Attachment 7
Applicant's Revised TIS, March 2021 and Response Matrix

RESIDENTIAL DEVELOPMENT

12433 DILLON DRIVE

TECUMSEH, ON

TRAFFIC IMPACT STUDY

Prepared by:

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Consulting Engineers
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File No.: 19-864

March 2021

RESIDENTIAL DEVELOPMENT, 12433 DILLON DRIVE, TECUMSEH, ON

TRAFFIC IMPACT STUDY (MARCH 2021)

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INTRODUCTION AND BACKGROUND

A residential development has been proposed for lands situated at 12433 Dillon Drive in the Town of Tecumseh, Ontario. As may be noted on Figure 1 – Area Plan, the proposed development site is located on the south side of Dillon Drive, between Lacasse Boulevard to the east and Lesperance Road to the west. The area around the study intersections is fully built out, so it is unlikely that there would be significant land use changes in the near future. There is no public transportation available in the immediate area.

The following intersections were analyzed as part of this traffic impact study:

- Dillon Drive at Lesperance Road;
- Dillon Drive at St. Pierre Street;
- Dillon Drive at the proposed site access; and
- Dillon Drive at Lacasse Boulevard.

Lesperance Road is a north / south roadway with a three-lane cross-section (one lane in each direction and a two-way left-turn lane); it is part of the arterial grid system in Tecumseh and a principal means of external access to the area. Dillon Drive is an east / west collector road, and Lacasse Boulevard is a north / south collector road. St. Pierre Street, just west of the site, is a local north / south road. There are sidewalks on both sides of each section of the subject roadways, except for along the south side of Dillon Drive, west of St. Pierre Street. The intersection of Dillon Drive at Lesperance Road is controlled by a two-way stop sign on the minor street, Dillon Drive. The intersection of Dillon Drive at Lacasse Boulevard is all-way stop-controlled, as is Dillon Drive at St. Pierre Street.

For AM and PM peak hours, detailed analysis was carried out for all of the above-noted intersections with respect to the following scenarios:

- Existing Traffic;
- Existing + Site Generated Traffic;
- 2025 Background Traffic;
- 2025 Background Traffic + Site Generated Traffic (Total Traffic 2025);
- 2030 Background Traffic; and
- 2030 Background Traffic + Site Generated Traffic (Total Traffic 2030).

The proposed site plan (Figure 2 – Site Plan) includes low-rise multifamily housing units consisting of 63 units in eight buildings. Two of the buildings are stacked townhouses consisting of twenty-four and sixteen units with a total of sixty-eight parking spaces proposed to be developed to service these two buildings. The remaining 23 units are part of three-section and four-section row houses, each unit will have its own driveway. The developer is proposing only one driveway access at Dillon Drive, which is located to the north of the subject lands.

The purpose of this study is to examine the traffic implications of the proposed development on traffic operations in the area, particularly on the above-noted intersections along Dillon Drive. The study will also identify potential traffic operations impact on area intersections experiencing a direct impact as a result of this proposed development.

TRAFFIC DATA COLLECTION

Turning movement counts were obtained by RC Spencer Associates Inc. on 25 April 2019 for the intersection of Dillon Drive at Lesperance Road, on 30 April 2019 for the Dillon Drive at Lacasse Boulevard intersection, and on 2 May 2019 for the Dillon Drive at St. Pierre Street intersection. All turning movement counts are provided in Appendix A.

METHODOLOGY

The aforementioned turning movement counts provided the basis for industry-standard traffic operations analysis; the software package utilized for the analysis (Synchro 10) calculates various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches. HCM 6th Edition methodology was used to generate the performance metrics.

Signalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

TRIP GENERATION AND DISTRIBUTION

Trip generation for the proposed development was estimated from the Institute of Transportation Engineers Trip Generation Manual (10th Edition). ITE Land Use Code 220 (Low-Rise Multifamily Housing) is the most appropriate code for this use. Land Use Code 220 provides average generation rates of 0.46 trips per unit in the AM peak hour, with 23% entering and 77% exiting, and 0.56 trips per unit in the PM peak hour, with 63% entering and 37% exiting.

The details of the trip generation analysis are contained in Appendix B, noting that separate estimates were developed for AM and PM peak hours. When combined, the total trips generated by the proposed development are estimated to be 7 entering and 22 exiting during the AM peak hour, and 22 entering and 13 exiting during the PM peak hour. Average rates were used instead of regression equations because the results are always identical in this application.

To be conservative, the analysis was carried out assuming full build-out in 2020 and projected horizon years of 2025 and 2030. Background traffic was increased by 2% per year for the 2025 and 2030 horizon forecasts, which provides for very conservative increases to background traffic.

Site generated traffic was distributed to the proposed site access in accordance with the existing origin-destination matrices contained within the obtained turning movement counts. When the estimated trip distribution percentages were applied to the trip generation results from Appendix B, the turning movements which resulted at the surrounding intersections are illustrated on Figure 3. Figure 4 illustrates the existing traffic volumes, and Figures 5 to 9 summarize total traffic estimates that result from the summation of site generated traffic and the existing, projected 2025, and projected 2030 background traffic volumes.

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed Synchro 10 analysis was carried out for all intersections with respect to the following scenarios:

- Existing Traffic;
- Existing + Site Generated Traffic;
- 2025 Background Traffic;
- 2025 Background Traffic + Site Generated Traffic (Total Traffic 2025);
- 2030 Background Traffic; and
- 2030 Background Traffic + Site Generated Traffic (Total Traffic 2030).

The effect of adding site generated traffic to existing and future volumes at each specific intersection can be found in Appendix C. The data from Figures 4 to 9 was used in the Synchro analysis of intersection performance. The proposed site access was modelled based on a single lane for ingress and a single lane for egress.

The heavy vehicles percentages used for each intersection were determined from the values observed for the entire count duration, as taken from the turning movement counts. They are as follows:

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Dillon / Lesperance	0	0	6	9	0	2	0	2	2	0	4	0
Dillon / St. Pierre	0	0	0	0	2	0	0	22	40	0	4	0
Dillon / Lacasse	60	0	0	25	5	0	8	1	29	0	0	0

At the Dillon Drive site access, the default 2% was used for through heavy vehicle traffic, as this is a standard conservative value built into the Synchro 10 analysis software. This development is not expected to generate significant heavy vehicle traffic; therefore, all turning movements into and out of the site are assumed to be 0% heavy vehicles.

The peak hour factors for the overall intersection levels used in the Synchro analysis were obtained from the turning movement counts, except for the Dillon Drive site access, where the default 0.92 peak hour factor was used. The inputted peak hour factors are as follows:

Intersection	AM PHF	PM PHF
Dillon / Lesperance	0.92	0.83
Dillon / St. Pierre	0.73	0.74
Dillon / Lacasse	0.65	0.91

Peak hour pedestrian volumes were very low, so the impact of pedestrians on intersection operations is expected to be nominal; regardless, conservative pedestrian volumes were inputted into the Synchro 10 analysis software.

By applying the above parameters, detailed Synchro reports were generated for evaluation and comparison; they are provided in Appendix D. To quantify and qualify the effect of traffic growth on individual intersections within the study area, and to assess the need for geometric or traffic infrastructure improvements, the detailed Synchro results were summarized as follows:

Dillon Drive at Lesperance Road

The intersection of Dillon Drive at Lesperance Road is an eastbound / westbound stop-controlled intersection. Currently, there are dedicated left turn lanes and shared through / right turn lanes on the northbound and southbound approaches. Dillon Drive is comprised of a two-lane cross-section, and it is slightly skewed at its intersection with Lesperance Road; this geometry forces through traffic to veer slightly to the right to proceed through the intersection. There are sidewalks on the east / west sides of Lesperance Road and on the north side of Dillon Drive.

From the level of service results provided in Table 1, it is observed that the intersection of Dillon Drive at Lesperance Road will be nominally affected by distribution of the site generated traffic; the change in level of service will be effectively imperceptible. It is the engineers' expectation that the intersection will continue to operate favourably in all horizon traffic scenarios.

Table 1: Level of Service by Approach – Dillon Drive at Lesperance Road

Scenario	Dillon Drive at Lesperance Road							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	B	A	A	B	B	A	A
Existing + Site Generated	A	B	A	A	B	B	A	A
Background Traffic 2025	A	B	A	A	B	B	A	A
Total Traffic 2025	A	B	A	A	B	B	A	A
Background Traffic 2030	A	B	A	A	B	B	A	A
Total Traffic 2030	A	B	A	A	B	B	A	A

Dillon Drive at St. Pierre Street

The intersection of Dillon Drive at St. Pierre Street is a four-way stop-controlled intersection. Both streets are comprised of two-lane cross-sections. There are sidewalks on the east and west sides of St. Pierre Street and on the north side of Dillon Drive. From the results provided in Table 2, it is observed that the intersection of Dillon Drive at St. Pierre Street will be nominally affected by distribution of the site generated traffic; the change in level of service will be effectively imperceptible. It is the engineers' expectation that the intersection will continue to operate favourably in all horizon traffic scenarios.

Table 2: Level of Service by Approach – Dillon Drive at St. Pierre Street

Scenario	Dillon Drive at St. Pierre Street							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	A	A	A	A	A	A
Existing + Site Generated	A	A	A	A	A	A	A	A
Background Traffic 2025	A	A	A	A	A	A	A	A
Total Traffic 2025	A	A	A	A	A	A	A	A
Background Traffic 2030	A	A	A	A	A	A	A	A
Total Traffic 2030	A	A	A	A	A	A	A	A

Dillon Drive at Site Access

The intersection of Dillon Drive at the Site Access is proposed to be a tee intersection, controlled by a stop sign on the northbound approach. The proposed geometry for the northbound approach is a single ingress lane and a single egress lane. From the results provided in Table 3, it is observed that the intersection of Dillon Drive at St. Pierre Street will be nominally affected by distribution of the site generated traffic; the change in level of service will be effectively imperceptible. It is the engineers' expectation that the intersection will continue to operate favourably in all horizon traffic scenarios.

Table 3: Level of Service by Approach – Dillon Drive at Site Access

Scenario	Dillon Drive at Site Access							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Generated	A	A	A	-	A	A	A	-
Total Traffic 2025	A	A	A	-	A	A	A	-
Total Traffic 2030	A	A	A	-	A	A	A	-

Dillon Drive at Lacasse Boulevard

The intersection of Dillon Drive at Lacasse Boulevard is a four-way stop-controlled intersection. Dillon Drive is comprised of a two-lane cross-section. Lacasse Boulevard is a divided roadway to the north and south; it is comprised of a single lane in either direction. There are sidewalks on both sides of both roads. From the results provided in Table 4, it is observed that the intersection of Dillon Drive at Lacasse Boulevard will be nominally affected by the distribution of site generated traffic; the change in level of service will be effectively imperceptible. It is the engineers' expectation that the intersection will continue to operate favourably in all horizon traffic scenarios.

Table 4: Level of Service by Approach – Dillon Drive at Lacasse Boulevard

Scenario	Dillon Drive at Lacasse Boulevard							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	A	A	A	A	A	A
Existing + Site Generated	A	A	A	A	A	A	A	A
Background Traffic 2025	A	A	A	A	A	A	A	A
Total Traffic 2025	A	A	A	A	A	A	A	A
Background Traffic 2030	A	A	A	A	A	A	A	A
Total Traffic 2030	A	A	A	A	A	A	A	A

SIGNAL WARRANT ANALYSIS

From the above results, there is no reason to suggest that traffic signals are warranted at any of the non-signalized intersections. However, for the sake of discussion, a signal warrant analysis was completed for the intersection of Dillon Drive at Lesperance Road.

The detailed results of the signal warrant analysis are presented in Appendix E. As expected, the intersection does not meet the provincial warrants for signalization; geometric and / or traffic control improvements are not required.

SIGHT LINE ANALYSIS

A sight line analysis was completed at the Dillon Drive access to the proposed development. The analysis was completed per the TAC Geometric Design Guide for Canadian Roads (2017). On Dillon Drive, the posted speed limit is 40 km/h, so the analysis was completed for a 50 km/h design speed. As calculated in Appendix F, the minimum intersection sight distance is determined to be 104m for the worst-case left turn egress maneuver and 90m for the right turn egress maneuver.

Based on the illustrated sight lines provided on Figure 10, it is the engineers' opinion that there is sufficient sight distance in both directions for safe egress from the proposed site access. It is the engineers' recommendation that the access be allowed but reviewed at the time of construction to ensure that sight lines are clear of potential obstructions.

SUMMARY AND CONCLUSIONS

A residential development has been proposed for lands situated at 12433 Dillon Drive in the Town of Tecumseh. The proposed site is located on the south side of Dillon Drive between Lacasse Boulevard to the east and Lesperance Road to the west. Lesperance Road is a north / south roadway with a three-lane cross-section (one lane in each direction and a two-way left-turn lane) that is part of the arterial grid system in Tecumseh and a principal means of external access to the area. Dillon Drive is an east / west collector road and Lacasse Boulevard is a north / south collector road. St. Pierre Street, just west of the site, is a local north / south road. The intersection of Dillon Drive at Lesperance Road is controlled by a two-way stop on the minor street, Dillon Drive. The intersection of Dillon Drive at Lacasse Boulevard is all-way stop-controlled, as is Dillon Drive at St. Pierre Street.

The proposed site plan consists of 63 low-rise multifamily housing units in eight buildings. Two of the buildings are stacked townhouses consisting of twenty-four and sixteen units with a total of sixty-eight parking spaces proposed to be developed to service these two buildings. The remaining 23 units are part of three-section and four-section row houses, each unit will have its own driveway. The developer is proposing only one driveway access at Dillon Drive, which is located to the north of the subject lands.

Using recently obtained turning movement counts and applying the best available trip generation and distribution data and methodologies, an analysis was completed to measure the operational impact of the development on traffic conditions on the adjacent intersections. The analysis was carried out assuming full build-out in 2020 and projected horizon years of 2025 and 2030. Background traffic was increased by 2% per year, compounded annually. After modelling the traffic network and extracting the relevant traffic operations metrics, the following conclusions were made:

- The intersection of Dillon Drive at Lesperance Road will be nominally affected by the distribution of the site generated traffic, and it will continue to operate at a very favourable level of service in all horizon traffic scenarios;

- The intersection of Dillon Drive at St. Pierre Street will be nominally affected by the distribution of the site generated traffic, and it will continue to operate at a very favourable level of service in all horizon traffic scenarios;
- The intersection of Dillon Drive at the Site Access is proposed to operate as a single ingress lane and a single egress lane, and it has been determined that this intersection will operate at a very favourable level of service in all horizon traffic scenarios;
- The intersection of Dillon Drive at Lacasse Boulevard will be nominally affected by the distribution of the site generated traffic, and it will continue to operate at a very favourable level of service in all horizon traffic scenarios;
- Existing and projected traffic volumes at non-signalized intersections within the study area do not satisfy the provincial warrants for traffic signalization;
- A northbound passenger vehicle stopped at the proposed Dillon Drive site access should have adequate sight lines to safely egress from the site.

In consideration of the above findings, it is the engineers' opinion that this development will not have an adverse effect on area traffic operations. Dillon Drive has the capacity to accept the added site generated trips, both now and in the horizon years; levels of service at the peripheral intersections are expected to be largely unaffected by the proposed development.

All of which is respectfully submitted,

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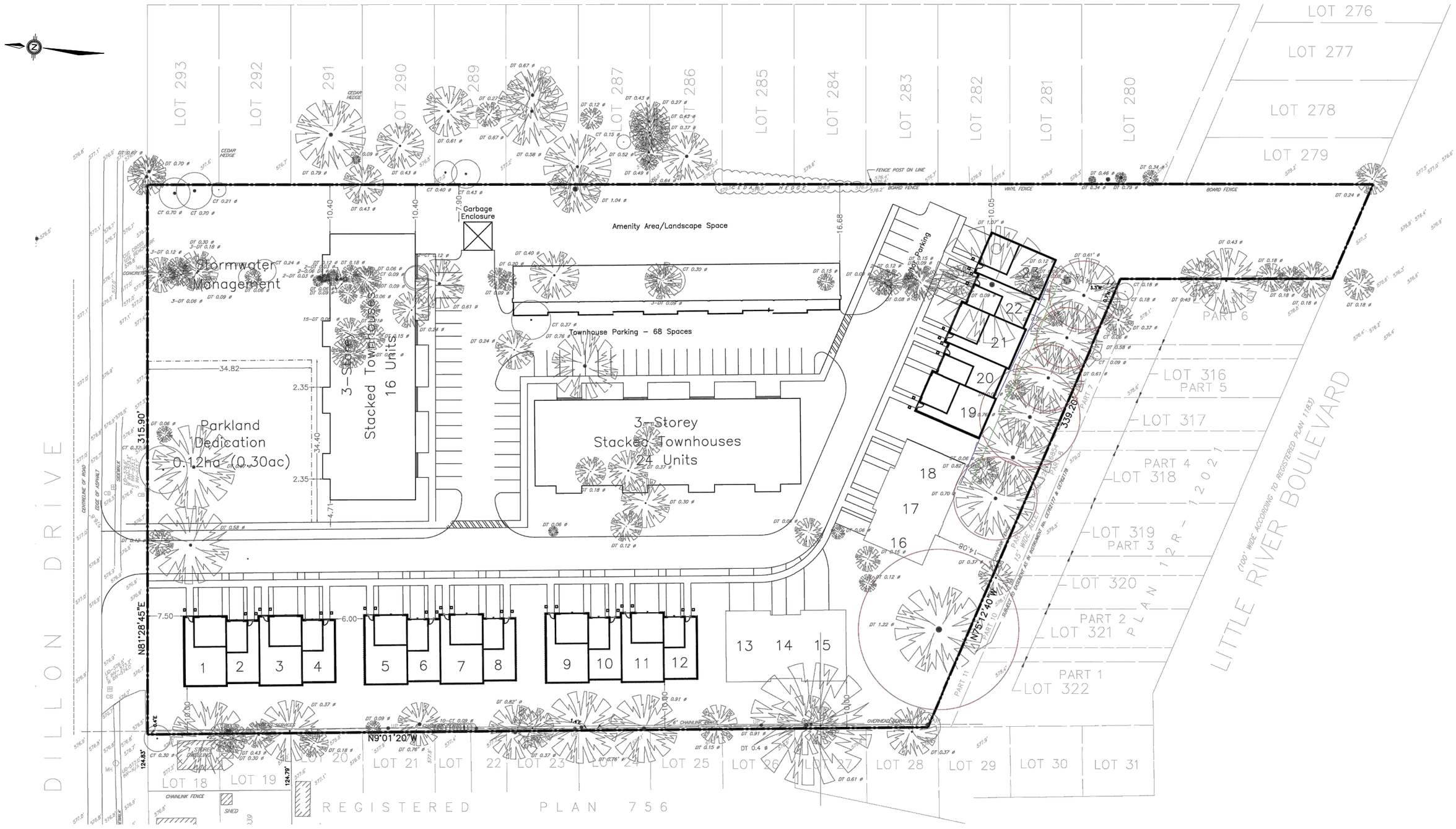
AREA PLAN

PROJECT NO. 19–864
FIGURE NO. 1
OF 10



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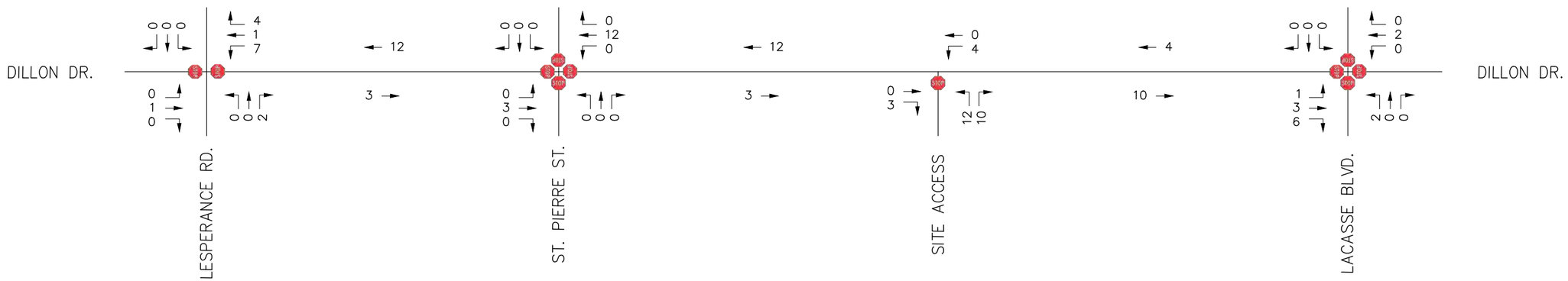
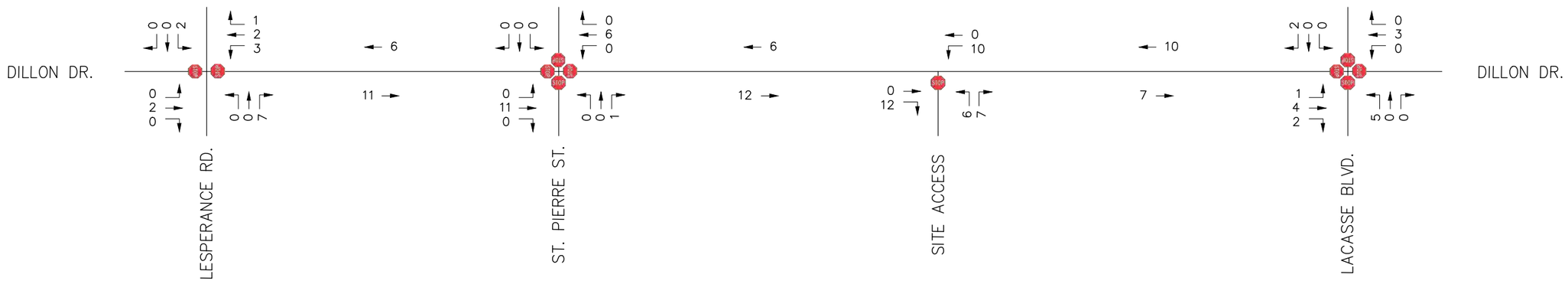
SITE PLAN

PROJECT NO. 19-864
FIGURE NO. 2
OF 10

SITE GENERATED TRAFFIC (AM)



SITE GENERATED TRAFFIC (PM)



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SITE GENERATED TRAFFIC (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 3
OF 10

EXISTING TRAFFIC (AM)

EXISTING TRAFFIC (PM)

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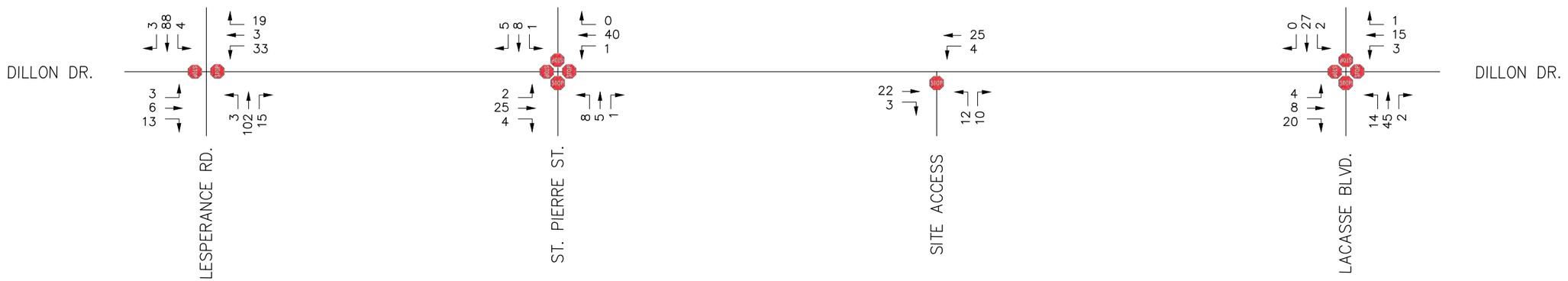
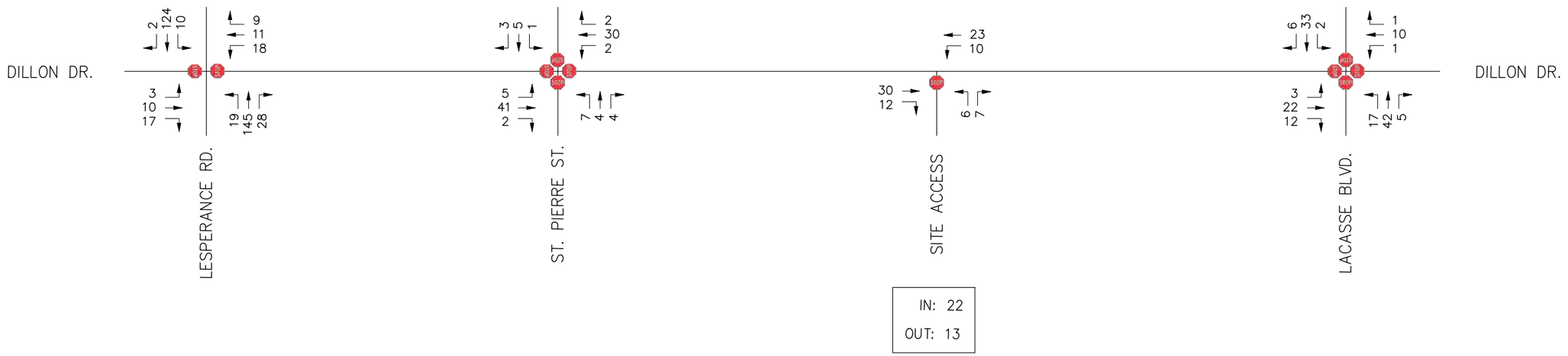
EXISTING TRAFFIC (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 4
OF 10

