology of the software follows the procedures described and outlined in the Highway Capacity Manual, HCM 2000, published by the Transportation Research Board. The detailed results are provided in **Appendix B** and summarized in **Table 2.1**.

Table 2.1 – Level of Service – Existing Traffic Assessments

Intersection	Key Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		LOS (v/c)	Delay (s)	LOS (v/c)	Delay (s)
Sixth Line Road/Rancliffe Road/Leighland Avenue (unsignalized intersection)	EB LTR	A (0.02)	9	A (0.03)	9
	WB LTR	A (0.19)	9	B (0.46)	12
	NB LTR	A (0.06)	9	A (0.21)	10
	SB LTR	C (0.78)	22	B (0.45)	13
Sixth Line Road/Sunny Crest Lane (unsignalized intersection)	EB LR	A (0.00)	9	A (0.00)	0
	NB LT	A (0.00)	0	A (0.00)	0
	SB TR	A (0.09)	0	A (0.04)	0
Sixth Line/Germorda Drive (unsignalized intersection)	EB LTR	A (0.00)	9	A (0.00)	0
	WB LTR	A (0.00)	9	A (0.00)	9
	NB LTR	A (0.00)	0	A (0.00)	0
	SB LTR	A (0.00)	0	A (0.00)	0

Under the existing traffic conditions, all intersections considered in the analysis are operating at acceptable levels of service with no critical movements are identified.

3.0 FUTURE BACKGROUND CONDITIONS

A five year horizon (2021) is selected to assess the impact of the proposed development on the existing and anticipated future road network in the area. This timeline also coincides with the completion of the proposed development.

3.1. Background Growth and Development Application

It is NexTrans understanding that there are no current active development applications in the immediate vicinity of the subject site. In addition, the area is a relatively stable residential neighbourhood. For the purpose of this assessment, 1.0 percent through traffic growth rate is assumed for Sixth Line Road and Rancliffe Road/Leighland Avenue.

3.2. Future Background Traffic Assessment

The estimated 2021 future background traffic volumes are illustrated in **Figure 3-1**, and were analyzed using Synchro 9 software. The detailed calculations are provided in **Appendix C** and summarized in **Table 3-1**.

Table 3.2 – Level of Service – 2021 Future Background Traffic Assessments

Intersection	Key Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		LOS (v/c)	Delay (s)	LOS (v/c)	Delay (s)
Sixth Line Road/Rancliffe Road/Leighland Avenue (unsignalized intersection)	EB LTR	A (0.02)	9	A (0.03)	9
	WB LTR	A (0.21)	10	B (0.49)	12
	NB LTR	A (0.06)	9	B (0.23)	10
	SB LTR	D (0.83)	26	B (0.48)	13
Sixth Line Road/Sunny Crest Lane (unsignalized intersection)	EB LR	A (0.00)	9	A (0.00)	0
	NB LT	A (0.00)	0	A (0.00)	0
	SB TR	A (0.09)	0	A (0.05)	0
Sixth Line/Germorda Drive (unsignalized intersection)	EB LTR	A (0.00)	9	A (0.00)	0
	WB LTR	A (0.00)	9	A (0.00)	9
	NB LTR	A (0.00)	0	A (0.00)	0
	SB LTR	A (0.00)	0	A (0.00)	0

Under the future background conditions, all intersections considered in the analysis are expected to operate at acceptable levels of service with no critical movements are identified.

4.0 SITE TRAFFIC

4.1. Proposed Development

The proposed development consists of 81 residential condominium townhouse units and the retention of two single family homes at 1024 and 1028 Sixth Line Road.

The 2011 Transportation Tomorrow Survey (TTS) and the *Trip Generation Manual, 9th Edition* published by the Institute of Transportation Engineers (ITE) information was reviewed to estimate the modal split, trip distribution and trip generation for the proposed development.

4.2. Non-auto Modal Split

Table 4.1 summarizes the non-auto modal split information based on the review of the 2011 Transportation Tomorrow Survey data for Ward 5 in the Town of Oakville.

Table 4.1 – Non-Auto Modal Split based on 2011 TTS Data

Ward		Trips Made by Residents of the Town of Oakville	Trips to the Town of Oakville
Ward 5	6-9 AM	18%	17%
	24 Hours	12%	12%
Average		15%	14.5%

Based on the information outlined in Table 4.1, the *average* non-auto modal split is approximately 15% for both the inbound and outbound. For the purpose of this assessment, only 5% modal split has been assumed. This assumption is reasonable given that the proposed development is only 250 m (about 5-minute walk) from the existing transit stops at the Sixth Line Road/Rancliffe Road/Leighland Avenue intersection, and only 1.3 km from the Trafalgar Road and Oakville Place.

4.3. Trip Generation

The trip generation forecast was undertaken using the information contained in the *Trip Generation Manual, 9th Edition* published by the Institute of Transportation Engineers (ITE). Based on our review, the selected corresponding land use code (LUC) is: "Residential Condominium/Townhouse" (LUC 230) for the proposed development.

The summary of the vehicular trip generation is summarized in **Table 4.2**.

Table 4.2 – Site Traffic Trip Generation

ITE Land Use	Magnitude	Parameter	Morning Peak			Afternoon Peak		
			In	Out	Total	In	Out	Total
Residential Condominium (LUC 230)	81 units	Total Trips	6	30	36	28	14	42
		Rate (trips/unit)	0.07	0.37	0.44	0.35	0.17	0.52
		Non-auto mode share (5%)	0	2	2	1	1	2
Total New Trips			6	28	34	27	13	40

The development proposal is expected to generate 34 two-way auto trips (6 inbound and 28 outbound) during the weekday morning peak hour and 40 two-way trips (27 inbound and 13 outbound) during the afternoon peak hour.

It should be noted that the trips generated by the two single family homes at 1024 and 1028 Sixth Line Road are captured as part of the existing traffic turning movement counts at the intersections.

4.4. Trip Distribution and Assignment

The 2011 Transportation Tomorrow Survey (TTS) data was reviewed for the Town of Oakville in order to estimate the general trip distribution for the proposed residential development. **Table 4.3** summarizes the general trip distribution to and from the proposed development.

Table 4.3 – Trip Assignment

Direction	To the Town of Oakville	From the Town of Oakville
Oakville	56%	58%
Burlington	12%	6%
Peel Region	15%	21%
Toronto	4%	9%
Hamilton Area	8%	2%
Others	5%	4%
Total	100%	100%

Table 4.4 summarizes the trip assignment for the proposed development based on the 2011 TTS information outlined in **Table 4.3** and the assessment of the existing road network.

Table 4.4 – Trip Assignment

Direction	Street Name	To/From Proposed Development
East/West	Leighland Avenue	20%
	North Service Road	55%
North/South	Sixth Line Road	25%
Total		100%

Figure 4-1 illustrates the site trip assignment, with **Figure 4-2** illustrating the site generated traffic volumes.

5.0 FUTURE TOTAL TRAFFIC CONDITIONS

5.1. Future Total Traffic Assessment

The estimated 2021 future total traffic volumes (future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 5-1**, and were analyzed using Synchro 9 software. The detailed calculations are provided in **Appendix D** and summarized in **Table 5.1**.

Table 5.1 – Level of Service – 2021 Future Total Traffic Assessments

Intersection	Key Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		LOS (v/c)	Delay (s)	LOS (v/c)	Delay (s)
Sixth Line Road/Rancliffe Road/Leighland Avenue (unsignalized intersection)	EB LTR	A (0.02)	9	A (0.03)	9
	WB LTR	A (0.21)	10	B (0.50)	12
	NB LTR	A (0.10)	9	B (0.24)	10
	SB LTR	D (0.84)	27	B (0.50)	14
Sixth Line Road/Sunny Crest Lane (unsignalized intersection)	EB LR	A (0.00)	10	A (0.00)	0
	NB LT	A (0.00)	0	A (0.00)	0
	SB TR	A (0.10)	0	A (0.05)	0
Sixth Line/Germorda Drive (unsignalized intersection)	WB LTR	A (0.00)	9	A (0.00)	9
	NB LTR	A (0.03)	0	A (0.10)	0
	SB LTR	A (0.00)	0	A (0.00)	0
Sixth Line Road/Site Access 1 (unsignalized intersection)	EB LR	A (0.03)	9	A (0.01)	9
	NB LT	A (0.00)	1	A (0.01)	1
	SB TR	A (0.08)	0	A (0.05)	0
Sixth Line Road/Site Access 2 (unsignalized intersection)	EB LR	A (0.01)	9	A (0.00)	10
	NB LT	A (0.00)	0	A (0.00)	0
	SB TR	A (0.08)	0	A (0.05)	0

Under the future total conditions, all intersections considered in the analysis are expected to operate at acceptable levels of service with no critical movements are identified. No additional improvements are required to accommodate the proposed development.

5.2. Proposed Development Access

Based on the intersection capacity analysis results outlined in Table 5-1, the proposed development accesses onto Sixth Line Road are expected to operate at acceptable levels of service.

5.3. Active Transportation Assessment

Sidewalks

Under the existing conditions, there are sidewalks located on both sides of Sixth Line Road vicinity of the proposed development. However, along North Service Road, only the north side currently has sidewalk. It is NexTrans understanding that the proposed development provides direct sidewalk connections from the proposed development to connect with the existing sidewalks via the proposed main entrance onto Sixth Line Road.

The existing sidewalks along the west side of Sixth Line Road will be relocated away from the curb along the frontage of the proposed development to provide more buffer between pedestrians, bicycles and automobiles. This is an improvement given that the existing sidewalk on the west side of Sixth Line Road is located adjacent to the pavement.

It is our understanding that sidewalks will be provided as part of the road network within the proposed development to facilitate active transportation modes.

Bicycle Lanes

Under the existing conditions, Sixth Line Road has dedicated bicycle lanes on both sides in the vicinity of the proposed development. The bicycle lanes end at North Service Road. Ideally, the bicycle lanes should continue on North Service Road and connect to Trafalgar Road. This provision will provide the residents with option to ride their bicycles to go shopping or run errands. However, this provision is beyond the scope of this development. It is recommended that the Town of Oakville should consider this provision in the future to promote sustainable modes of transportation in the Town.

The proposed development is located approximately 1.3 km from Oakville Place and Trafalgar Road. Based on an assumed walking speed of 1.2 m/s, it would take approximately 18 minutes from the proposed development to these locations on foot, and about 6 minutes by bicycle (assumed bicycle speed of 3 m/s).

5.4. Public Transit Assessment

The proposed development is located approximately 250 m (about 5-minute walk) from Route 13 Westoak Trails bus stops at the Sixth Line Road/Rancliffe Road/Leighland Avenue intersection. Route 13 Westoak Trails is currently operating between Oakville GO Train and Bronte GO Train stations. The frequency is 15 minutes during the morning and afternoon peak periods and 30 minutes frequency during the off peak periods.

As part of electrification project, Metrolinx is expanding GO Transit to enable 15-minute service along the Lakeshore West Corridor from Strachan Avenue to Burlington with electrified trains that provide faster and more frequent service. This service will allow the existing and future residents to take up more transit trips to go to work or for discretionary trips to other parts of GTHA. It is anticipated that the non-auto modal split will grow from the existing 15% to 20% or more in the future.

6.0 SITE PLAN REVIEW

AutoTURN software was used (HSU TAC-1999) to generate vehicular turning templates to confirm and demonstrate the accessibility of the proposed accesses. These templates are illustrated in **Figure 6-1**.

7.0 PARKING ASSESSMENT

The Town of Oakville’s By-law 2014-014 Consolidated to April 4, 2016 parking requirement and supply for the proposed development is summarized in **Table 7.1**.

Table 7.1 – Town of Oakville By-law Vehicle Parking Requirements

Land Use	Type	No. of Unit/GFA	Parking Rates	Parking Requirement	Parking Supply
Townhouse dwelling	Visitor	81 units	0.25 spaces/unit	20	179
	Resident	81 units	2.0 spaces/unit	162	

Based on the Town of Oakville’s By-law 2014-014 Consolidated to April 4, 2016, a total of 162 parking spaces (including 20 visitor parking spaces) are required for the proposed development. The proposed parking supply of 179 spaces (including 20 visitor parking spaces) meets the Town of Oakville’s Zoning By-law requirement.

8.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a co-ordinated series of actions aimed at maximizing the people moving capability of the transportation system. Intended to reduce single-occupant auto use, potential TDM measures include: TDM supportive land use, bicycle and pedestrian programs and facilities, public transit improvements, preferential treatments for buses and ridesharing, where appropriate.

