



**TRAFFIC IMPACT STUDY
CREEKSIDE CONDOS
MUNICIPALITY OF CHATHAM-KENT, ONTARIO**

PROJECT NO. 22-031

DATED: AUGUST 23, 2024



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TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Study Purpose and Scope.....	1
1.2	Analysis Methodology	2
2.0	EXISTING CONDITIONS	2
2.1	Existing Site.....	2
2.2	Road Network Characteristics	3
2.3	Key Intersections	3
2.4	Existing Traffic Volumes	4
3.0	FUTURE CONDITIONS.....	4
3.1	Growth Rate.....	4
3.2	Future Background Development.....	4
4.0	DEVELOPMENT TRAFFIC	4
4.1	Development Access	4
4.2	Trip Generation	5
4.3	Trip Distribution and Assignment	5
4.4	Future Condition	5
5.0	INTERSECTION OPERATIONS	6
6.0	CONCLUSION.....	7

TABLES

Table 1: Trip Generation	5
Table 2: 2025 Traffic Condition – Level of Service	6
Table 3: 2035 Traffic Condition – Level of Service	7

EXHIBITS

Exhibit 1: Location Map

APPENDICES

Appendix A: Background Traffic Data and Other Related Information

Appendix B: Background Traffic, Development Traffic and Total Traffic Volumes

Appendix C: Capacity Analysis

Appendix D: Photos

1. INTRODUCTION

Baird AE has been retained to prepare a Traffic Impact Study in support of the residential condominium development in the Municipality of Chatham-Kent. The site is approximately 0.92 ha (2.29 ac) in size and bounded by golf course to the west, Indian Creek Road West to the north, and agricultural land to the south and existing residential development to the east.

The proposed development will consist of 9-storey building with 87 dwelling units parking area, loading dock and landscape. The site will generate an additional 579 daily, 44 morning peak and 54 evening peak traffic. The development is shown in Exhibit 1 below.



Exhibit 1 - Location Map

1.1 Study Purpose and Scope

This study was completed in support of a development application and to assess the traffic impacts/mitigation requirements associated with the proposed development. The development is projected to be built by 2025 and as a result, the following future horizon periods (conditions) were established as part of this study:

- 2025 Future Condition; and
- 2035 Long Term Future Condition.

The intersections that were analyzed were determined through coordination with the Municipality of Chatham-Kent and consist of the following existing intersections:

- Indian Creek Road West and Lacroix Street; and
- Indian Creek Road West and Charing Cross Road/Queen Street.

1.2 Analysis Methodology

A transportation analysis was completed to determine the existing and future operating conditions of the intersection and the individual turning movements. The operational analyses were primarily based on procedures set out in the Highway Capacity Manual (2010) with the assistance of Synchro 10. Several performance measures are used in the analysis of signalized and unsignalized intersections, including:

- Level of Service (LOS) – a measure of the average vehicle delay experienced by the motorists attempting to travel through the intersection. LOS is measured from “A” to “F” with peak hour LOS in the “A” to “D” range being considered acceptable by most and a LOS of F representing unacceptable delays;
- Delay – the additional travel time experienced by a driver compared to free-flow conditions; and
- Queue Lengths – the Synchro Software measures both the 50th percentile and 95th percentile maximum queue lengths. The 50th percentile queue (the median) is the maximum back of queue length during a typical traffic cycle. The 95th percentile queue is the maximum back of queue length during a typical traffic cycle with 95th percentile traffic volumes. The 95th percentile queue measures the queue length that 95 percent of the sample lies below. The 95th percentile critical queue lengths were identified for movements where the queue surpassed the estimated length of the storage bay.

Taken together, these measures provide an indication of delay and the number of vehicles that can be accommodated through an intersection.

2.0 EXISTING CONDITIONS

2.1 Existing Site

The existing development consists of agricultural farm field. The total area of the development is approximately 0.92ha.

2.2 Road Network Characteristics

The existing road network, lane configuration and existing traffic control for the study area are all under the road authority of the Municipality of Chatham-Kent; and are described below:

Charing Crossing Road/Queen Street is a 4-lane arterial roadway with a posted speed limit of 50 km/h. The road runs in a north-south direction and has an urban cross-section. This street provides a connection to Highway 401 on the south of community. There are sidewalks on west of the road right-of-way.

Indian Creek Road is a two-lane collector roadway with a posted speed limit of 50 km/h. The road runs in a east-west direction and has an urban cross-section. There is sidewalk on north boulevard of the road right-of-way.

Lacroix Street is a two-lane collector roadway with a posted speed limit of 50 km/h. The road runs in the north-south direction. There is sidewalk on east boulevard of the road right-of-way within vicinity of the site. The bicycling lanes are provided on both side of roadway.

2.3 Key Intersections

Below provided lane configuration and control type. The following are the key intersections:

Indian Creek Road West and Charing Cross Road/Queen Street

- The intersection is signalized
- Northbound approach has one left lane and one through-right shared lane.
- Southbound approach has one left lane and one through-right shared lane.
- Eastbound approach has one left lane and one through-right shared lane.
- Westbound approach has one left lane and one through-right shared lane.

Indian Creek Road West and Lacroix Street

- Northbound approach has one left-through-right shared lane, and “Stop” Control.
- southbound approach has one left-through-right shared lane, and “Stop” Control.
- Eastbound approach has one left-through-right shared lane.

- Westbound approach has one left-through-right shared lane.

2.4 Existing Traffic Volumes

Traffic counts were taken at the intersections of Indian Creek Road West with Lacroix Street and Queen Street/Charing Crossing Road on June 22, 2023 by sub-consultant Pyramid Traffic Inc. Counts were recorded in 15-minute increments from 8:00am to 5:30pm. The existing traffic volumes and other relevant data are included in Appendix A.

3.0 FUTURE CONDITIONS

3.1 Growth Rate

For this study, a conservative growth rate of 2% per year was assumed to reflect growth in background traffic volumes. The projected traffic volumes are provided in Appendix B.

3.2 Future Background Development

At this time, there are no new developments in the vicinity of the proposed development, however traffic volumes on adjacent roadways are expected to grow. To reflect an increase in traffic volumes over 10 years, a growth rate of 2 percent is applied as discussed in Section 3.1.

4.0 DEVELOPMENT TRAFFIC

This section will describe the development accesses, trip generations, trip distributions and ultimate peak hour traffic.

4.1 Development Access

A new access from Indian Creek Road West is proposed for the development. The draft plan is provided in Appendix A and the new intersections have the following configuration:

Indian Creek Road West and Access Road 1

- Northbound approach has one left-right shared lane.
- Eastbound approach has one through-right shared lane.
- Westbound approach has one left-through shared lane.

4.2 Trip Generation

The Institution of Transportation Engineers (ITE) Trip Generation 9th Edition rates were used to calculate the number of vehicles anticipated to be generated by the proposed development.

The development will consist of 9-Storey Apartment/Condominium with 87 dwelling units. The building footprint area is approximately 1,336.42 m². The ITE Land Use Code 220 – Apartment is best utilized for estimating trips for this development.

Descriptions of land use, ITE codes, unit counts, trip generation rates and trip generations for daily and peak hours are provided in Table 1. Appendix B provides detailed calculations and all relevant charts.

Table 1: Trip Generation

Use	ITE	UNITS	AADT	Trip Generated			
				AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
Proposed Development							
Apartment Building	220	87	579	9	35	35	19
Total			579	9	35	35	19

4.3 Trip Distribution and Assignment

The trip distribution of the proposed development traffic is based on the shortest route to a reach major city i.e., the community of Chatham and City of Windsor. Trip assignment are based on the existing traffic pattern at intersections. The proposed traffic distribution and assignments are shown in Figure 1.2 and Figure 2.2 within Appendix B.

4.4 Future Condition

The proposed development traffic volumes were added to the forecasted (2025 and 2035) background traffic volumes to obtain total traffic volumes at intersections. The projected total future volumes are provided in Figure 1.3 and Figure 2.3 within Appendix B.

5.0 INTERSECTION OPERATIONS

The forecasted 2025 and 2035 traffic volumes for the analyzed intersections are evaluated using the Synchro/Sim traffic software. The software automates the procedures contained in the Highway Capacity Manual 2010.

The future peak hours analysis results are included in Table 2 and Table 3, and corresponding worksheets are included in Appendix C.