EXISTING + SITE GENERATED TRAFFIC (AM)



EXISTING + SITE GENERATED TRAFFIC (PM)



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EXISTING + SITE GENERATED TRAFFIC (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 5
OF 10

BACKGROUND TRAFFIC 2025 (AM)

BACKGROUND TRAFFIC 2025 (PM)

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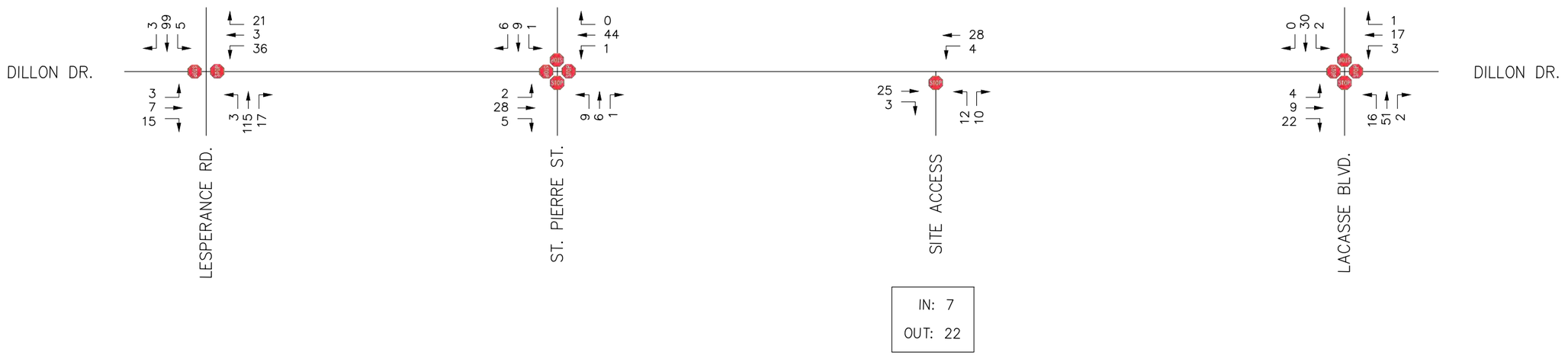
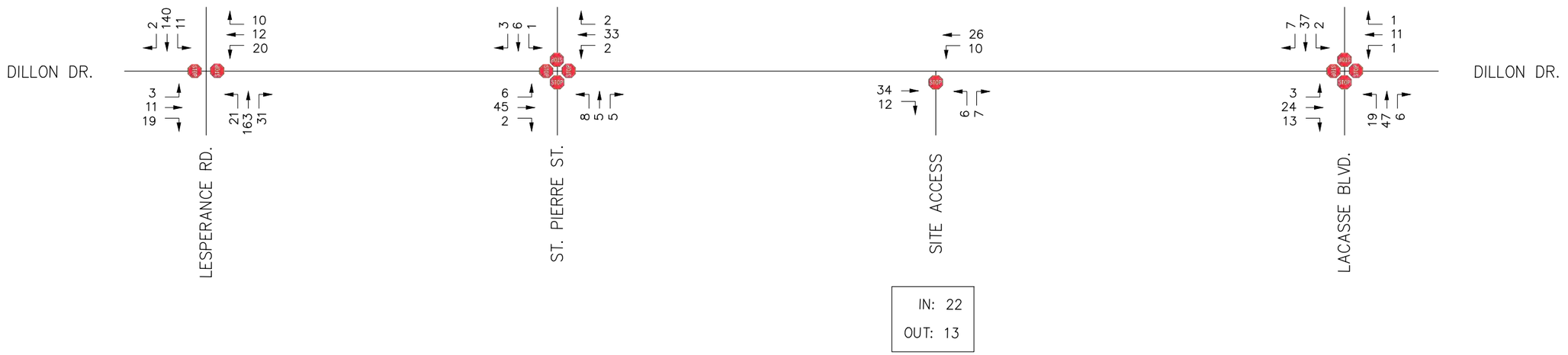
BACKGROUND TRAFFIC 2025 (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 6
OF 10

TOTAL TRAFFIC 2025 (AM)



TOTAL TRAFFIC 2025 (PM)



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TOTAL TRAFFIC 2025 (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 7
OF 10

BACKGROUND TRAFFIC 2030 (AM)

BACKGROUND TRAFFIC 2030 (PM)

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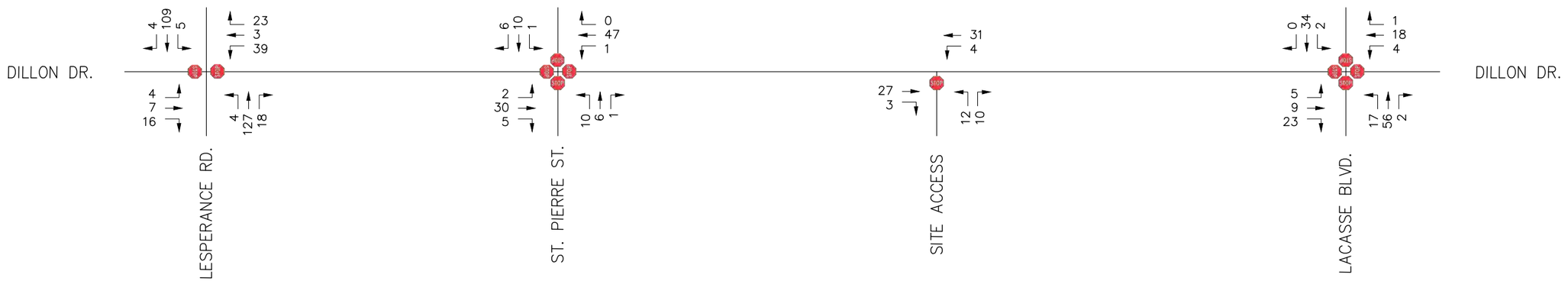
12433 DILLON DRIVE, TECUMSEH – T.I.S.

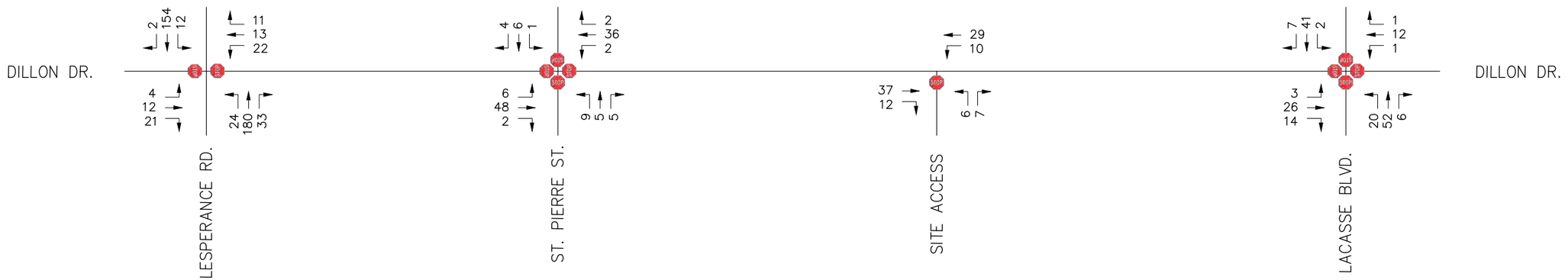
BACKGROUND TRAFFIC 2030 (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 8
OF 10

TOTAL TRAFFIC 2030 (AM)



TOTAL TRAFFIC 2030 (PM)



RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Avenue W. – Windsor ON N9A 5R9
Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6
Professional Engineers Ontario

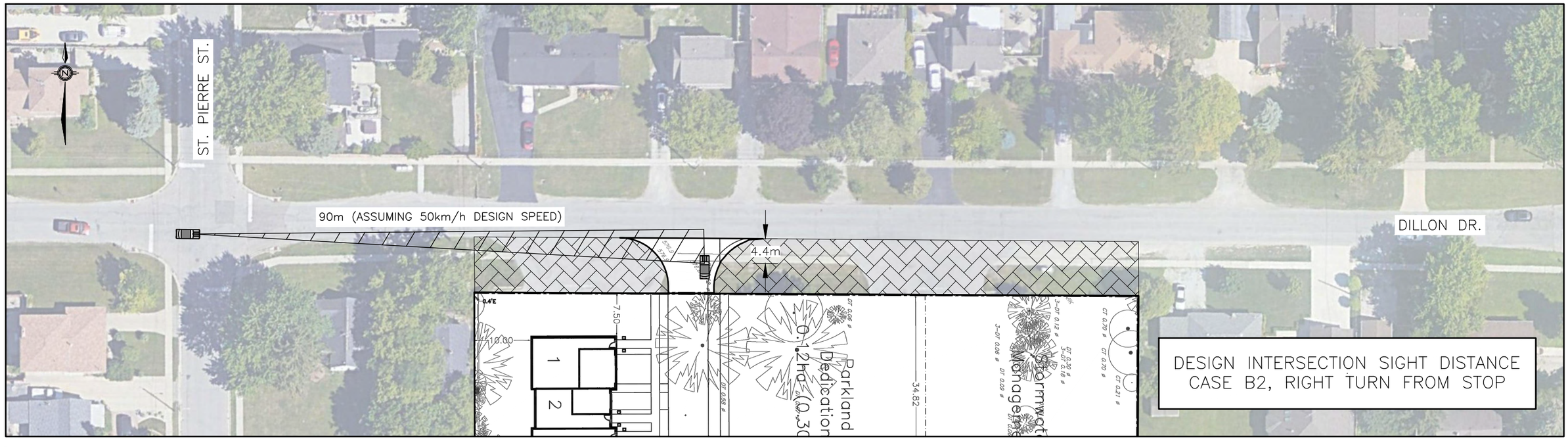
NO.	REVISION	DATE	BY	APP
2.	REVISED REPORT FIGURES	MAR 01 2021	M.C.A	A.D.B.
1.	COMPLETED REPORT FIGURES	MAY 03 2019	P.B.	A.D.B.

DESIGN A.D.B.
CHECKED J.T.
DRAWN P.B.
CHECKED A.D.B.
DATE MARCH 2021
SCALE N.T.S.

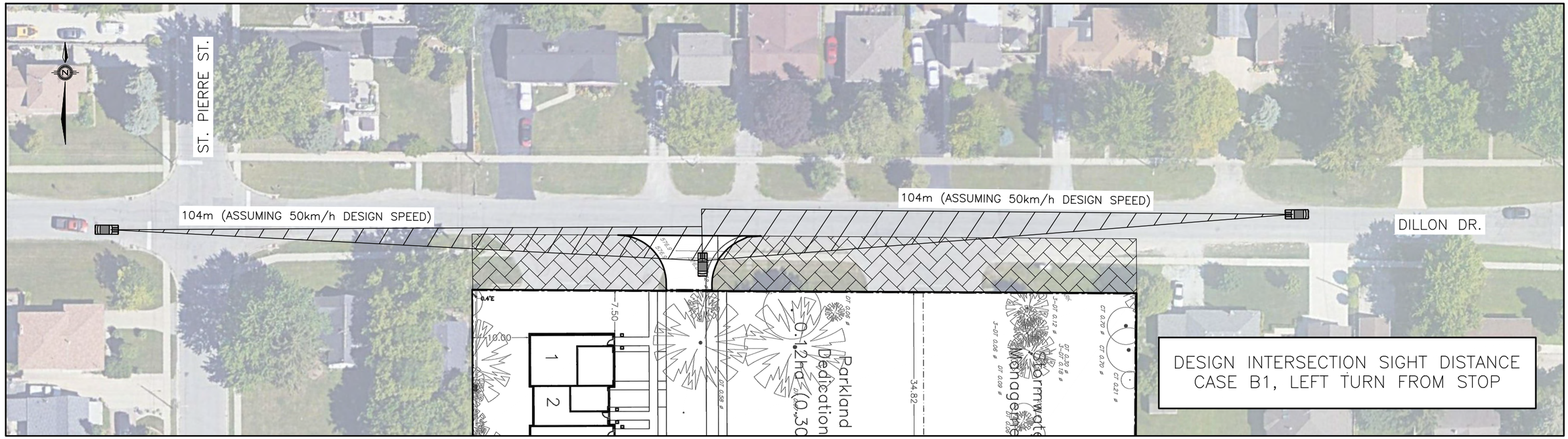
12433 DILLON DRIVE, TECUMSEH – T.I.S.

TOTAL TRAFFIC 2030 (AM/PM PEAK HOUR)

PROJECT NO. 19–864
FIGURE NO. 9
OF 10



DESIGN INTERSECTION SIGHT DISTANCE
CASE B2, RIGHT TURN FROM STOP



DESIGN INTERSECTION SIGHT DISTANCE
CASE B1, LEFT TURN FROM STOP

RC SPENCER ASSOCIATES INC.
Consulting Engineers
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Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6
Professional Engineers Ontario

NO.	REVISION	DATE	BY	APP
2.	REVISED REPORT FIGURES	MAR 01 2021	M.C.A	A.D.B.
1.	COMPLETED REPORT FIGURES	MAY 03 2019	P.B.	A.D.B.

DESIGN A.D.B.
CHECKED J.T.
DRAWN P.B.
CHECKED A.D.B.
DATE MARCH 2021
SCALE N.T.S.

12433 DILLON DRIVE, TECUMSEH – T.I.S.

SIGHT LINE ANALYSIS
SITE ACCESS

PROJECT NO. 19–864
FIGURE NO. 10
OF 10

Appendix A

TRAFFIC COUNTS

Dillon Drive at Lesperance Road
Dillon Drive at St. Pierre Street
Dillon Drive at Lacasse Boulevard

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

Date: April 25, 2019
Counted By: Parth Bhatt
Weather Conditions: Overcast
Dillon Drive at Lesperance Road

Groups Printed- Passenger Veh. - Transit - Trucks

	Dillon Drive W/B					Lesperance Road N/B					Lesperance Road S/B					Dillon Drive E/B							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	0	7	(1)	10	1	9	0	(0)	10	0	13	0	(0)	13	3	1	0	(0)	4	1	37	38
07:15 AM	1	2	4	(0)	7	0	22	2	(0)	24	0	7	0	(0)	7	3	0	1	(0)	4	0	42	42
07:30 AM	2	1	5	(0)	8	1	19	0	(0)	20	0	15	0	(0)	15	5	1	0	(0)	6	0	49	49
07:45 AM	2	1	7	(0)	10	1	20	0	(1)	21	1	13	1	(0)	15	2	2	1	(0)	5	1	51	52
Total	8	4	23	(1)	35	3	70	2	(1)	75	1	48	1	(0)	50	13	4	2	(0)	19	2	179	181
08:00 AM	3	0	6	(0)	9	3	18	1	(0)	22	0	22	0	(0)	22	2	0	1	(0)	3	0	56	56
08:15 AM	3	0	5	(0)	8	2	29	1	(1)	32	2	24	2	(0)	28	6	0	0	(0)	6	1	74	75
08:30 AM	5	2	7	(0)	14	5	25	1	(0)	31	0	21	1	(1)	22	2	3	0	(0)	5	1	72	73
08:45 AM	4	0	8	(0)	12	3	30	0	(1)	33	1	21	1	(0)	23	3	2	2	(0)	7	1	75	76
Total	15	2	26	(0)	43	13	102	3	(2)	118	3	88	4	(1)	95	13	5	3	(0)	21	3	277	280
*** BREAK ***																							
03:00 PM	2	2	4	(1)	8	7	41	3	(1)	51	0	22	3	(0)	25	2	0	1	(0)	3	2	87	89
03:15 PM	2	3	3	(1)	8	6	53	5	(0)	64	0	34	2	(0)	36	4	1	1	(0)	6	1	114	115
03:30 PM	1	1	7	(0)	9	4	29	4	(1)	37	1	33	0	(3)	34	5	3	0	(0)	8	4	88	92
03:45 PM	3	3	2	(0)	8	5	35	3	(2)	43	1	22	3	(0)	26	3	2	1	(0)	6	2	83	85
Total	8	9	16	(2)	33	22	158	15	(4)	195	2	111	8	(3)	121	14	6	3	(0)	23	9	372	381
04:00 PM	2	2	3	(0)	7	6	28	7	(0)	41	0	35	3	(0)	38	5	2	1	(1)	8	1	94	95
04:15 PM	1	2	5	(3)	8	6	35	2	(2)	43	1	27	2	(2)	30	4	1	2	(0)	7	7	88	95
04:30 PM	1	4	3	(0)	8	6	41	6	(3)	53	1	23	2	(0)	26	3	2	0	(0)	5	3	92	95
04:45 PM	2	3	3	(3)	8	7	30	3	(0)	40	1	32	2	(0)	35	2	0	0	(1)	2	4	85	89
Total	6	11	14	(6)	31	25	134	18	(5)	177	3	117	9	(2)	129	14	5	3	(2)	22	15	359	374
05:00 PM	4	1	2	(0)	7	10	24	4	(0)	38	3	41	2	(1)	46	4	0	4	(0)	8	1	99	100
05:15 PM	3	2	5	(0)	10	9	32	3	(3)	44	2	29	2	(0)	33	8	2	2	(0)	12	3	99	102
05:30 PM	7	3	4	(2)	14	3	24	6	(0)	33	4	24	0	(0)	28	7	3	1	(0)	11	2	86	88
05:45 PM	4	0	2	(0)	6	8	32	1	(0)	41	1	25	2	(0)	28	5	3	1	(0)	9	0	84	84
Total	18	6	13	(2)	37	30	112	14	(3)	156	10	119	6	(1)	135	24	8	8	(0)	40	6	368	374
Grand Total	55	32	92	(11)	179	93	576	52	(15)	721	19	483	28	(7)	530	78	28	19	(2)	125	35	1555	1590
Apprch %	30.7	17.9	51.4			12.9	79.9	7.2			3.6	91.1	5.3			62.4	22.4	15.2					
Total %	3.5	2.1	5.9		11.5	6	37	3.3		46.4	1.2	31.1	1.8		34.1	5	1.8	1.2		8	2.2	97.8	
Passenger Veh.	54	32	84		181	91	564	52		722	19	463	28		517	73	28	19		122	0	0	1542
% Passenger Veh.	98.2	100	91.3	100	95.3	97.8	97.9	100	100	98.1	100	95.9	100	100	96.3	93.6	100	100	100	96.1	0	0	97
Transit	1	0	7		8	2	0	0		2	0	2	0		2	5	0	0		5	0	0	17
% Transit	1.8	0	7.6	0	4.2	2.2	0	0	0	0.3	0	0.4	0	0	0.4	6.4	0	0	0	3.9	0	0	1.1
Trucks	0	0	1		1	0	12	0		12	0	18	0		18	0	0	0		0	0	0	31
% Trucks	0	0	1.1	0	0.5	0	2.1	0	0	1.6	0	3.7	0	0	3.4	0	0	0	0	0	0	0	1.9

RC SPENCER ASSOCIATES INC.
Consulting Engineers
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Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

	Dillon Drive W/B				Lesperance Road N/B				Lesperance Road S/B				Dillon Drive E/B				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	3	0	6	9	3	18	**1**	22	0	22	0	22	2	0	1	3	56
08:15 AM	3	0	5	8	2	29	1	32	**2**	**24**	**2**	**28**	**6**	0	0	6	74
08:30 AM	**5**	**2**	7	**14**	**5**	25	1	31	0	21	1	22	2	**3**	0	5	72
08:45 AM	4	0	**8**	12	3	**30**	0	**33**	1	21	1	23	3	2	**2**	**7**	**75**
Total Volume	15	2	26	43	13	102	3	118	3	88	4	95	13	5	3	21	277
% App. Total	34.9	4.7	60.5		11	86.4	2.5		3.2	92.6	4.2		61.9	23.8	14.3		
PHF	.750	.250	.813	.768	.650	.850	.750	.894	.375	.917	.500	.848	.542	.417	.375	.750	.923

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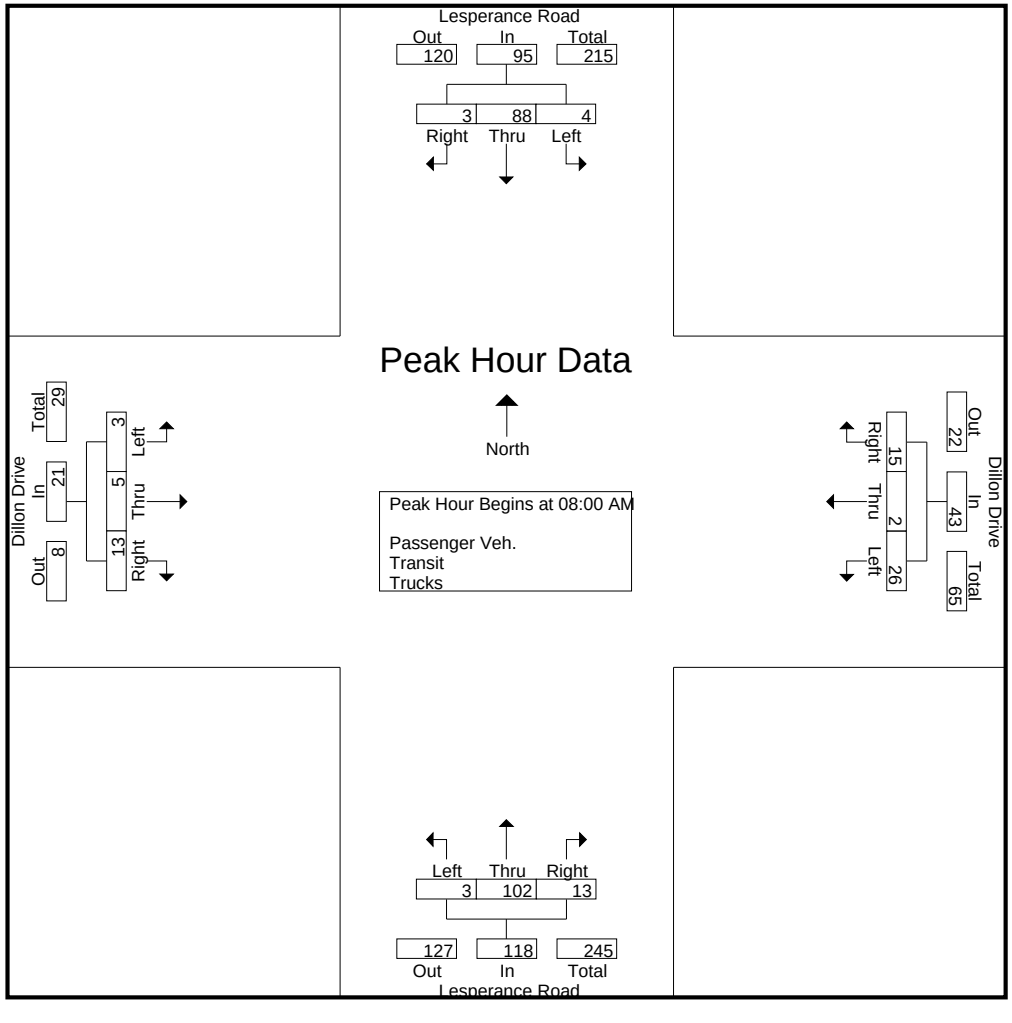

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	Dillon Drive W/B				Lesperance Road N/B				Lesperance Road S/B				Dillon Drive E/B				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	2	**3**	3	8	**6**	**53**	5	**64**	0	34	2	36	4	1	**1**	6	**114**
03:30 PM	1	1	**7**	**9**	4	29	4	37	**1**	33	0	34	**5**	**3**	0	**8**	88
03:45 PM	**3**	3	2	8	5	35	3	43	1	22	**3**	26	3	2	1	6	83
04:00 PM	2	2	3	7	6	28	**7**	41	0	**35**	3	**38**	5	2	1	8	94
Total Volume	8	9	15	32	21	145	19	185	2	124	8	134	17	8	3	28	379
% App. Total	25	28.1	46.9		11.4	78.4	10.3		1.5	92.5	6		60.7	28.6	10.7		
PHF	.667	.750	.536	.889	.875	.684	.679	.723	.500	.886	.667	.882	.850	.667	.750	.875	.831