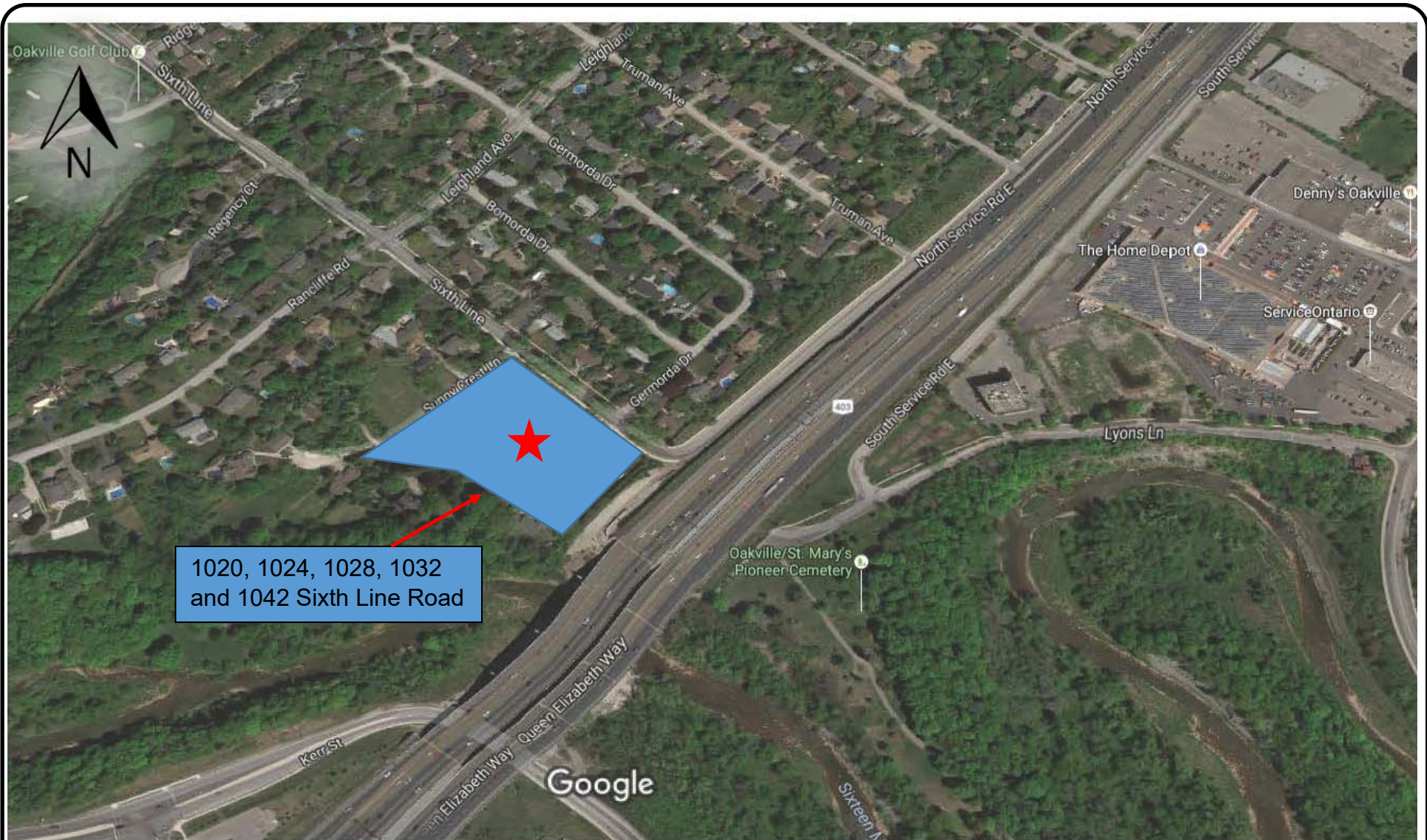
The following TDM measures and incentives are recommended for the proposed residential development:

- Provide direct shared pedestrian and cycling connections from the proposed development to Sixth Line Road;
- Provide information package for new residents. The information package includes GO Train schedules, Oakville Transit bus route schedules, community and cycling maps, where appropriate. The Information Package can be distributed at the sale office.
- Provide pre-load PRESTO Cards with the starting value of \$25 (inclusive of the registration fee) to the residents on demand basis. This will help the future residents to consider taking GO Train and Oakville Transit as an alternative mode of transportation. The pre-loaded PRESTO Cards can be distributed in conjunction with the Information Package at the time of purchase or at occupancy.

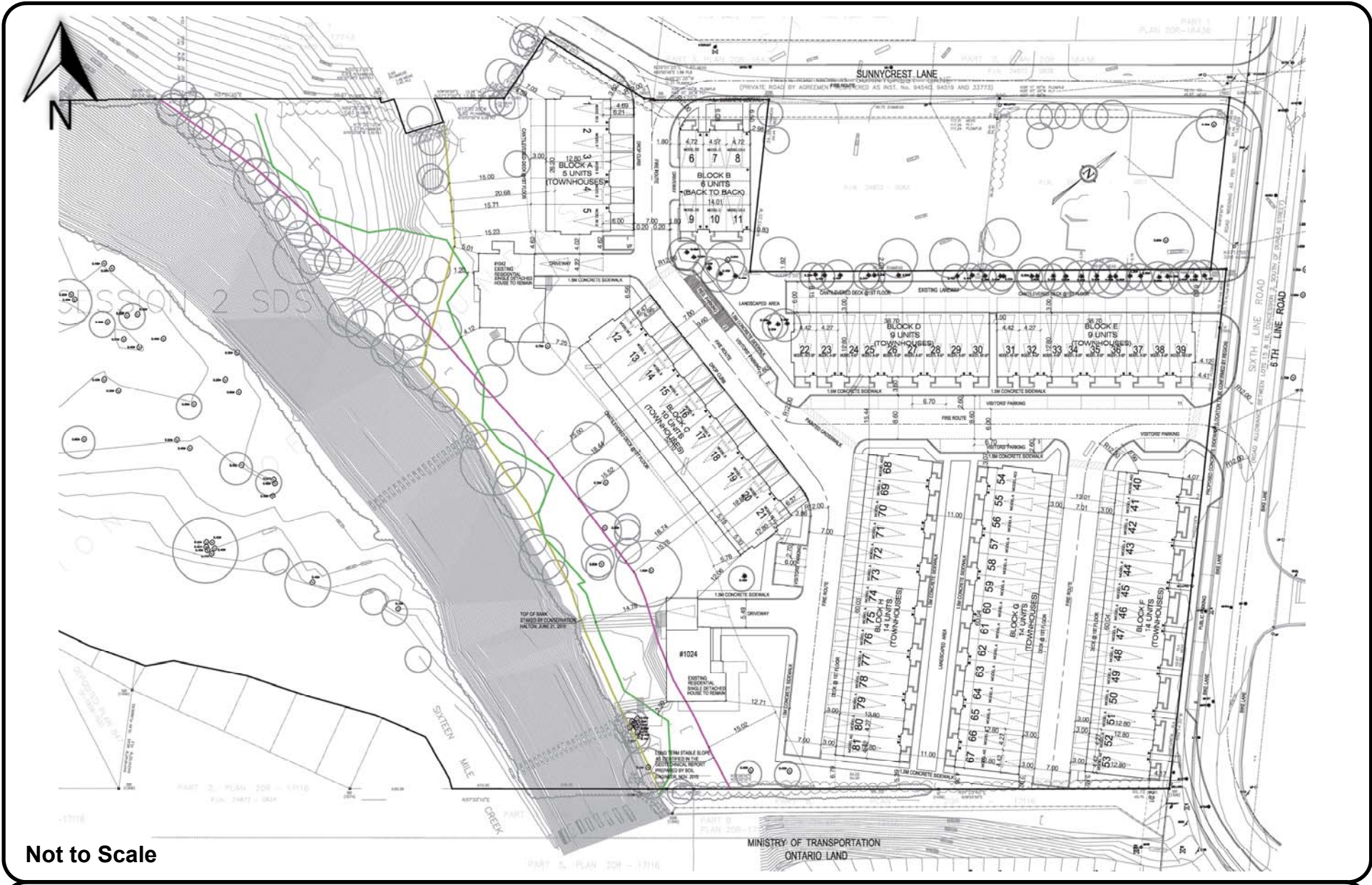
9.0 CONCLUSIONS / FINDINGS

The findings and conclusions of our analysis are as follows:

- The proposed development consists of 81 residential condominium townhouse units and the retention of two single family homes at 1024 and 1042 Sixth Line Road.
- Vehicular accesses are proposed via one main entrance and one laneway onto Sixth Line Road, with one additional emergency access proposed onto Sunny Crest Lane. Based on the intersection capacity analysis, the proposed development accesses are expected to operate at acceptable levels of service.
- The development proposal is expected to generate 34 two-way auto trips (6 inbound and 28 outbound) during the weekday morning peak hour and 40 two-way trips (27 inbound and 13 outbound) during the afternoon peak hour.
- Based on the Town of Oakville's By-law 2014-014 Consolidated to April 4, 2016, a total of 162 parking spaces (including 20 visitor parking spaces) are required for the proposed development. The proposed parking supply of 179 spaces (including 20 visitor parking spaces) meets the Town of Oakville's Zoning By-law requirement.
- Under the existing, future background and future total traffic conditions, all intersections considered in the analysis are expected to operate at acceptable levels of service with no critical movements are identified. As such, no improvements are required to accommodate the proposed development.
- It is recommended that the proposed development provide and implement the proposed Transportation Demand Management measures and incentives suggested in this report.