Table 2: 2025 Traffic Condition – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
Charing Cross Rd and Indian Creek Rd W (Signalized)						
EB L	B	0.26	15.7	B	0.29	15.5
EB TR	B	0.46	11.1	B	0.69	17.5
WB L	B	0.05	12.7	B	0.16	13.3
WB TR	B	0.41	11.4	B	0.50	11.6
NB LTR	A	0.45	8.6	B	0.48	10.3
SB LTR	A	0.25	6.1	A	0.48	9.5
Overall LOS	A			B		
Indian Creek Rd W and Lacroix St (Unsignalized)						
EB LTR	A	0.05	2.9	A	0.04	2.0
WB LTR	A	0.01	0.3	A	0.01	0.3
NB LTR	B	0.01	11.6	B	0.03	12.9
SB LTR	B	0.25	14.0	C	0.52	19.7
Overall LOS	A			B		
Indian Creek Rd W and Access Rd (Unsignalized)						
EB LTR	A	0.12	0.0	A	0.21	0.0
WB LTR	A	0.01	0.2	A	0.02	0.9
NB LTR	B	0.05	10.1	B	0.03	11.2
Overall LOS	A			A		

Note: NB – Northbound SB – Southbound EB – Eastbound WB – Westbound; LTR – Left/Through/Right turn

Table 3: 2035 Traffic Condition – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
Charing Cross Rd and Indian Creek Rd W (Signalized)						
EB L	B	0.31	16.8	B	0.24	4.3
EB TR	B	0.52	11.9	C	0.76	21.6
WB L	B	0.06	12.8	B	0.16	12.4
WB TR	B	0.48	12.3	B	0.50	10.6
NB LTR	A	0.52	9.5	B	0.62	14.6
SB LTR	A	0.29	6.5	B	0.61	13.1
Overall LOS	A			B		
Indian Creek Rd W and Lacroix St (Unsignalized)						
EB LTR	A	0.06	3.1	A	0.04	2.1
WB LTR	A	0.01	0.4	A	0.01	0.3
NB LTR	B	0.02	12.5	B	0.04	14.2
SB LTR	C	0.35	16.8	D	0.71	31.0
Overall LOS	B			C		
Indian Creek Rd W and Access Rd (Unsignalized)						
EB LTR	A	0.14	0.0	A	0.25	0.0
WB LTR	A	0.01	0.2	A	0.03	0.9
NB LTR	B	0.05	10.5	B	0.04	12.0
Overall LOS	A			A		

Under 2025 and 2035 future conditions, the intersections are projected to operate at an overall acceptable LOS during peak hours. Based on the results, no mitigation measures are required.

6.0 CONCLUSION

Based on our review, we provide the following preliminary comments for the development:

- The proposed development will consist of 9-storey building with 87 dwelling units parking area, loading dock and landscape. The site will generate an additional 579 daily, 44 morning peak and 54 evening peak traffic. The overall area of development is approximately 0.69ha.
- The background growth rate of 3 percent was considered in the modelling as it represents the worst-case scenario.

- The proposed development is expected to generate 44 morning trips and 54 evening trips. It is anticipated that will be completed by 2025.
- The access to the development will be provided from Indian Creek Road West. The development access will have “Stop” control.
- Under future conditions, the intersections Indian Creek Road W with Lacroix Street and Charing Cross Road/Queen Street will operate at an overall acceptable level of service during 2025 and 2035 morning and evening peak hours.
- An adequate sight line distance is provided for a safe departure from the development.

In conclusion, the proposed development traffic will have no potential impact on existing intersections. Hence, we believe this assumption is satisfactory to the Municipality. We anticipate no upgrades or changes to the existing intersection’s infrastructure will be required.

All of which is respectfully submitted.

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Appendix A

BACKGROUND TRAFFIC DATA AND OTHER RELATED INFORMATION



PASSENGER CAR SIGHT DISTANCE (TAC)

	TIME GAP (t _g)(s) AT DESIGN SPEED OF MAJOR ROAD	ISD (INTERSECTION SIGHT DISTANCE)		DEVELOPMENT COMPLIANCE
		REQUIRED	PROVIDED	
LEFT TURN FROM THE STOP	7.500	125	≥ 125	COMPLIES
RIGHT TURN FROM THE STOP	6.500	108	≥ 108	COMPLIES

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REVISIONS

Date	Revision
JULY 11, 2024	ZBA SUBMISSION

DATE: OCT 19, 2023
 SCALE: 1:500
 DRAWN BY: M.R. [PRELIMINARY]
 CHECKED BY: B.P. [CONSTRUCTION]
 APPROVED BY: [RECORD]

PROJECT TITLE
CREEKSIDE CONDOS

LOT 31 & BLOCK H, REGISTER PLAN 455, MUNICIPALITY OF CHATHAM-KENT

TRAFFIC TITLE
TRAFFIC IMPACT ANALYSIS

JOB NUMBER 22-031
 SHEET NUMBER 22-031

NOTES:
 1. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION.
 2. THE DRAWING IS THE PROPERTY OF BAIRD | AE ENGINEERS PLANNERS ARCHITECTS.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEVELOPMENT AND CONDITIONS ON SITE AND SHALL VERIFY BASIS OF ANY VARIATION FROM THE SUPPLIED INFORMATION.
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 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AUTHORITIES.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AUTHORITIES.

Indian Creek Rd @ Charing Cross Rd

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Chatham-Kent
Site #: 000000002
Intersection: Charing Cross Rd & Indian Creek Rd
TFR File #: 2
Count date: 22-Jun-2023

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Charing Cross Rd runs N/S

North Leg Total: 637

North Entering: 264

North Peds: 8

Peds Cross: \times

Heavys	5	10	2	17
Trucks	1	5	2	8
Cars	45	165	29	239
Totals	51	180	33	



Heavys 17

Trucks 5

Cars 351

Totals 373

East Leg Total: 231

East Entering: 133

East Peds: 3

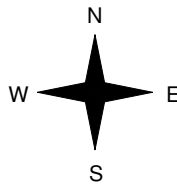
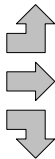
Peds Cross: \times

Heavys	Trucks	Cars	Totals
12	6	226	244



Indian Creek Rd W

Heavys	Trucks	Cars	Totals
0	0	44	44
4	1	45	50
3	1	74	78
7	2	163	



Charing Cross Rd

Cars	Trucks	Heavys	Totals
63	0	2	65
50	3	5	58
9	0	1	10
122	3	8	



Indian Creek Rd E



Cars	Trucks	Heavys	Totals
87	3	8	98

Peds Cross: \times

West Peds: 9

West Entering: 172

West Leg Total: 416

Cars	248	Cars	131	244	13	388
Trucks	6	Trucks	2	5	0	7
Heavys	14	Heavys	2	15	2	19
Totals	268	Totals	135	264	15	



Peds Cross: \times

South Peds: 1

South Entering: 414

South Leg Total: 682

Comments

Indian Creek Rd @ Charing Cross Rd

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:30:00

To: 13:30:00

Municipality: Chatham-Kent
Site #: 000000002
Intersection: Charing Cross Rd & Indian Creek Rd
TFR File #: 2
Count date: 22-Jun-2023

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Charing Cross Rd runs N/S

North Leg Total: 705
 North Entering: 353
 North Peds: 9
 Peds Cross: \times

Heavys	1	3	0	4
Trucks	0	4	2	6
Cars	48	240	55	343
Totals	49	247	57	



Heavys	2
Trucks	10
Cars	340
Totals	352

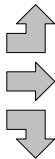
East Leg Total: 254
 East Entering: 131
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
4	0	167	171

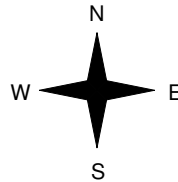


Indian Creek Rd W

Heavys	Trucks	Cars	Totals
0	0	46	46
0	0	43	43
1	1	97	99
1	1	186	



Charing Cross Rd



Cars	Trucks	Heavys	Totals
72	1	0	73
43	0	2	45
13	0	0	13
128	1	2	

Indian Creek Rd E

Cars	Trucks	Heavys	Totals
121	2	0	123

Peds Cross: \times
 West Peds: 6
 West Entering: 188
 West Leg Total: 359

Cars	350	Cars	76	222	23	321
Trucks	5	Trucks	0	9	0	9
Heavys	4	Heavys	1	2	0	3
Totals	359	Totals	77	233	23	



Peds Cross: \times
 South Peds: 3
 South Entering: 333
 South Leg Total: 692

Comments

Indian Creek Rd @ Charing Cross Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:15:00

To: 17:15:00

Municipality: Chatham-Kent
Site #: 000000002
Intersection: Charing Cross Rd & Indian Creek Rd
TFR File #: 2
Count date: 22-Jun-2023

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Charing Cross Rd runs N/S

North Leg Total: 904
 North Entering: 476
 North Peds: 5
 Peds Cross: \times

Heavys	0	2	1	3
Trucks	0	3	1	4
Cars	72	328	69	469
Totals	72	333	71	



Heavys 3
 Trucks 6
 Cars 419
 Totals 428

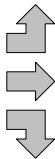
East Leg Total: 383
 East Entering: 208
 East Peds: 0
 Peds Cross: \times

Heavys	4	Trucks	3	Cars	256	Totals	263
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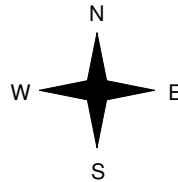


Indian Creek Rd W

Heavys	0	Trucks	0	Cars	57	Totals	57
	1		6		75		82
	1		2		166		169
	2		8		298		



Charing Cross Rd



Queen St



Cars	86	Trucks	1	Heavys	2	Totals	89
	87		1		1		89
	29		1		0		30
	202		3		3		

Indian Creek Rd E



Cars	163	Trucks	9	Heavys	3	Totals	175
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Peds Cross: \times
 West Peds: 1
 West Entering: 308
 West Leg Total: 571