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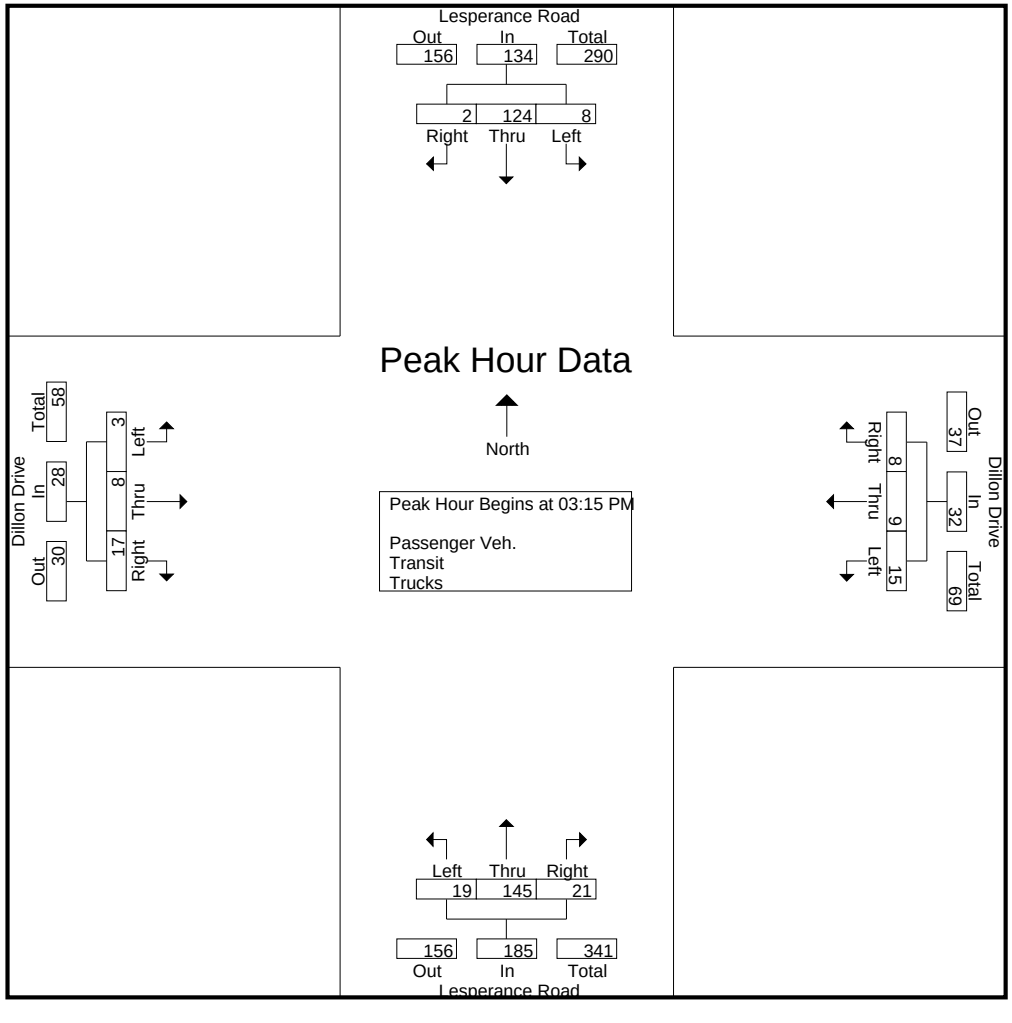

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Consulting Engineers
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Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

Date: May 2, 2019
Counted by: Parth Bhatt
Weather Conditions: Overcast
St. Pierre Street at Dillon Drive

Groups Printed- P. Veh. - Buses - Trucks

	N/B					S/B					E/B					W/B							
Start Time	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Exclu. Total**	**Inclu. Total**	**Int. Total**
08:00 AM	1	2	2	(0)	5	1	3	1	(0)	5	1	5	0	(0)	6	0	4	1	(0)	5	0	21	21
08:15 AM	0	1	0	(0)	1	2	2	0	(0)	4	1	5	2	(0)	8	0	7	0	(0)	7	0	20	20
08:30 AM	0	2	4	(0)	6	2	1	0	(0)	3	2	7	0	(0)	9	0	11	0	(1)	11	1	29	30
08:45 AM	0	0	2	(1)	2	0	2	0	(1)	2	0	5	0	(0)	5	0	6	0	(2)	6	4	15	19
Total	1	5	8	(1)	14	5	8	1	(1)	14	4	22	2	(0)	28	0	28	1	(3)	29	5	85	90
** BREAK **																							
03:15 PM	4	1	1	(1)	6	2	2	0	(0)	4	0	4	2	(1)	6	0	5	1	(2)	6	4	22	26
03:30 PM	0	1	2	(0)	3	0	1	0	(0)	1	0	8	0	(0)	8	1	5	0	(0)	6	0	18	18
03:45 PM	0	2	2	(0)	4	1	0	0	(1)	1	2	10	1	(0)	13	1	11	0	(2)	12	3	30	33
Total	4	4	5	(1)	13	3	3	0	(1)	6	2	22	3	(1)	27	2	21	1	(4)	24	7	70	77
04:00 PM	0	0	2	(0)	2	0	2	1	(0)	3	0	8	2	(0)	10	0	3	1	(0)	4	0	19	19
Grand Total	5	9	15	(2)	29	8	13	2	(2)	23	6	52	7	(1)	65	2	52	3	(7)	57	12	174	186
Apprch %	17.2	31	51.7			34.8	56.5	8.7			9.2	80	10.8			3.5	91.2	5.3					
Total %	2.9	5.2	8.6		16.7	4.6	7.5	1.1		13.2	3.4	29.9	4		37.4	1.1	29.9	1.7		32.8	6.5	93.5	
P. Veh.	3	7	15		27	8	13	2		25	6	52	7		66	2	51	3		63	0	0	181
% P. Veh.	60	77.8	100	100	87.1	100	100	100	100	100	100	100	100	100	100	100	98.1	100	100	98.4	0	0	97.3
Buses	2	2	0		4	0	0	0		0	0	0	0		0	0	1	0		1	0	0	5
% Buses	40	22.2	0	0	12.9	0	0	0	0	0	0	0	0	0	0	0	1.9	0	0	1.6	0	0	2.7
Trucks	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

	N/B				S/B				E/B				W/B				
Start Time	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Int. Total**
Peak Hour Analysis From 08:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**1**	**2**	2	5	1	**3**	**1**	**5**	1	5	0	6	0	4	**1**	5	21
08:15 AM	0	1	0	1	**2**	2	0	4	1	5	**2**	8	0	7	0	7	20
08:30 AM	0	2	**4**	**6**	2	1	0	3	**2**	**7**	0	**9**	0	**11**	0	**11**	**29**
08:45 AM	0	0	2	2	0	2	0	2	0	5	0	5	0	6	0	6	15
Total Volume	1	5	8	14	5	8	1	14	4	22	2	28	0	28	1	29	85
% App. Total	7.1	35.7	57.1		35.7	57.1	7.1		14.3	78.6	7.1		0	96.6	3.4		
PHF	.250	.625	.500	.583	.625	.667	.250	.700	.500	.786	.250	.778	.000	.636	.250	.659	.733

RC SPENCER ASSOCIATES INC.
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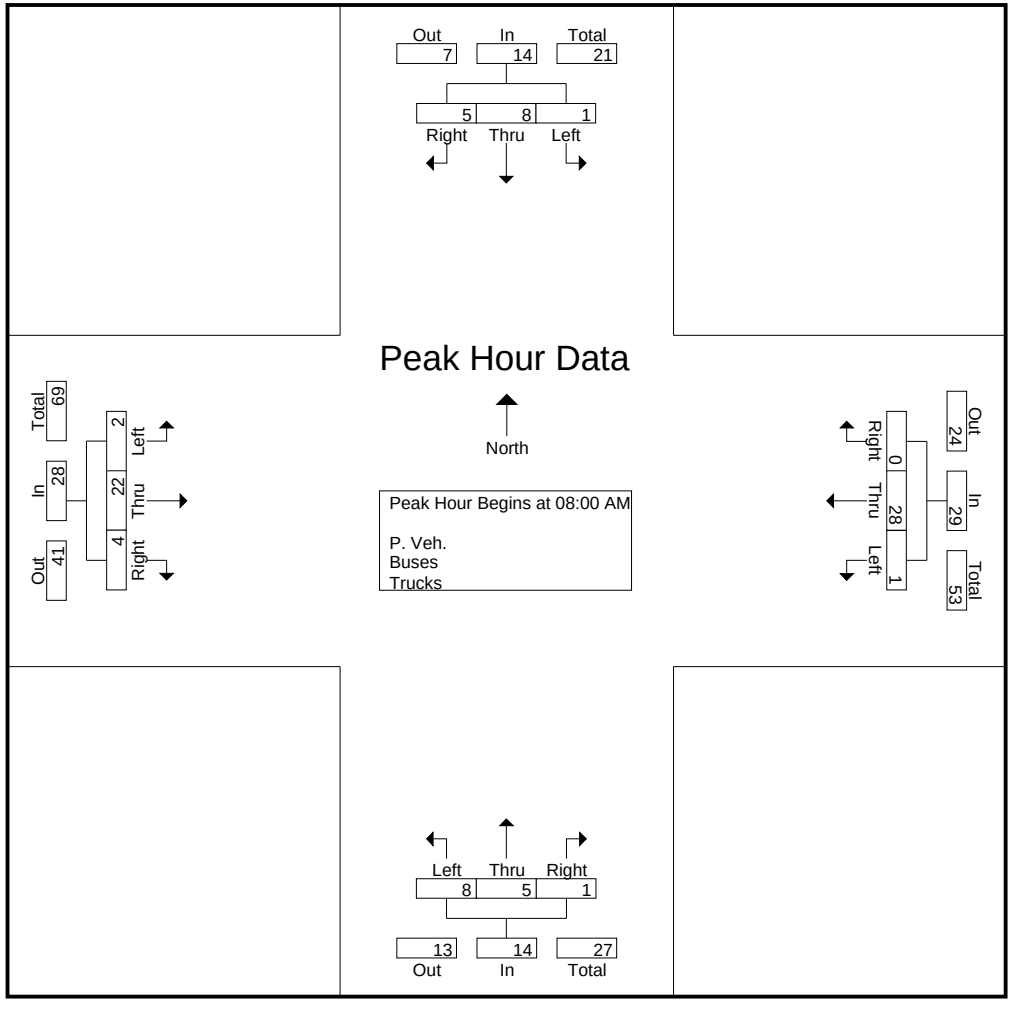

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

	N/B				S/B				E/B				W/B				
Start Time	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Int. Total**
Peak Hour Analysis From 12:00 PM to 04:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	**4**	1	1	**6**	**2**	**2**	0	**4**	0	4	**2**	6	0	5	**1**	6	22
03:30 PM	0	1	**2**	3	0	1	0	1	0	8	0	8	**1**	5	0	6	18
03:45 PM	0	**2**	2	4	1	0	0	1	**2**	**10**	1	**13**	1	**11**	0	**12**	**30**
04:00 PM	0	0	2	2	0	2	**1**	3	0	8	2	10	0	3	1	4	19
Total Volume	4	4	7	15	3	5	1	9	2	30	5	37	2	24	2	28	89
% App. Total	26.7	26.7	46.7		33.3	55.6	11.1		5.4	81.1	13.5		7.1	85.7	7.1		
PHF	.250	.500	.875	.625	.375	.625	.250	.563	.250	.750	.625	.712	.500	.545	.500	.583	.742

RC SPENCER ASSOCIATES INC.
Consulting Engineers
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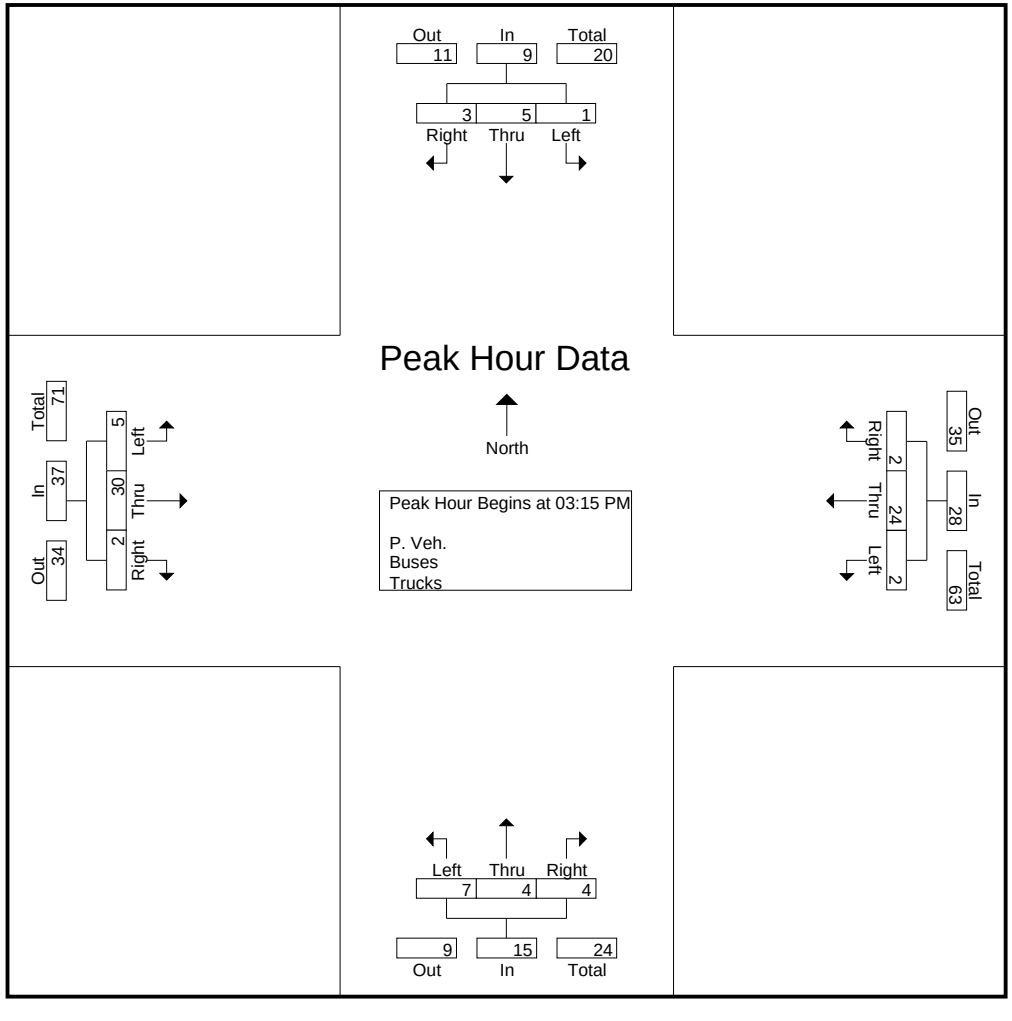
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3



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Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

Date: April 30, 2019
Counted by: Parth Bhatt
Weather Conditions: Overcast
Intersection: Lacasse Boulevard at Dillon Drive

Groups Printed- P. Veh. - Buses - Trucks

	Dillon Drive W/B					Lacasse Boulevard N/B					Lacasse Boulevard S/B					Dillon Drive E/B							
Start Time	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Right**	**Thru**	**Left**	**Peds**	**App. Total**	**Exclu. Total**	**Inclu. Total**	**Int. Total**
08:00 AM	0	2	0	(0)	2	0	7	0	(1)	7	0	4	0	(1)	4	4	0	1	(0)	5	2	18	20
08:15 AM	0	6	0	(1)	6	2	13	3	(0)	18	0	7	2	(2)	9	1	0	1	(1)	2	4	35	39
08:30 AM	1	0	3	(1)	4	0	18	6	(1)	24	0	12	0	(0)	12	7	1	1	(0)	9	2	49	51
08:45 AM	0	5	0	(0)	5	0	7	3	(0)	10	0	4	0	(1)	4	2	4	0	(0)	6	1	25	26
Total	1	13	3	(2)	17	2	45	12	(2)	59	0	27	2	(4)	29	14	5	3	(1)	22	9	127	136
** BREAK **																							
03:15 PM	0	3	0	(1)	3	2	8	5	(0)	15	1	10	1	(0)	12	2	4	2	(1)	8	2	38	40
03:30 PM	0	0	0	(0)	0	0	18	3	(0)	21	0	8	0	(0)	8	2	6	0	(0)	8	0	37	37
03:45 PM	0	1	0	(0)	1	1	10	2	(0)	13	2	7	1	(0)	10	5	5	0	(0)	10	0	34	34
Total	0	4	0	(1)	4	3	36	10	(0)	49	3	25	2	(0)	30	9	15	2	(1)	26	2	109	111
04:00 PM	1	3	1	(4)	5	2	6	2	(0)	10	1	8	0	(0)	9	1	3	0	(1)	4	5	28	33
Grand Total	2	20	4	(7)	26	7	87	24	(2)	118	4	60	4	(4)	68	24	23	5	(3)	52	16	264	280
Apprch %	7.7	76.9	15.4			5.9	73.7	20.3			5.9	88.2	5.9			46.2	44.2	9.6					
Total %	0.8	7.6	1.5		9.8	2.7	33	9.1		44.7	1.5	22.7	1.5		25.8	9.1	8.7	1.9		19.7	5.7	94.3	
P. Veh.	2	19	3		31	5	86	22		115	4	60	4		72	24	23	2		52	0	0	270
% P. Veh.	100	95	75	100	93.9	71.4	98.9	91.7	100	95.8	100	100	100	100	100	100	100	40	100	94.5	0	0	96.4
Buses	0	1	1		2	2	1	2		5	0	0	0		0	0	0	3		3	0	0	10
% Buses	0	5	25	0	6.1	28.6	1.1	8.3	0	4.2	0	0	0	0	0	0	0	60	0	5.5	0	0	3.6
Trucks	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

	Dillon Drive W/B				Lacasse Boulevard N/B				Lacasse Boulevard S/B				Dillon Drive E/B				
Start Time	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Int. Total**
Peak Hour Analysis From 08:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	2	0	2	0	7	0	7	0	4	0	4	4	0	**1**	5	18
08:15 AM	0	**6**	0	**6**	**2**	13	3	18	0	7	**2**	9	1	0	1	2	35
08:30 AM	**1**	0	**3**	4	0	**18**	**6**	**24**	0	**12**	0	**12**	**7**	1	1	**9**	**49**
08:45 AM	0	5	0	5	0	7	3	10	0	4	0	4	2	**4**	0	6	25
Total Volume	1	13	3	17	2	45	12	59	0	27	2	29	14	5	3	22	127
% App. Total	5.9	76.5	17.6		3.4	76.3	20.3		0	93.1	6.9		63.6	22.7	13.6		
PHF	.250	.542	.250	.708	.250	.625	.500	.615	.000	.563	.250	.604	.500	.313	.750	.611	.648

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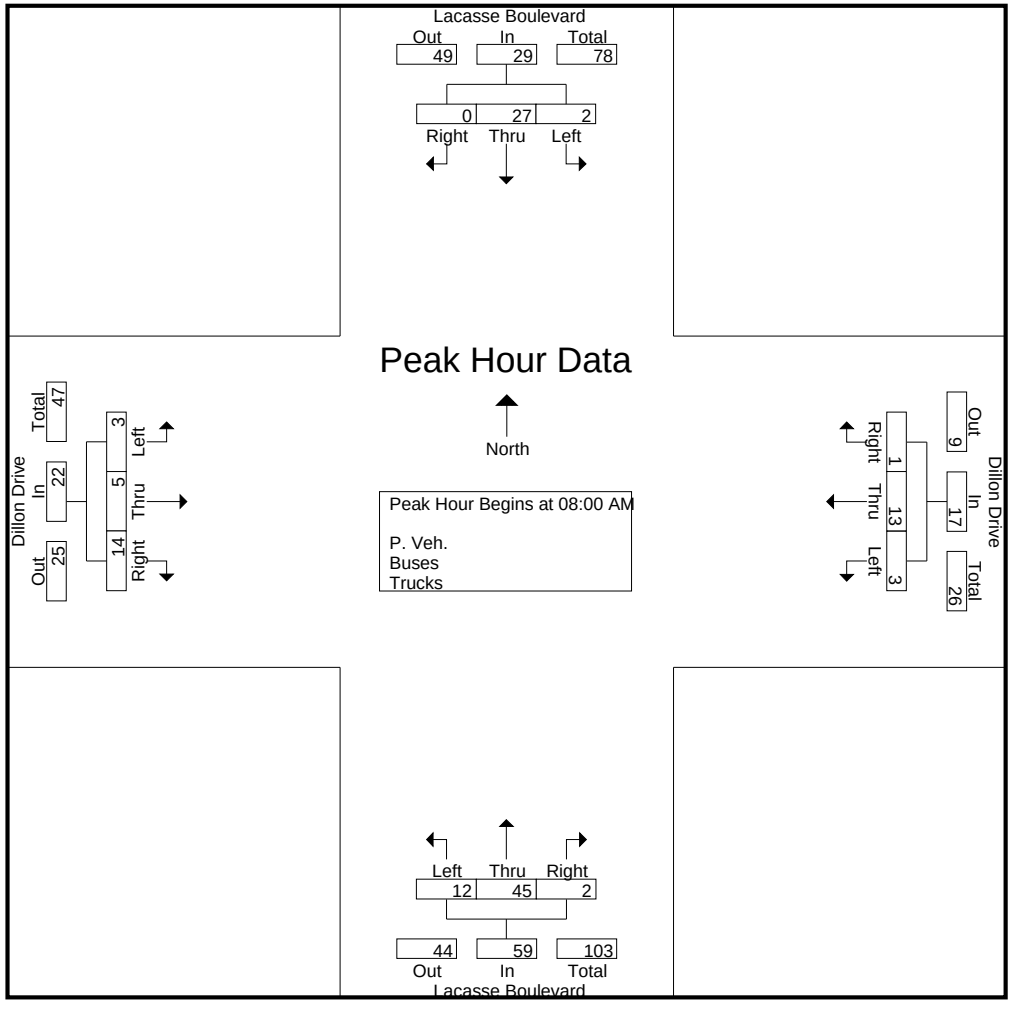
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3



RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Ave. W. - Windsor ON N9A 5R9
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

	Dillon Drive W/B				Lacasse Boulevard N/B				Lacasse Boulevard S/B				Dillon Drive E/B				
Start Time	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Right**	**Thru**	**Left**	**App. Total**	**Int. Total**
Peak Hour Analysis From 12:00 PM to 04:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	0	**3**	0	3	**2**	8	**5**	15	1	**10**	**1**	**12**	2	4	**2**	8	**38**
03:30 PM	0	0	0	0	0	**18**	3	**21**	0	8	0	8	2	**6**	0	8	37
03:45 PM	0	1	0	1	1	10	2	13	**2**	7	1	10	**5**	5	0	**10**	34
04:00 PM	**1**	3	**1**	**5**	2	6	2	10	1	8	0	9	1	3	0	4	28
Total Volume	1	7	1	9	5	42	12	59	4	33	2	39	10	18	2	30	137
% App. Total	11.1	77.8	11.1		8.5	71.2	20.3		10.3	84.6	5.1		33.3	60	6.7		
PHF	.250	.583	.250	.450	.625	.583	.600	.702	.500	.825	.500	.813	.500	.750	.250	.750	.901

RC SPENCER ASSOCIATES INC.
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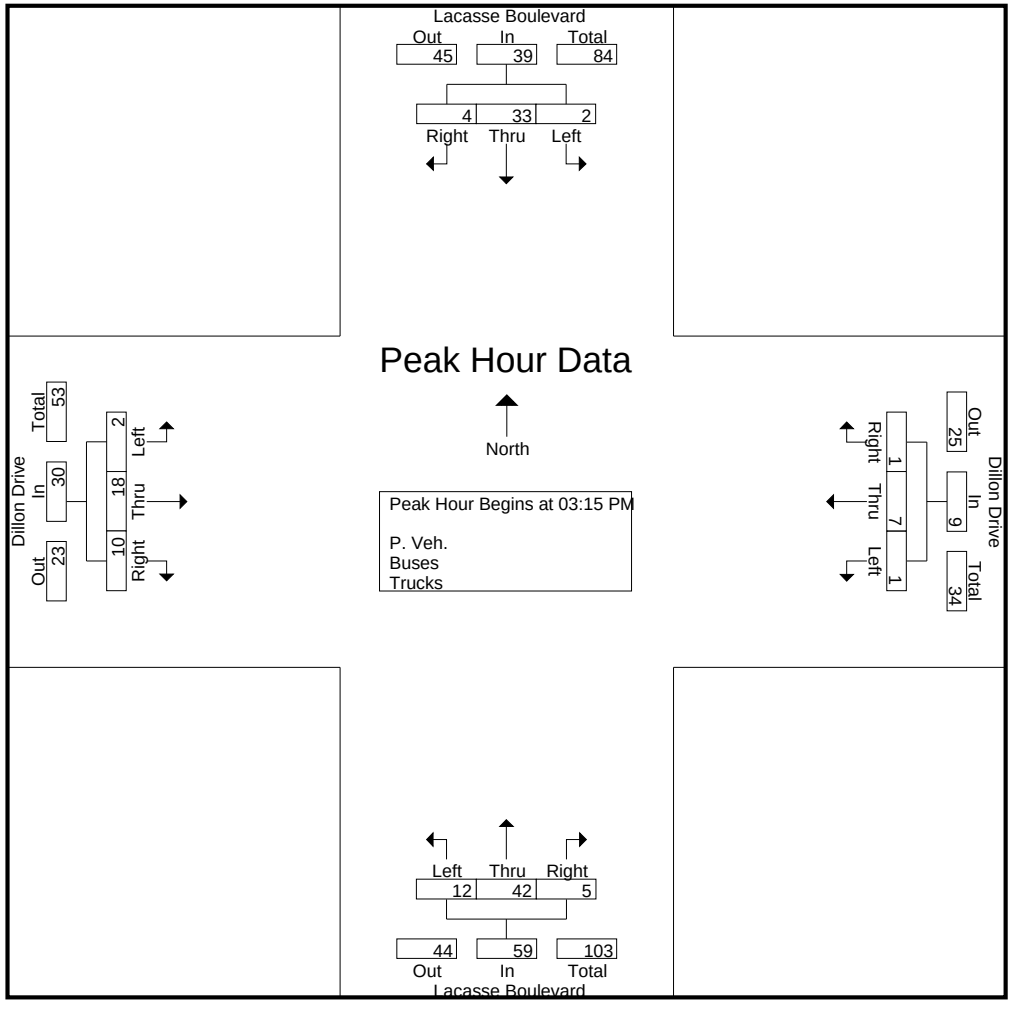