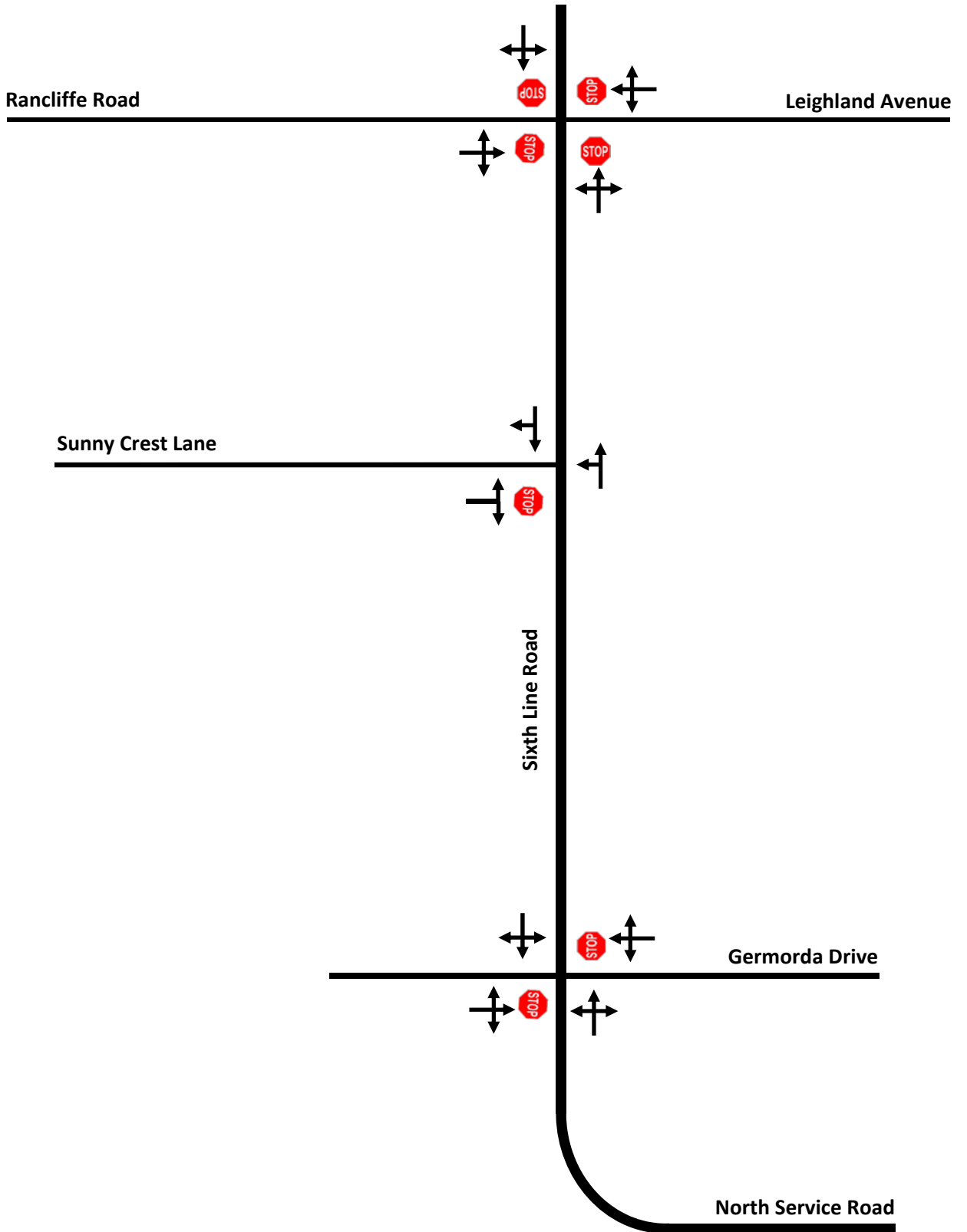


Imagery ©2016 Google, Map data ©2016 Google 50 m



Not to Scale

Figure 1-2
Proposed Site Plan



Not to Scale

Legend

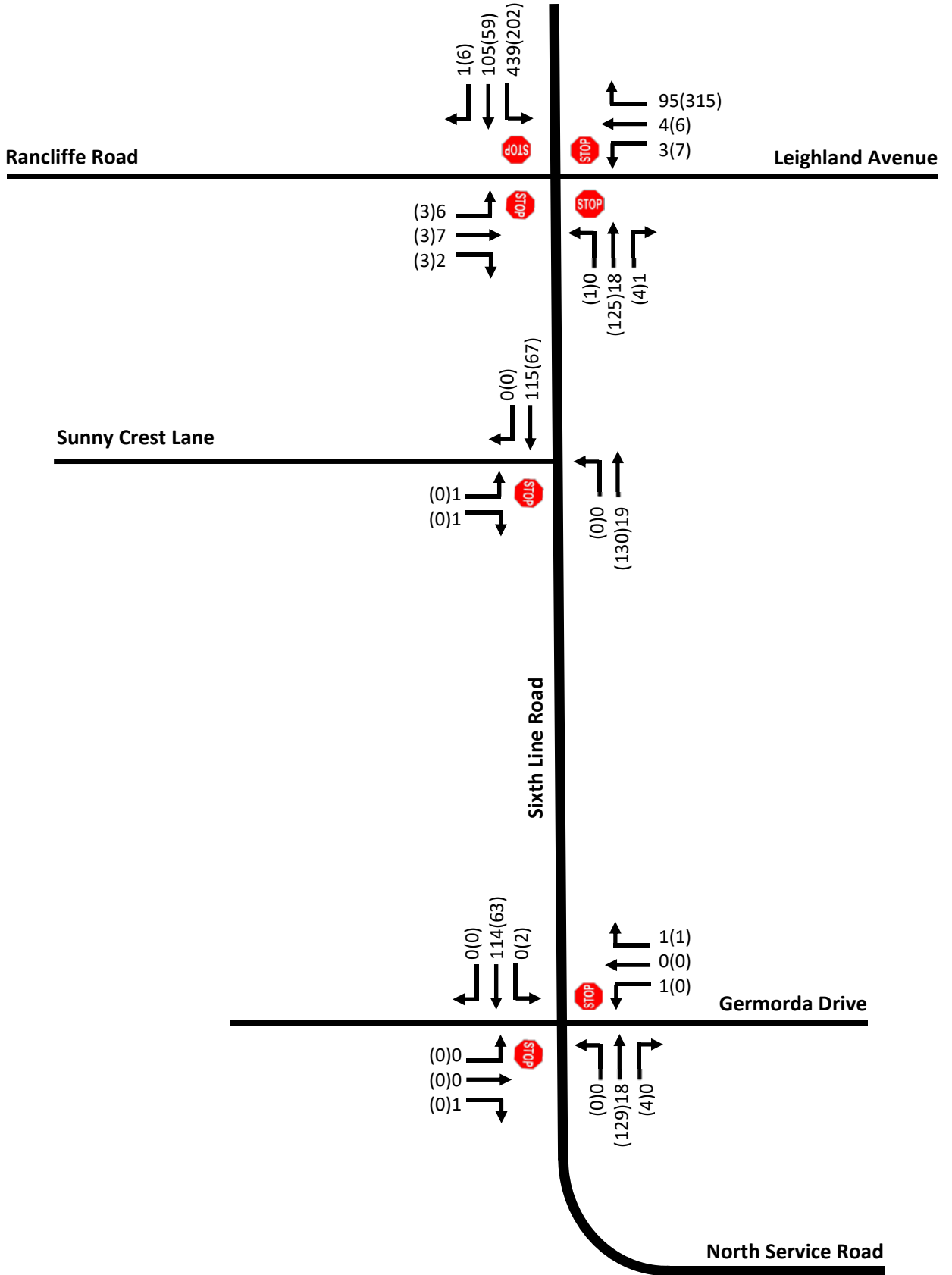


Existing Lane Configuration



Existing Stop Sign

Figure 2-1
Existing Lane Configurations



Not to Scale

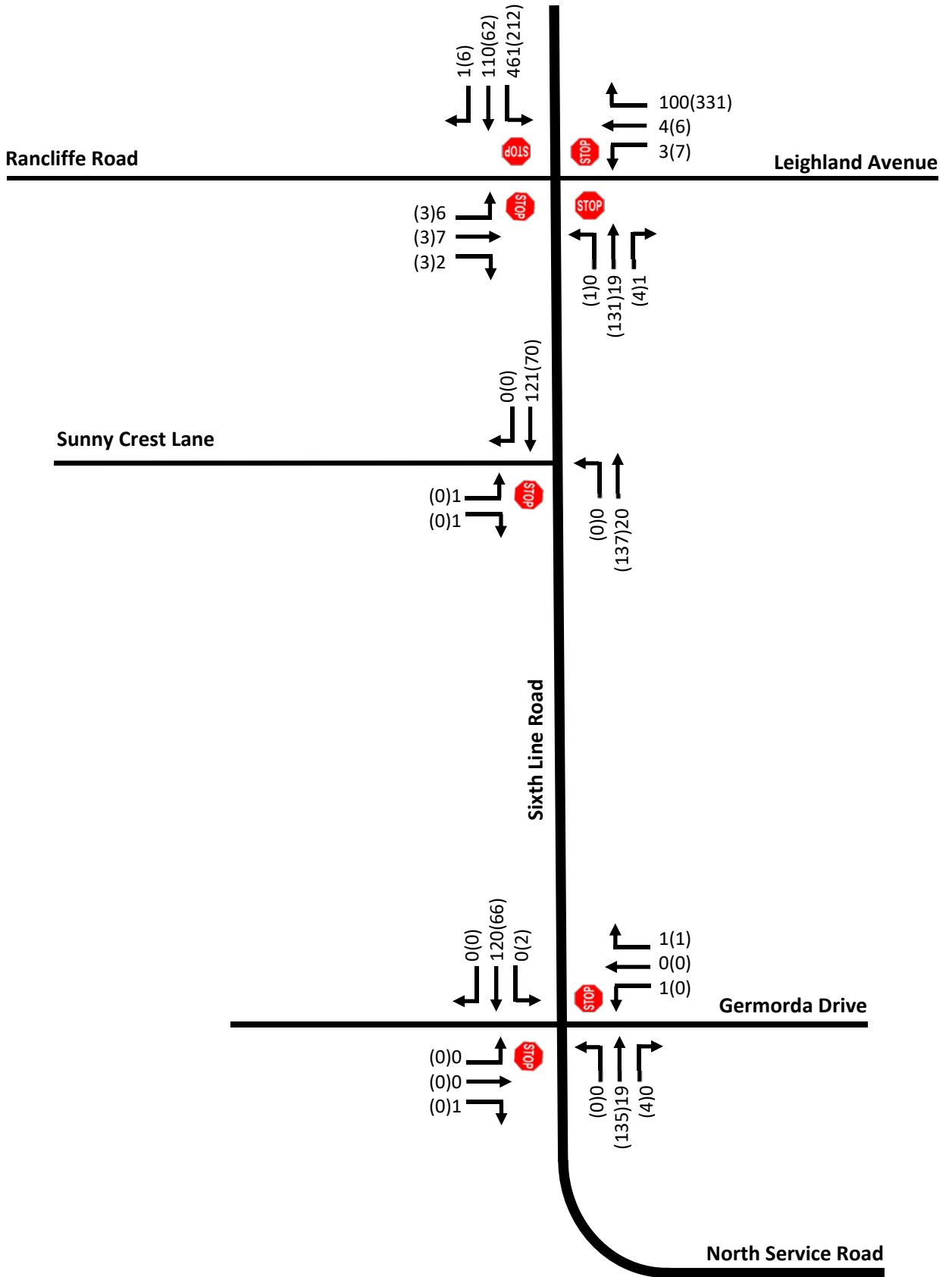
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XX AM Peak Hour
 (XX) PM Peak Hour



Existing Stop Sign

Figure 2-3
Existing Traffic Volumes



Not to Scale

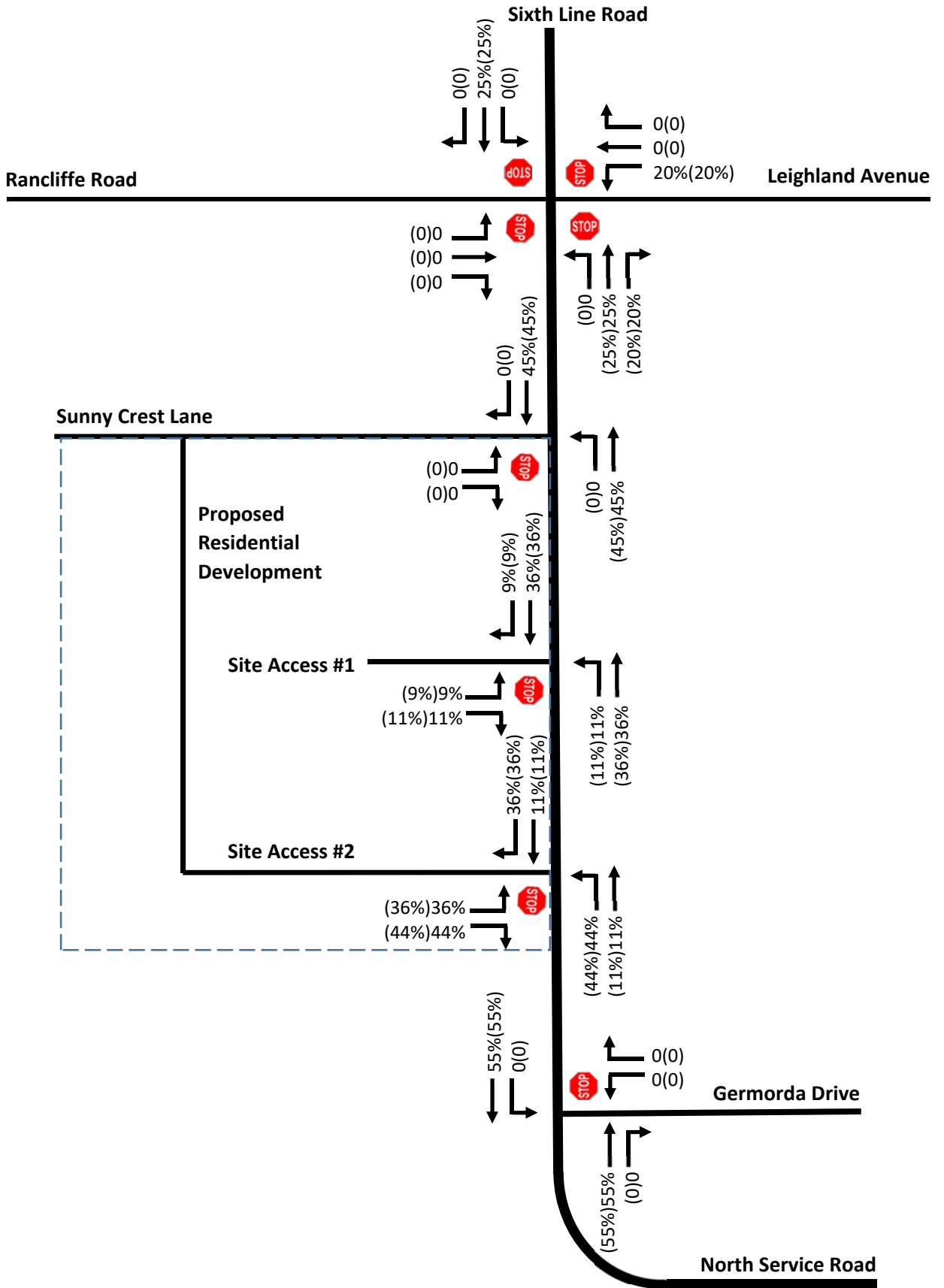
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XX AM Peak Hour