Cars	523	Cars	97	276	19	392
Trucks	6	Trucks	2	5	2	9
Heavys	3	Heavys	3	1	1	5
Totals	532	Totals	102	282	22	



Peds Cross: \times
 South Peds: 0
 South Entering: 406
 South Leg Total: 938

Comments

Indian Creek Rd @ Charing Cross Rd

Total Count Diagram

Municipality: Chatham-Kent
Site #: 000000002
Intersection: Charing Cross Rd & Indian Creek Rd
TFR File #: 2
Count date: 22-Jun-2023

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Charing Cross Rd runs N/S

North Leg Total: 5755
 North Entering: 2735
 North Peds: 47
 Peds Cross: \times

Heavys	11	39	5	55
Trucks	5	32	10	47
Cars	392	1810	431	2633
Totals	408	1881	446	

Heavys	47
Trucks	59
Cars	2914
Totals	3020

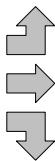
East Leg Total: 2197
 East Entering: 1194
 East Peds: 13
 Peds Cross: \times

Heavys	46
Trucks	28
Cars	1565
Totals	1639

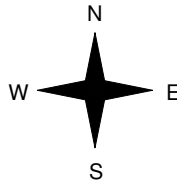


Indian Creek Rd W

Heavys	6
Trucks	2
Cars	426
Totals	434
Heavys	9
Trucks	13
Cars	385
Totals	407
Heavys	9
Trucks	10
Cars	874
Totals	893
Heavys	24
Trucks	25
Cars	1685



Queen St



Cars	548
Trucks	14
Heavys	6
Totals	568
Cars	471
Trucks	11
Heavys	17
Totals	499
Cars	124
Trucks	1
Heavys	2
Totals	127
Cars	1143
Trucks	26
Heavys	25

Indian Creek Rd E



Cars	954
Trucks	31
Heavys	18
Totals	1003

Peds Cross: \times
 West Peds: 39
 West Entering: 1734
 West Leg Total: 3373

Cars	2808
Trucks	43
Heavys	50
Totals	2901
Cars	702
Trucks	12
Heavys	18
Totals	732
Cars	1940
Trucks	43
Heavys	35
Totals	2018
Cars	138
Trucks	8
Heavys	4
Totals	150
Cars	2780
Trucks	63
Heavys	57



Charing Cross Rd

Peds Cross: \times
 South Peds: 14
 South Entering: 2900
 South Leg Total: 5801

Comments

Indian Creek Rd @ Lacroix St

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Chatham-Kent
Site #: 000000001
Intersection: Indian Creek Rd & Lacroix St
TFR File #: 1
Count date: 22-Jun-2023

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Indian Creek Rd runs W/E

North Leg Total: 297

North Entering: 120

North Peds: 8

Peds Cross: \times

Heavys	2	0	1	3
Trucks	1	0	2	3
Cars	42	16	56	114
Totals	45	16	59	



Heavys 12

Trucks 3

Cars 162

Totals 177

East Leg Total: 438

East Entering: 266

East Peds: 0

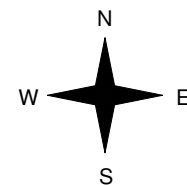
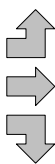
Peds Cross: \times

Heavys	8	Trucks	5	Cars	173	Totals	186
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Indian Creek Rd W

Heavys	7	Trucks	0	Cars	50	Totals	57
	5		0		104		109
	0		0		7		7
Totals	12	0	0	161			



Driveway

Cars	109	Trucks	3	Heavys	5	Totals	117
	130		4		6		140
	9		0		0		9
Totals	248	7	11				

Indian Creek Rd W



Cars	164	Trucks	2	Heavys	6	Totals	172
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Peds Cross: \times

West Peds: 1

West Entering: 173

West Leg Total: 359

Cars	32
Trucks	0
Heavys	0
Totals	32



Cars	1	3	4	8
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	1	3	4	

Peds Cross: \times

South Peds: 0

South Entering: 8

South Leg Total: 40

Comments

Indian Creek Rd @ Lacroix St

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Municipality: Chatham-Kent
Site #: 000000001
Intersection: Indian Creek Rd & Lacroix St
TFR File #: 1
Count date: 22-Jun-2023

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Indian Creek Rd runs W/E

North Leg Total: 271
 North Entering: 134
 North Peds: 5
 Peds Cross: \times

Heavys	6	0	0	6
Trucks	1	0	3	4
Cars	15	10	99	124
Totals	22	10	102	



Heavys	1
Trucks	3
Cars	133
Totals	137

East Leg Total: 370
 East Entering: 165
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
11	2	90	103

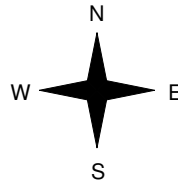


Lacroix St

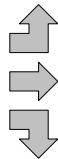
Cars	Trucks	Heavys	Totals
83	1	0	84
72	1	5	78
3	0	0	3
158	2	5	



Indian Creek Rd W



Heavys	Trucks	Cars	Totals
1	2	34	37
1	2	97	100
0	0	6	6
2	4	137	



Indian Creek Rd W



Peds Cross: \times
 West Peds: 1
 West Entering: 143
 West Leg Total: 246

Cars	19	Cars	3	16	3	22
Trucks	0	Trucks	0	0	0	0
Heavys	0	Heavys	0	0	0	0
Totals	19	Totals	3	16	3	



Driveway



Peds Cross: \times
 South Peds: 3
 South Entering: 22
 South Leg Total: 41

Comments

Indian Creek Rd @ Lacroix St

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:15:00

To: 17:15:00

Municipality: Chatham-Kent
Site #: 000000001
Intersection: Indian Creek Rd & Lacroix St
TFR File #: 1
Count date: 22-Jun-2023

Weather conditions:
Clear/Dry
Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Indian Creek Rd runs W/E

North Leg Total: 359
 North Entering: 224
 North Peds: 6
 Peds Cross: \times

Heavys	1	0	0	1
Trucks	1	0	6	7
Cars	43	14	159	216
Totals	45	14	165	



Heavys	5
Trucks	4
Cars	126
Totals	135

East Leg Total: 547
 East Entering: 244
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	2	194	197

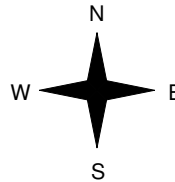


Lacroix St

Cars	Trucks	Heavys	Totals
79	4	4	87
148	1	0	149
8	0	0	8
235	5	4	



Indian Creek Rd W



Heavys	Trucks	Cars	Totals
1	0	40	41
0	5	130	135
0	0	10	10
1	5	180	



Indian Creek Rd W



Peds Cross: \times
 West Peds: 0
 West Entering: 186
 West Leg Total: 383

Cars	32
Trucks	0
Heavys	0
Totals	32



Driveway

Cars	3	7	3	13
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	3	7	3	



Peds Cross: \times
 South Peds: 0
 South Entering: 13
 South Leg Total: 45

Comments

Indian Creek Rd @ Lacroix St

Total Count Diagram

Municipality: Chatham-Kent
Site #: 000000001
Intersection: Indian Creek Rd & Lacroix St
TFR File #: 1
Count date: 22-Jun-2023

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Cam

**** Non-Signalized Intersection ****

Major Road: Indian Creek Rd runs W/E

North Leg Total: 2334
 North Entering: 1275
 North Peds: 46
 Peds Cross: \bowtie

Heavys	20	0	4	24
Trucks	8	0	18	26
Cars	263	104	858	1225
Totals	291	104	880	



Heavys	59
Trucks	24
Cars	976
Totals	1059

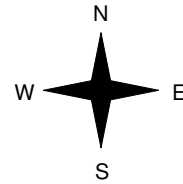
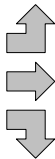
East Leg Total: 3388
 East Entering: 1650
 East Peds: 0
 Peds Cross: \bowtie

Heavys	41	Trucks	22	Cars	1121	Totals	1184
--------	----	--------	----	------	------	--------	------



Indian Creek Rd W

Heavys	34	Trucks	5	Cars	255	Totals	294
	17		10		791		818
	0		0		47		47
Totals	51	15	1093				



Driveway



Cars	661	Trucks	19	Heavys	25	Totals	705
	837		14		21		872
	73		0		0		73
Totals	1571	33	46				



Indian Creek Rd W



Cars	1689	Trucks	28	Heavys	21	Totals	1738
------	------	--------	----	--------	----	--------	------

Peds Cross: \bowtie
 West Peds: 4
 West Entering: 1159
 West Leg Total: 2343

Cars	224	Cars	21	60	40	121
Trucks	0	Trucks	0	0	0	0
Heavys	0	Heavys	0	0	0	0
Totals	224	Totals	21	60	40	