Appendix B

ITE TRIP GENERATION MANUAL – 10TH EDITION REFERENCES

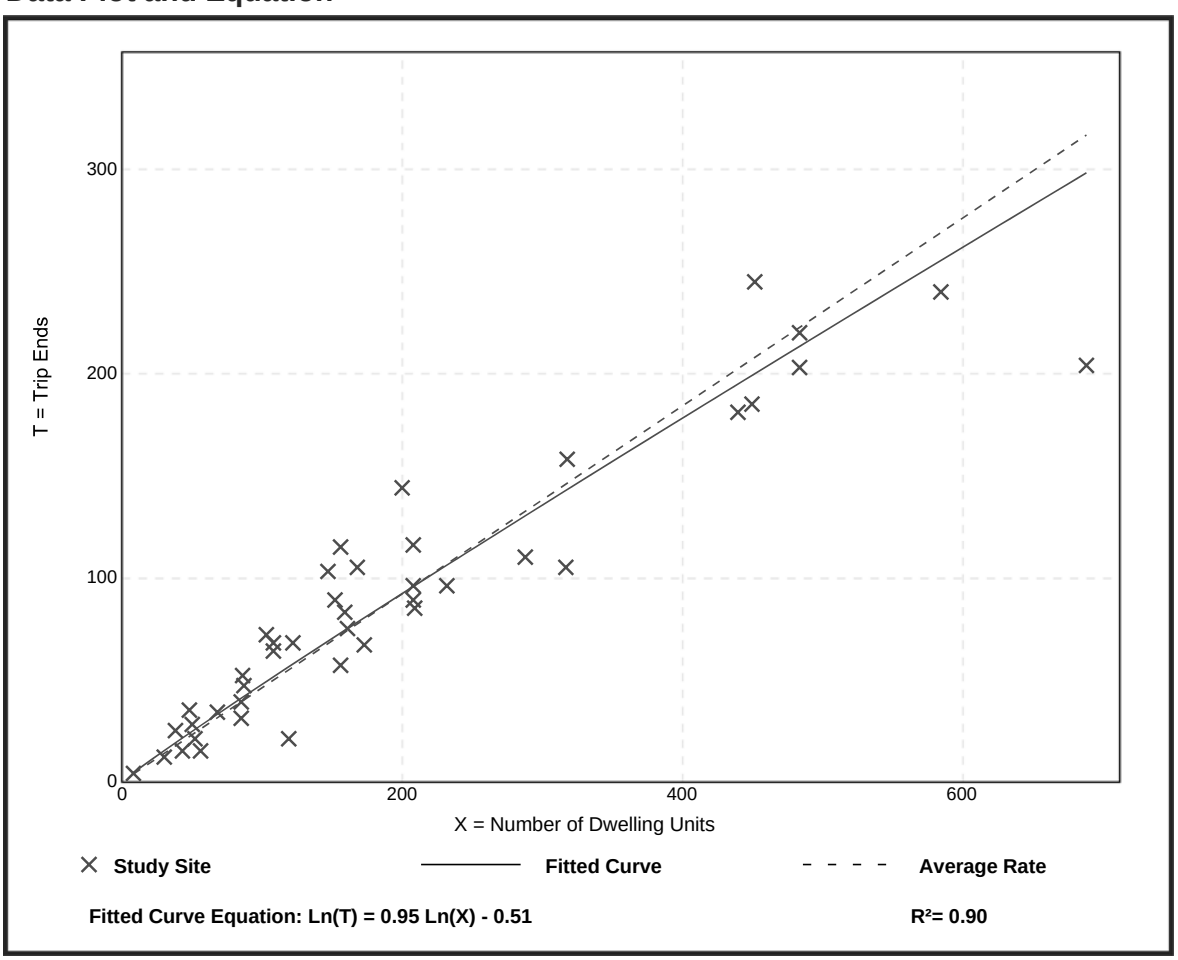
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	42
Avg. Num. of Dwelling Units:	199
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



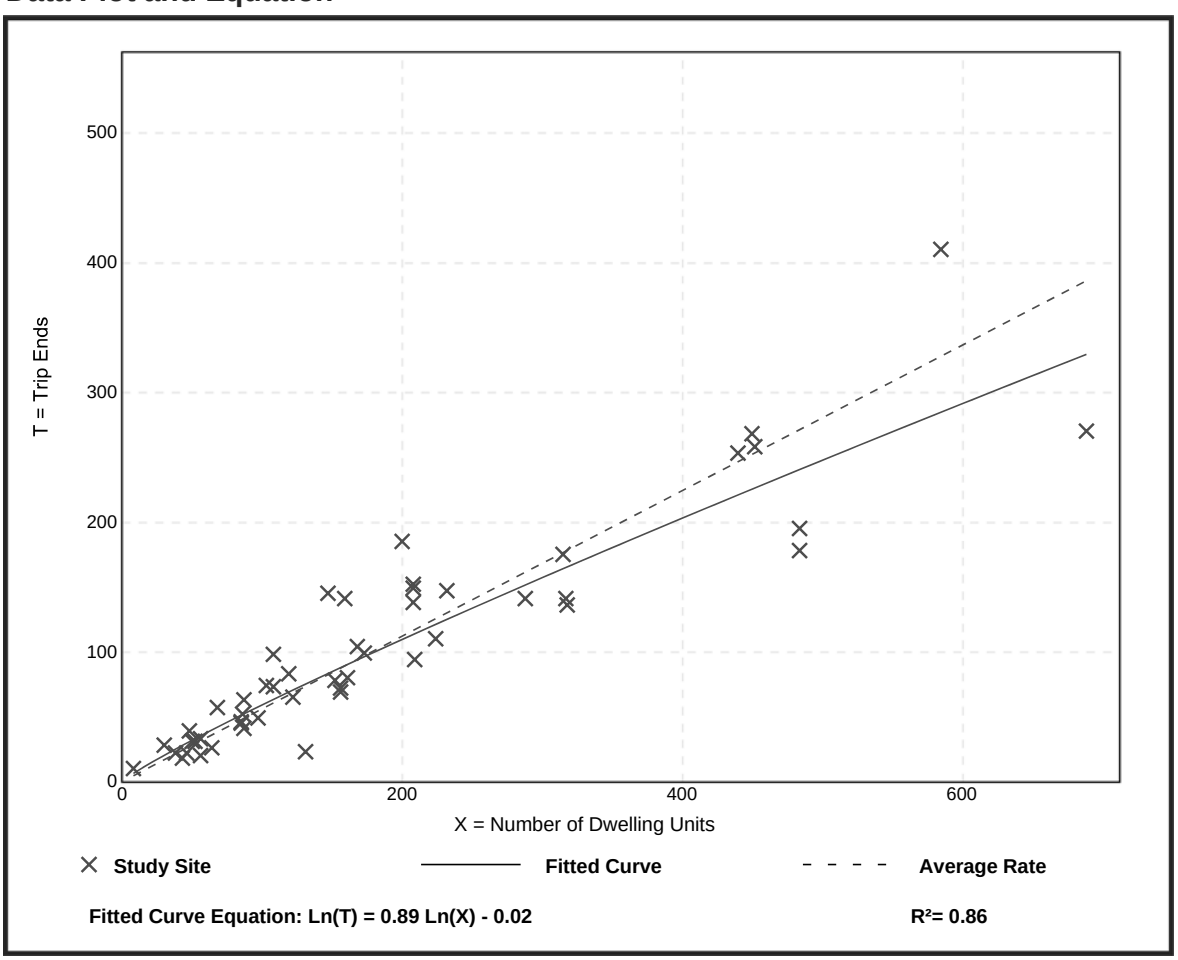
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	50
Avg. Num. of Dwelling Units:	187
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Proposed Site Development Trip Generation and Distribution

Project: Victoria Development

Site: 12433 Dillon Drive, Tecumseh, Ontario

Assumed Land Use (1): Multifamily Housing (Low-Rise) - ITE No. 220

Average Vehicle Trip Ends vs.: Dwelling Units

ITE Trip Generation Data collected on a: Weekday

AM Peak Hour:	0.46	= Average Rate	23	% Entering
			77	% Exiting
PM Peak Hour:	0.56	= Average Rate	63	% Entering
			37	% Exiting

Assumed Land Use (1): Multifamily Housing (Low-Rise) - ITE No. 220				
	No. of Units	**Trips Generated**	**Trips Entering**	**Trips Exiting**
AM Peak	63	29	7	22
PM Peak	63	35	22	13

Total Trips		
	Trips Entering	**Trips Exiting**
AM Peak	7	22
PM Peak	22	13

Appendix C

TRAFFIC PROJECTION FIGURES

Dillon Drive at Lesperance Road

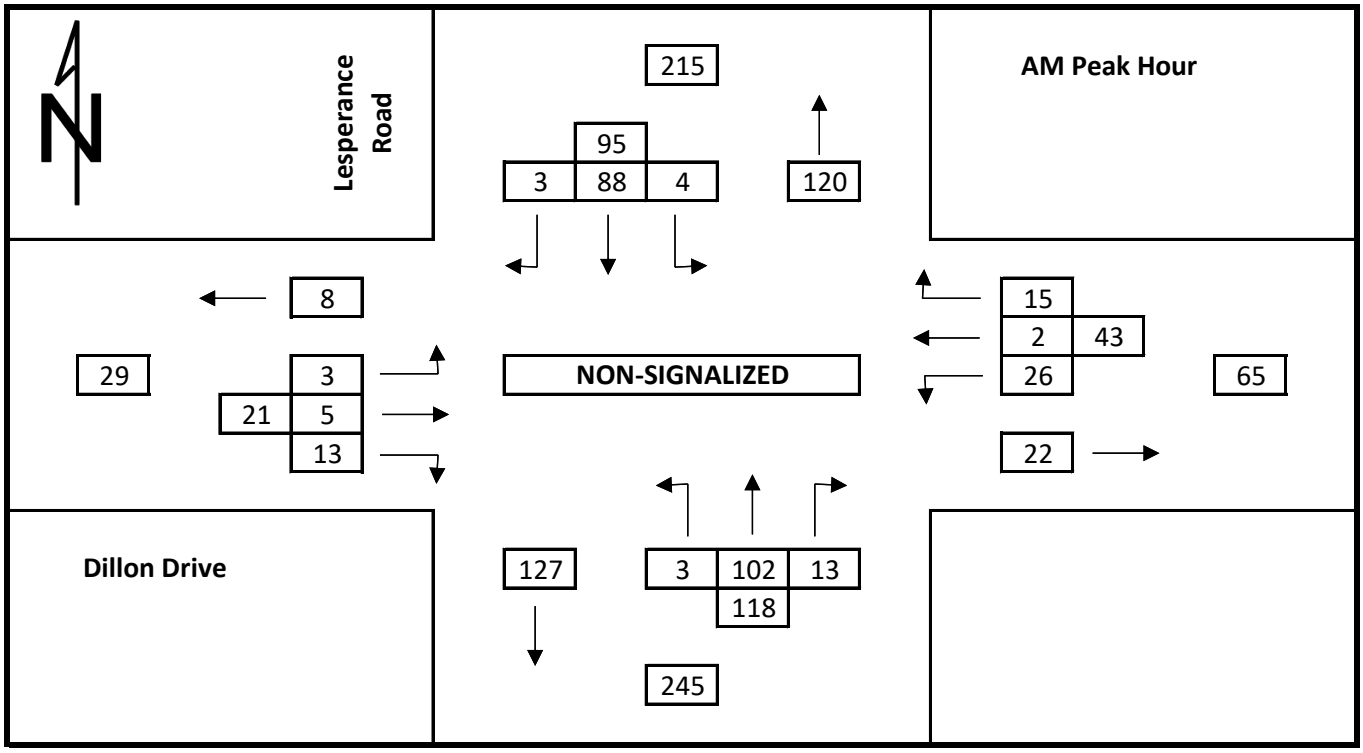
Dillon Drive at St. Pierre Street

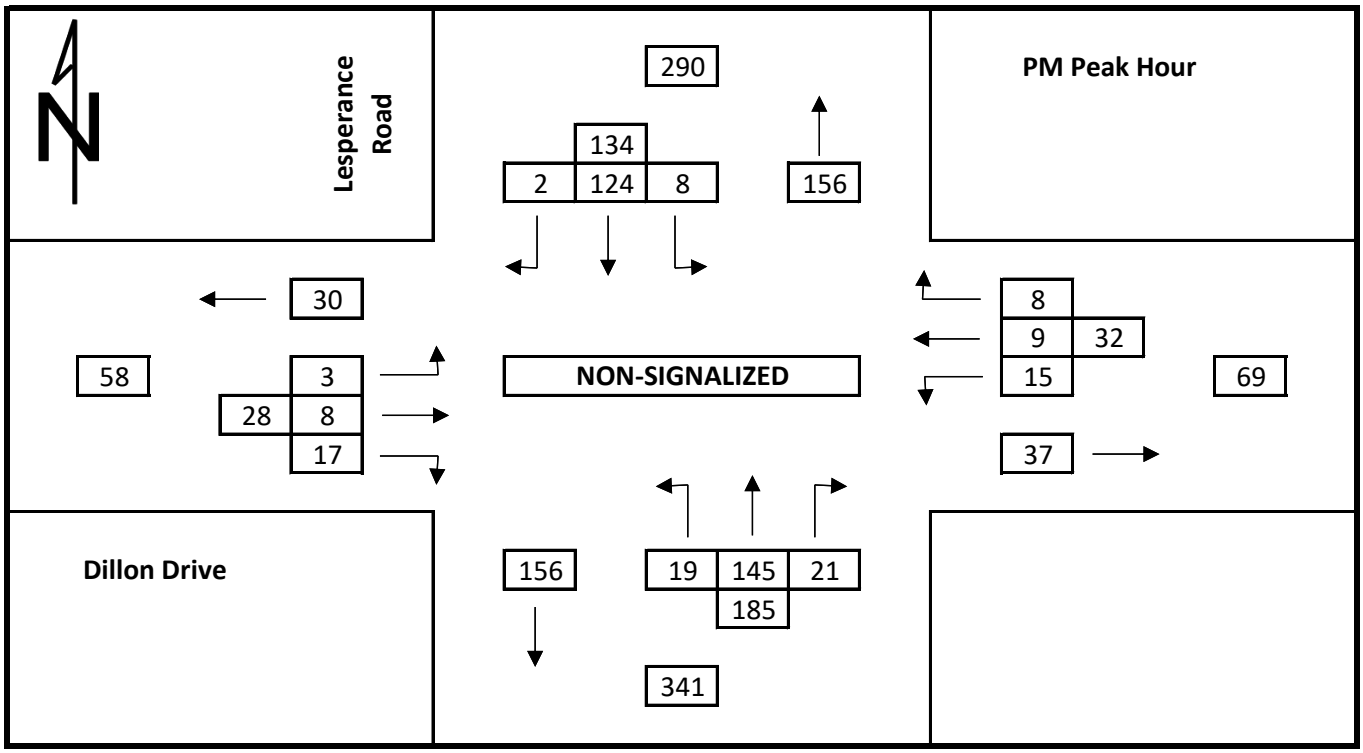
Dillon Drive at Site Access

Dillon Drive at Lacasse Boulevard

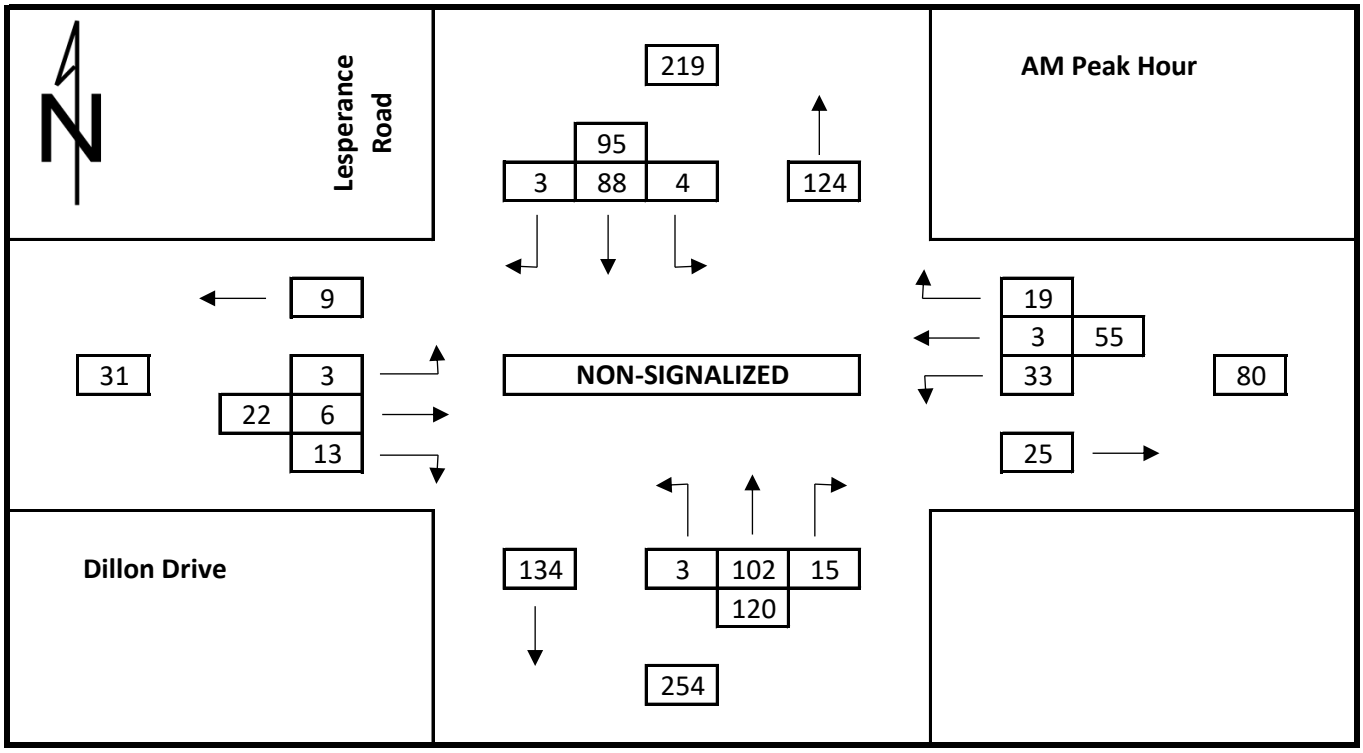
Existing Traffic Counts

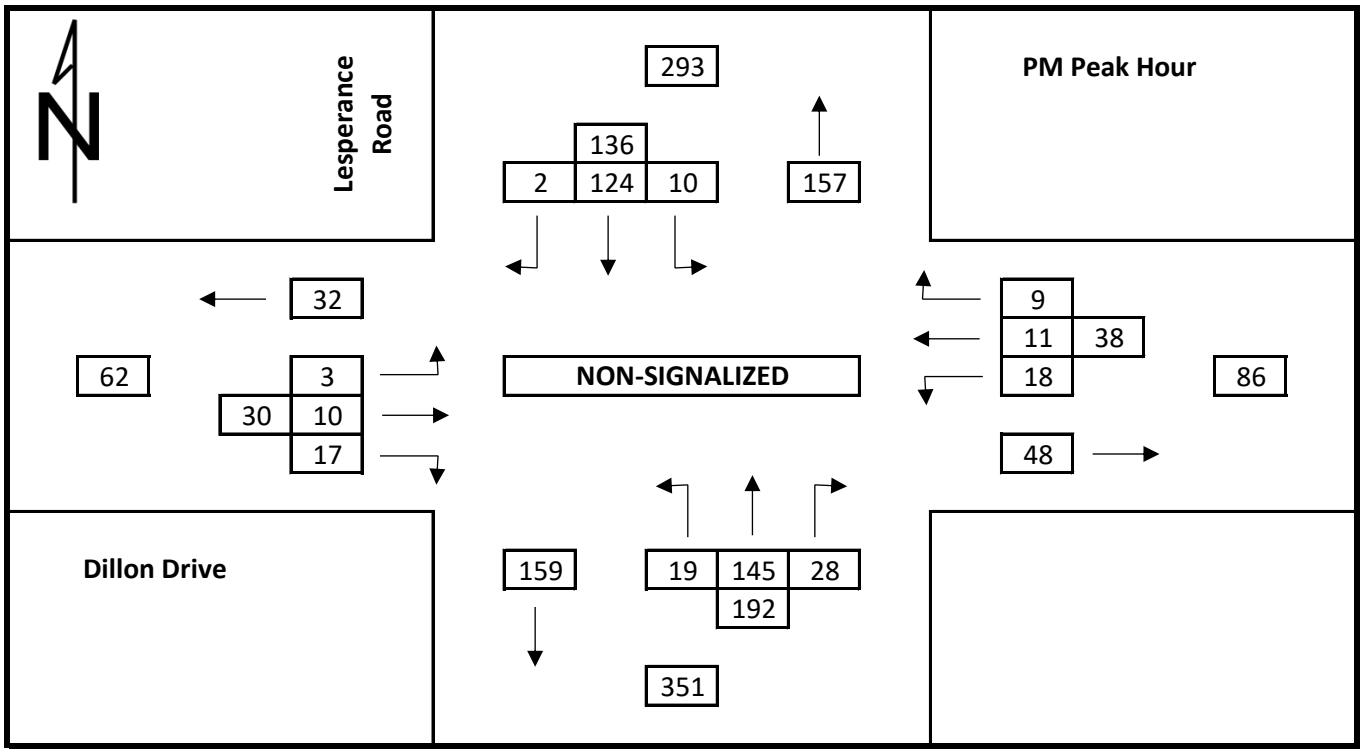
Dillon Drive at Lesperance Road





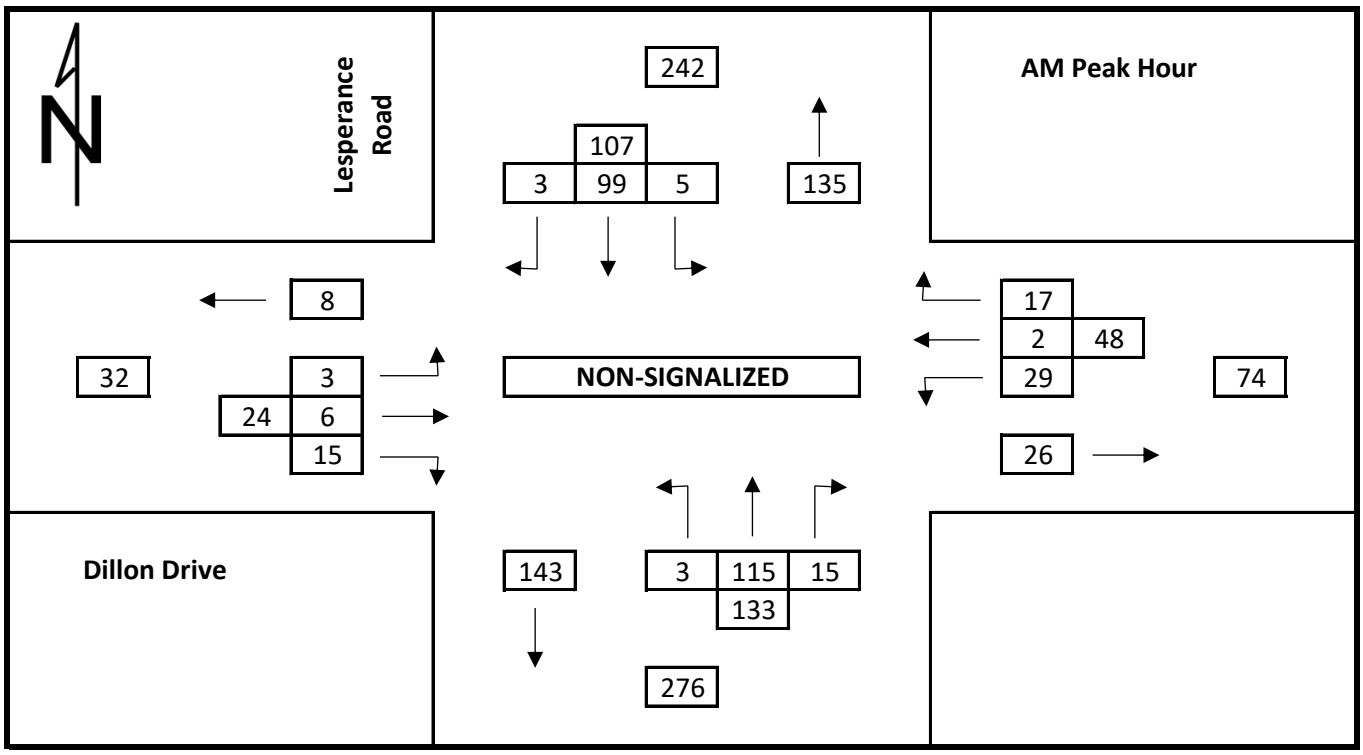
Existing + Site Generated Traffic
Dillon Drive at Lesperance Road