(XX) PM Peak Hour

Stop Sign

Figure 3-1
2021 Future Background
Traffic Volumes



Not to Scale



Legend

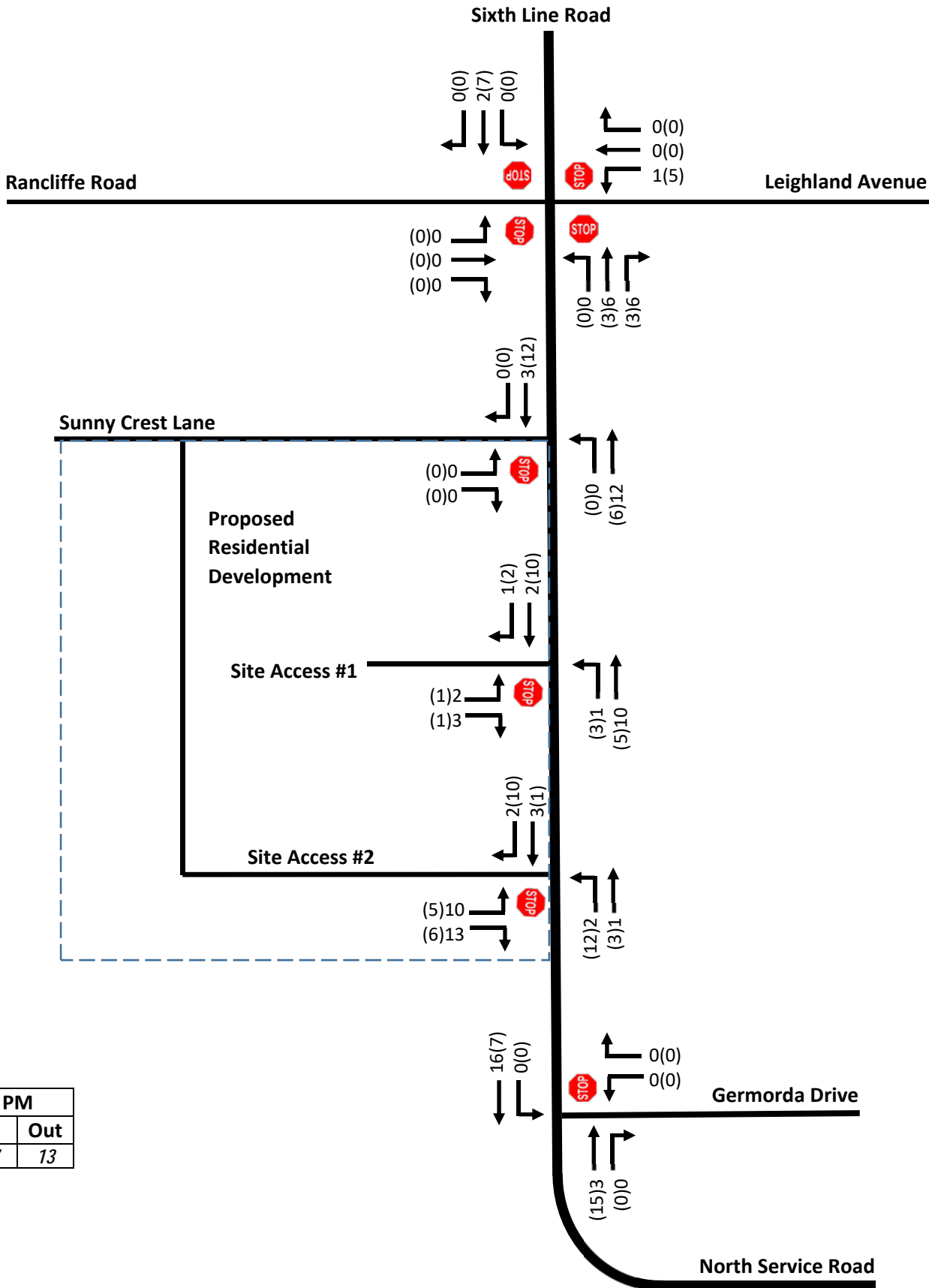
XX AM Peak Hour

(XX) PM Peak Hour



Stop Sign

Figure 4-1
Site Traffic Assignment



AM		PM	
In	Out	In	Out
6	28	27	13

Not to Scale



Legend

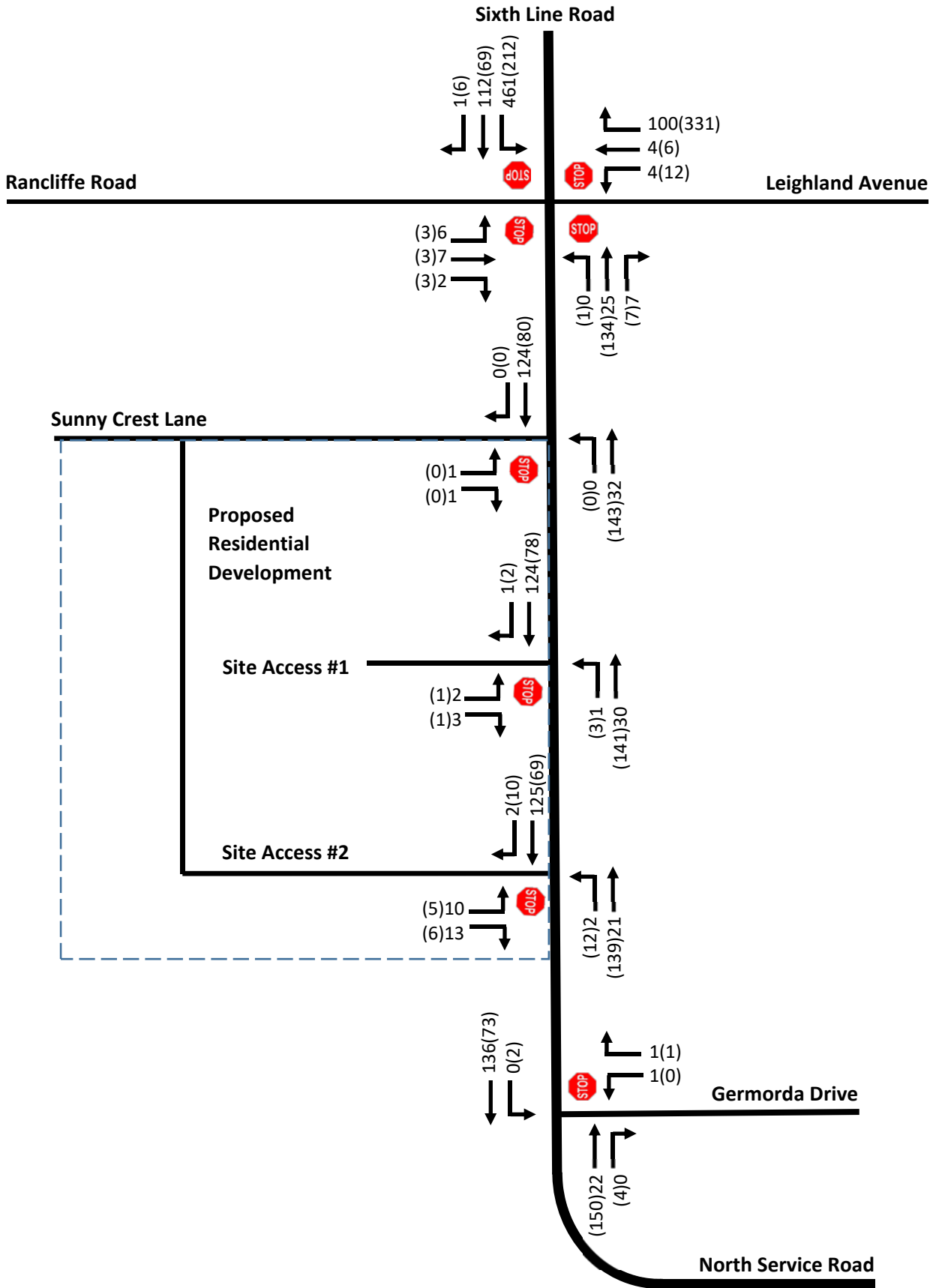
XX AM Peak Hour

(XX) PM Peak Hour



Stop Sign

Figure 4-2
Site Traffic Volumes



Not to Scale

Legend

XX AM Peak Hour

(XX) PM Peak Hour

 Stop Sign

Figure 5-1
2021 Future Total Traffic Volumes

Appendix A

Existing Traffic Data



Turning Movement Count (1 - RANCLIFFE RD & 6TH LINE)

Start Time	N Approach 6TH LINE					E Approach RANCLIFFE RD					S Approach 6TH LINE					W Approach RANCLIFFE RD					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	Peds W:	Approach Total		
07:00:00	1	7	81	1	89	14	0	0	0	14	3	5	1	0	9	0	1	0	2	1	113	
07:15:00	0	18	106	0	124	19	0	0	0	19	0	1	1	2	2	1	0	0	2	1	146	
07:30:00	0	32	90	0	122	23	0	1	0	24	0	3	0	1	3	0	3	0	0	3	152	
07:45:00	0	25	129	0	154	18	0	1	0	19	0	3	0	0	3	0	3	1	2	4	180	591
08:00:00	1	20	98	0	119	32	2	1	0	35	0	10	0	0	10	1	1	2	0	4	168	646
08:15:00	0	37	108	3	145	26	1	1	3	28	0	3	0	1	3	1	0	2	1	3	179	679
08:30:00	0	23	104	1	127	19	1	0	2	20	1	2	0	0	3	0	3	1	1	4	154	681
08:45:00	0	18	91	0	109	25	1	2	1	28	1	7	0	0	8	0	2	0	0	2	147	648
09:00:00	0	14	51	0	65	25	0	0	0	25	3	5	0	0	8	1	1	0	0	2	100	580
09:15:00	0	14	54	0	68	19	0	1	1	20	1	1	0	0	2	0	0	0	1	0	90	491
09:30:00	0	13	65	2	78	11	2	1	1	14	1	5	0	0	6	0	0	1	2	1	99	436
09:45:00	1	12	63	0	76	21	0	3	0	24	4	7	2	0	13	1	0	0	2	1	114	403
BREAK																						
16:00:00	1	11	31	1	43	58	2	0	1	60	1	21	0	0	22	0	1	3	0	4	129	
16:15:00	1	14	42	2	57	43	1	2	1	46	0	19	0	0	19	1	0	1	1	2	124	
16:30:00	0	10	50	0	60	71	2	4	0	77	1	27	1	1	29	1	3	3	1	7	173	
16:45:00	0	13	26	0	39	71	0	2	1	73	1	24	1	1	26	0	0	0	1	0	138	564
17:00:00	0	13	34	0	47	60	1	3	0	64	1	31	1	0	33	2	0	0	0	2	146	581
17:15:00	0	12	64	0	76	87	0	1	0	88	1	35	0	0	36	0	1	1	2	2	202	659
17:30:00	1	16	41	2	58	74	0	1	1	75	1	34	0	0	35	0	0	1	3	1	169	655
17:45:00	2	17	37	1	56	89	0	1	0	90	0	26	0	0	26	0	0	1	1	1	173	690
18:00:00	3	14	60	0	78	65	6	4	1	75	2	30	1	1	33	3	2	0	1	5	191	735
18:15:00	4	17	42	0	63	70	0	1	0	71	2	27	2	0	31	0	0	3	0	3	168	701
18:30:00	1	18	48	2	67	67	1	1	3	69	0	13	0	0	13	1	2	1	2	4	153	685
18:45:00	1	9	51	0	61	37	1	0	1	38	3	21	0	2	24	1	1	0	0	2	125	637
Grand Total	17	397	1566	15	1981	1044	21	31	17	1096	27	360	10	9	397	14	24	21	25	59	3533	-
Approach %	0.9%	20%	79.1%	-	-	95.3%	1.9%	2.8%	-	-	6.8%	90.7%	2.5%	-	-	23.7%	40.7%	35.6%	-	-	-	-
Totals %	0.5%	11.2%	44.3%	-	56.1%	29.5%	0.6%	0.9%	-	31%	0.8%	10.2%	0.3%	-	11.2%	0.4%	0.7%	0.6%	-	1.7%	-	-
Heavy	0	4	30	-	-	28	1	0	-	-	0	7	0	-	-	0	1	0	-	-	-	-
Heavy %	0%	1%	1.9%	-	-	2.7%	4.8%	0%	-	-	0%	1.9%	0%	-	-	0%	4.2%	0%	-	-	-	-
Bicycles	0	49	1	-	-	1	1	0	-	-	1	39	0	-	-	1	0	0	-	-	-	-
Bicycle %	0%	12.3%	0.1%	-	-	0.1%	4.8%	0%	-	-	3.7%	10.8%	0%	-	-	7.1%	0%	0%	-	-	-	-



Turning Movement Count
Location Name: RANCLIFFE RD & 6TH LINE
Date: Wed, Sep 21, 2016 Deployment Lead: Theo Daglis

NexTrans
4261-A14 Highway 7 East
Suite 489
Markham ON, CANADA, L3R 9W6



Peak Hour: 07:45 AM - 08:45 AM Weather: Clear (12.7 °C)

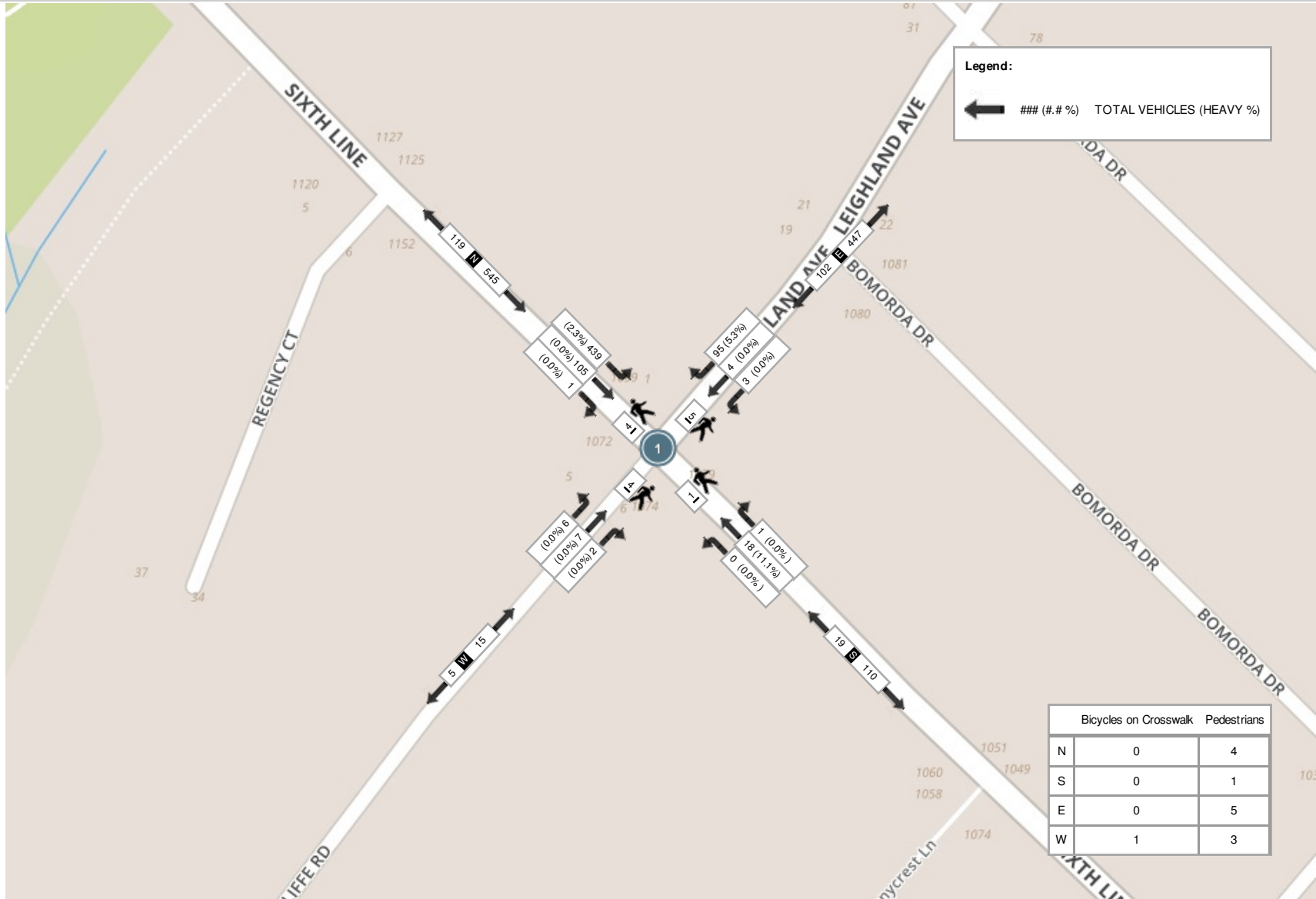
Start Time	N Approach 6TH LINE					E Approach RANCLIFFE RD					S Approach 6TH LINE					W Approach RANCLIFFE RD					Int. Total (15 min)
	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	
07:45:00	0	25	129	0	154	18	0	1	0	19	0	3	0	0	3	0	3	1	2	4	180
08:00:00	1	20	98	0	119	32	2	1	0	35	0	10	0	0	10	1	1	2	0	4	168
08:15:00	0	37	108	3	145	26	1	1	3	28	0	3	0	1	3	1	0	2	1	3	179
08:30:00	0	23	104	1	127	19	1	0	2	20	1	2	0	0	3	0	3	1	1	4	154
Grand Total	1	105	439	4	545	95	4	3	5	102	1	18	0	1	19	2	7	6	4	15	681
Approach%	0.2%	19.3%	80.6%	-	-	93.1%	3.9%	2.9%	-	-	5.3%	94.7%	0%	-	-	13.3%	46.7%	40%	-	-	-
Totals %	0.1%	15.4%	64.5%	-	80%	14%	0.6%	0.4%	-	15%	0.1%	2.6%	0%	-	2.8%	0.3%	1%	0.9%	-	2.2%	-
PHF	0.25	0.71	0.85	-	0.88	0.74	0.5	0.75	-	0.73	0.25	0.45	0	-	0.48	0.5	0.58	0.75	-	0.94	-
Heavy	0	0	10	-	10	5	0	0	-	5	0	2	0	-	2	0	0	0	-	0	-
Heavy %	0%	0%	2.3%	-	1.8%	5.3%	0%	0%	-	4.9%	0%	11.1%	0%	-	10.5%	0%	0%	0%	-	0%	-
Lights	1	105	429	-	535	90	4	3	-	97	1	16	0	-	17	2	7	6	-	15	-
Lights %	100%	100%	97.7%	-	98.2%	94.7%	100%	100%	-	95.1%	100%	88.9%	0%	-	89.5%	100%	100%	100%	-	100%	-
Single-Unit Trucks	0	0	4	-	4	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	-
Single-Unit Trucks %	0%	0%	0.9%	-	0.7%	1.1%	0%	0%	-	1%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
Buses	0	0	6	-	6	4	0	0	-	4	0	2	0	-	2	0	0	0	-	0	-
Buses %	0%	0%	1.4%	-	1.1%	4.2%	0%	0%	-	3.9%	0%	11.1%	0%	-	10.5%	0%	0%	0%	-	0%	-
Pedestrians	-	-	-	4	-	-	-	-	5	-	-	-	1	-	-	-	-	-	3	-	-
Pedestrians%	-	-	-	28.6%	-	-	-	-	35.7%	-	-	-	7.1%	-	-	-	-	-	21.4%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	0	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	0%	-	-	-	-	-	7.1%	-	-
Bicycles on Road	0	19	0	0	-	0	0	0	0	-	0	2	0	0	-	1	0	0	0	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	-	0%	-	-	-	0%	-	-	-	-	-	0%	-	-