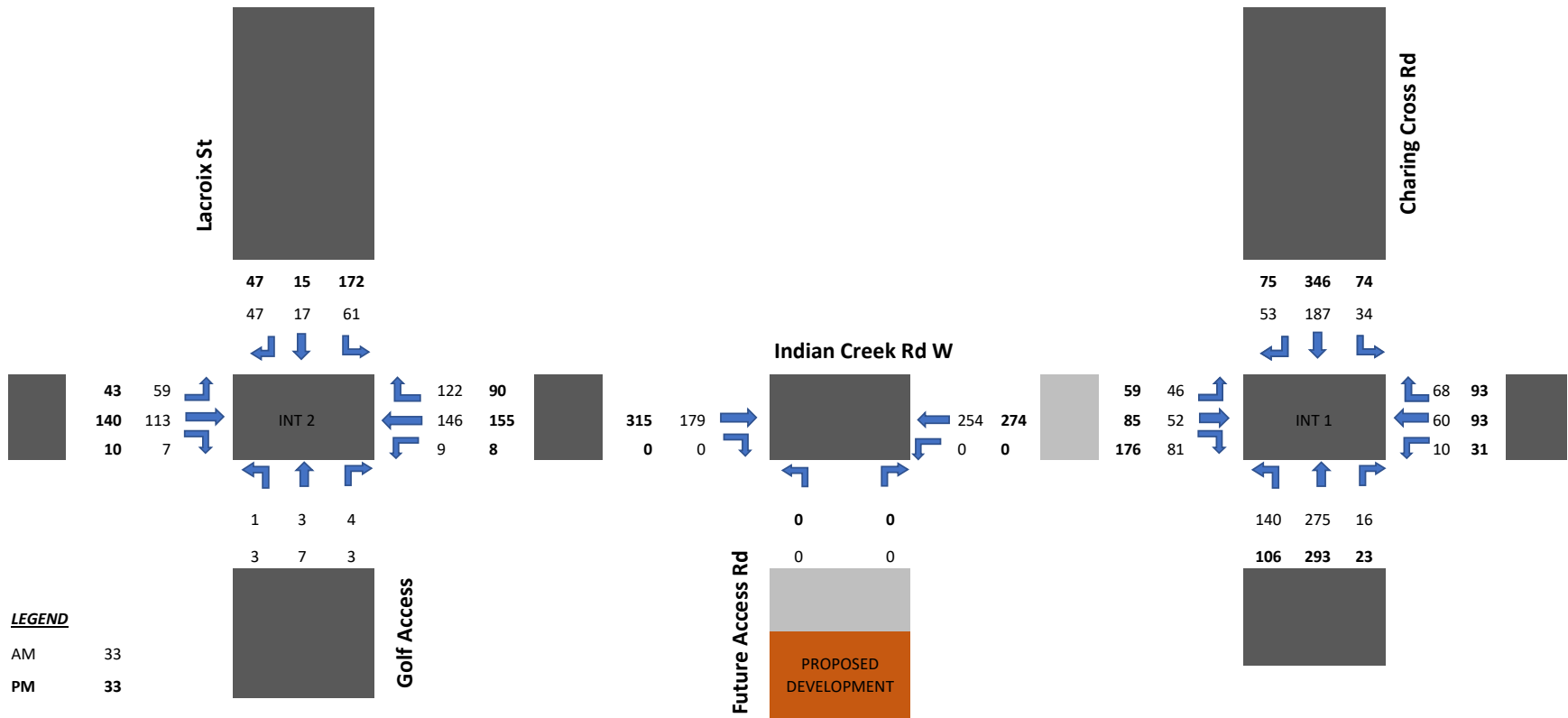
Peds Cross: \bowtie
 South Peds: 4
 South Entering: 121
 South Leg Total: 345