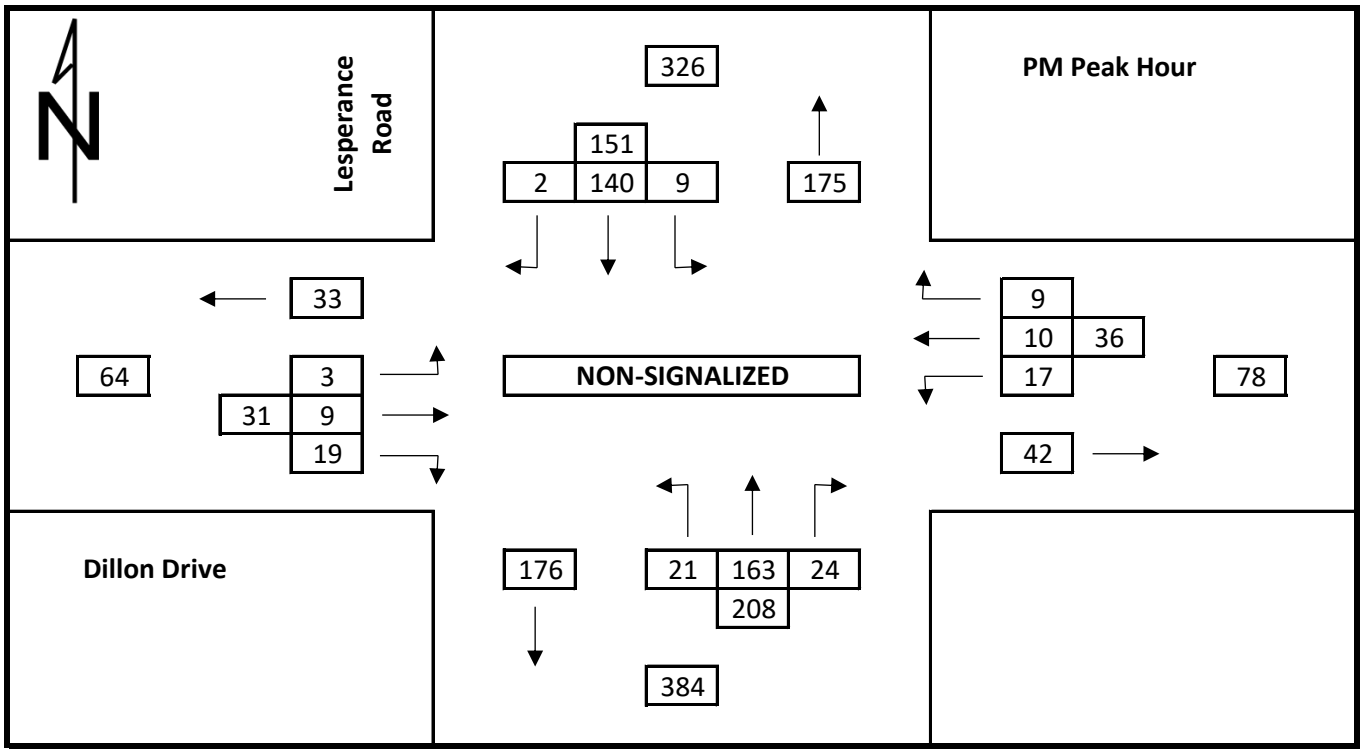




Background Traffic Year 2025

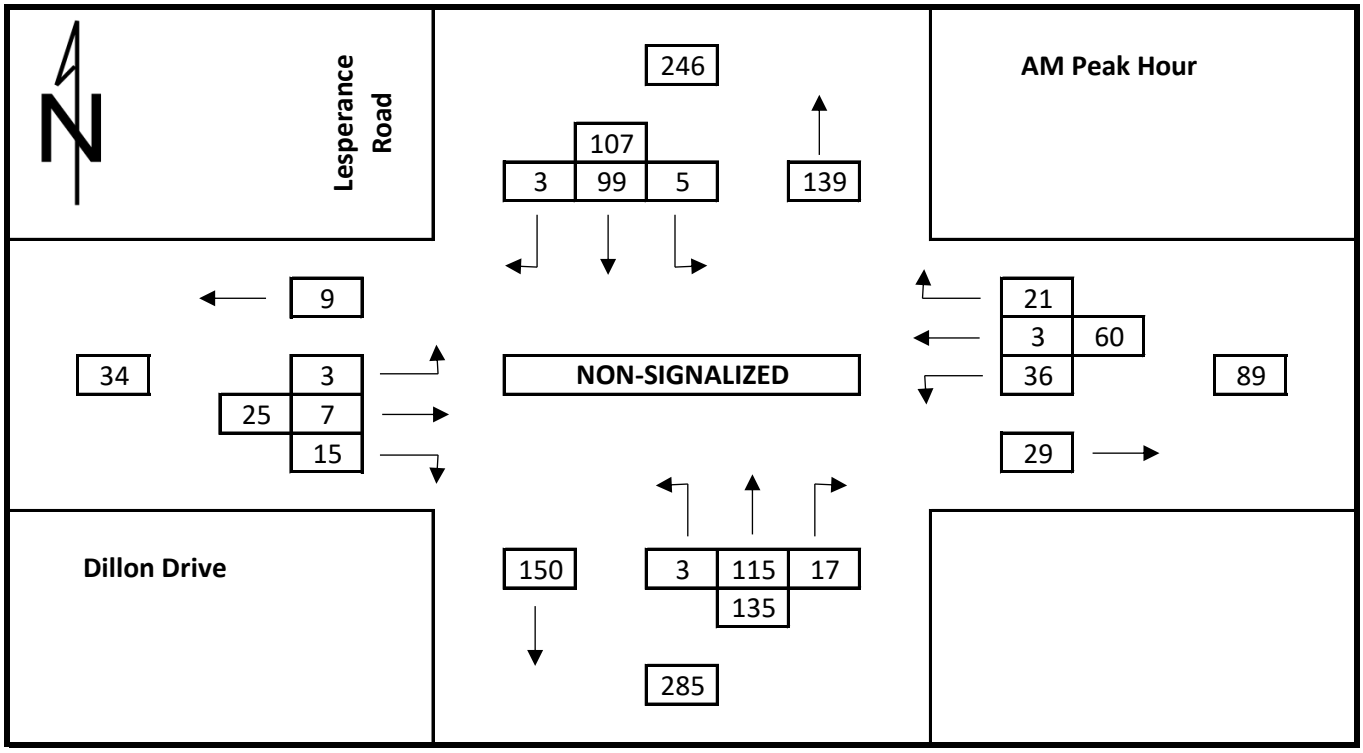
Dillon Drive at Lesperance Road

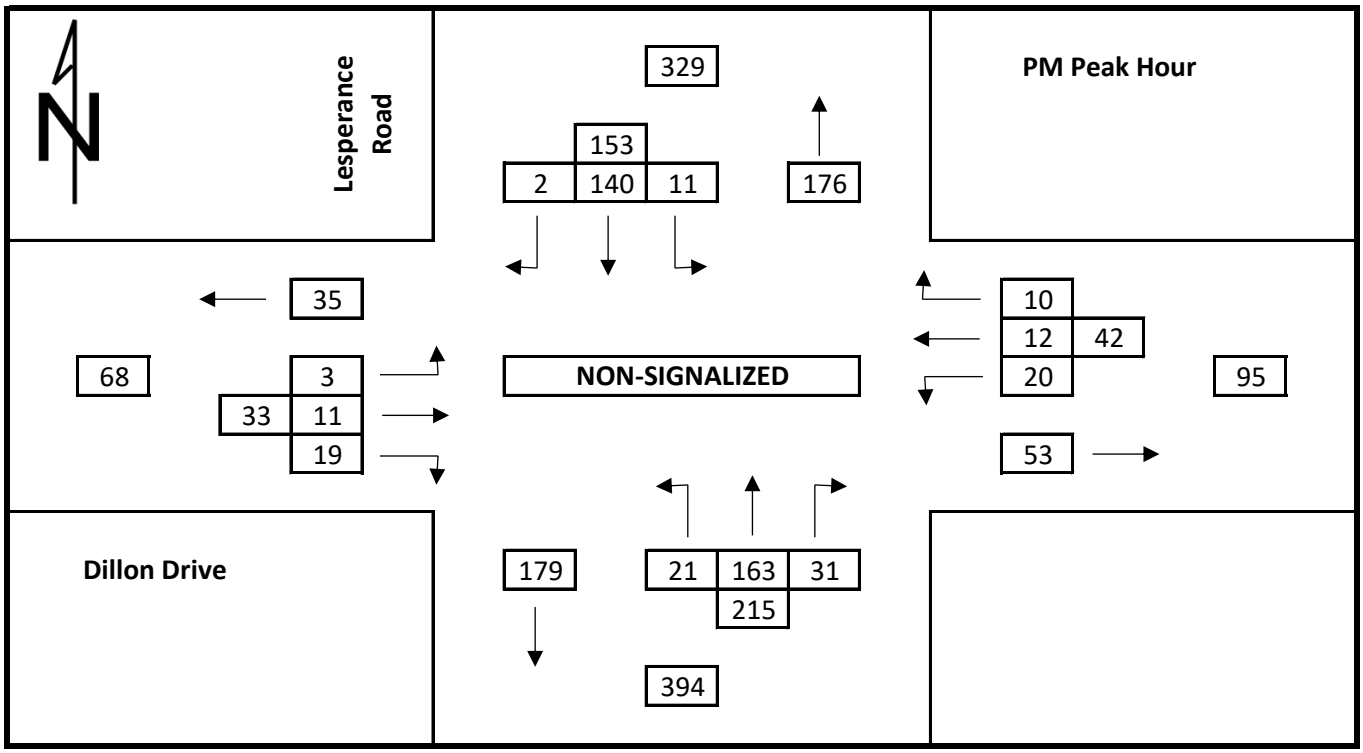




Total Traffic 2025

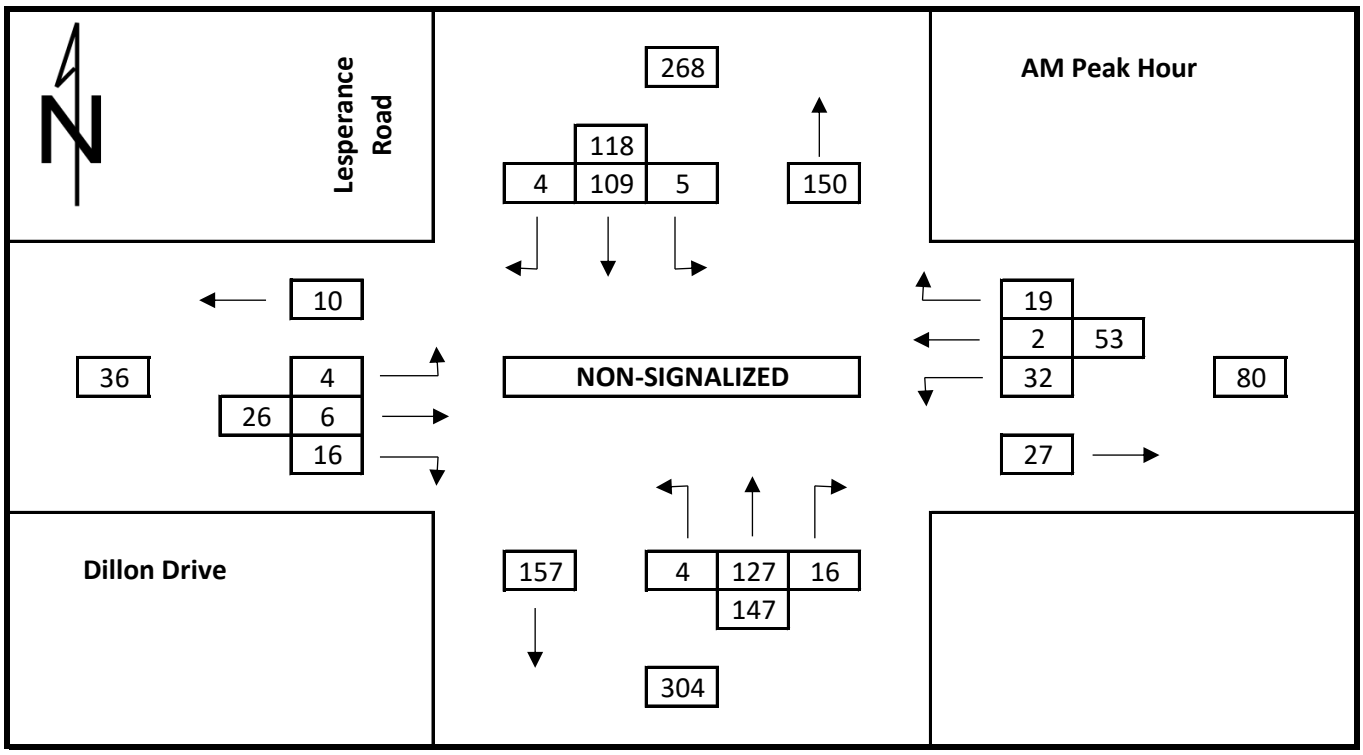
Dillon Drive at Lesperance Road

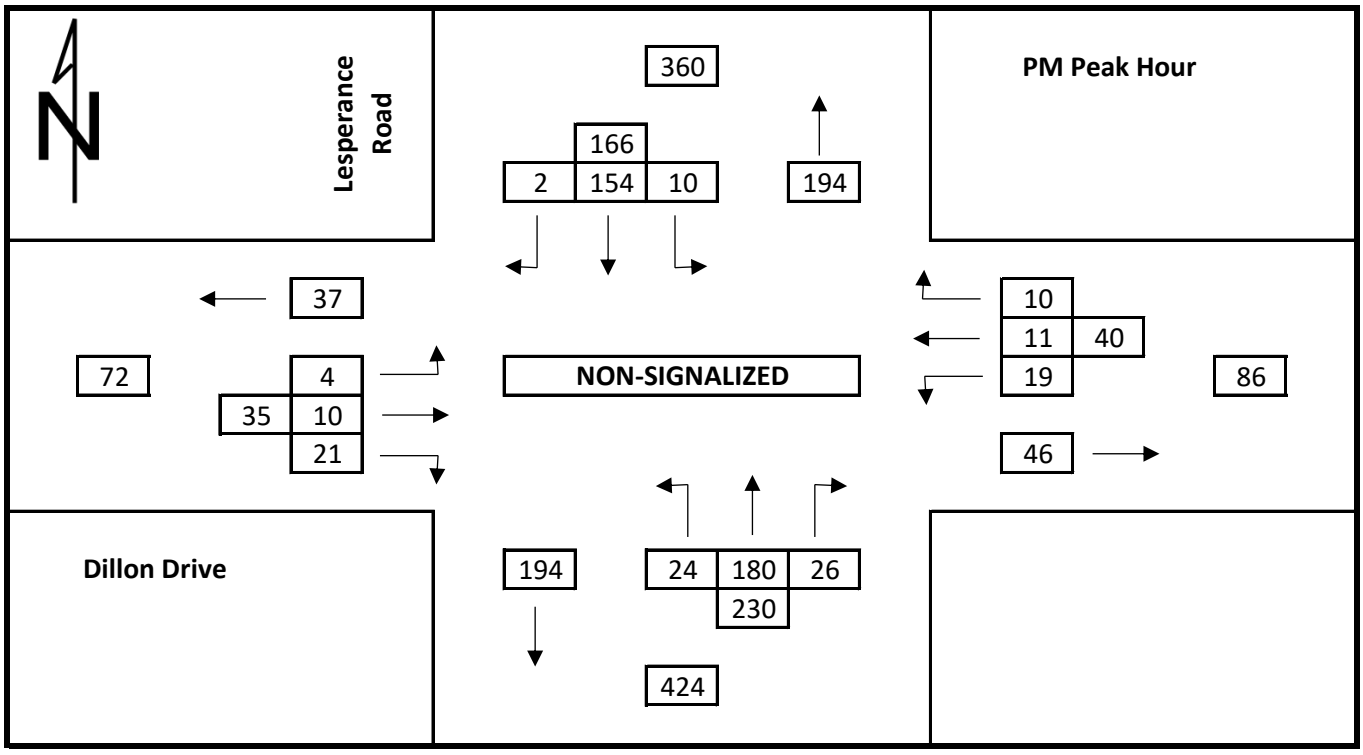




Background Traffic Year 2030

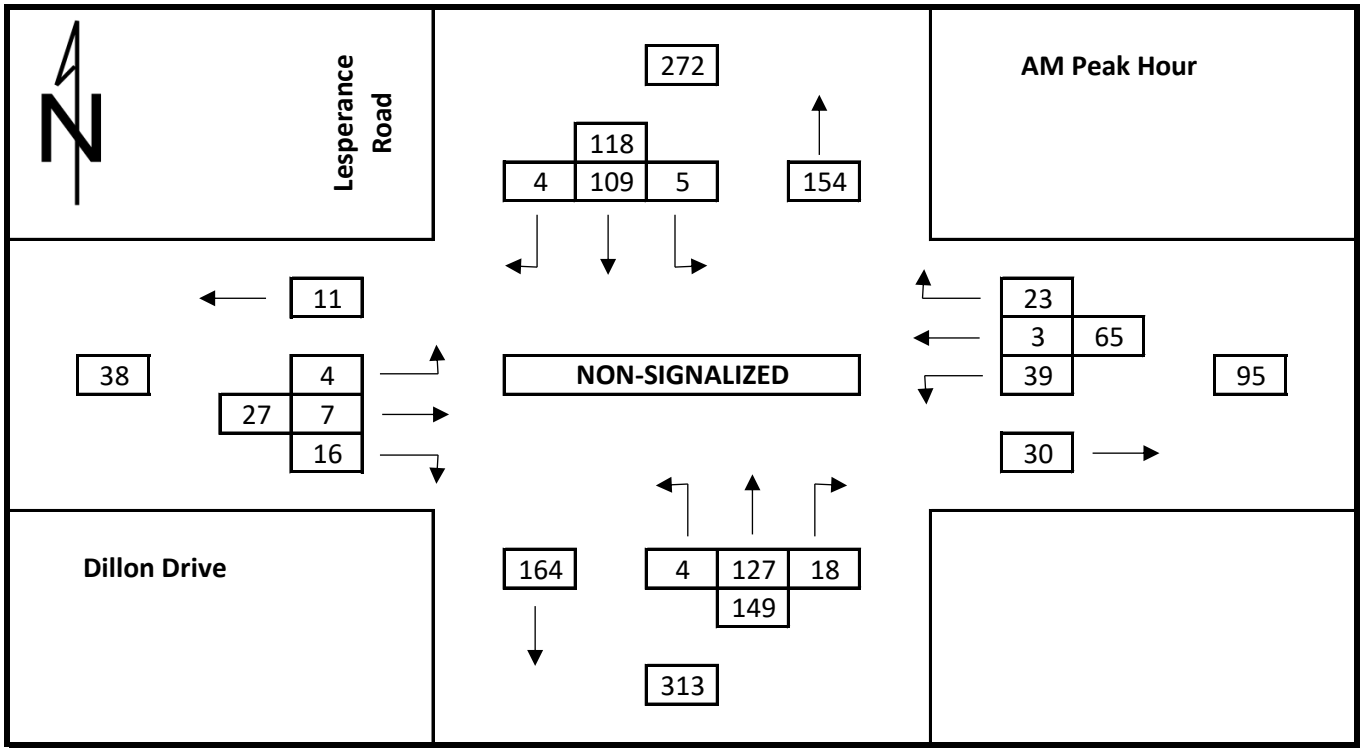
Dillon Drive at Lesperance Road

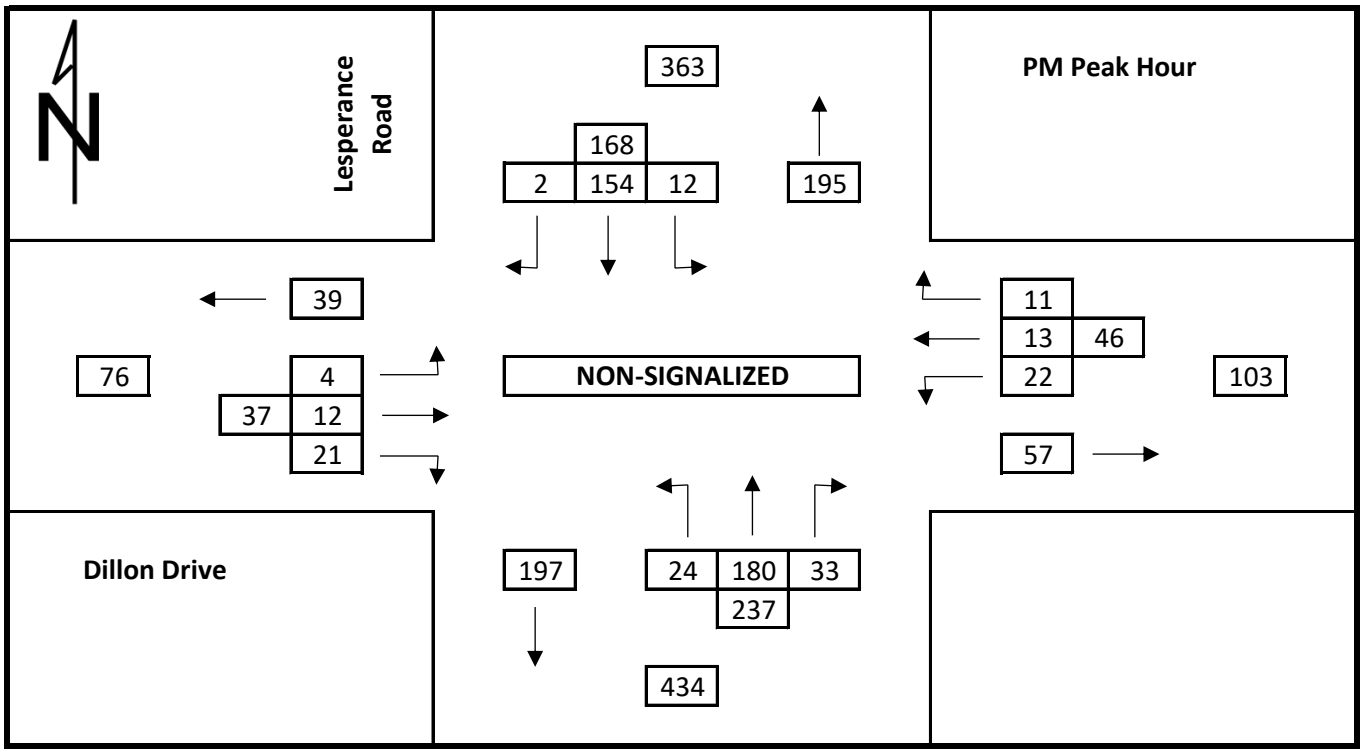




Total Traffic 2030

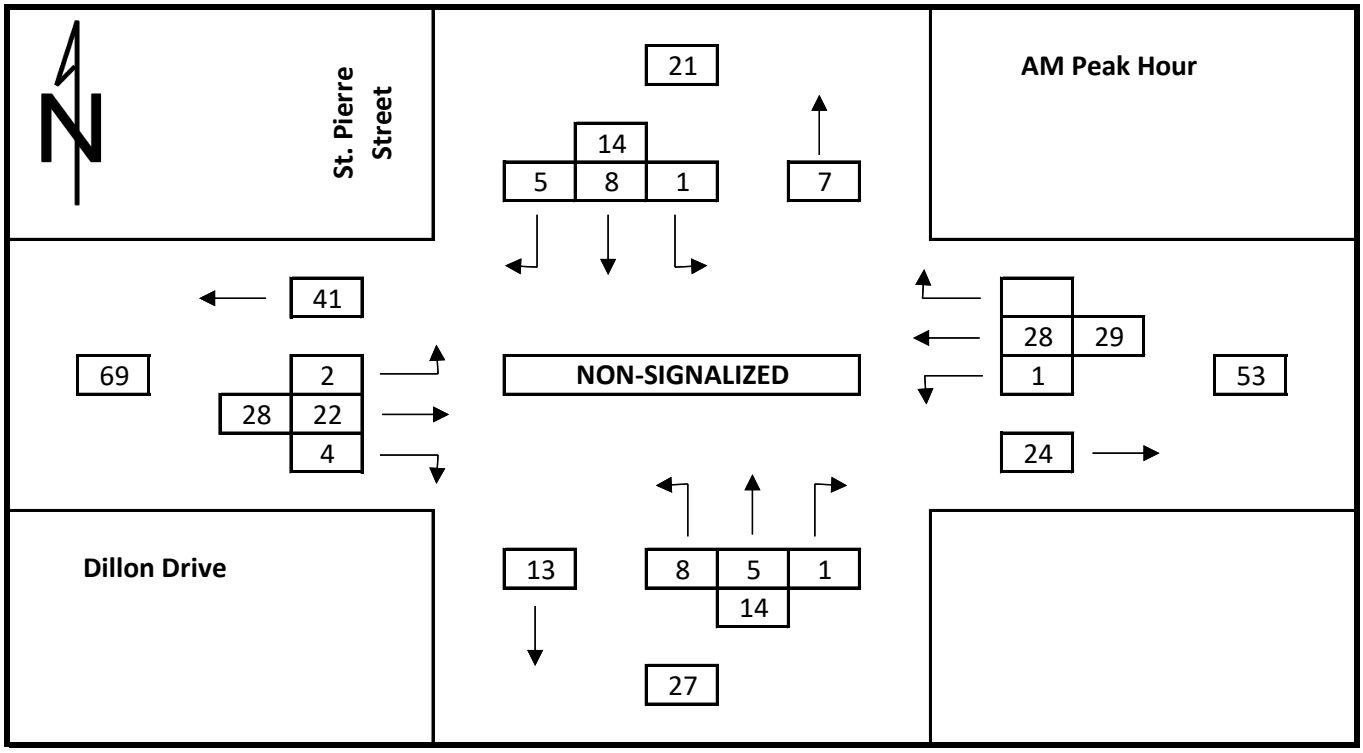
Dillon Drive at Lesperance Road