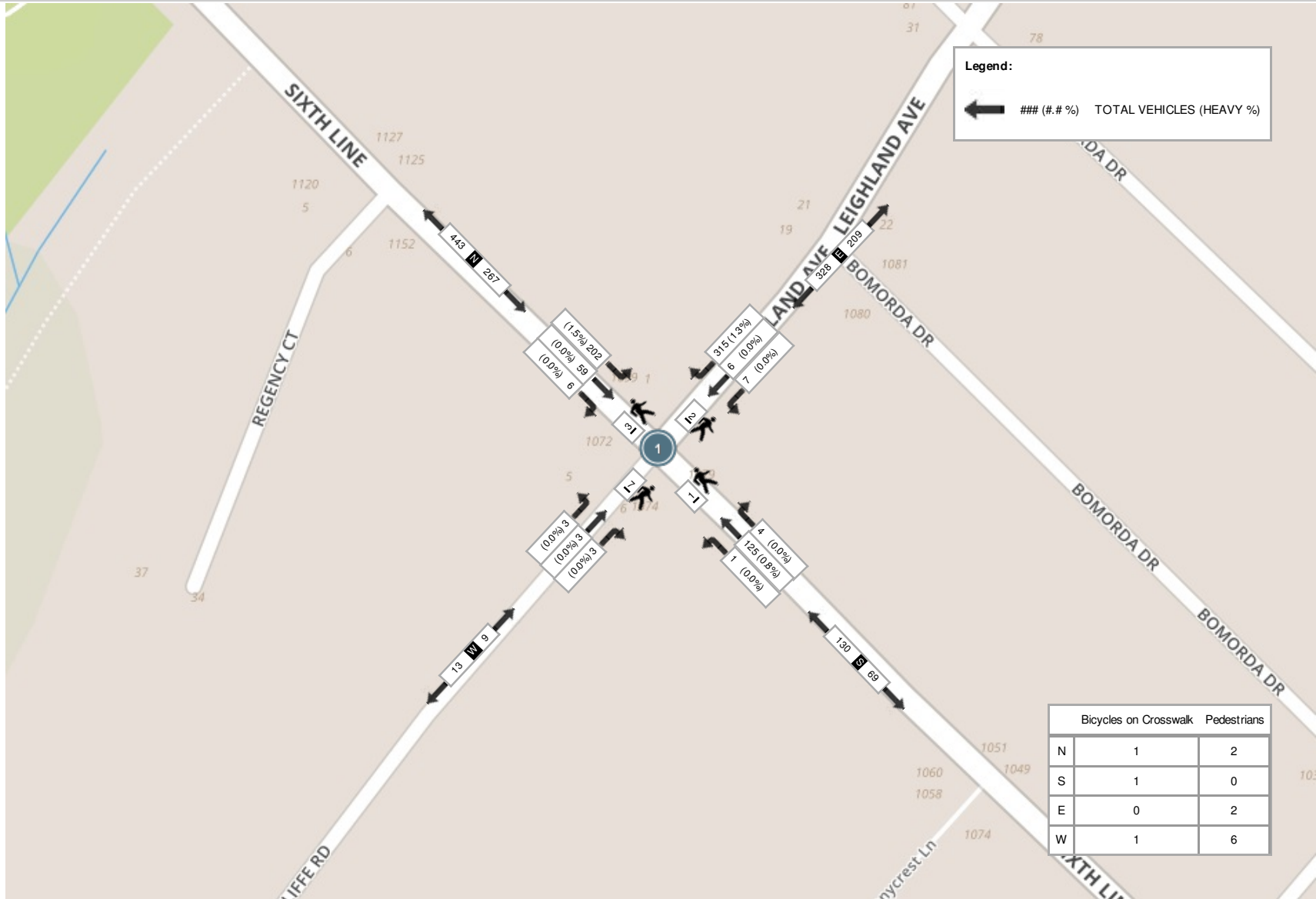
Peak Hour: 05:15 PM - 06:15 PM Weather: Mostly Cloudy (25.2 °C)

Start Time	N Approach 6TH LINE					E Approach RANCLIFFE RD					S Approach 6TH LINE					W Approach RANCLIFFE RD					Int. Total (15 min)
	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	
17:15:00	0	12	64	0	76	87	0	1	0	88	1	35	0	0	36	0	1	1	2	2	202
17:30:00	1	16	41	2	58	74	0	1	1	75	1	34	0	0	35	0	0	1	3	1	169
17:45:00	2	17	37	1	56	89	0	1	0	90	0	26	0	0	26	0	0	1	1	1	173
18:00:00	3	14	60	0	78	65	6	4	1	75	2	30	1	1	33	3	2	0	1	5	191
Grand Total	6	59	202	3	268	315	6	7	2	328	4	125	1	1	130	3	3	3	7	9	735
Approach%	2.2%	22%	75.4%	-	-	96%	1.8%	2.1%	-	-	3.1%	96.2%	0.8%	-	-	33.3%	33.3%	33.3%	-	-	-
Totals %	0.8%	8%	27.5%	-	36.5%	42.9%	0.8%	1%	-	44.6%	0.5%	17%	0.1%	-	17.7%	0.4%	0.4%	0.4%	-	1.2%	-
PHF	0.5	0.87	0.79	-	0.86	0.88	0.25	0.44	-	0.91	0.5	0.89	0.25	-	0.9	0.25	0.38	0.75	-	0.45	-
Heavy	0	0	3	-	3	4	0	0	-	4	0	1	0	-	1	0	0	0	-	0	-
Heavy %	0%	0%	1.5%	-	1.1%	1.3%	0%	0%	-	1.2%	0%	0.8%	0%	-	0.8%	0%	0%	0%	-	0%	-
Lights	6	59	199	-	265	311	6	7	-	324	4	124	1	-	129	3	3	3	-	9	-
Lights %	100%	100%	98.5%	-	98.9%	98.7%	100%	100%	-	98.8%	100%	99.2%	100%	-	99.2%	100%	100%	100%	-	100%	-
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	-
Single-Unit Trucks %	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0.8%	0%	-	0.8%	0%	0%	0%	-	0%	-
Buses	0	0	3	-	3	4	0	0	-	4	0	0	0	-	0	0	0	0	-	0	-
Buses %	0%	0%	1.5%	-	1.1%	1.3%	0%	0%	-	1.2%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	-
Pedestrians	-	-	-	2	-	-	-	-	2	-	-	-	-	0	-	-	-	-	6	-	-
Pedestrians%	-	-	-	15.4%	-	-	-	-	15.4%	-	-	-	0%	-	-	-	-	-	46.2%	-	-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	1	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	7.7%	-	-	-	-	0%	-	-	-	7.7%	-	-	-	-	-	7.7%	-	-
Bicycles on Road	0	3	0	0	-	0	0	0	0	-	0	10	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	-	0%	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear (12.7 °C)



Peak Hour: 05:15 PM - 06:15 PM Weather: Mostly Cloudy (25.2 °C)





Turning Movement Count (3 . 6TH LINE & GERMORDA DR)

Start Time	N Approach 6TH LINE					E Approach GERMORDA DR					S Approach 6TH LINE					W Approach LANEWAY					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	Peds W:	Approach Total		
07:00:00	0	8	0	0	8	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	15	
07:15:00	0	19	0	0	19	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	21	
07:30:00	0	28	0	0	28	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	32	
07:45:00	0	24	0	0	24	1	0	0	0	1	0	2	0	0	2	0	0	0	2	0	27	95
08:00:00	0	23	0	0	23	0	0	0	0	0	0	10	0	0	10	0	0	0	2	0	33	113
08:15:00	0	39	0	0	39	0	0	1	1	1	0	2	0	0	2	1	0	0	7	1	43	135
08:30:00	0	22	1	0	23	1	0	0	2	1	0	4	0	0	4	0	0	0	2	0	28	131
08:45:00	0	19	0	0	19	0	0	0	1	0	0	5	0	0	5	0	0	0	1	0	24	128
09:00:00	0	15	0	0	15	1	0	1	1	2	0	5	0	0	5	0	0	0	0	0	22	117
09:15:00	0	13	0	0	13	0	0	1	1	1	0	2	0	1	2	0	0	0	1	0	16	90
09:30:00	0	14	0	0	14	0	0	0	0	0	0	5	0	0	5	0	0	0	3	0	19	81
09:45:00	0	13	0	0	13	0	0	0	1	0	2	9	0	0	11	0	0	0	1	0	24	81
BREAK																						
16:00:00	0	6	1	0	7	0	0	0	1	0	1	21	0	0	22	0	0	0	1	0	29	
16:15:00	0	17	0	1	17	0	0	1	2	1	0	20	0	1	20	0	0	0	1	0	38	
16:30:00	0	13	0	0	13	0	0	0	0	0	0	26	0	0	26	0	0	0	1	0	39	
16:45:00	0	13	0	0	13	0	0	1	0	1	1	27	0	0	28	0	0	0	0	0	42	148
17:00:00	0	15	1	0	16	0	0	0	0	0	1	35	0	0	37	0	0	0	4	0	53	172
17:15:00	0	14	0	0	14	0	0	0	0	0	1	34	0	0	35	0	0	0	2	0	49	183
17:30:00	0	15	0	0	15	0	0	0	2	0	0	35	0	0	35	0	0	0	3	0	50	194
17:45:00	0	19	1	0	20	1	0	0	0	1	2	25	0	0	27	0	0	0	4	0	48	200
18:00:00	0	14	2	0	16	0	0	0	5	0	0	31	0	1	31	0	0	0	2	0	47	194
18:15:00	0	18	0	0	18	0	0	0	0	0	1	29	0	0	30	0	0	0	3	0	48	193
18:30:00	0	16	0	0	17	0	0	0	0	0	1	12	0	0	13	0	0	0	7	0	30	173
18:45:00	0	12	0	0	12	2	0	0	1	2	1	25	0	0	26	0	0	0	2	0	40	165
Grand Total	0	409	6	1	416	6	0	5	18	11	11	377	0	3	389	1	0	0	49	1	817	-
Approach%	0%	98.3%	1.4%		-	54.5%	0%	45.5%		-	2.8%	96.9%	0%		-	100%	0%	0%		-	-	-
Totals %	0%	50.1%	0.7%		50.9%	0.7%	0%	0.6%		1.3%	1.3%	46.1%	0%		47.6%	0.1%	0%	0%		0.1%	-	-
Heavy	0	4	1		-	1	0	0		-	0	5	0		-	0	0	0		-	-	-
Heavy %	0%	1%	16.7%		-	16.7%	0%	0%		-	0%	1.3%	0%		-	0%	0%	0%		-	-	-
Bicycles	0	27	1		-	0	0	0		-	1	33	0		-	0	0	0		-	-	-
Bicycle %	0%	6.6%	16.7%		-	0%	0%	0%		-	9.1%	8.8%	0%		-	0%	0%	0%		-	-	-



Turning Movement Count
Location Name: 6TH LINE & GERMORDA DR
Date: Wed, Sep 21, 2016 Deployment Lead: Theo Daglis

NexTrans
4261-A14 Highway 7 East
Suite 489
Markham ON, CANADA, L3R 9W6



Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (12.7 °C)