Comments

Appendix B

FUTURE BACKGROUND TRAFFIC, DEVELOPMENT TRAFFIC AND TOTAL TRAFFIC VOLUMES

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2025 BACKGROUND TRAFFIC

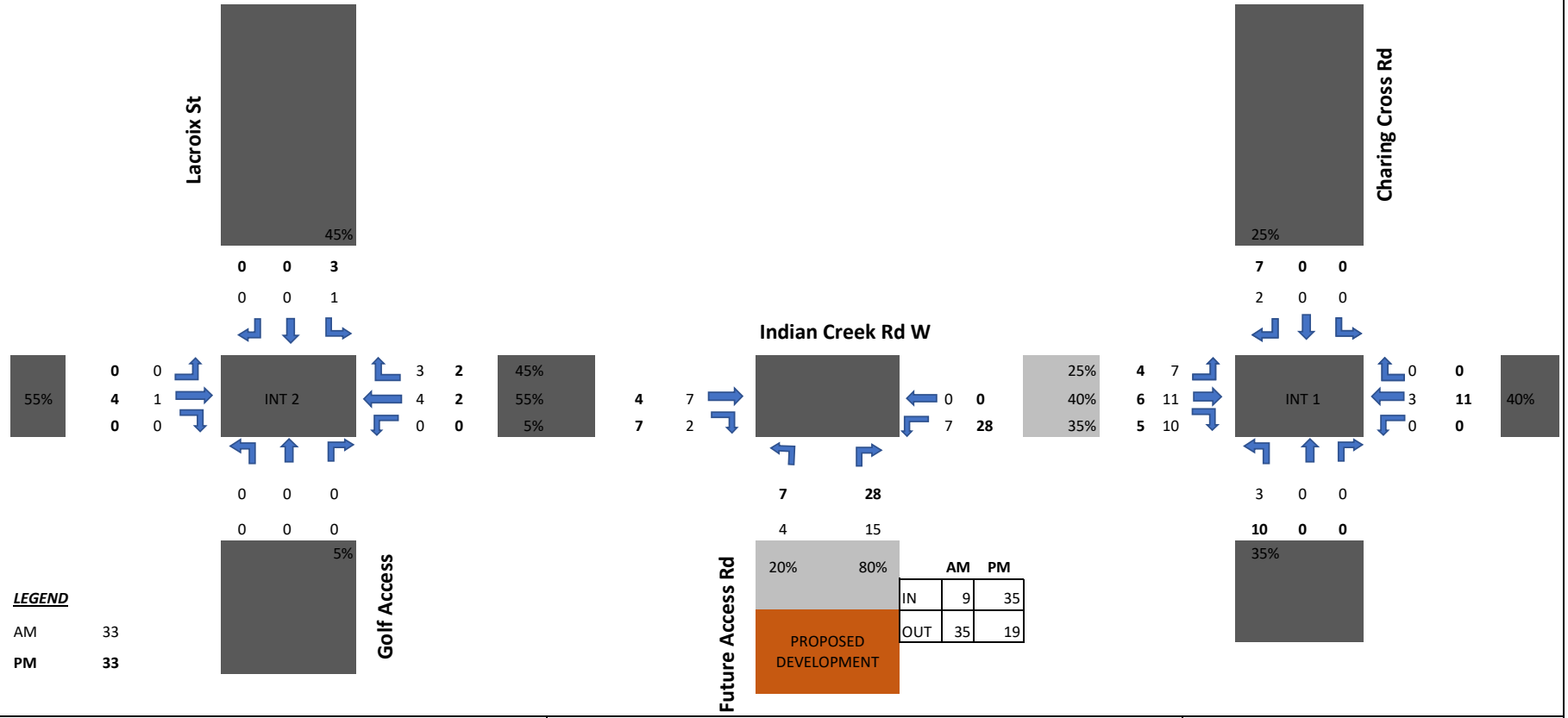


DATE: 24-Jul-24

PROJECT NO: 22-031

FIGURE NO: Figure 1.1

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2025 DEVELOPMENT TRAFFIC

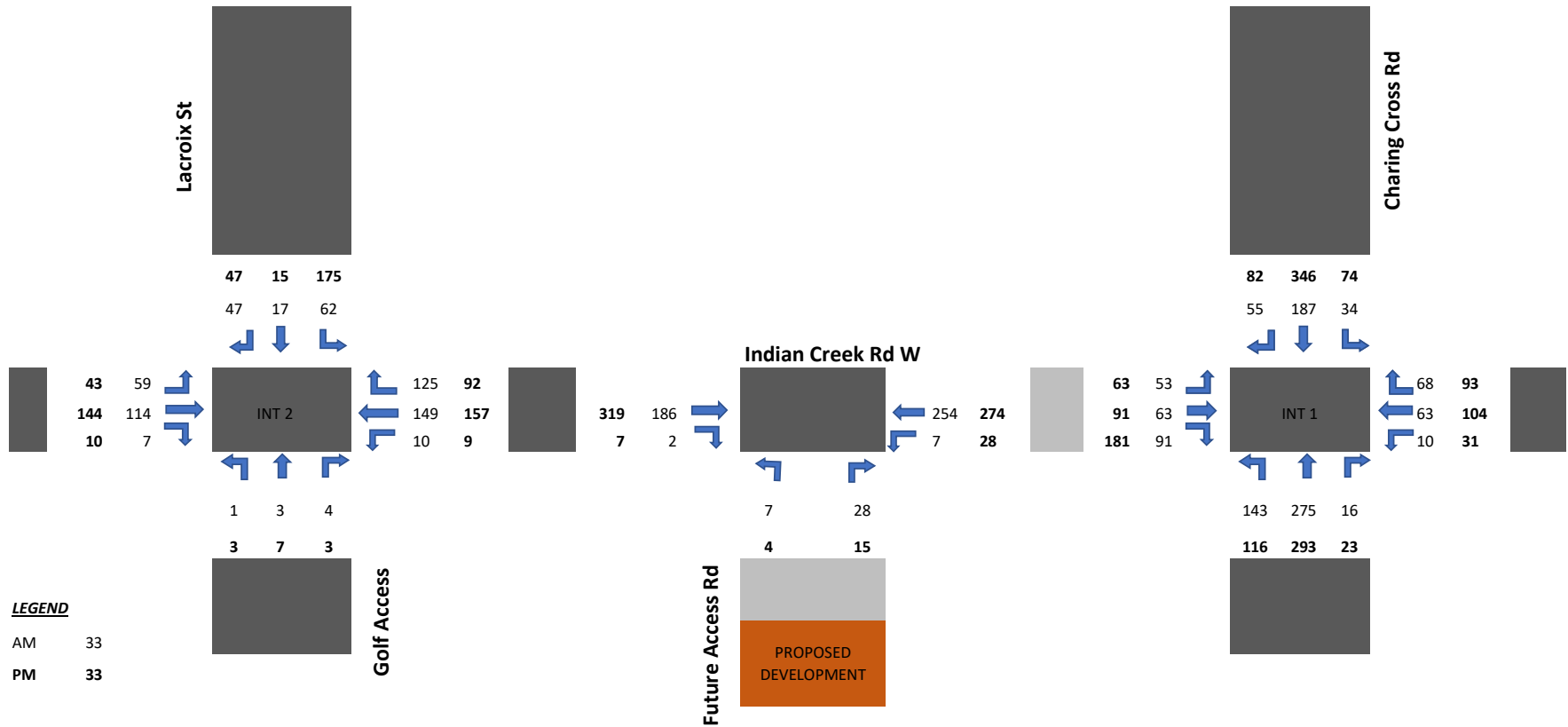


DATE: 24-Jul-24

PROJECT NO: 22-031

FIGURE NO: Figure 1.2

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2025 BACKGROUND TRAFFIC

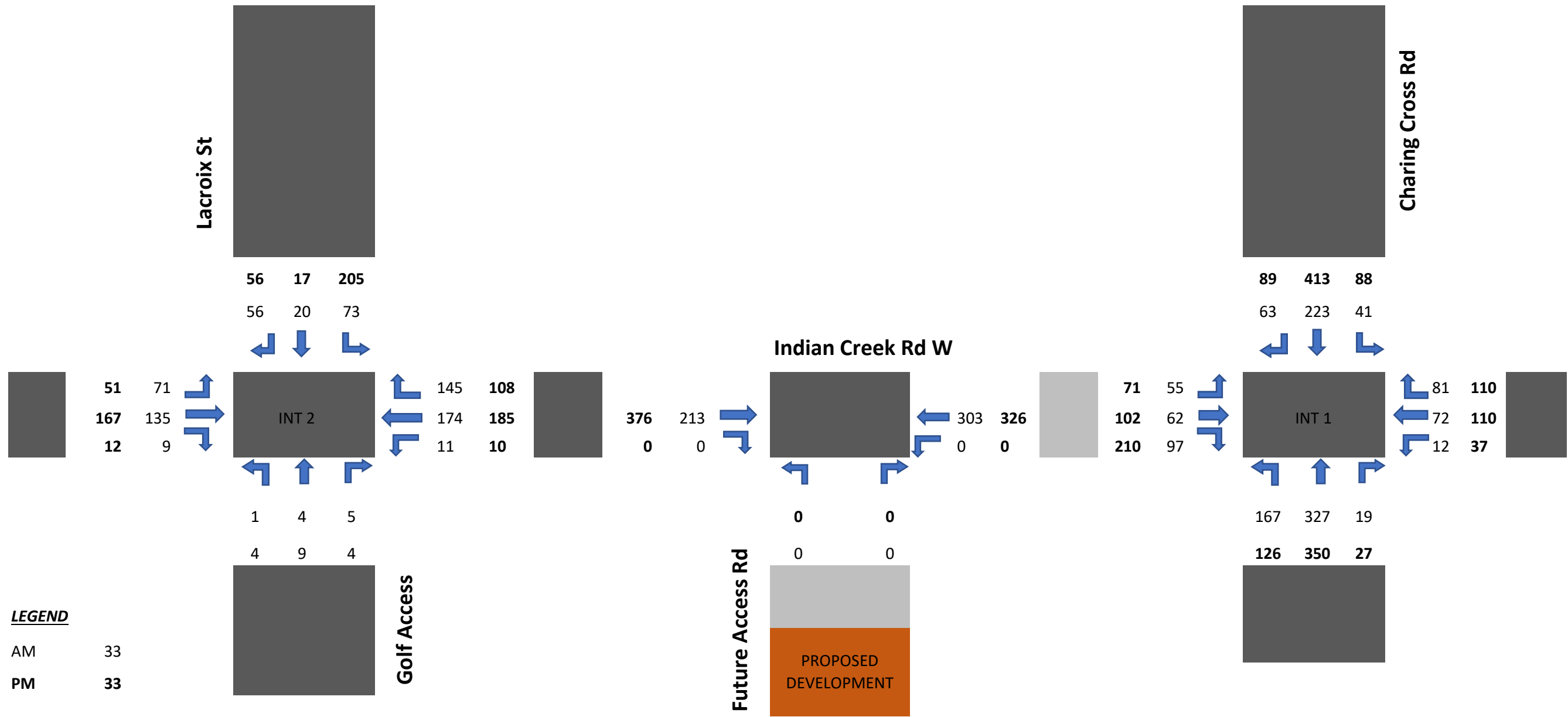


DATE: 24-Jul-24

PROJECT NO: 22-031

FIGURE NO: Figure 1.3

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2035 BACKGROUND TRAFFIC

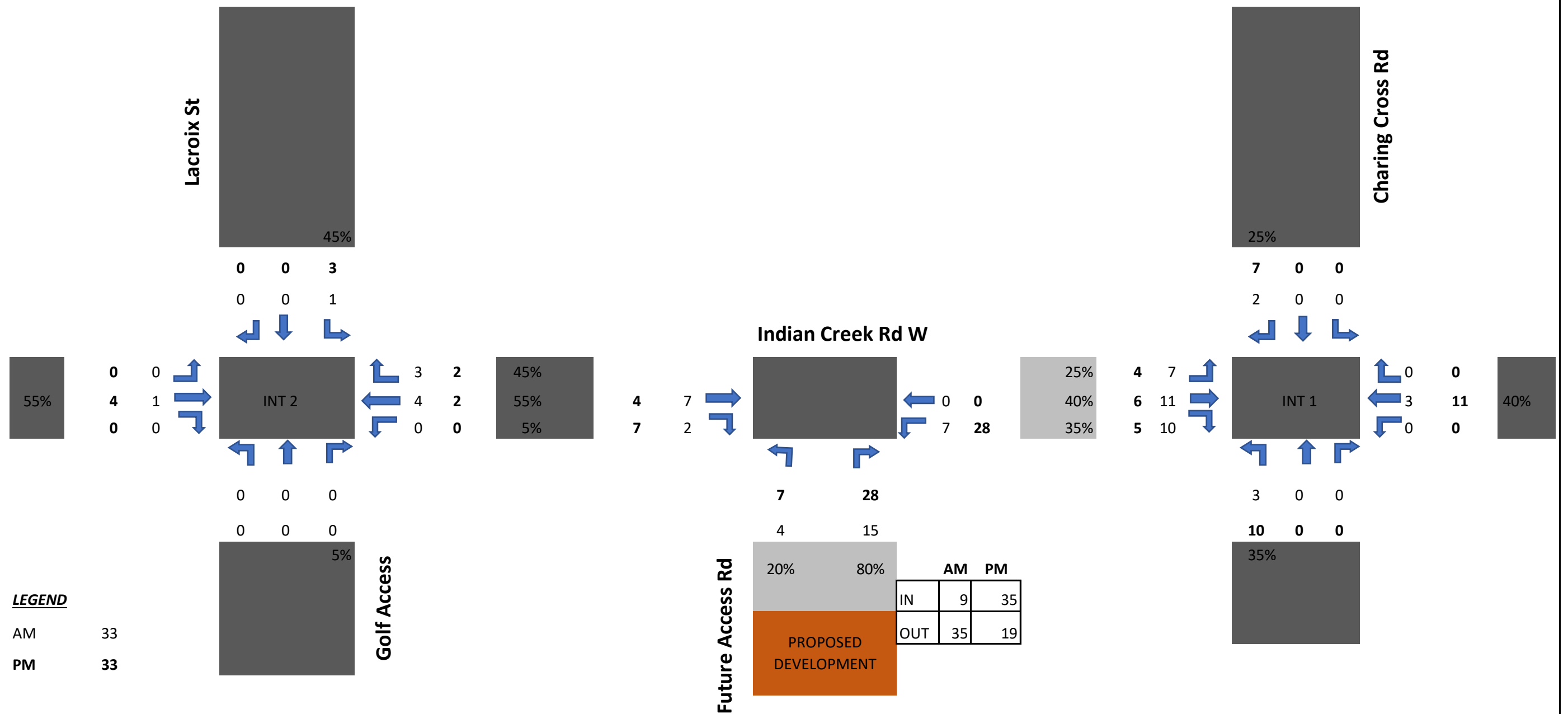


DATE: 24-Jul-24

PROJECT NO: 22-031

FIGURE NO: Figure 2.1

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2035 DEVELOPMENT TRAFFIC

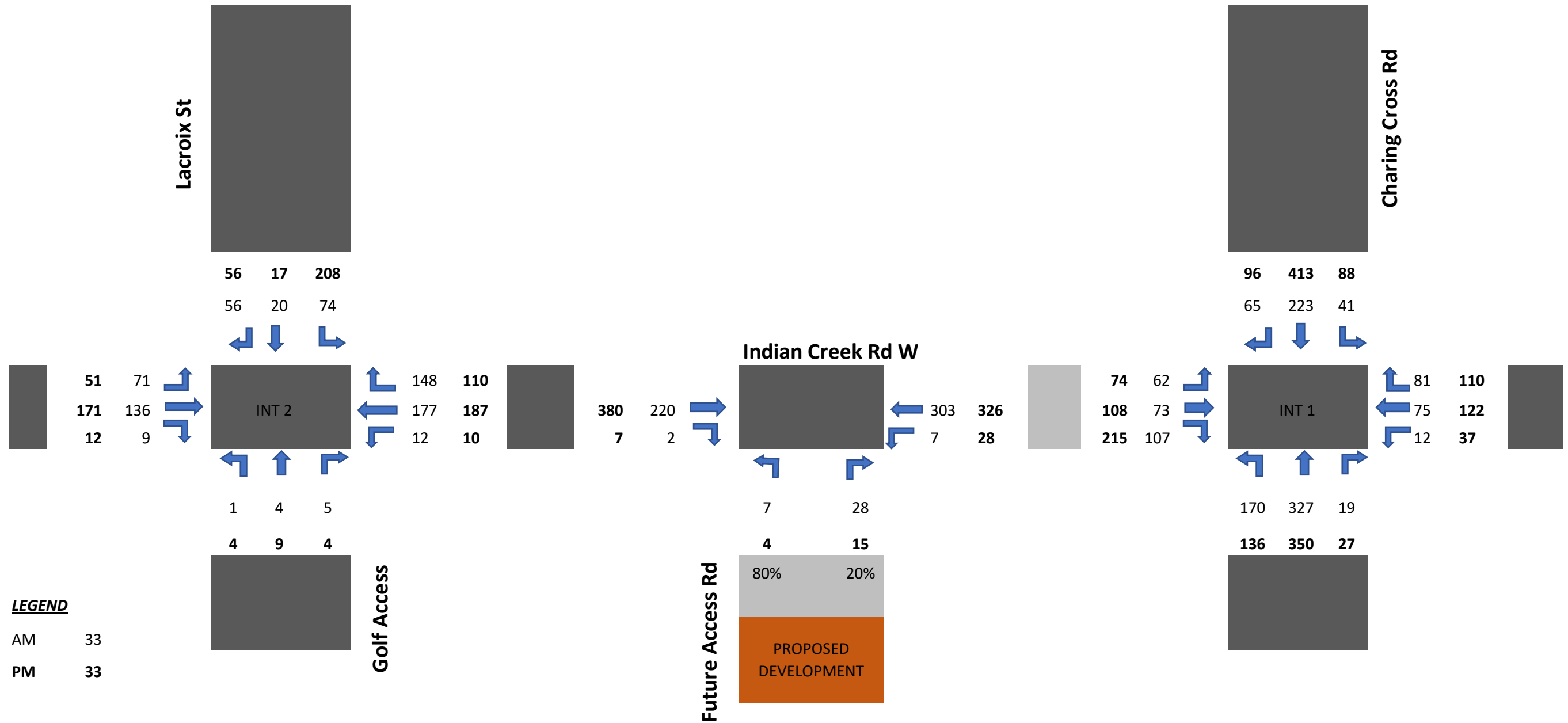


DATE: 24-Jul-24

PROJECT NO: 22-031

FIGURE NO: Figure 2.2

Indian Creek Road Condos



PROJECT NAME Indian Creek Condos, Chatham

SHEET TITLE 2035 BACKGROUND TRAFFIC



DATE: 24-Jul-24

PROJECT NO: 22-031

















FIGURE NO: Figure 2.3

Appendix C

CAPACITY ANALYSIS

HCM Unsignalized Intersection Capacity Analysis
 11: Indian Creek Rd W & Lacroix St

2025 Total AM Traffic Volumes
 07-24-2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	114	7	10	149	125	1	3	4	62	17	47
Future Volume (Veh/h)	59	114	7	10	149	125	1	3	4	62	17	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	124	8	11	162	136	1	3	4	67	18	51
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	298			132			568	576	128	514	512	230
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298			132			568	576	128	514	512	230
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			100	99	100	85	96	94
cM capacity (veh/h)	1263			1453			376	403	922	446	438	809
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	196	309	8	136								
Volume Left	64	11	1	67								
Volume Right	8	136	4	51								
cSH	1263	1453	554	535								
Volume to Capacity	0.05	0.01	0.01	0.25								
Queue Length 95th (m)	1.3	0.2	0.4	8.0								
Control Delay (s)	2.9	0.3	11.6	14.0								
Lane LOS	A	A	B	B								
Approach Delay (s)	2.9	0.3	11.6	14.0								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			53.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Access Road & Indian Creek Rd W

2025 Total AM Traffic Volumes
 07-24-2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	186	2	7	254	7	28
Future Volume (Veh/h)	186	2	7	254	7	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	202	2	8	276	8	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)	371					
pX, platoon unblocked						
vC, conflicting volume			204		495	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			204		495	203
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	96