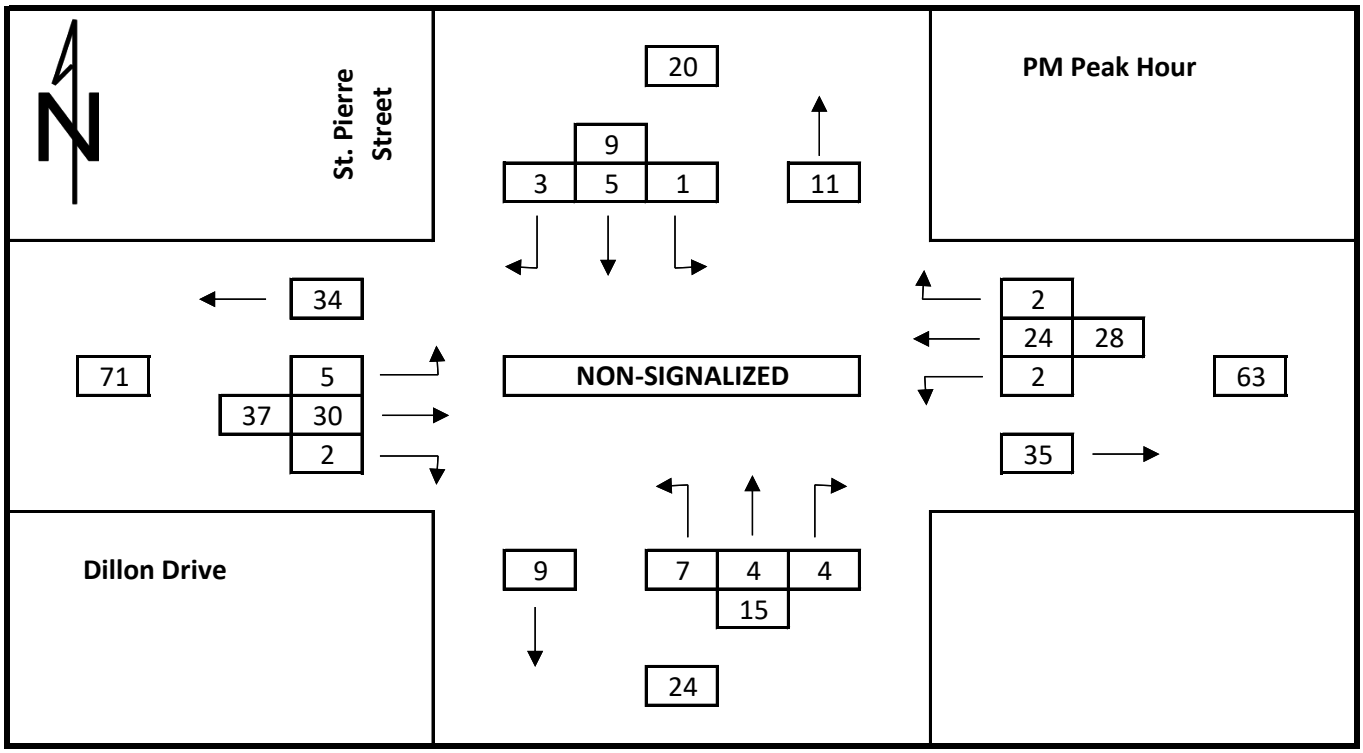




Existing Traffic Counts

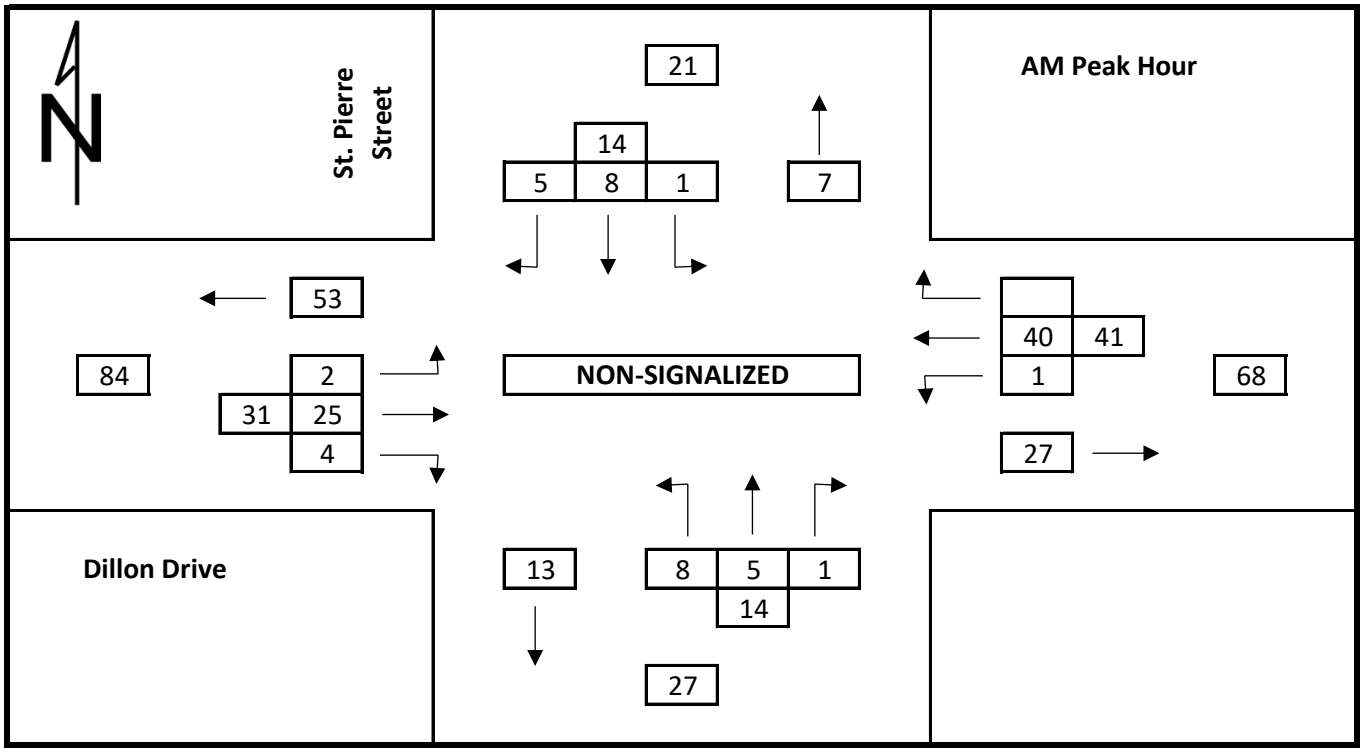
Dillon Drive at St. Pierre Street

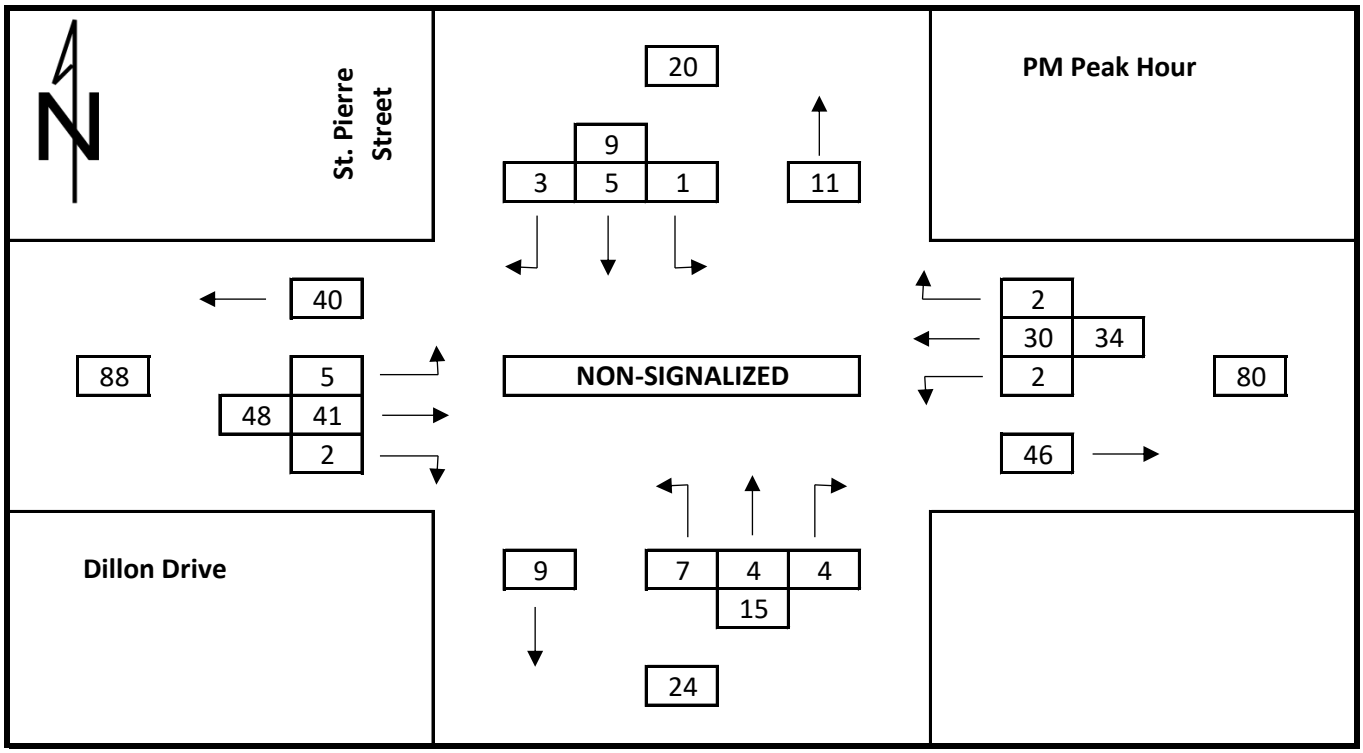




Existing + Site Generated Traffic

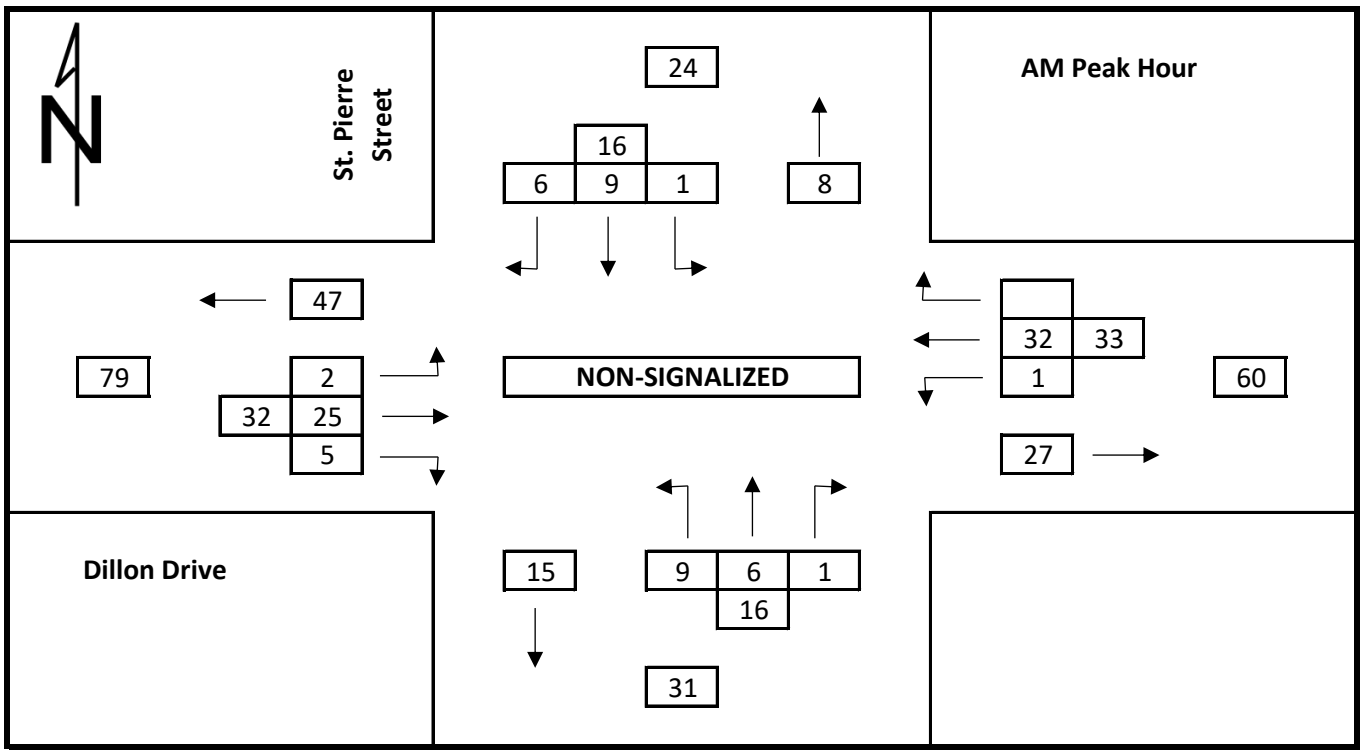
Dillon Drive at St. Pierre Street

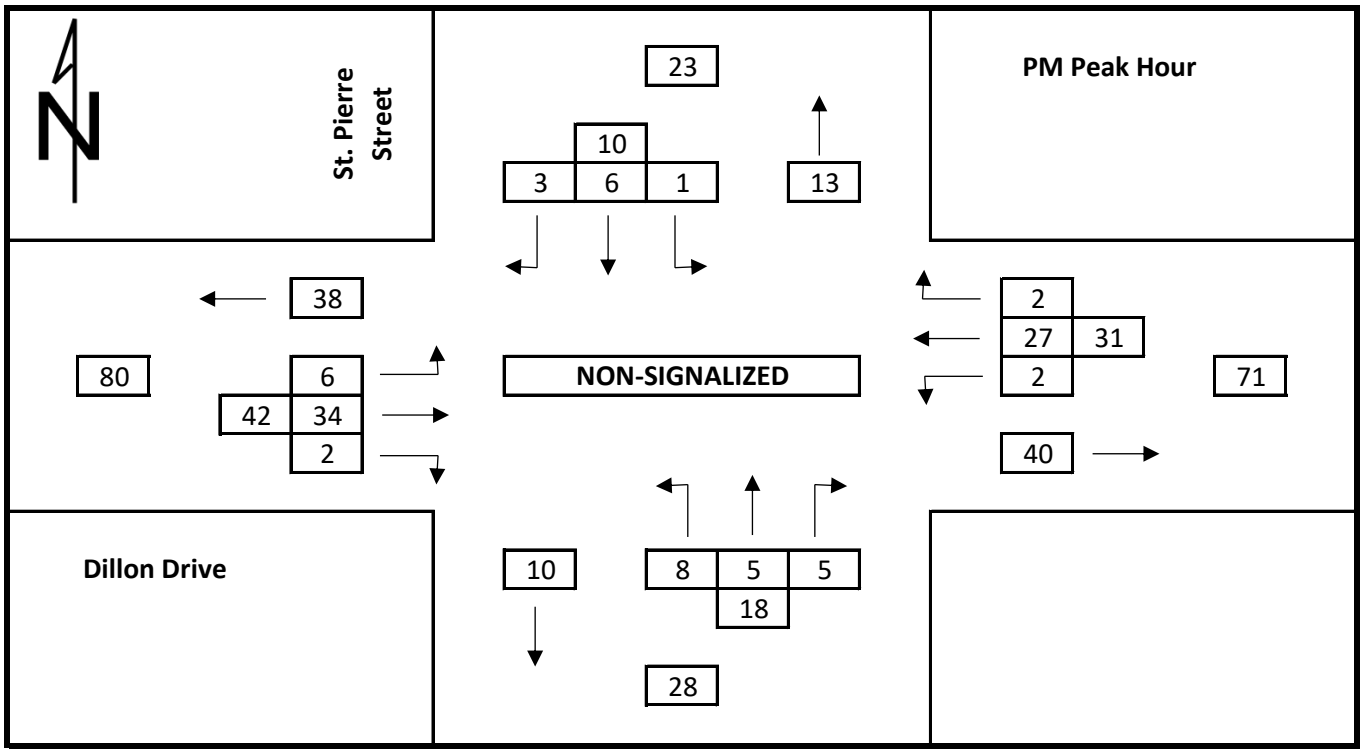




Background Traffic Year 2025

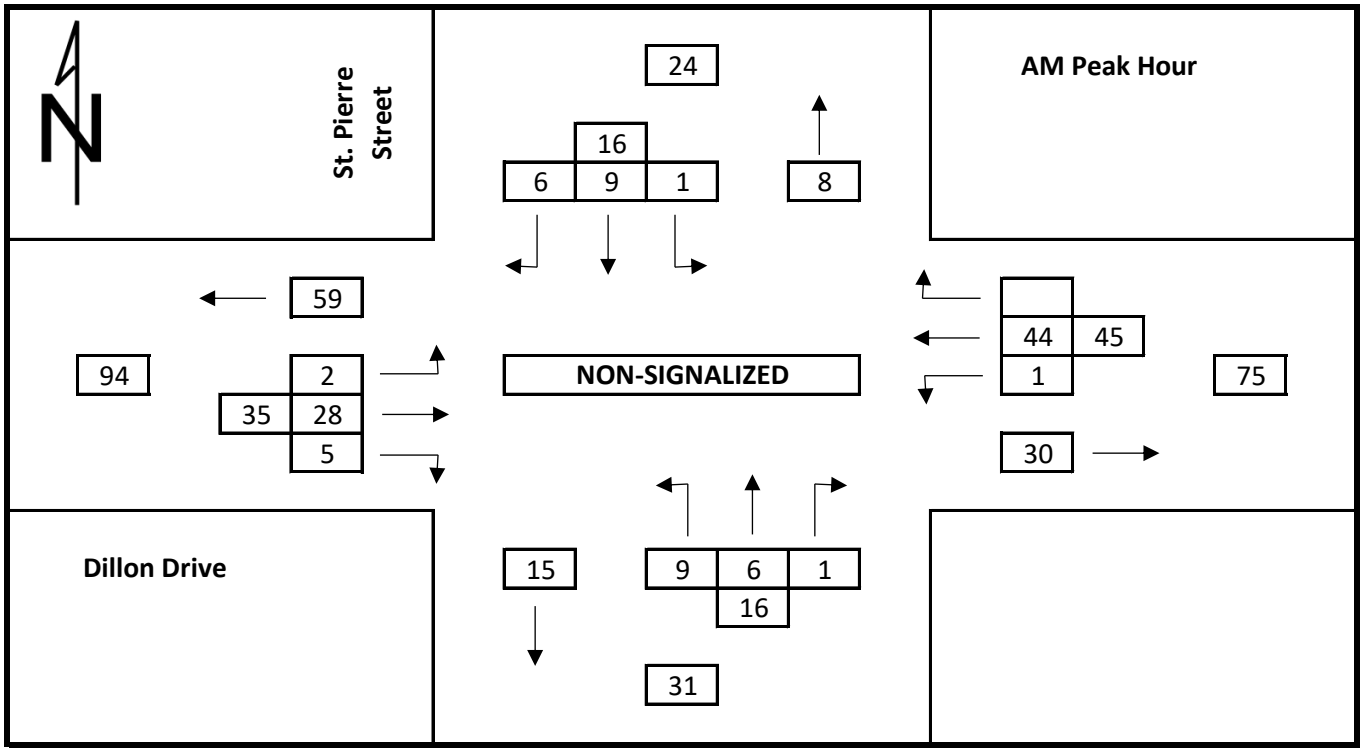
Dillon Drive at St. Pierre Street

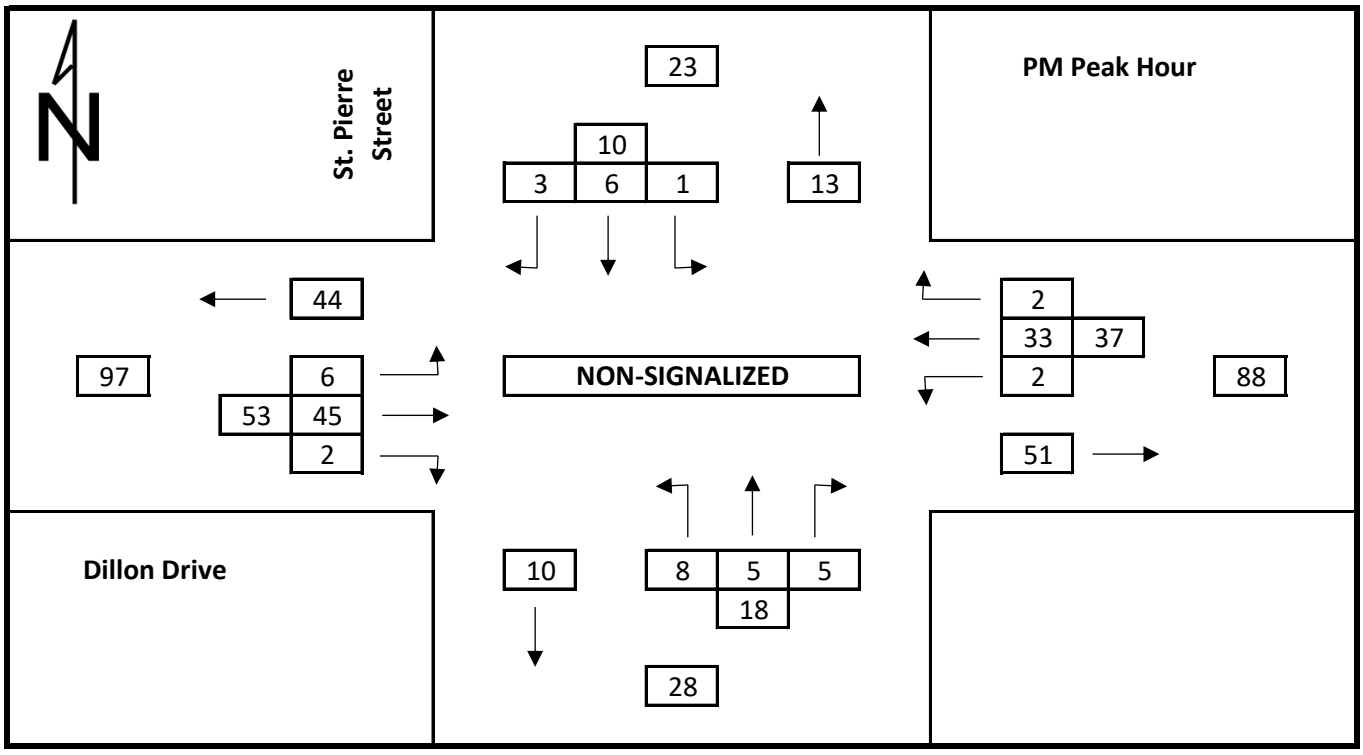




Total Traffic 2025

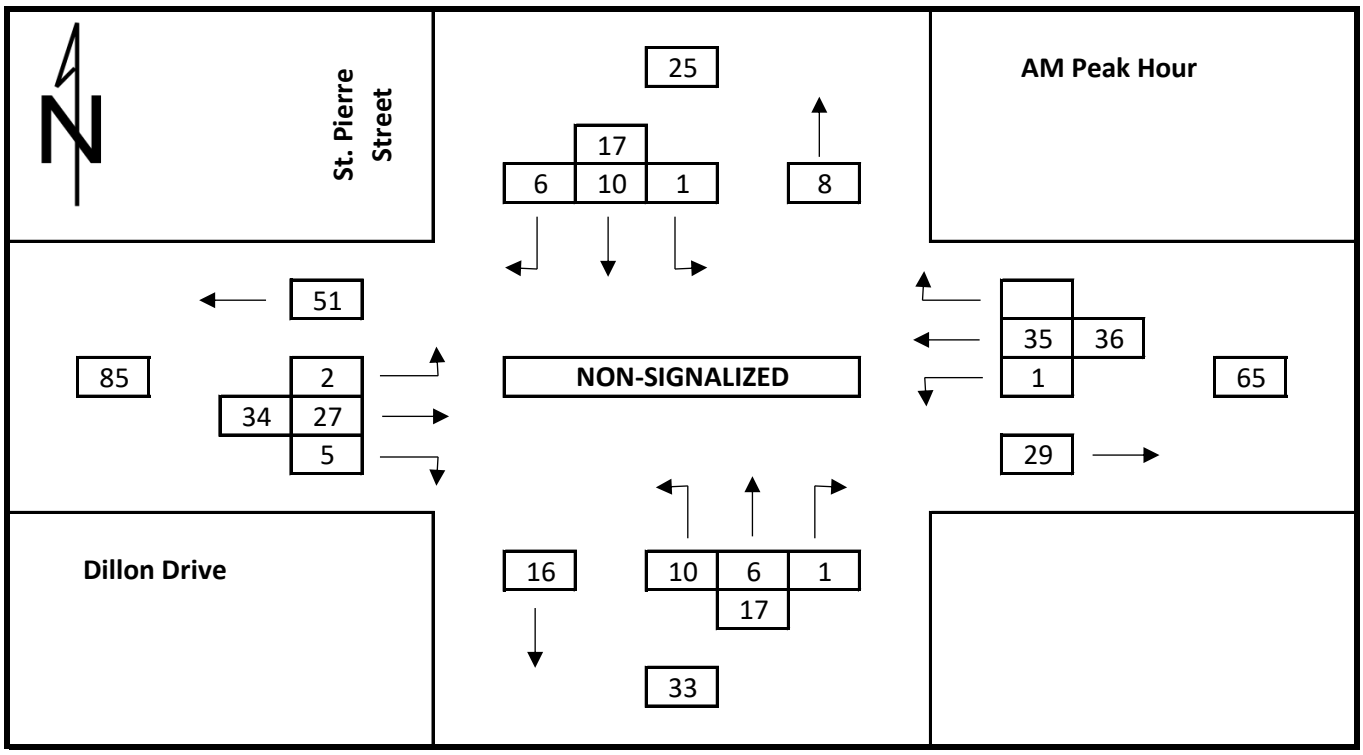