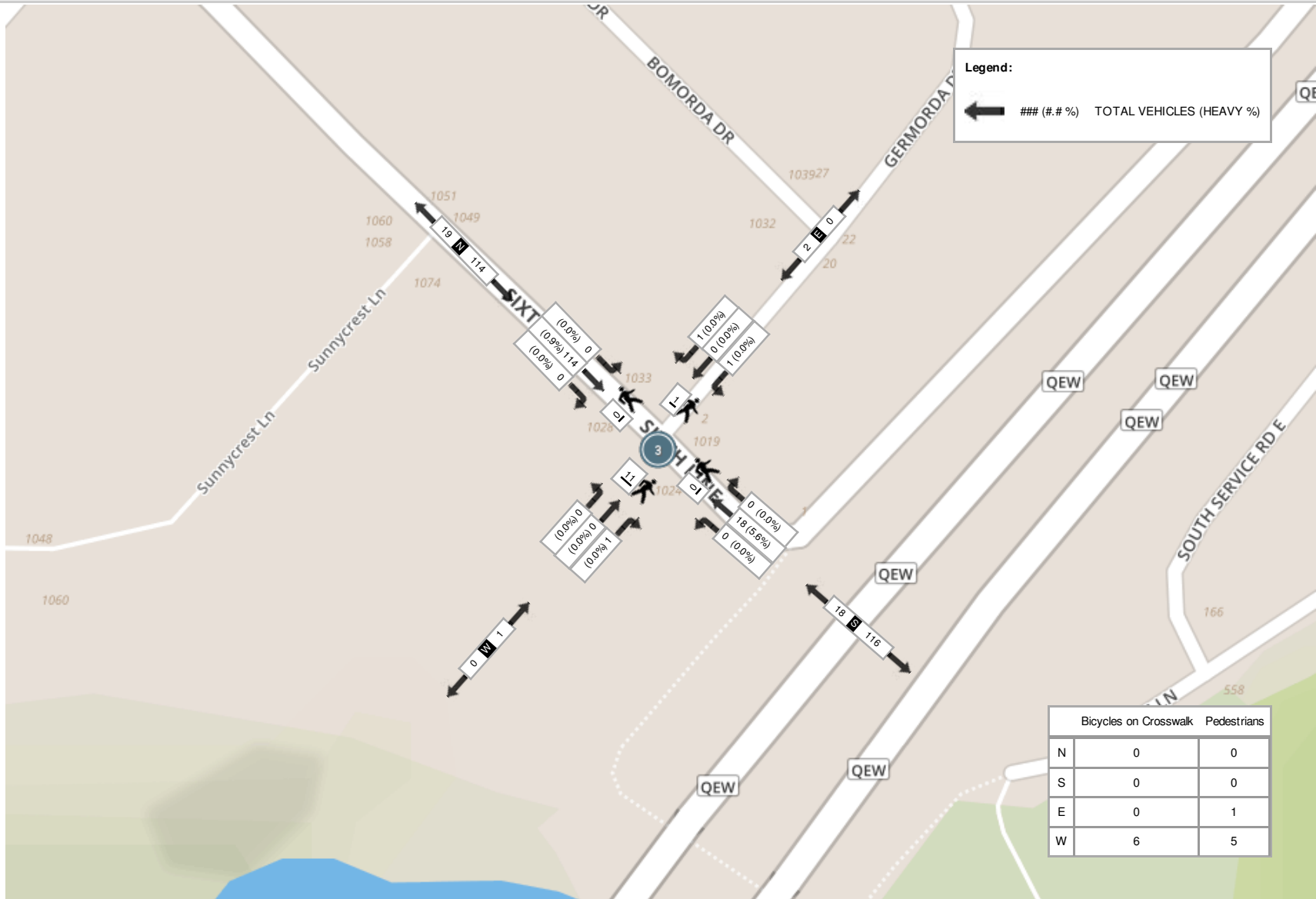
Start Time	N Approach 6TH LINE					E Approach GERMORDA DR					S Approach 6TH LINE					W Approach LANEWAY					Int. Total (15 min)
	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	
07:30:00	0	28	0	0	28	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	32
07:45:00	0	24	0	0	24	1	0	0	0	1	0	2	0	0	2	0	0	0	2	0	27
08:00:00	0	23	0	0	23	0	0	0	0	0	0	10	0	0	10	0	0	0	2	0	33
08:15:00	0	39	0	0	39	0	0	1	1	1	0	2	0	0	2	1	0	0	7	1	43
Grand Total	0	114	0	0	114	1	0	1	1	2	0	18	0	0	18	1	0	0	11	1	135
Approach%	0%	100%	0%	-	-	50%	0%	50%	-	-	0%	100%	0%	-	-	100%	0%	0%	-	-	-
Totals %	0%	84.4%	0%	84.4%	84.4%	0.7%	0%	0.7%	1.5%	1.5%	0%	13.3%	0%	13.3%	13.3%	0.7%	0%	0%	0.7%	0.7%	-
PHF	0	0.73	0	0.73	0.73	0.25	0	0.25	0.5	0.5	0	0.45	0	0.45	0.45	0.25	0	0	0.25	0.25	-
Heavy	0	1	0	1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	-
Heavy %	0%	0.9%	0%	0.9%	0.9%	0%	0%	0%	0%	0%	0%	5.6%	0%	5.6%	5.6%	0%	0%	0%	0%	0%	-
Lights	0	113	0	113	113	1	0	1	2	2	0	17	0	17	17	1	0	0	1	1	-
Lights %	0%	99.1%	0%	99.1%	99.1%	100%	0%	100%	100%	100%	0%	94.4%	0%	94.4%	94.4%	100%	0%	0%	100%	100%	-
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Buses	0	1	0	1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	-
Buses %	0%	0.9%	0%	0.9%	0.9%	0%	0%	0%	0%	0%	0%	5.6%	0%	5.6%	5.6%	0%	0%	0%	0%	0%	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	5	-	-
Pedestrians%	-	-	-	0%	-	-	-	-	8.3%	-	-	-	-	0%	-	-	-	-	41.7%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	6	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	50%	-	-
Bicycles on Road	0	11	0	0	-	0	0	0	0	-	0	3	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-



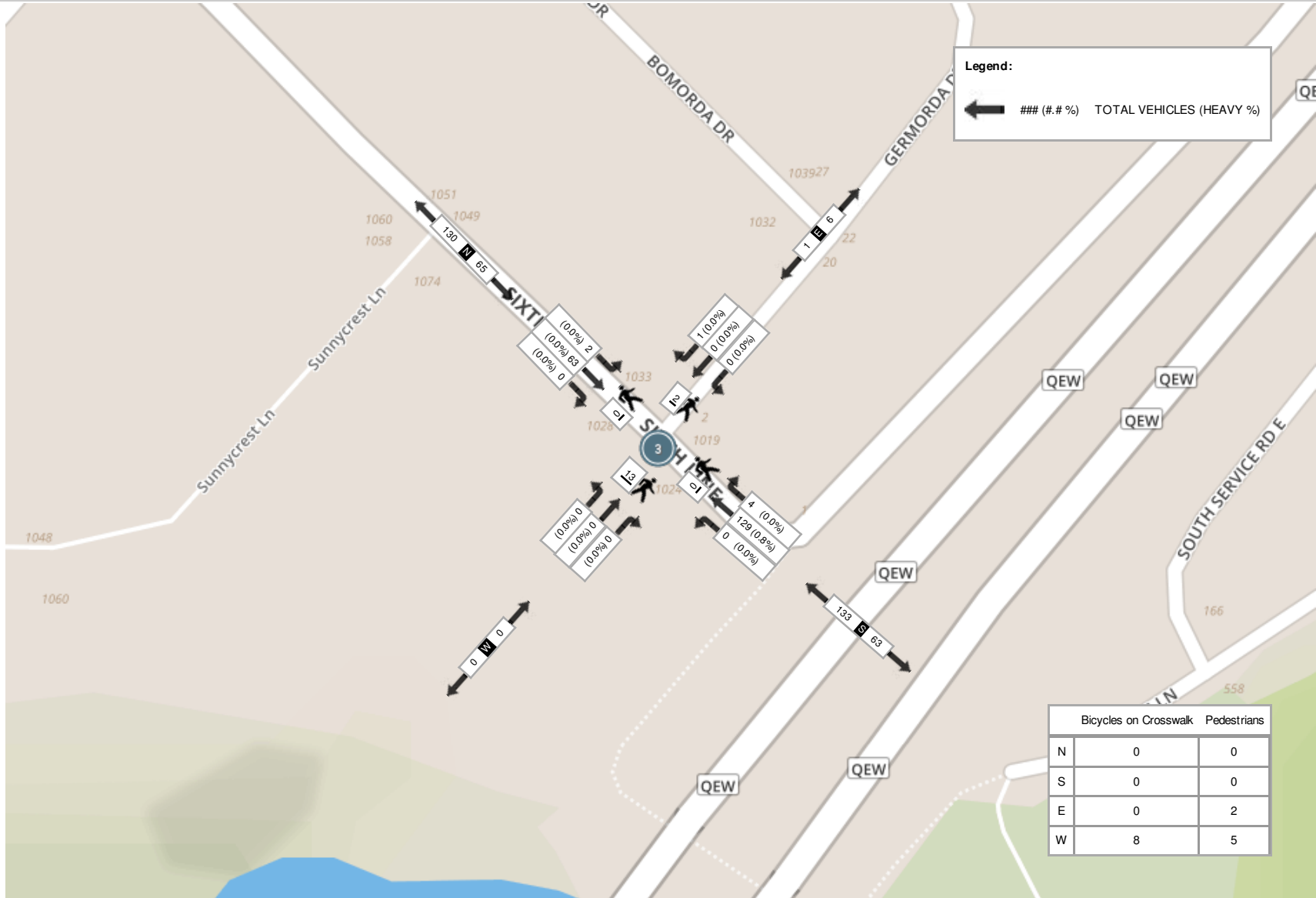
Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (25.2 °C)

Start Time	N Approach 6TH LINE					E Approach GERMORDA DR					S Approach 6TH LINE					W Approach LANEWAY					Int. Total (15 min)
	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	Right	Thru	Left	Peds	Approach Total	
17:00:00	0	15	1	0	16	0	0	0	0	0	1	35	0	0	37	0	0	0	4	0	53
17:15:00	0	14	0	0	14	0	0	0	0	0	1	34	0	0	35	0	0	0	2	0	49
17:30:00	0	15	0	0	15	0	0	0	2	0	0	35	0	0	35	0	0	0	3	0	50
17:45:00	0	19	1	0	20	1	0	0	0	1	2	25	0	0	27	0	0	0	4	0	48
Grand Total	0	63	2	0	65	1	0	0	2	1	4	129	0	0	134	0	0	0	13	0	200
Approach%	0%	96.9%	3.1%	-	-	100%	0%	0%	-	-	3%	96.3%	0%	-	-	0%	0%	0%	-	-	-
Totals %	0%	31.5%	1%	-	32.5%	0.5%	0%	0%	-	0.5%	2%	64.5%	0%	-	67%	0%	0%	0%	-	0%	-
PHF	0	0.83	0.5	-	0.81	0.25	0	0	-	0.25	0.5	0.92	0	-	0.91	0	0	0	-	0	-
Heavy	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	-
Heavy %	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0.8%	0%	-	0.7%	0%	0%	0%	-	0%	-
Lights	0	63	2	-	65	1	0	0	-	1	4	128	0	-	133	0	0	0	-	0	-
Lights %	0%	100%	100%	-	100%	100%	0%	0%	-	100%	100%	99.2%	0%	-	99.3%	0%	0%	0%	-	0%	-
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	-
Single-Unit Trucks %	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0.8%	0%	-	0.7%	0%	0%	0%	-	0%	-
Buses	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%	-
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-	-	-	5	-	-
Pedestrians%	-	-	-	0%	-	-	-	-	13.3%	-	-	-	-	0%	-	-	-	-	33.3%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	8	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	53.3%	-	-
Bicycles on Road	0	2	0	0	-	0	0	0	0	-	1	12	0	0	-	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (12.7 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Mostly Cloudy (25.2 °C)





Turning Movement Count (2 . SUNNYCREST LN & 6TH LINE)

Start Time	N Approach 6TH LINE				S Approach 6TH LINE				W Approach SUNNYCREST LN				Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Peds N:	Approach Total	Thru S:N	Left S:W	Peds S:	Approach Total	Right W:S	Left W:N	Peds W:	Approach Total		
07:00:00	0	8	0	8	7	0	0	7	0	0	2	0	15	
07:15:00	0	19	0	19	2	0	0	2	0	0	0	0	21	
07:30:00	0	31	0	31	4	0	0	4	0	0	1	0	35	
07:45:00	0	24	0	24	3	0	0	3	0	0	2	0	27	98
08:00:00	0	22	0	22	10	0	0	10	0	1	1	1	33	116
08:15:00	0	38	0	38	2	0	0	2	1	0	2	1	41	136
08:30:00	0	23	0	23	5	0	0	5	0	0	1	0	28	129
08:45:00	1	18	0	19	6	0	0	6	0	1	0	1	26	128
09:00:00	0	14	0	14	5	1	0	6	0	1	0	1	21	116
09:15:00	0	14	0	14	3	0	0	3	0	0	1	0	17	92
09:30:00	0	12	0	12	5	0	0	5	0	0	2	0	17	81
09:45:00	1	12	0	13	9	0	0	9	0	1	1	1	23	78
BREAK														
16:00:00	1	7	0	8	21	0	0	21	0	0	1	0	29	
16:15:00	0	17	0	17	20	0	0	20	0	0	2	0	37	
16:30:00	0	14	0	14	28	0	0	28	0	0	1	0	42	
16:45:00	1	12	0	13	27	0	0	27	0	0	0	0	40	148
17:00:00	0	17	0	17	34	0	0	34	0	0	1	0	51	170
17:15:00	0	14	0	14	36	0	0	36	0	0	2	0	50	183
17:30:00	0	16	0	16	35	0	0	35	0	0	2	0	51	192
17:45:00	0	19	0	19	25	0	0	25	0	0	3	0	44	196
18:00:00	0	18	0	18	34	0	0	34	0	0	2	0	52	197
18:15:00	0	18	3	18	30	0	0	30	0	0	1	0	48	195
18:30:00	0	18	0	18	13	0	0	13	1	0	3	1	32	176



18:45:00	0	12	0	12	26	0	0	26	0	1	1	1	39	171
Grand Total	4	417	3	421	390	1	0	391	2	5	32	7	819	-
Approach%	1%	99%	-	99.7%	0.3%	-	-	28.6%	71.4%	-	-	-	-	-
Totals %	0.5%	50.9%	51.4%	47.6%	0.1%	47.7%	0.2%	0.6%	0.9%	-	-	-	-	-
Heavy	0	4	-	6	0	-	0	0	-	-	-	-	-	-
Heavy %	0%	1%	-	1.5%	0%	-	0%	0%	-	-	-	-	-	-
Bicycles	0	48	-	38	0	-	1	0	-	-	-	-	-	-
Bicycle %	0%	11.5%	-	9.7%	0%	-	50%	0%	-	-	-	-	-	-



Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (12.7 °C)