cM capacity (veh/h)			1368		531	838
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	204	284	38			
Volume Left	0	8	8			
Volume Right	2	0	30			
cSH	1700	1368	747			
Volume to Capacity	0.12	0.01	0.05			
Queue Length 95th (m)	0.0	0.1	1.3			
Control Delay (s)	0.0	0.3	10.1			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.3	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			29.0%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2025 Total AM Traffic Volumes
 07-24-2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	63	91	10	63	68	143	275	16	34	187	55
Future Volume (vph)	53	63	91	10	63	68	143	275	16	34	187	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	60.0		40.0	22.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	15.0			15.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.922			0.995			0.970	
Flt Protected	0.950			0.950				0.984			0.994	
Satd. Flow (prot)	1789	1716	0	1789	1737	0	0	3298	0	0	3361	0
Flt Permitted	0.741			0.741				0.756			0.845	
Satd. Flow (perm)	1396	1716	0	1396	1737	0	0	2534	0	0	2857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		99			74			5			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.6			285.0			276.2			332.7	
Travel Time (s)		26.7			20.5			19.9			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	12%	2%	2%	6%	2%
Adj. Flow (vph)	58	68	99	11	68	74	155	299	17	37	203	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	167	0	11	142	0	0	471	0	0	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2025 Total AM Traffic Volumes
 07-24-2024

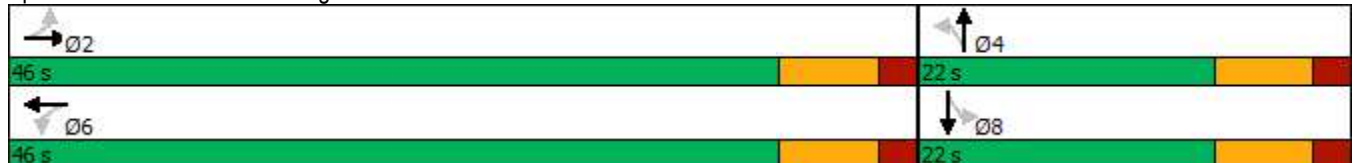


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (%)	67.6%	67.6%		67.6%	67.6%		32.4%	32.4%		32.4%	32.4%	
Maximum Green (s)	39.0	39.0		39.0	39.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
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		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	0.2	0.2		0.2	0.2		5.0	5.0		5.0	5.0	
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0		15.0	15.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	5.4	5.4		5.4	5.4		13.6	13.6		13.6	13.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.41	0.41		0.41	0.41	
v/c Ratio	0.26	0.46		0.05	0.41		0.45	0.45		0.25	0.25	
Control Delay	15.7	11.1		12.7	11.4		8.6	8.6		6.1	6.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.7	11.1		12.7	11.4		8.6	8.6		6.1	6.1	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		12.2			11.4		8.6	8.6		6.1	6.1	
Approach LOS		B			B		A	A		A	A	

Intersection Summary

















Area Type: Other
 Cycle Length: 68
 Actuated Cycle Length: 33
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 56.6%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 10: Charing Cross Rd /Queen St & Indian Creek Rd W



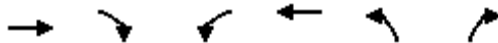
HCM Unsignalized Intersection Capacity Analysis
 11: Indian Creek Rd W & Lacroix St