Dillon Drive at St. Pierre Street

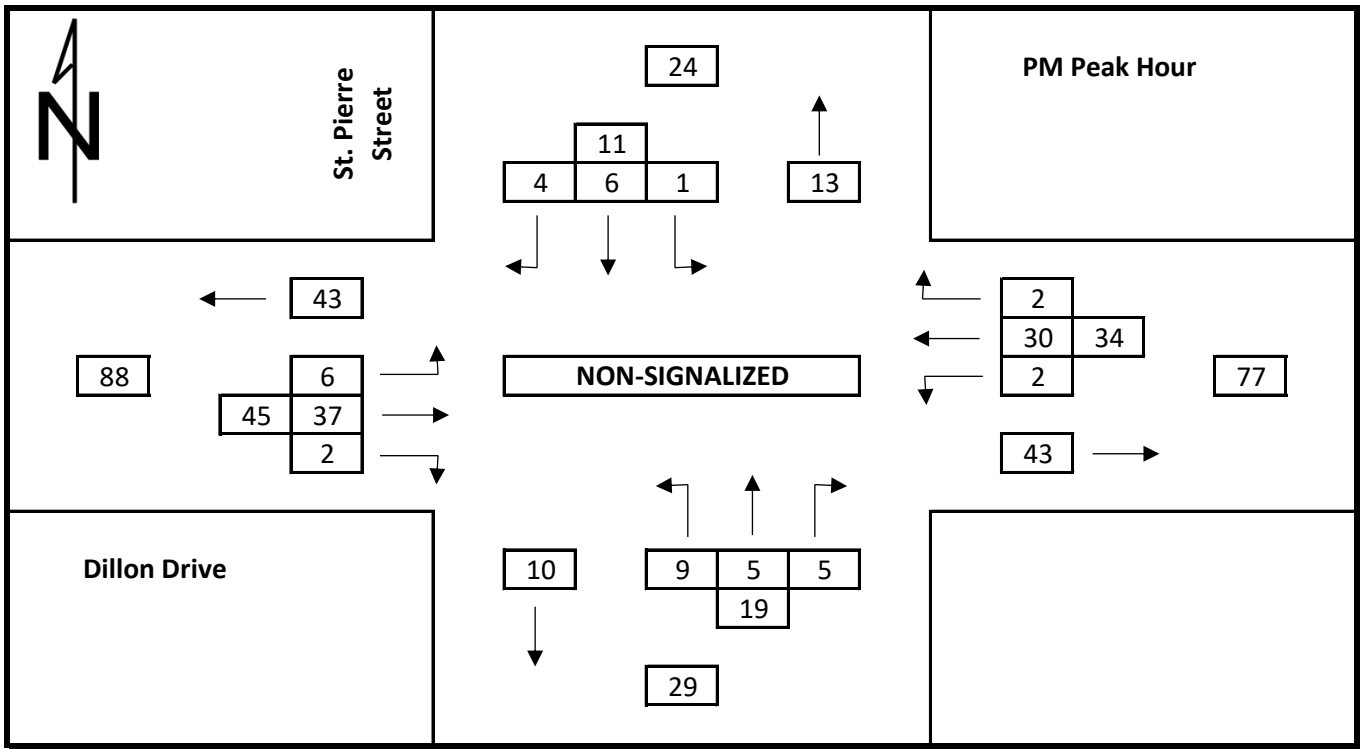




Background Traffic Year 2030

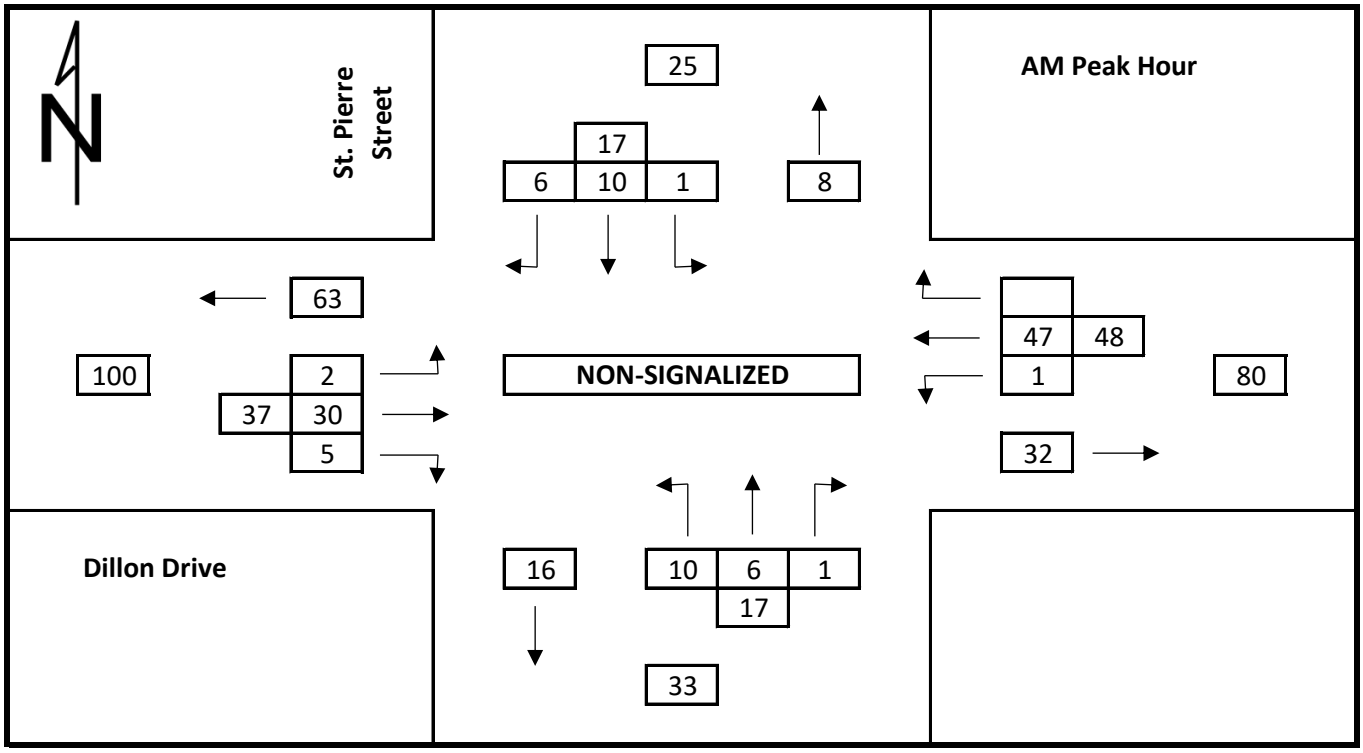
Dillon Drive at St. Pierre Street

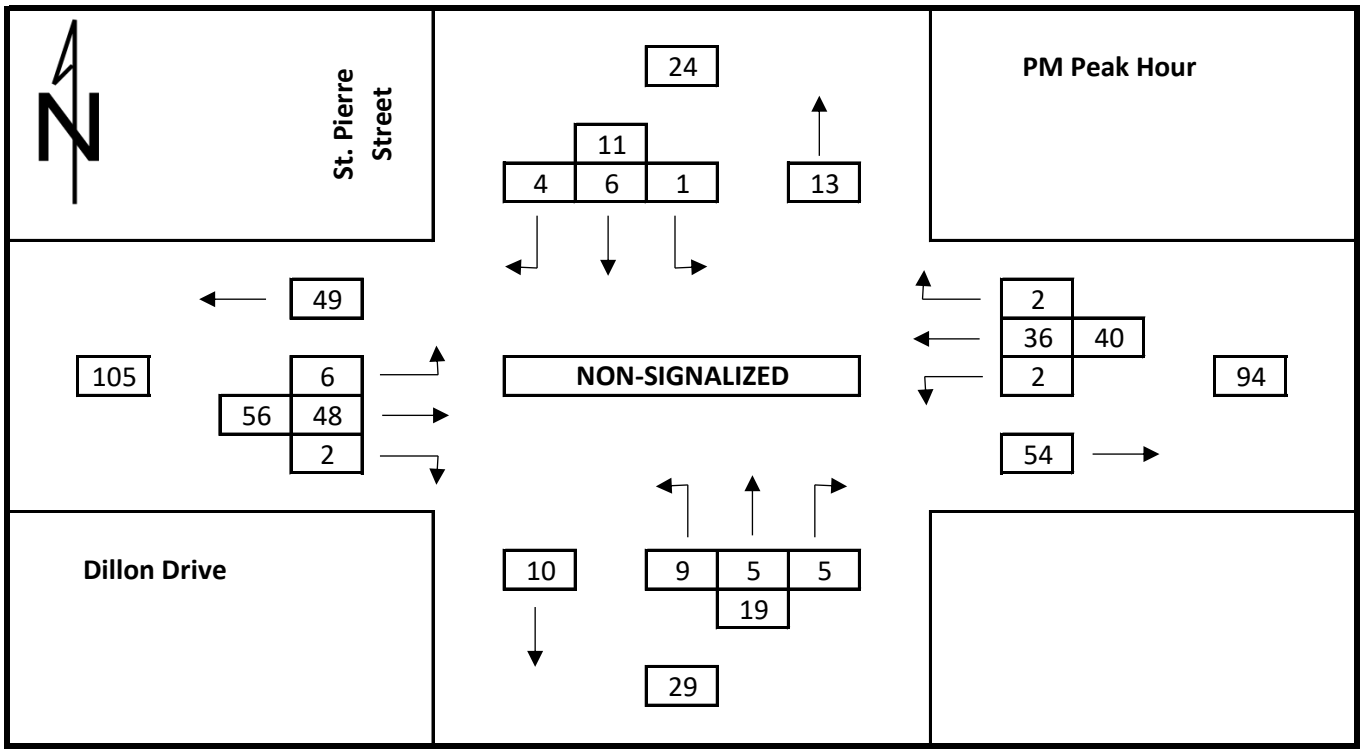




Total Traffic 2030

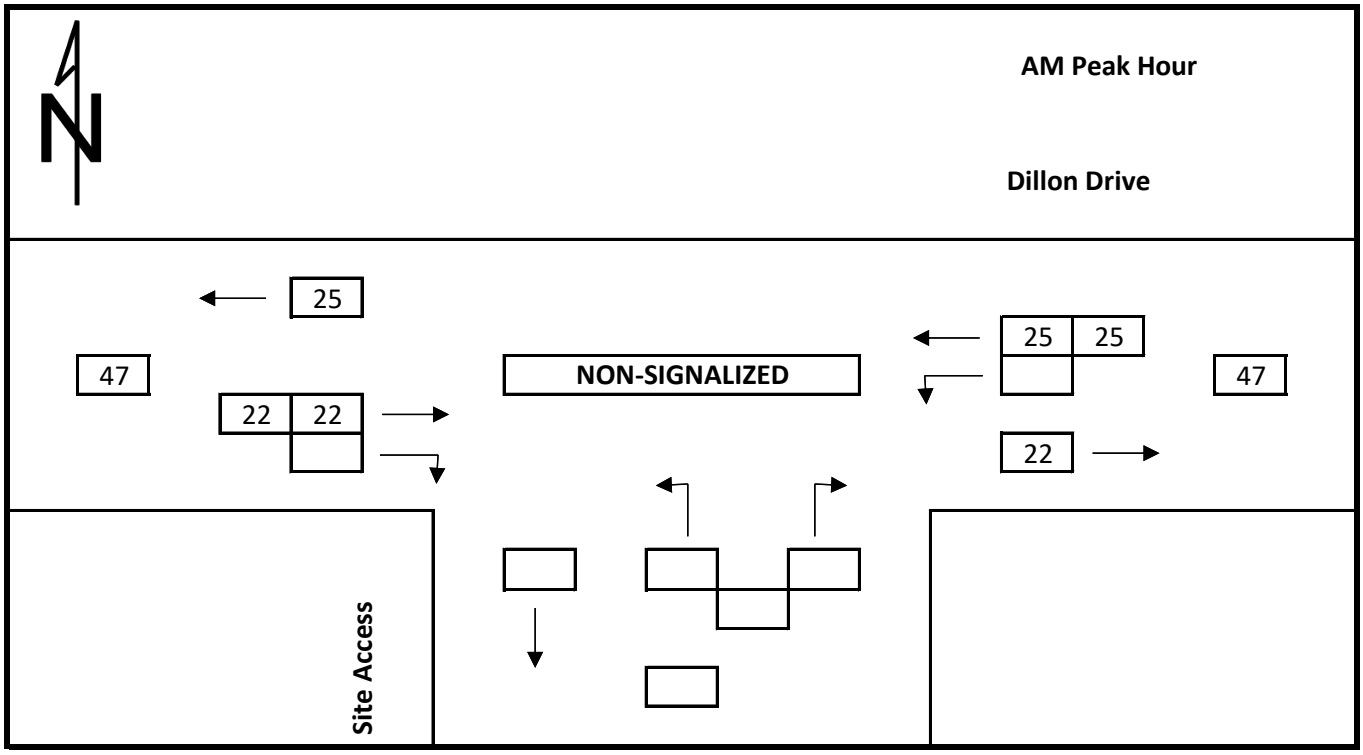
Dillon Drive at St. Pierre Street

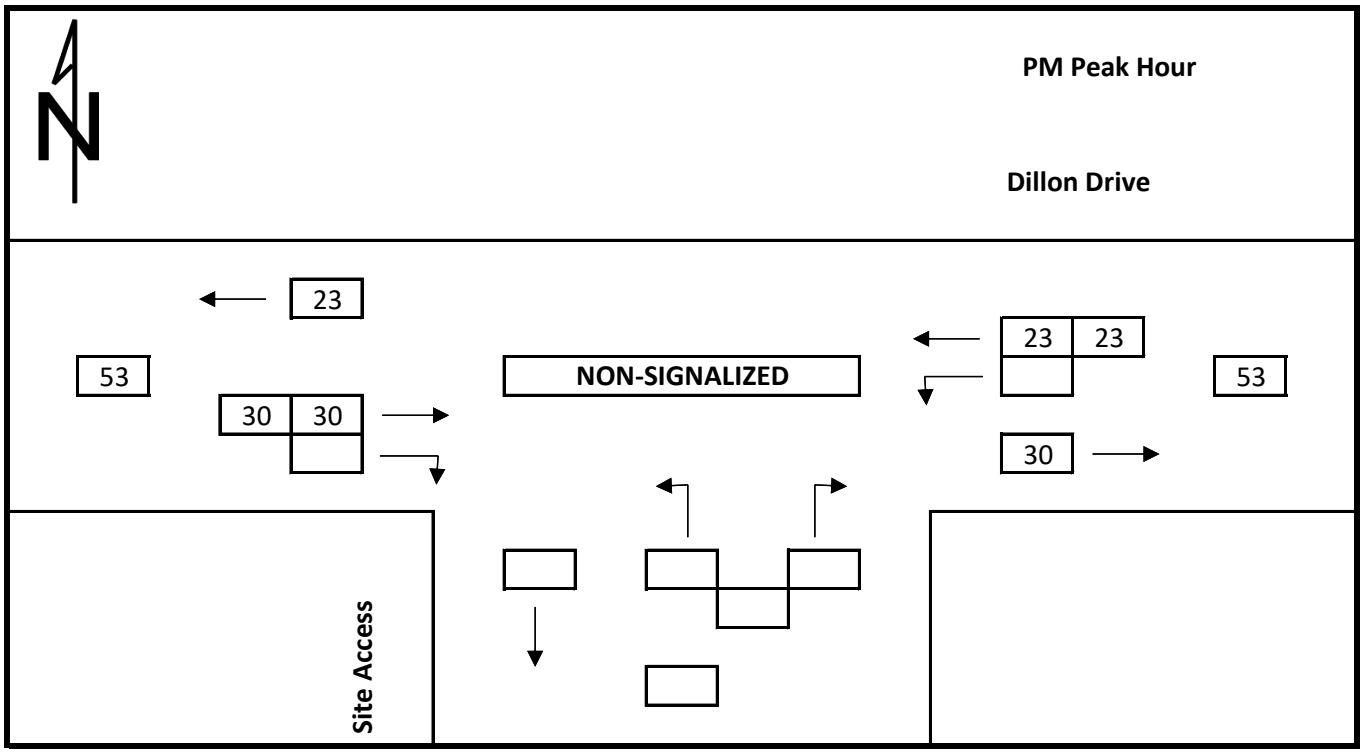




Existing Traffic Counts

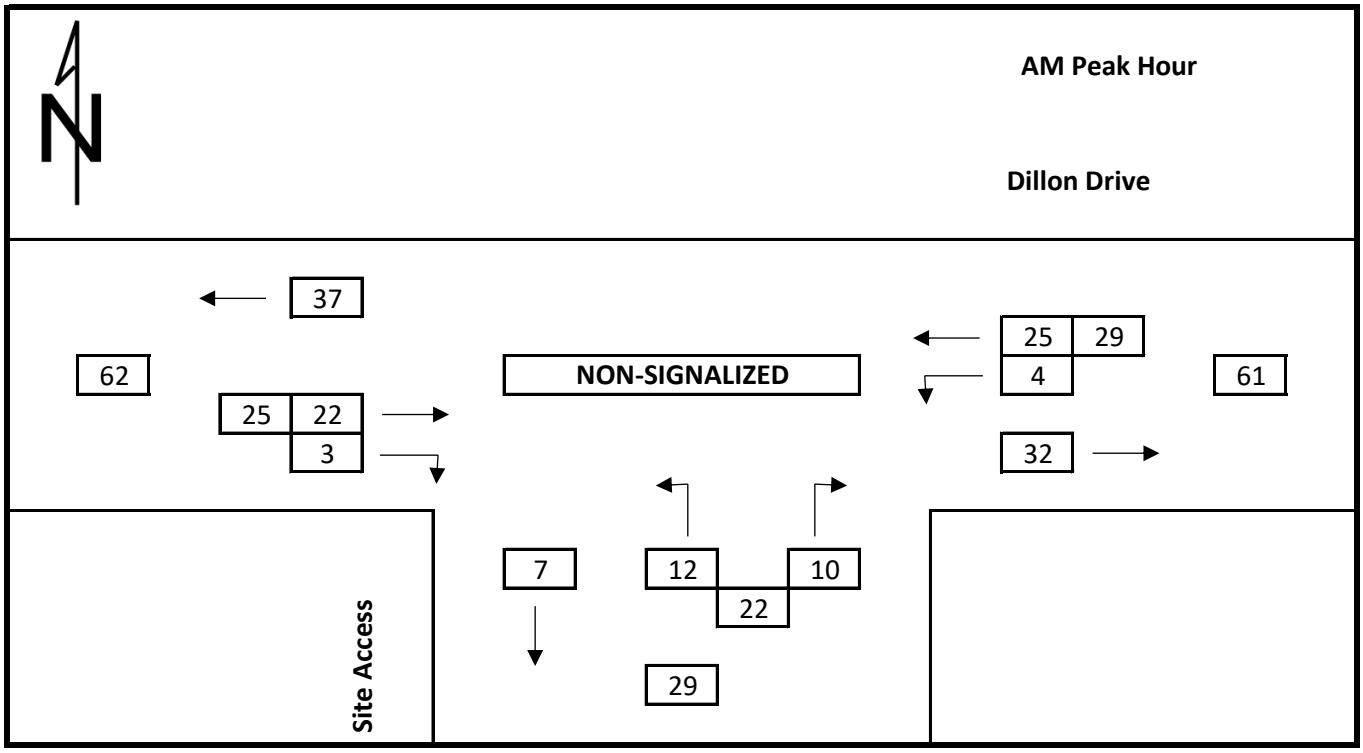
Dillon Drive at Site Access

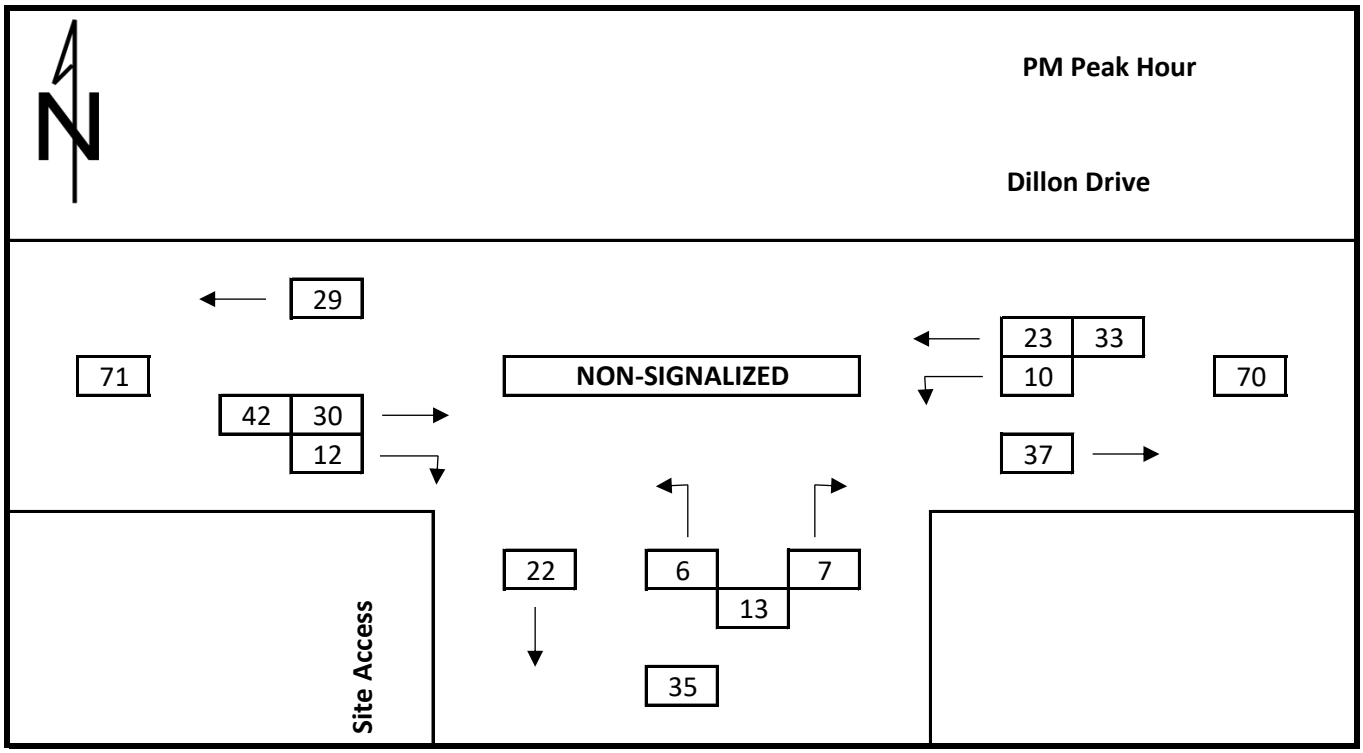




Existing + Site Generated Traffic