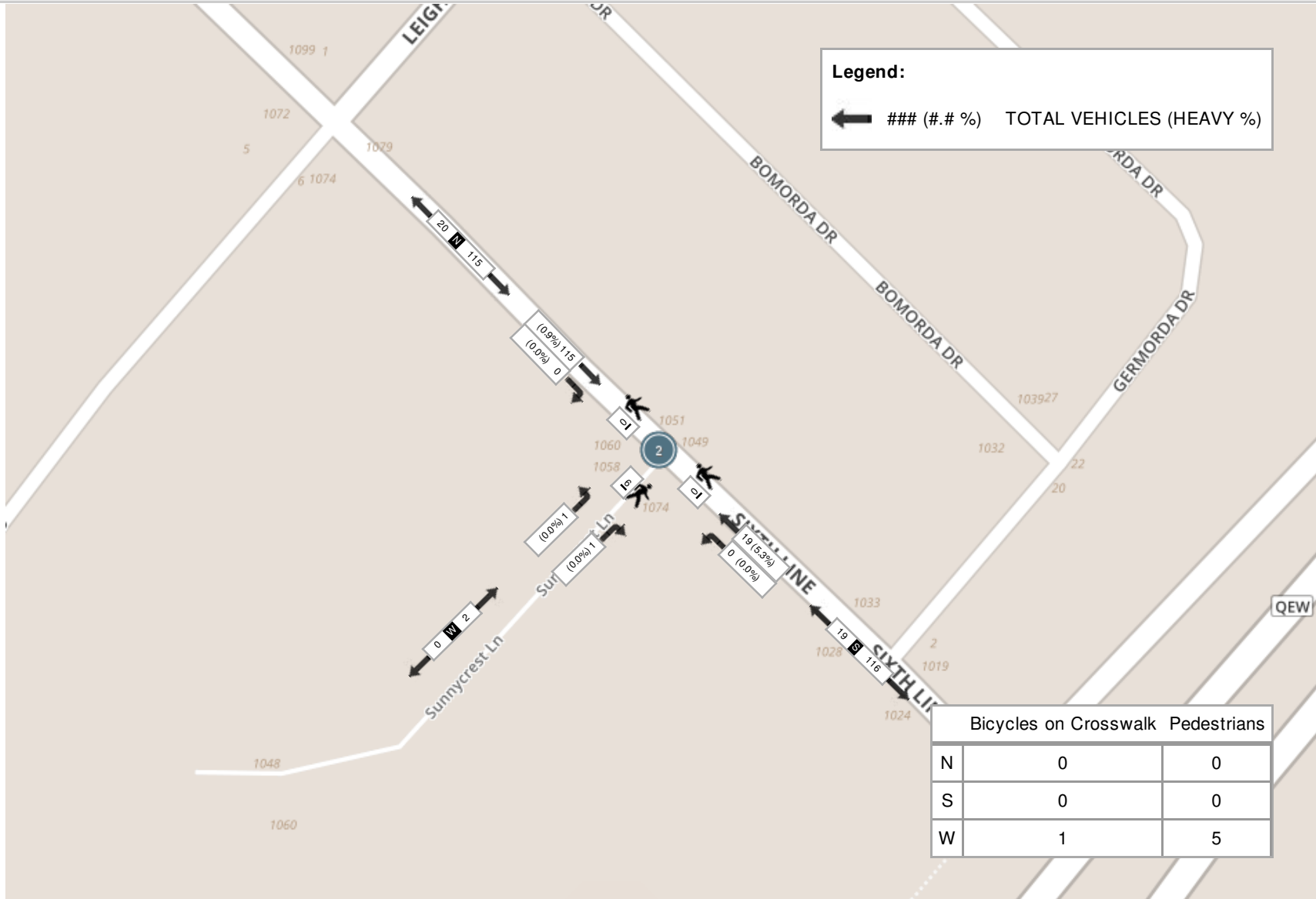
Start Time	N Approach 6TH LINE				S Approach 6TH LINE				W Approach SUNNYCREST LN				Int. Total (15 min)
	Right	Thru	Peds	Approach Total	Thru	Left	Peds	Approach Total	Right	Left	Peds	Approach Total	
07:30:00	0	31	0	31	4	0	0	4	0	0	1	0	35
07:45:00	0	24	0	24	3	0	0	3	0	0	2	0	27
08:00:00	0	22	0	22	10	0	0	10	0	1	1	1	33
08:15:00	0	38	0	38	2	0	0	2	1	0	2	1	41
Grand Total	0	115	0	115	19	0	0	19	1	1	6	2	136
Approach%	0%	100%	-	-	100%	0%	-	-	50%	50%	-	-	-
Totals %	0%	84.6%	-	84.6%	14%	0%	-	14%	0.7%	0.7%	-	1.5%	-
PHF	0	0.76	-	0.76	0.48	0	-	0.48	0.25	0.25	-	0.5	-
Heavy	0	1	-	1	1	0	-	1	0	0	-	0	-
Heavy %	0%	0.9%	-	0.9%	5.3%	0%	-	5.3%	0%	0%	-	0%	-
Lights	0	114	-	114	18	0	-	18	1	1	-	2	-
Lights %	0%	99.1%	-	99.1%	94.7%	0%	-	94.7%	100%	100%	-	100%	-
Single-Unit Trucks	0	0	-	0	0	0	-	0	0	0	-	0	-
Single-Unit Trucks %	0%	0%	-	0%	0%	0%	-	0%	0%	0%	-	0%	-
Buses	0	1	-	1	1	0	-	1	0	0	-	0	-
Buses %	0%	0.9%	-	0.9%	5.3%	0%	-	5.3%	0%	0%	-	0%	-
Pedestrians	-	-	0	-	-	0	-	-	-	-	5	-	-
Pedestrians%	-	-	0%	-	-	0%	-	-	-	-	83.3%	-	-
Bicycles on Crosswalk	-	-	0	-	-	0	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	0%	-	-	0%	-	-	-	-	16.7%	-	-
Bicycles on Road	0	20	0	-	4	0	0	-	0	0	0	-	-
Bicycles on Road%	-	-	0%	-	-	0%	-	-	-	-	0%	-	-



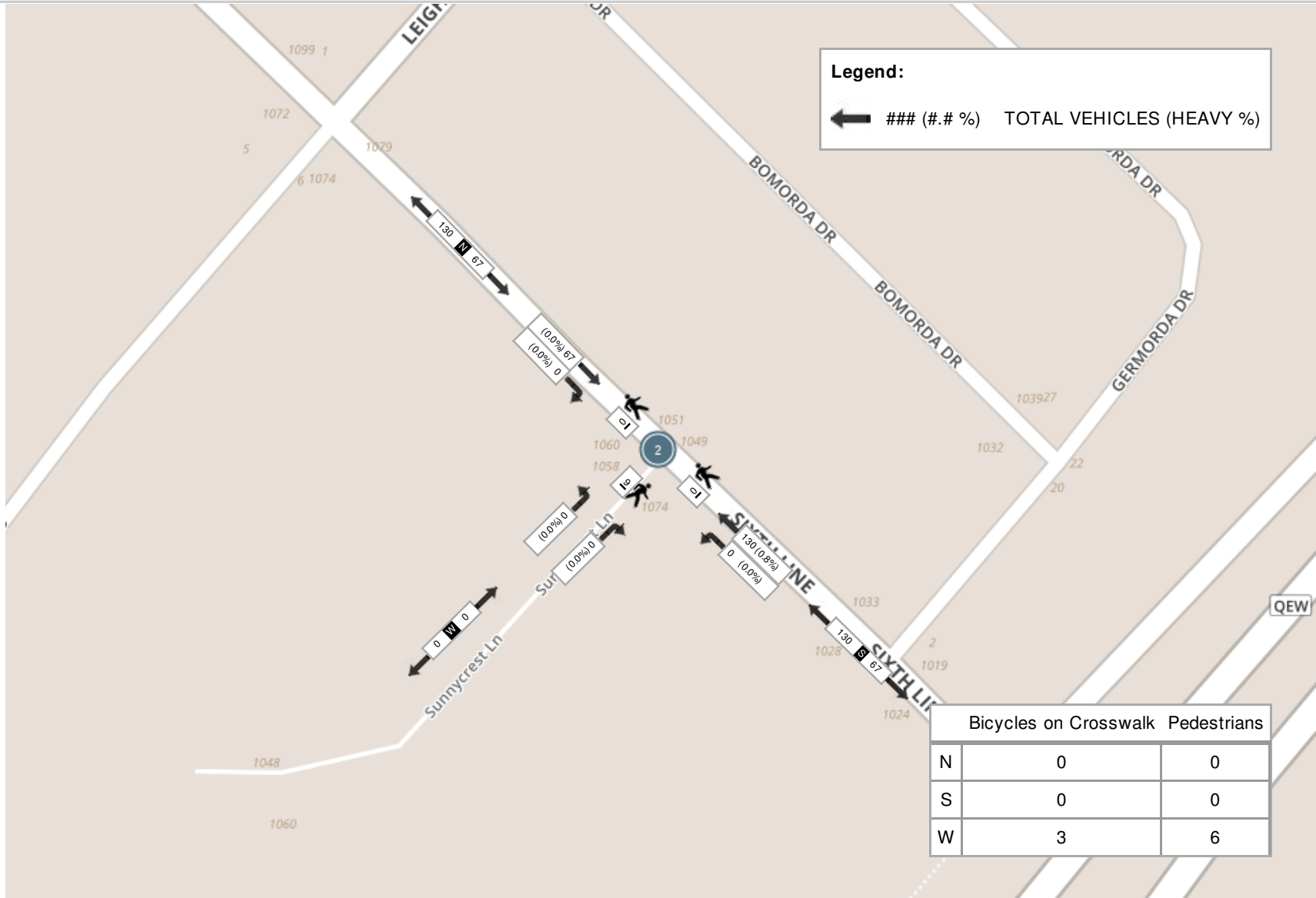
Peak Hour: 05:15 PM - 06:15 PM Weather: Mostly Cloudy (25.2 °C)

Start Time	N Approach 6TH LINE				S Approach 6TH LINE				W Approach SUNNYCREST LN				Int. Total (15 min)
	Right	Thru	Peds	Approach Total	Thru	Left	Peds	Approach Total	Right	Left	Peds	Approach Total	
17:15:00	0	14	0	14	36	0	0	36	0	0	2	0	50
17:30:00	0	16	0	16	35	0	0	35	0	0	2	0	51
17:45:00	0	19	0	19	25	0	0	25	0	0	3	0	44
18:00:00	0	18	0	18	34	0	0	34	0	0	2	0	52
Grand Total	0	67	0	67	130	0	0	130	0	0	9	0	197
Approach%	0%	100%	-	-	100%	0%	-	-	0%	0%	-	-	-
Totals %	0%	34%		34%	66%	0%		66%	0%	0%		0%	-
PHF	0	0.88		0.88	0.9	0		0.9	0	0		0	-
Heavy	0	0		0	1	0		1	0	0		0	-
Heavy %	0%	0%		0%	0.8%	0%		0.8%	0%	0%		0%	-
Lights	0	67		67	129	0		129	0	0		0	-
Lights %	0%	100%		100%	99.2%	0%		99.2%	0%	0%		0%	-
Single-Unit Trucks	0	0		0	1	0		1	0	0		0	-
Single-Unit Trucks %	0%	0%		0%	0.8%	0%		0.8%	0%	0%		0%	-
Buses	0	0		0	0	0		0	0	0		0	-
Buses %	0%	0%		0%	0%	0%		0%	0%	0%		0%	-
Pedestrians	-	-	0	-	-	0		-	-	6		-	-
Pedestrians%	-	-	0%	-	-	0%		-	-	66.7%		-	-
Bicycles on Crosswalk	-	-	0	-	-	0		-	-	3		-	-
Bicycles on Crosswalk%	-	-	0%	-	-	0%		-	-	33.3%		-	-
Bicycles on Road	0	3	0	-	8	0	0	-	0	0	0	-	-
Bicycles on Road%	-	-	0%	-	-	0%		-	-	0%		-	-

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (12.7 °C)



Peak Hour: 05:15 PM - 06:15 PM Weather: Mostly Cloudy (25.2 °C)



















Appendix B

Existing Traffic Level of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Existing Driveway/Germorda Drive

9/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	1	0	1	0	18	0	0	114	0
Future Volume (Veh/h)	0	0	1	1	0	1	0	18	0	0	114	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.50	0.50	0.50	0.45	0.45	0.45	0.73	0.73	0.73
Hourly flow rate (vph)	0	0	4	2	0	2	0	40	0	0	156	0
Pedestrians		11			1							
Lane Width (m)		3.7			3.7							
Walking Speed (m/s)		1.1			1.1							
Percent Blockage		1			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	209	208	167	201	208	41	167			41		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	209	208	167	201	208	41	167			41		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	736	684	873	751	684	1035	1408			1580		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	4	40	156								
Volume Left	0	2	0	0								
Volume Right	4	2	0	0								
cSH	873	870	1408	1580								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.1	0.1	0.0	0.0								
Control Delay (s)	9.1	9.2	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.1	9.2	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			18.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: Sixth Line Road & Sunny Crest Lane

9/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1	0	19	115	0
Future Volume (Veh/h)	1	1	0	19	115	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.48	0.48	0.76	0.76
Hourly flow rate (vph)	2	2	0	40	151	0
Pedestrians	6					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	197	157	157			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	197	157	157			
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)	792	889	1427			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	40	151			
Volume Left	2	0	0			
Volume Right	2	0	0			
cSH	837	1427	1700			
Volume to Capacity	0.00	0.00	0.09			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			17.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/29/2016



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	7	2	3	4	95	0	18	1	439	105	1
Future Volume (vph)	6	7	2	3	4	95	0	18	1	439	105	1
Peak Hour Factor	0.94	0.94	0.94	0.73	0.73	0.73	0.48	0.48	0.48	0.88	0.88	0.88
Hourly flow rate (vph)	6	7	2	4	5	130	0	38	2	499	119	1

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	15	139	40	619
Volume Left (vph)	6	4	0	499
Volume Right (vph)	2	130	2	1
Hadj (s)	0.00	-0.48	0.15	0.19
Departure Headway (s)	5.7	5.0	5.2	4.6
Degree Utilization, x	0.02	0.19	0.06	0.78
Capacity (veh/h)	571	651	647	777
Control Delay (s)	8.9	9.2	8.5	21.9
Approach Delay (s)	8.9	9.2	8.5	21.9
Approach LOS	A	A	A	C

Intersection Summary			
Delay		18.8	
Level of Service		C	
Intersection Capacity Utilization	50.7%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Existing Driveway/Germorda Drive