2025 Total PM Traffic Volumes
 07-24-2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	144	10	9	157	92	3	7	3	175	15	47
Future Volume (Veh/h)	43	144	10	9	157	92	3	7	3	175	15	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	157	11	10	171	100	3	8	3	190	16	51
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	271			168			556	548	162	504	503	221
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	271			168			556	548	162	504	503	221
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			99	98	100	58	96	94
cM capacity (veh/h)	1292			1410			389	425	882	454	450	819
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	215	281	14	257								
Volume Left	47	10	3	190								
Volume Right	11	100	3	51								
cSH	1292	1410	468	498								
Volume to Capacity	0.04	0.01	0.03	0.52								
Queue Length 95th (m)	0.9	0.2	0.7	23.4								
Control Delay (s)	2.0	0.3	12.9	19.7								
Lane LOS	A	A	B	C								
Approach Delay (s)	2.0	0.3	12.9	19.7								
Approach LOS			B	C								
Intersection Summary												
Average Delay			7.5									
Intersection Capacity Utilization			59.2%	ICU Level of Service		B						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Access Road & Indian Creek Rd W

2025 Total PM Traffic Volumes
 07-24-2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Traffic Volume (veh/h)	319	7	28	274	4	15
Future Volume (Veh/h)	319	7	28	274	4	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	347	8	30	298	4	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	371					
pX, platoon unblocked						
vC, conflicting volume			355		709	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			355		709	351
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	98
cM capacity (veh/h)			1204		391	692
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	355	328	20			
Volume Left	0	30	4			
Volume Right	8	0	16			
cSH	1700	1204	600			
Volume to Capacity	0.21	0.02	0.03			
Queue Length 95th (m)	0.0	0.6	0.8			
Control Delay (s)	0.0	1.0	11.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.0	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			46.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2025 Total PM Traffic Volumes
 07-24-2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	91	181	31	104	93	116	293	23	74	346	82
Future Volume (vph)	63	91	181	31	104	93	116	293	23	74	346	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	60.0		40.0	22.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	15.0			15.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.900			0.929			0.992			0.976	
Flt Protected	0.950			0.950				0.987			0.993	
Satd. Flow (prot)	1789	1695	0	1789	1750	0	0	3285	0	0	3377	0
Flt Permitted	0.624			0.579				0.708			0.801	
Satd. Flow (perm)	1175	1695	0	1091	1750	0	0	2357	0	0	2724	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		114			101			8			31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.6			335.9			276.2			332.7	
Travel Time (s)		26.7			24.2			19.9			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	12%	2%	2%	6%	2%
Adj. Flow (vph)	68	99	197	34	113	101	126	318	25	80	376	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	296	0	34	214	0	0	469	0	0	545	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2025 Total PM Traffic Volumes
 07-24-2024

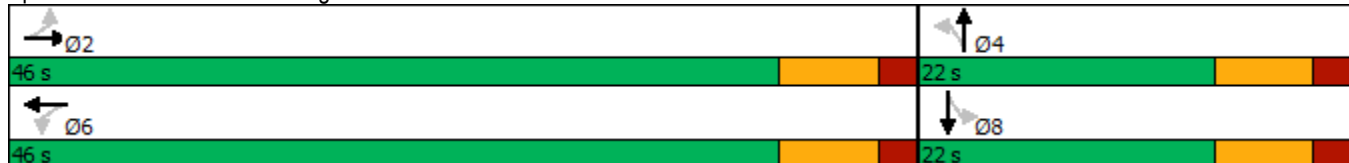


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (%)	67.6%	67.6%		67.6%	67.6%		32.4%	32.4%		32.4%	32.4%	
Maximum Green (s)	39.0	39.0		39.0	39.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
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		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	0.2	0.2		0.2	0.2		5.0	5.0		5.0	5.0	
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0		15.0	15.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	7.2	7.2		7.2	7.2		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.42	0.42		0.42	0.42	
v/c Ratio	0.29	0.69		0.16	0.50		0.48	0.48		0.48	0.48	
Control Delay	15.5	17.5		13.3	11.6		10.3	10.3		9.5	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.5	17.5		13.3	11.6		10.3	10.3		9.5	9.5	
LOS	B	B		B	B		B	B		A	A	
Approach Delay		17.1			11.8		10.3	10.3		9.5	9.5	
Approach LOS		B			B		B	B		A	A	

Intersection Summary

















Area Type: Other
 Cycle Length: 68
 Actuated Cycle Length: 36.3
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 11.8
 Intersection Capacity Utilization 69.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 10: Charing Cross Rd /Queen St & Indian Creek Rd W



HCM Unsignalized Intersection Capacity Analysis
 11: Indian Creek Rd W & Lacroix St

2035 Total AM Traffic Volumes
 07-24-2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	136	9	12	177	148	1	4	5	74	20	56
Future Volume (Veh/h)	71	136	9	12	177	148	1	4	5	74	20	56
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	148	10	13	192	161	1	4	5	80	22	61
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	353			158			678	686	153	612	610	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	353			158			678	686	153	612	610	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			100	99	99	79	94	92
cM capacity (veh/h)	1206			1422			305	343	893	377	379	766
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	235	366	10	163								
Volume Left	77	13	1	80								
Volume Right	10	161	5	61								
cSH	1206	1422	487	466								
Volume to Capacity	0.06	0.01	0.02	0.35								
Queue Length 95th (m)	1.6	0.2	0.5	12.4								
Control Delay (s)	3.1	0.4	12.5	16.8								
Lane LOS	A	A	B	C								
Approach Delay (s)	3.1	0.4	12.5	16.8								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			60.3%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Access Road & Indian Creek Rd W

2035 Total AM Traffic Volumes
 07-24-2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	←
Traffic Volume (veh/h)	220	2	7	303	7	28
Future Volume (Veh/h)	220	2	7	303	7	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	239	2	8	329	8	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	371					
pX, platoon unblocked						
vC, conflicting volume			241	585		240
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241	585		240
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	98		96
cM capacity (veh/h)			1326	470		799
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	241	337	38			
Volume Left	0	8	8			
Volume Right	2	0	30			
cSH	1700	1326	697			
Volume to Capacity	0.14	0.01	0.05			
Queue Length 95th (m)	0.0	0.1	1.4			
Control Delay (s)	0.0	0.2	10.5			
Lane LOS			A		B	
Approach Delay (s)	0.0	0.2	10.5			
Approach LOS			B			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			31.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2035 Total AM Traffic Volumes
 07-24-2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	73	107	12	75	81	170	327	19	41	223	65
Future Volume (vph)	62	73	107	12	75	81	170	327	19	41	223	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	60.0		40.0	22.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	15.0			15.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.922			0.994			0.970	
Flt Protected	0.950			0.950				0.984			0.994	
Satd. Flow (prot)	1789	1716	0	1789	1737	0	0	3296	0	0	3361	0
Flt Permitted	0.714			0.714				0.736			0.826	
Satd. Flow (perm)	1345	1716	0	1345	1737	0	0	2465	0	0	2793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		116			88			5			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.6			285.0			276.2			332.7	
Travel Time (s)		26.7			20.5			19.9			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	12%	2%	2%	6%	2%
Adj. Flow (vph)	67	79	116	13	82	88	185	355	21	45	242	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	195	0	13	170	0	0	561	0	0	358	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2035 Total AM Traffic Volumes
 07-24-2024

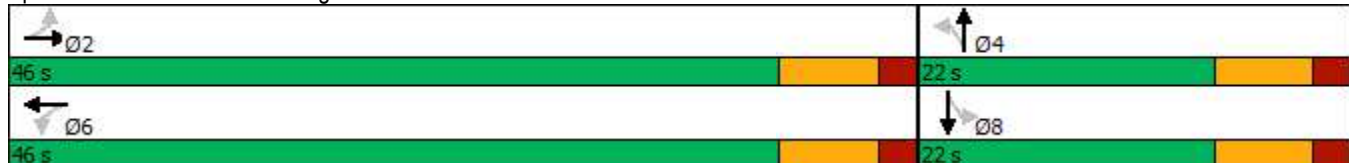


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		6			4		8		8		
Detector Phase	2	2	6		6	4		4	8		8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Minimum Split (s)	46.0	46.0	46.0		46.0	22.0		22.0	22.0		22.0	22.0
Total Split (s)	46.0	46.0	46.0		46.0	22.0		22.0	22.0		22.0	22.0
Total Split (%)	67.6%	67.6%	67.6%		67.6%	32.4%		32.4%	32.4%		32.4%	32.4%
Maximum Green (s)	39.0	39.0	39.0		39.0	15.0		15.0	15.0		15.0	15.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	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	7.0		7.0	7.0		7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	0.2	0.2	0.2		0.2	5.0		5.0	5.0		5.0	5.0
Recall Mode	Min	Min	Min		Min	Min		Min	Min		Min	Min
Walk Time (s)	15.0	15.0	15.0		15.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)	15.0	15.0	15.0		15.0	10.0		10.0	10.0		10.0	10.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	5.6	5.6	5.6		5.6	15.0		15.0	15.0		15.0	15.0
Actuated g/C Ratio	0.16	0.16	0.16		0.16	0.43		0.43	0.43		0.43	0.43
v/c Ratio	0.31	0.52	0.06		0.48	0.52		0.52	0.52		0.29	0.29
Control Delay	16.8	11.9	12.8		12.3	9.5		9.5	9.5		6.5	6.5
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	16.8	11.9	12.8		12.3	9.5		9.5	9.5		6.5	6.5
LOS	B	B	B		B	A		A	A		A	A
Approach Delay	13.1				12.3	9.5		9.5	9.5		6.5	6.5
Approach LOS	B				B	A		A	A		A	A