9/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	1	0	129	4	2	63	0
Future Volume (Veh/h)	0	0	0	0	0	1	0	129	4	2	63	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	0.25	0.25	0.25	0.91	0.91	0.91	0.81	0.81	0.81
Hourly flow rate (vph)	0	0	0	0	0	4	0	142	4	2	78	0
Pedestrians		13			2							
Lane Width (m)		3.7			3.7							
Walking Speed (m/s)		1.1			1.1							
Percent Blockage		1			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	243	243	91	228	241	146	91			148		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	243	243	91	228	241	146	91			148		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	694	652	960	721	653	905	1497			1443		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	4	146	80								
Volume Left	0	0	0	2								
Volume Right	0	4	4	0								
cSH	1700	905	1497	1443								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.1	0.0	0.0								
Control Delay (s)	0.0	9.0	0.0	0.2								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	9.0	0.0	0.2								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			17.9%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: Sixth Line Road & Sunny Crest Lane

9/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	130	67	0
Future Volume (Veh/h)	0	0	0	130	67	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.88	0.88
Hourly flow rate (vph)	0	0	0	144	76	0
Pedestrians	9					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	229	85	85			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	229	85	85			
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)	757	971	1511			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	144	76			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1511	1700			
Volume to Capacity	0.00	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/29/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	3	3	7	6	315	1	125	4	202	59	6
Future Volume (vph)	3	3	3	7	6	315	1	125	4	202	59	6
Peak Hour Factor	0.45	0.45	0.45	0.91	0.91	0.91	0.90	0.90	0.90	0.86	0.86	0.86
Hourly flow rate (vph)	7	7	7	8	7	346	1	139	4	235	69	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	21	361	144	311
Volume Left (vph)	7	8	1	235
Volume Right (vph)	7	346	4	7
Hadj (s)	-0.13	-0.55	0.00	0.16
Departure Headway (s)	5.5	4.6	5.3	5.2
Degree Utilization, x	0.03	0.46	0.21	0.45
Capacity (veh/h)	557	733	622	650
Control Delay (s)	8.7	11.5	9.8	12.5
Approach Delay (s)	8.7	11.5	9.8	12.5
Approach LOS	A	B	A	B

Intersection Summary

















Delay	11.5
Level of Service	B
Intersection Capacity Utilization	52.6%
ICU Level of Service	A
Analysis Period (min)	15

Appendix C

Future Background Level of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Existing Driveway/Germorda Drive

9/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	1	0	1	0	19	0	0	120	0
Future Volume (Veh/h)	0	0	1	1	0	1	0	19	0	0	120	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.50	0.50	0.50	0.45	0.45	0.45	0.73	0.73	0.73
Hourly flow rate (vph)	0	0	4	2	0	2	0	42	0	0	164	0
Pedestrians		11			1							
Lane Width (m)		3.7			3.7							
Walking Speed (m/s)		1.1			1.1							
Percent Blockage		1			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	219	218	175	211	218	43	175			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	219	218	175	211	218	43	175			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	725	676	864	740	676	1032	1398			1577		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	4	42	164								
Volume Left	0	2	0	0								
Volume Right	4	2	0	0								
cSH	864	862	1398	1577								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.1	0.1	0.0	0.0								
Control Delay (s)	9.2	9.2	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.2	9.2	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			18.5%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: Sixth Line Road & Sunny Crest Lane

















9/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1	0	20	121	0
Future Volume (Veh/h)	1	1	0	20	121	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.48	0.48	0.76	0.76
Hourly flow rate (vph)	2	2	0	42	159	0
Pedestrians	6					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	207	165	165			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	165	165			
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)	781	880	1417			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	42	159			
Volume Left	2	0	0			
Volume Right	2	0	0			
cSH	828	1417	1700			
Volume to Capacity	0.00	0.00	0.09			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			17.6%	ICU Level of Service	A	
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	7	2	3	4	100	0	19	1	461	110	1
Future Volume (vph)	6	7	2	3	4	100	0	19	1	461	110	1
Peak Hour Factor	0.94	0.94	0.94	0.73	0.73	0.73	0.48	0.48	0.48	0.88	0.88	0.88
Hourly flow rate (vph)	6	7	2	4	5	137	0	40	2	524	125	1
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	15	146	42	650								
Volume Left (vph)	6	4	0	524								
Volume Right (vph)	2	137	2	1								
Hadj (s)	0.00	-0.48	0.15	0.19								
Departure Headway (s)	5.8	5.1	5.3	4.6								
Degree Utilization, x	0.02	0.21	0.06	0.83								
Capacity (veh/h)	564	659	643	650								
Control Delay (s)	9.0	9.5	8.6	25.5								
Approach Delay (s)	9.0	9.5	8.6	25.5								
Approach LOS	A	A	A	D								
Intersection Summary												
Delay			21.6									
Level of Service			C									
Intersection Capacity Utilization			52.5%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Existing Driveway/Germorda Drive

9/29/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	1	0	135	4	2	66	0
Future Volume (Veh/h)	0	0	0	0	0	1	0	135	4	2	66	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	0.25	0.25	0.25	0.91	0.91	0.91	0.81	0.81	0.81
Hourly flow rate (vph)	0	0	0	0	0	4	0	148	4	2	81	0
Pedestrians		13			2							
Lane Width (m)		3.7			3.7							
Walking Speed (m/s)		1.1			1.1							
Percent Blockage		1			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	252	252	94	237	250	152	94			154		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	252	94	237	250	152	94			154		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	685	644	956	711	646	898	1494			1436		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	4	152	83								
Volume Left	0	0	0	2								
Volume Right	0	4	4	0								
cSH	1700	898	1494	1436								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.1	0.0	0.0								
Control Delay (s)	0.0	9.0	0.0	0.2								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	9.0	0.0	0.2								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			18.0%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: Sixth Line Road & Sunny Crest Lane

9/29/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	137	70	0
Future Volume (Veh/h)	0	0	0	137	70	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.88	0.88
Hourly flow rate (vph)	0	0	0	152	80	0
Pedestrians	9					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	241	89	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	241	89	89			
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)	745	966	1506			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	152	80			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1506	1700			
Volume to Capacity	0.00	0.00	0.05			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/29/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	3	3	7	6	331	1	131	4	212	62	6
Future Volume (vph)	3	3	3	7	6	331	1	131	4	212	62	6
Peak Hour Factor	0.45	0.45	0.45	0.91	0.91	0.91	0.90	0.90	0.90	0.86	0.86	0.86
Hourly flow rate (vph)	7	7	7	8	7	364	1	146	4	247	72	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	21	379	151	326
Volume Left (vph)	7	8	1	247
Volume Right (vph)	7	364	4	7
Hadj (s)	-0.13	-0.56	0.00	0.16
Departure Headway (s)	5.7	4.7	5.4	5.3
Degree Utilization, x	0.03	0.49	0.23	0.48
Capacity (veh/h)	537	723	609	641
Control Delay (s)	8.9	12.1	10.0	13.1
Approach Delay (s)	8.9	12.1	10.0	13.1
Approach LOS	A	B	B	B

Intersection Summary

Delay	12.0
Level of Service	B
Intersection Capacity Utilization	54.6%
ICU Level of Service	A
Analysis Period (min)	15

Appendix D

Future Total Level of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Germorda Drive

9/30/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	1	22	0	0	136
Future Volume (Veh/h)	1	1	22	0	0	136
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.50	0.50	0.45	0.45	0.73	0.73
Hourly flow rate (vph)	2	2	49	0	0	186
Pedestrians	1					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	236	50			50	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236	50			50	
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)	756	1023			1568	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	4	49	186			
Volume Left	2	0	0			
Volume Right	2	0	0			
cSH	869	1700	1568			
Volume to Capacity	0.00	0.03	0.00			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			17.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 4: Sixth Line Road & Site Access 1

9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	13	2	21	125	2
Future Volume (Veh/h)	10	13	2	21	125	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	14	2	23	136	2
Pedestrians	10			10	10	
Lane Width (m)	3.7			3.7	3.7	
Walking Speed (m/s)	1.1			1.1	1.1	
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	184	157	148			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184	157	148			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	100			
cM capacity (veh/h)	793	876	1432			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	25	25	138			
Volume Left	11	2	0			
Volume Right	14	0	2			
cSH	838	1432	1700			
Volume to Capacity	0.03	0.00	0.08			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s)	9.4	0.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	0.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization	21.4%			ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 6: Sixth Line Road & Sunny Crest Lane

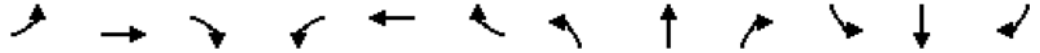
9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1	0	32	124	0
Future Volume (Veh/h)	1	1	0	32	124	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.50	0.50	0.48	0.48	0.76	0.76
Hourly flow rate (vph)	2	2	0	67	163	0
Pedestrians	6					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	236	169	169			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236	169	169			
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)	752	875	1412			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	67	163			
Volume Left	2	0	0			
Volume Right	2	0	0			
cSH	809	1412	1700			
Volume to Capacity	0.00	0.00	0.10			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.5	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.5	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			17.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/30/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	7	2	4	4	100	0	25	7	461	112	1
Future Volume (vph)	6	7	2	4	4	100	0	25	7	461	112	1
Peak Hour Factor	0.94	0.94	0.94	0.73	0.73	0.73	0.48	0.48	0.48	0.88	0.88	0.88
Hourly flow rate (vph)	6	7	2	5	5	137	0	52	15	524	127	1

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	15	147	67	652
Volume Left (vph)	6	5	0	524
Volume Right (vph)	2	137	15	1
Hadj (s)	0.00	-0.47	0.01	0.19
Departure Headway (s)	5.9	5.2	5.1	4.6
Degree Utilization, x	0.02	0.21	0.10	0.84
Capacity (veh/h)	557	641	659	652
Control Delay (s)	9.1	9.6	8.7	26.6
Approach Delay (s)	9.1	9.6	8.7	26.6
Approach LOS	A	A	A	D

Intersection Summary

Delay	22.1
Level of Service	C
Intersection Capacity Utilization	52.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 12: Sixth Line Road & Site Access 2

9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	3	1	30	124	1
Future Volume (Veh/h)	2	3	1	30	124	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	3	1	33	135	1
Pedestrians	10			10	10	
Lane Width (m)	3.7			3.7	3.7	
Walking Speed (m/s)	1.1			1.1	1.1	
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	190	156	146			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190	156	146			
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)	787	878	1434			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	34	136			
Volume Left	2	1	0			
Volume Right	3	0	1			
cSH	839	1434	1700			
Volume to Capacity	0.01	0.00	0.08			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.3	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	21.3%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 3: Sixth Line Road & Germorda Drive

9/30/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	1	150	4	2	73
Future Volume (Veh/h)	0	1	150	4	2	73
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.25	0.25	0.91	0.91	0.81	0.81
Hourly flow rate (vph)	0	4	165	4	2	90
Pedestrians	2					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	263	169			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	263	169			171	
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)	728	878			1416	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	4	169	92			
Volume Left	0	0	2			
Volume Right	4	4	0			
cSH	878	1700	1416			
Volume to Capacity	0.00	0.10	0.00			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.1	0.0	0.2			
Lane LOS	A		A			
Approach Delay (s)	9.1	0.0	0.2			
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			18.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 4: Sixth Line Road & Site Access 1

9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	6	12	139	69	10
Future Volume (Veh/h)	5	6	12	139	69	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	7	13	151	75	11
Pedestrians	10			10	10	
Lane Width (m)	3.7			3.7	3.7	
Walking Speed (m/s)	1.1			1.1	1.1	
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	278	100	96			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	278	100	96			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	696	942	1496			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	164	86			
Volume Left	5	13	0			
Volume Right	7	0	11			
cSH	821	1496	1700			
Volume to Capacity	0.01	0.01	0.05			
Queue Length 95th (m)	0.3	0.2	0.0			
Control Delay (s)	9.4	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	0.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	27.5%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
6: Sixth Line Road & Sunny Crest Lane

9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	143	80	0
Future Volume (Veh/h)	0	0	0	143	80	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	0.88	0.88
Hourly flow rate (vph)	0	0	0	159	91	0
Pedestrians	9					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	259	100	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	259	100	100			
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)	728	953	1492			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	159	91			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1492	1700			
Volume to Capacity	0.00	0.00	0.05			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization	10.9%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 8: Sixth Line Road & Rancliffe Road/Leighland Avenue

9/30/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	3	3	12	6	331	1	134	7	212	69	6
Future Volume (vph)	3	3	3	12	6	331	1	134	7	212	69	6
Peak Hour Factor	0.45	0.45	0.45	0.91	0.91	0.91	0.90	0.90	0.90	0.86	0.86	0.86
Hourly flow rate (vph)	7	7	7	13	7	364	1	149	8	247	80	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	21	384	158	334
Volume Left (vph)	7	13	1	247
Volume Right (vph)	7	364	8	7
Hadj (s)	-0.13	-0.55	-0.01	0.16
Departure Headway (s)	5.7	4.7	5.4	5.3
Degree Utilization, x	0.03	0.50	0.24	0.50
Capacity (veh/h)	527	714	606	638
Control Delay (s)	8.9	12.4	10.1	13.5
Approach Delay (s)	8.9	12.4	10.1	13.5
Approach LOS	A	B	B	B

Intersection Summary			
Delay		12.3	
Level of Service		B	
Intersection Capacity Utilization	55.7%		ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 12: Sixth Line Road & Site Access 2

9/30/2016



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	1	3	141	78	2
Future Volume (Veh/h)	1	1	3	141	78	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	3	153	85	2
Pedestrians	10			10	10	
Lane Width (m)	3.7			3.7	3.7	
Walking Speed (m/s)	1.1			1.1	1.1	
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	265	106	97			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	106	97			
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)	713	935	1494			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2	156	87			
Volume Left	1	3	0			
Volume Right	1	0	2			
cSH	809	1494	1700			
Volume to Capacity	0.00	0.00	0.05			
Queue Length 95th (m)	0.1	0.0	0.0			
Control Delay (s)	9.5	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.5	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay	0.2					
Intersection Capacity Utilization	22.7%			ICU Level of Service	A	
Analysis Period (min)	15					