Intersection Summary

















Area Type: Other
 Cycle Length: 68
 Actuated Cycle Length: 34.6
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 9.8
 Intersection Capacity Utilization 61.9%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 10: Charing Cross Rd /Queen St & Indian Creek Rd W



HCM Unsignalized Intersection Capacity Analysis
 11: Indian Creek Rd W & Lacroix St

2035 Total PM Traffic Volumes
 07-24-2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	171	12	10	187	110	4	9	4	208	17	56
Future Volume (Veh/h)	51	171	12	10	187	110	4	9	4	208	17	56
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	186	13	11	203	120	4	10	4	226	18	61
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	323			199			658	648	192	596	594	263
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	323			199			658	648	192	596	594	263
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			99	97	100	42	95	92
cM capacity (veh/h)	1237			1373			323	369	849	389	396	776
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	254	334	18	305								
Volume Left	55	11	4	226								
Volume Right	13	120	4	61								
cSH	1237	1373	407	432								
Volume to Capacity	0.04	0.01	0.04	0.71								
Queue Length 95th (m)	1.1	0.2	1.1	43.0								
Control Delay (s)	2.1	0.3	14.2	31.0								
Lane LOS	A	A	B	D								
Approach Delay (s)	2.1	0.3	14.2	31.0								
Approach LOS			B	D								
Intersection Summary												
Average Delay			11.3									
Intersection Capacity Utilization			67.2%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 13: Access Road & Indian Creek Rd W

2035 Total PM Traffic Volumes
 07-24-2024



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↗
Traffic Volume (veh/h)	380	7	28	326	4	15
Future Volume (Veh/h)	380	7	28	326	4	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	413	8	30	354	4	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	371					
pX, platoon unblocked						
vC, conflicting volume			421			417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			421			417
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			97			97
cM capacity (veh/h)			1138			636
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	421	384	20			
Volume Left	0	30	4			
Volume Right	8	0	16			
cSH	1700	1138	537			
Volume to Capacity	0.25	0.03	0.04			
Queue Length 95th (m)	0.0	0.6	0.9			
Control Delay (s)	0.0	0.9	12.0			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.9	12.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			50.3%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2035 Total PM Traffic Volumes
 07-24-2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	108	215	37	122	110	136	350	27	88	413	96
Future Volume (vph)	74	108	215	37	122	110	136	350	27	88	413	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0		0.0	60.0		40.0	22.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	15.0			15.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.900			0.929			0.992			0.976	
Flt Protected	0.950			0.950				0.987			0.993	
Satd. Flow (prot)	1789	1695	0	1789	1750	0	0	3284	0	0	3377	0
Flt Permitted	0.602			0.548				0.684			0.778	
Satd. Flow (perm)	1134	1695	0	1032	1750	0	0	2276	0	0	2646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72			112			7			30	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.6			335.9			276.2			332.7	
Travel Time (s)		26.7			24.2			19.9			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	12%	2%	2%	6%	2%
Adj. Flow (vph)	80	117	234	40	133	120	148	380	29	96	449	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	351	0	40	253	0	0	557	0	0	649	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
 10: Charing Cross Rd /Queen St & Indian Creek Rd W

2035 Total PM Traffic Volumes
 07-24-2024

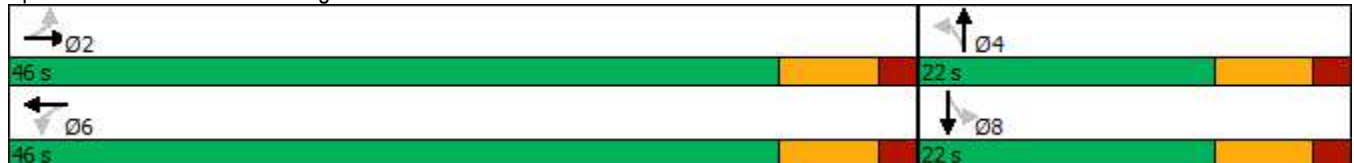


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		22.0	22.0		22.0	22.0	
Total Split (%)	67.6%	67.6%		67.6%	67.6%		32.4%	32.4%		32.4%	32.4%	
Maximum Green (s)	39.0	39.0		39.0	39.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
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		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	0.2	0.2		0.2	0.2		5.0	5.0		5.0	5.0	
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	
Walk Time (s)	15.0	15.0		15.0	15.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	9.3	9.3		9.3	9.3		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.39	0.39		0.39	0.39	
v/c Ratio	0.29	0.76		0.16	0.50		0.62	0.62		0.62	0.62	
Control Delay	14.3	21.7		12.4	10.6		14.6	14.6		14.6	13.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.3	21.7		12.4	10.6		14.6	14.6		14.6	13.1	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		20.3			10.9		14.6	14.6		14.6	13.1	
Approach LOS		C			B		B	B		B	B	

Intersection Summary

Area Type: Other
 Cycle Length: 68
 Actuated Cycle Length: 38.5
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 14.8
 Intersection LOS: B
 Intersection Capacity Utilization 77.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 10: Charing Cross Rd /Queen St & Indian Creek Rd W



Appendix D

PHOTOS



Exhibit 1: Looking east on Indian Creek Road West toward Lacroix Street



Exhibit 2: Looking west on Indian Creek Road West toward Lacroix Street



Exhibit 3: Looking east on Indian Creek Road West toward Future Access

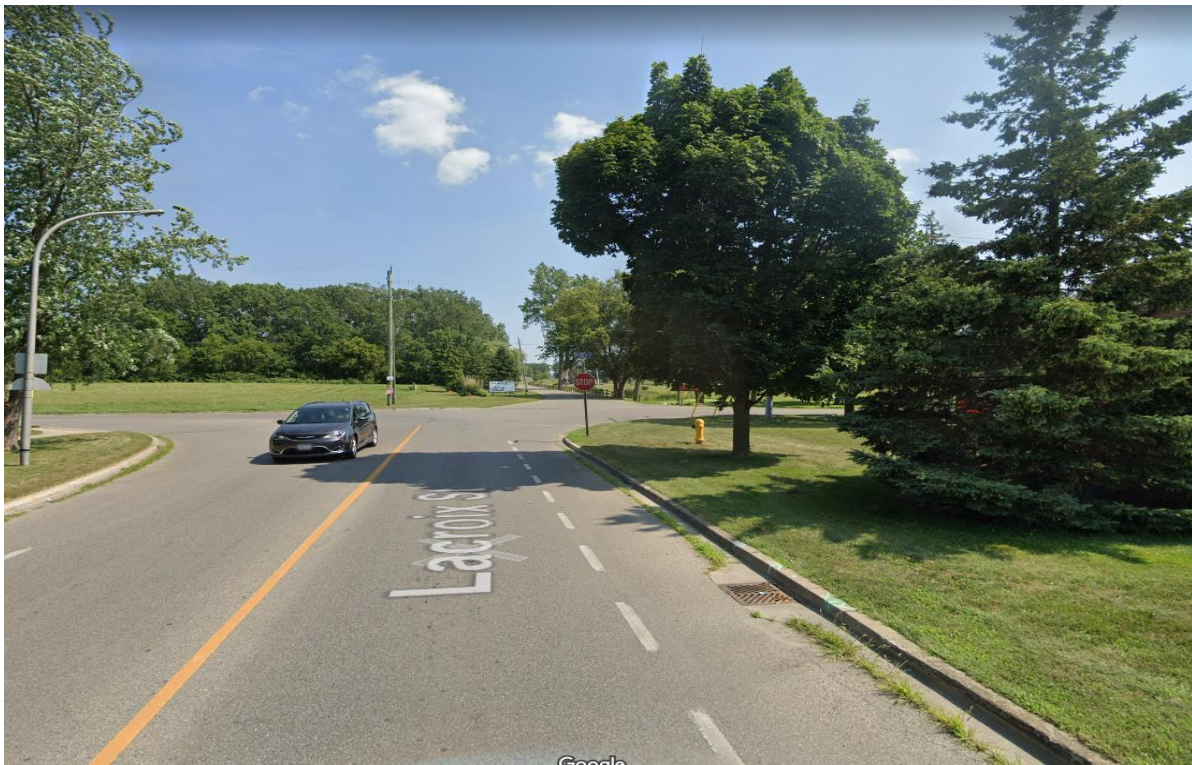


Exhibit 4: Looking south on Lacroix Street toward Indian Creek Road W



Exhibit 5: Looking north on Charing Cross Road toward Indian Creek Road W



Exhibit 6: Looking east on Indian Creek Road W toward Charing Cross Road



Exhibit 7: Looking south on Charing Cross Road/Queen St toward Indian Creek Road W



Exhibit 8: Looking east on Indian Creek Road W toward Charing Cross Road/Queen St