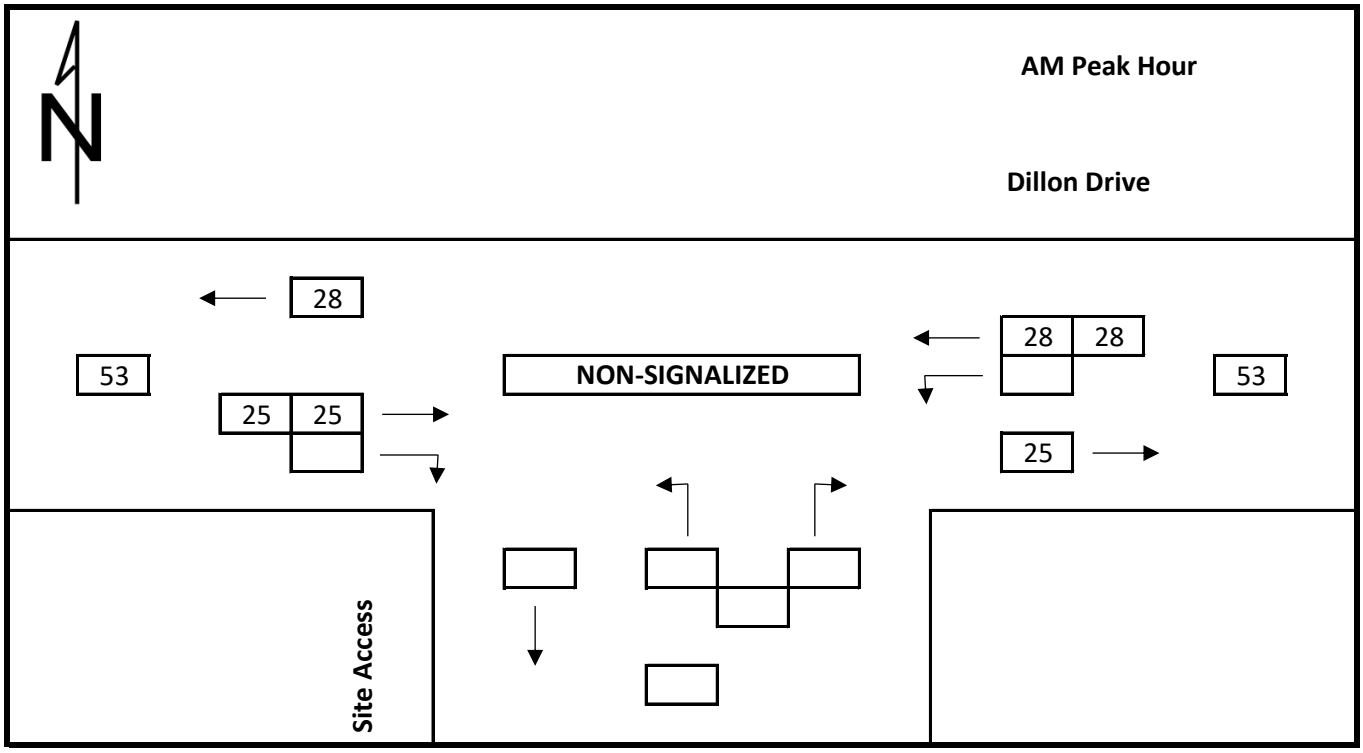
Dillon Drive at Site Access

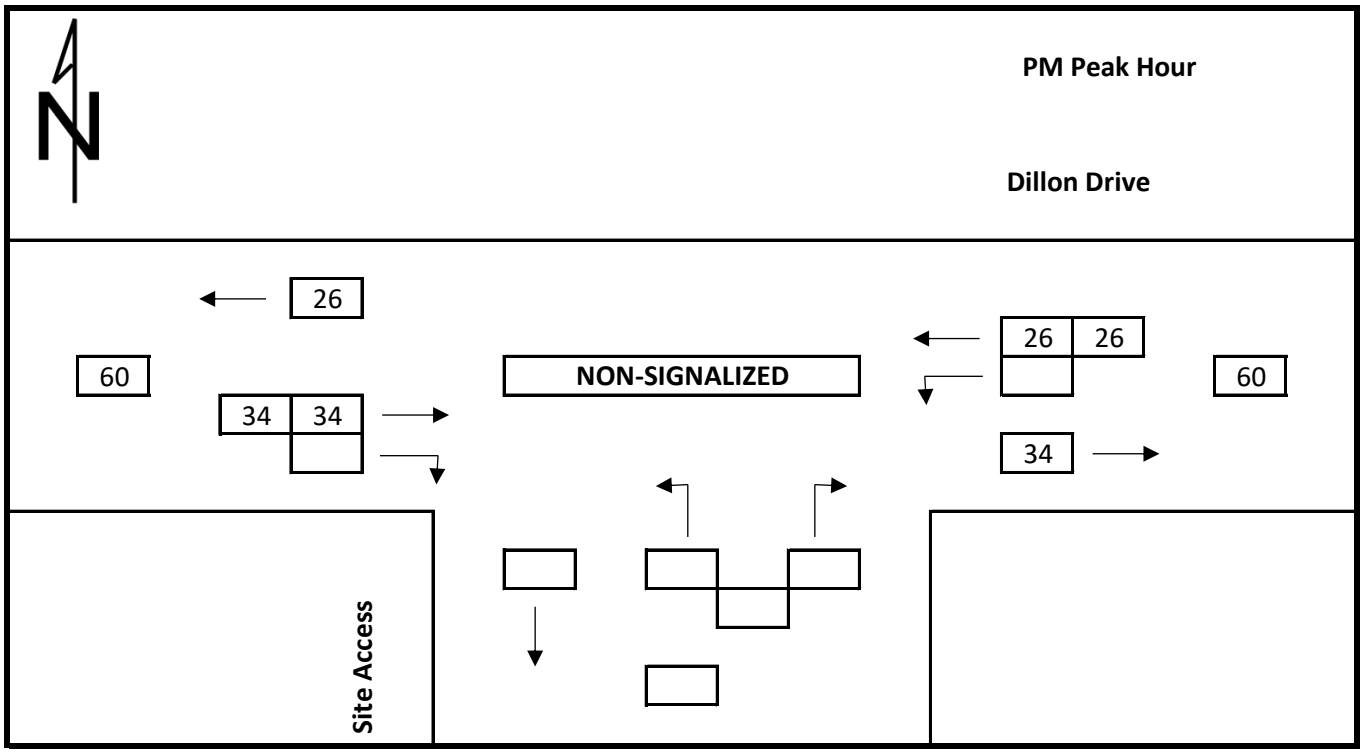




Background Traffic Year 2025

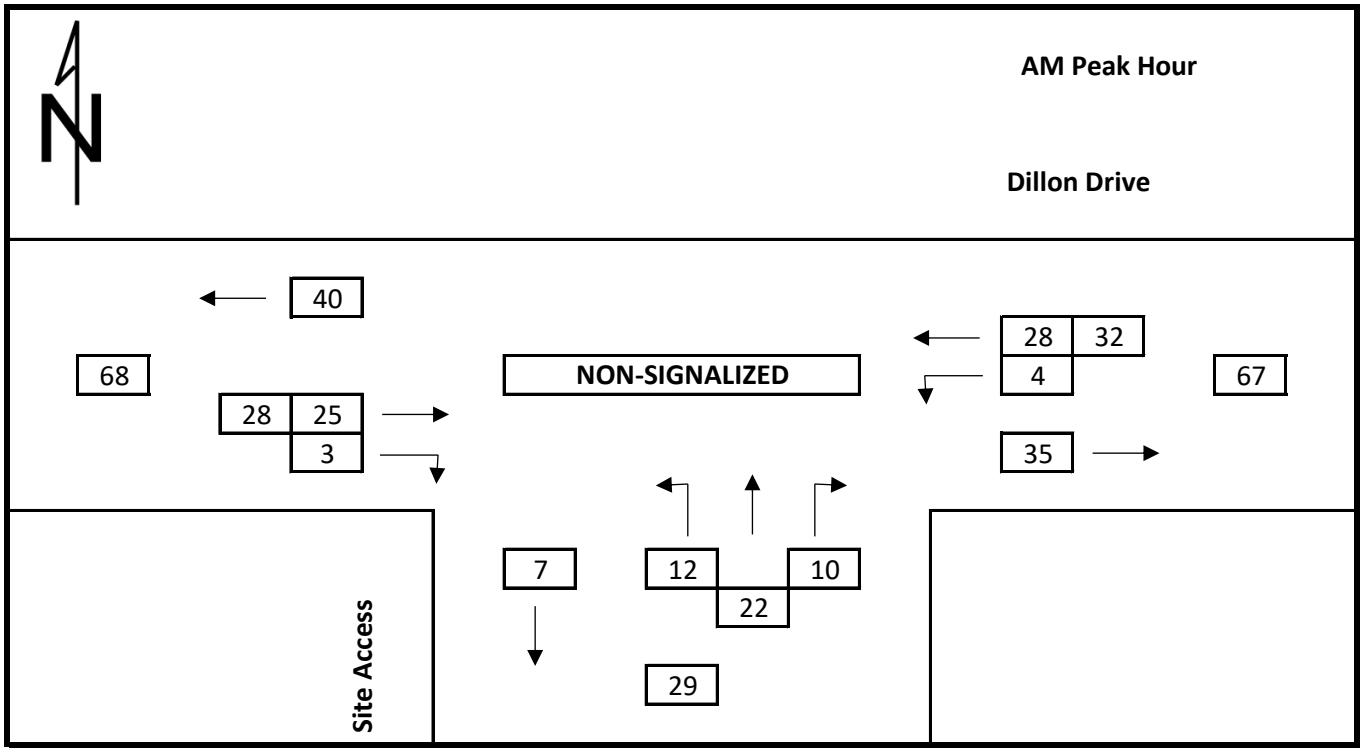
Dillon Drive at Site Access

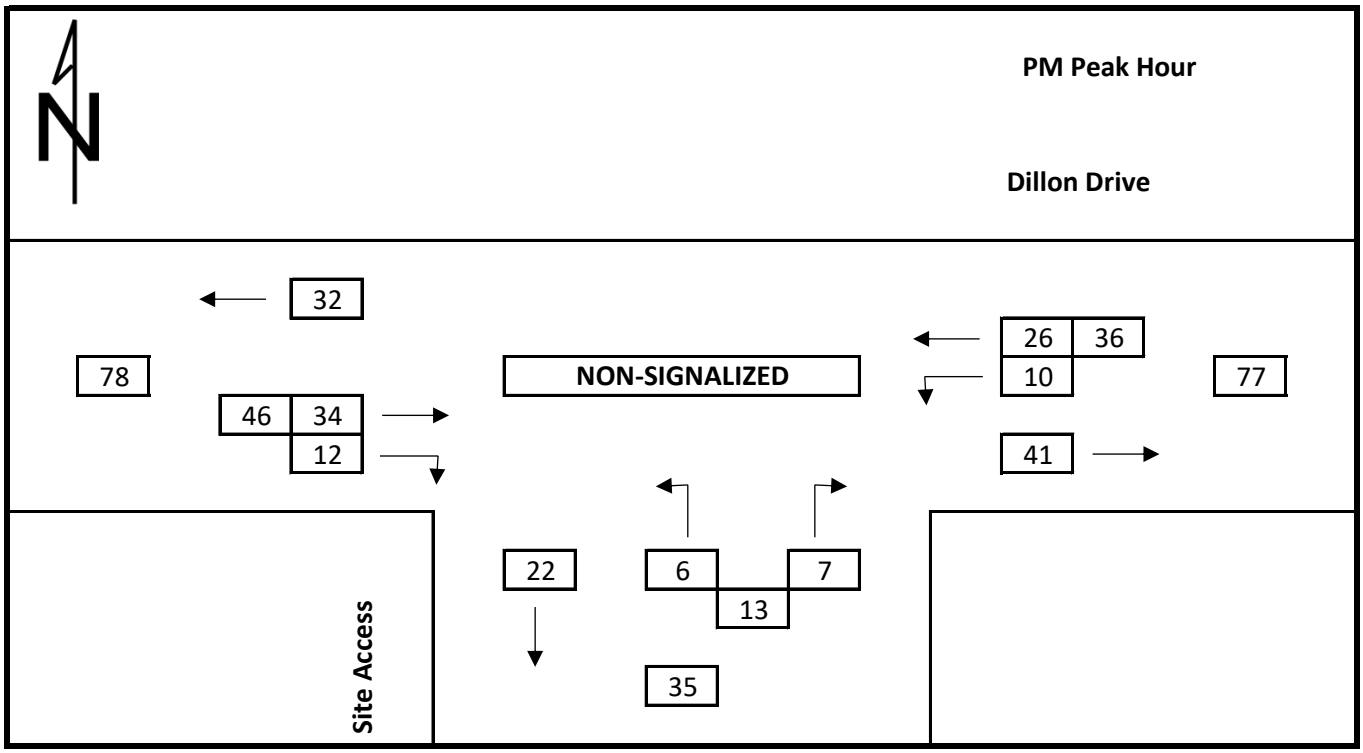




Total Traffic 2025

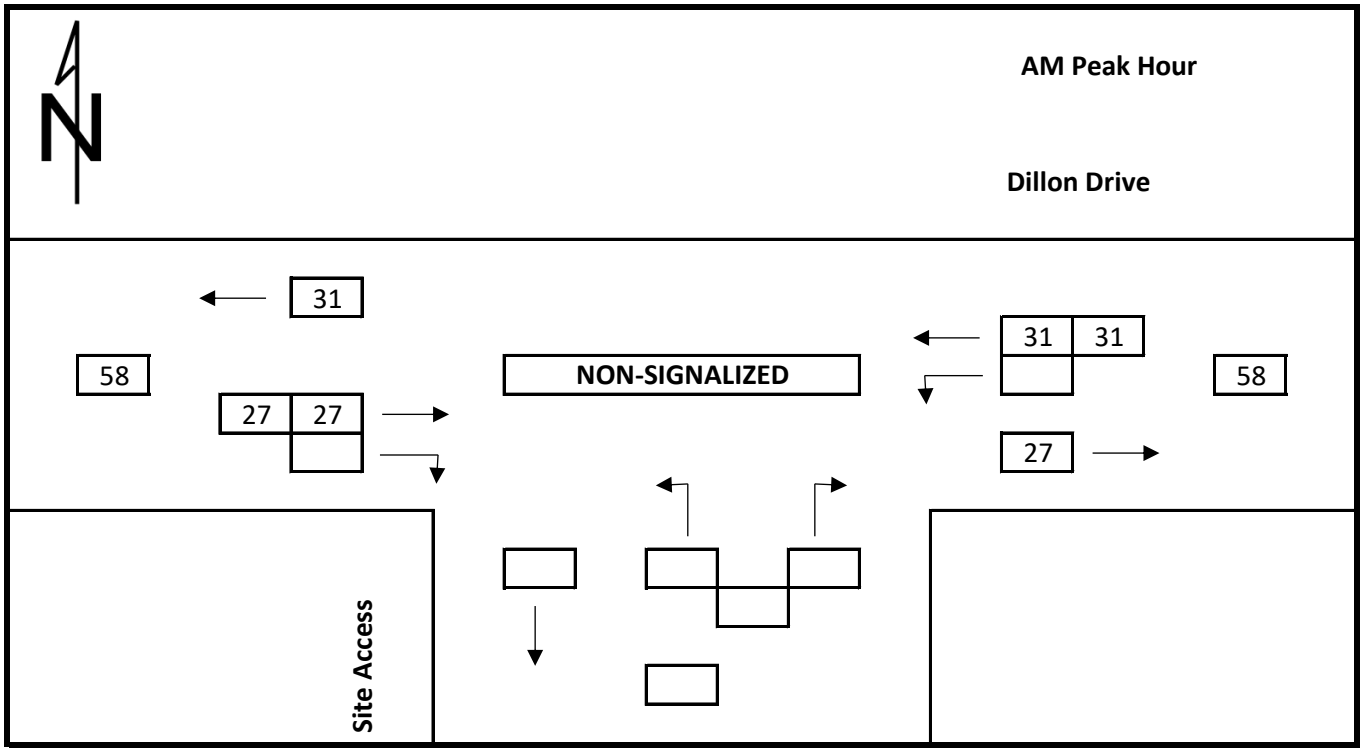
Dillon Drive at Site Access

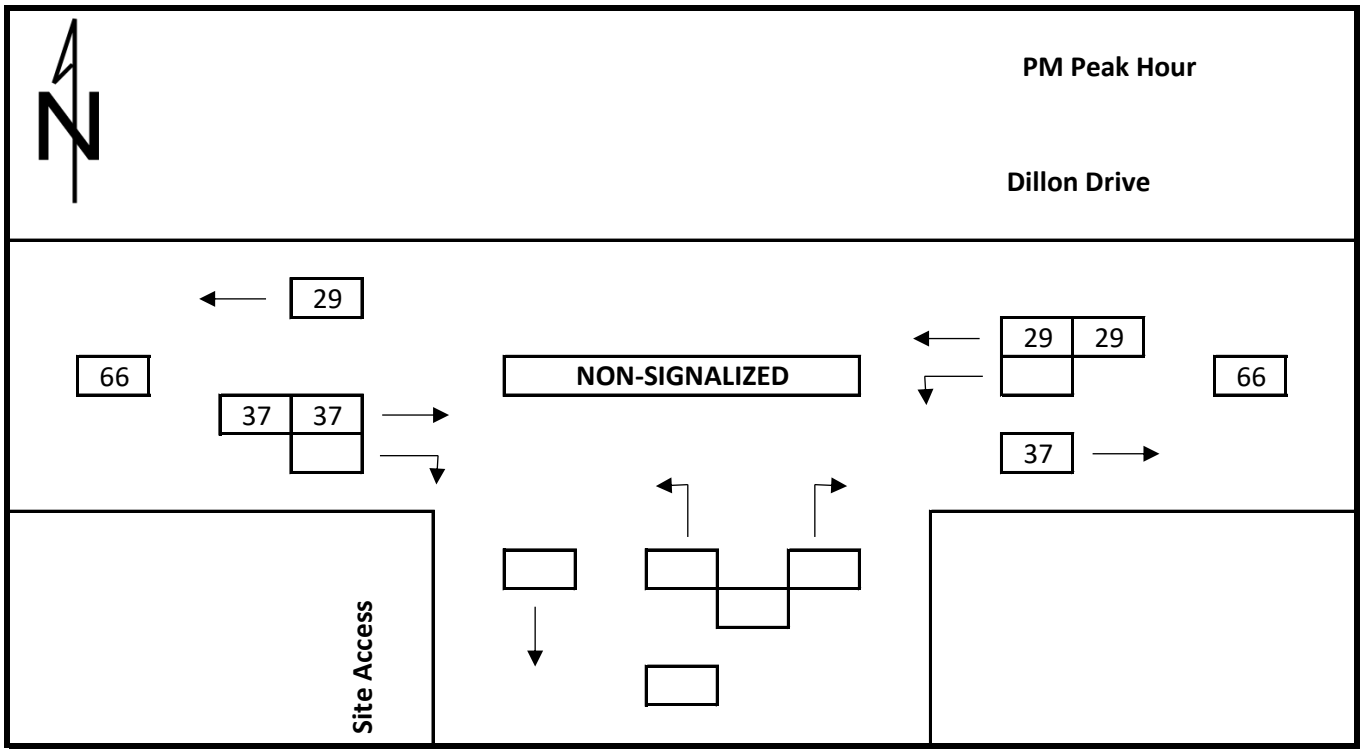




Background Traffic Year 2030

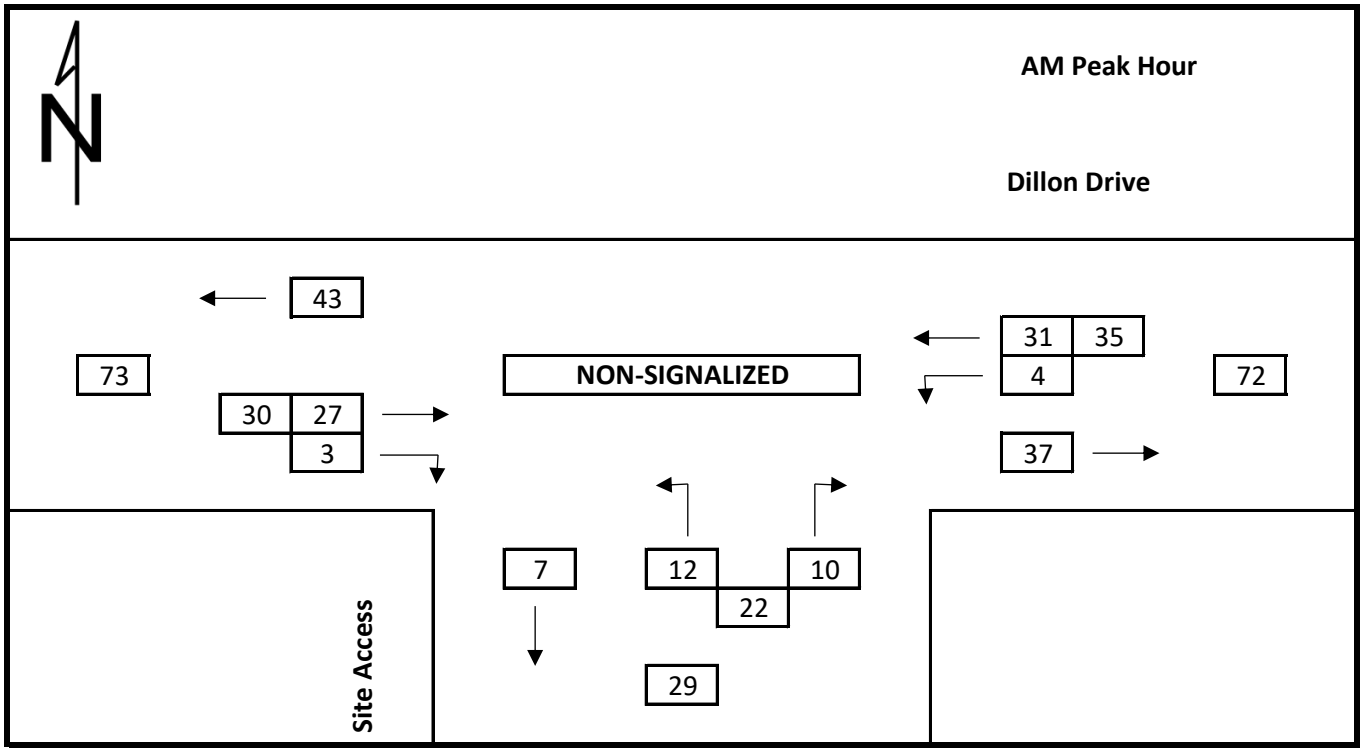
Dillon Drive at Site Access

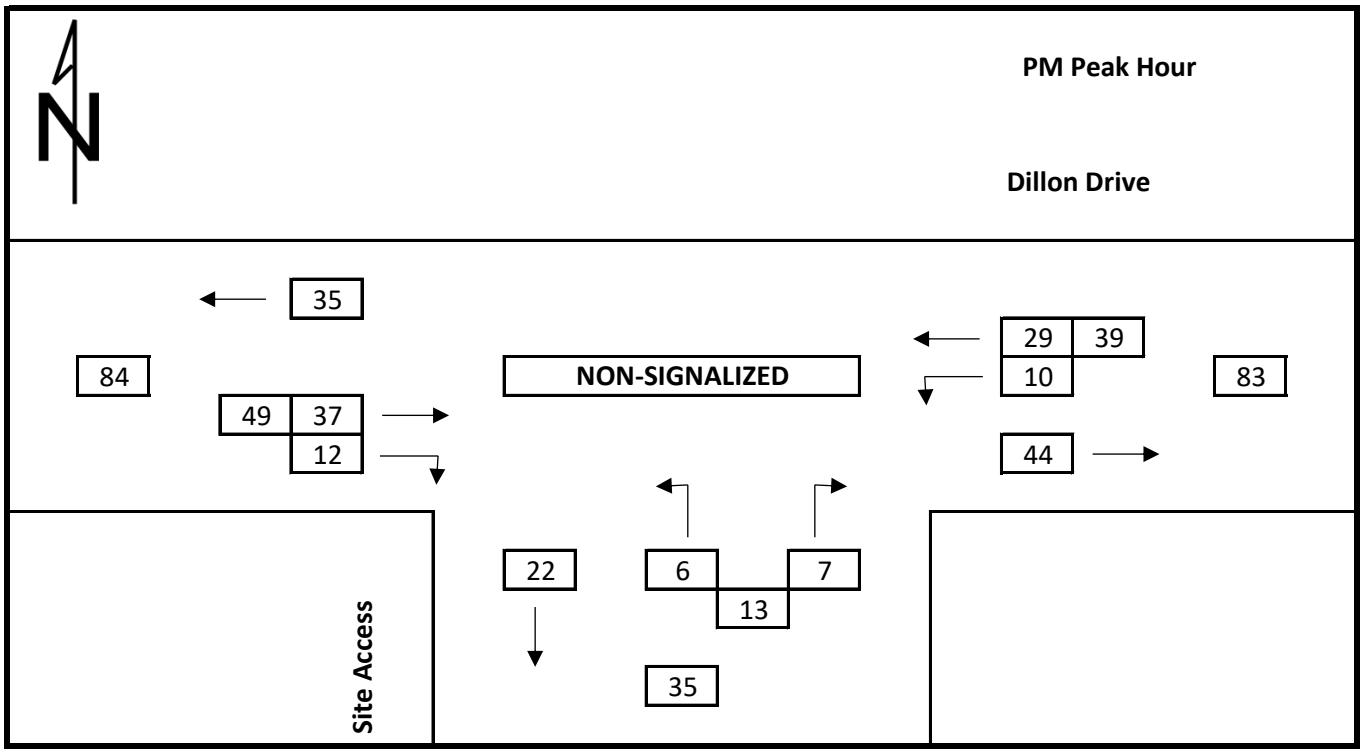




Total Traffic 2030

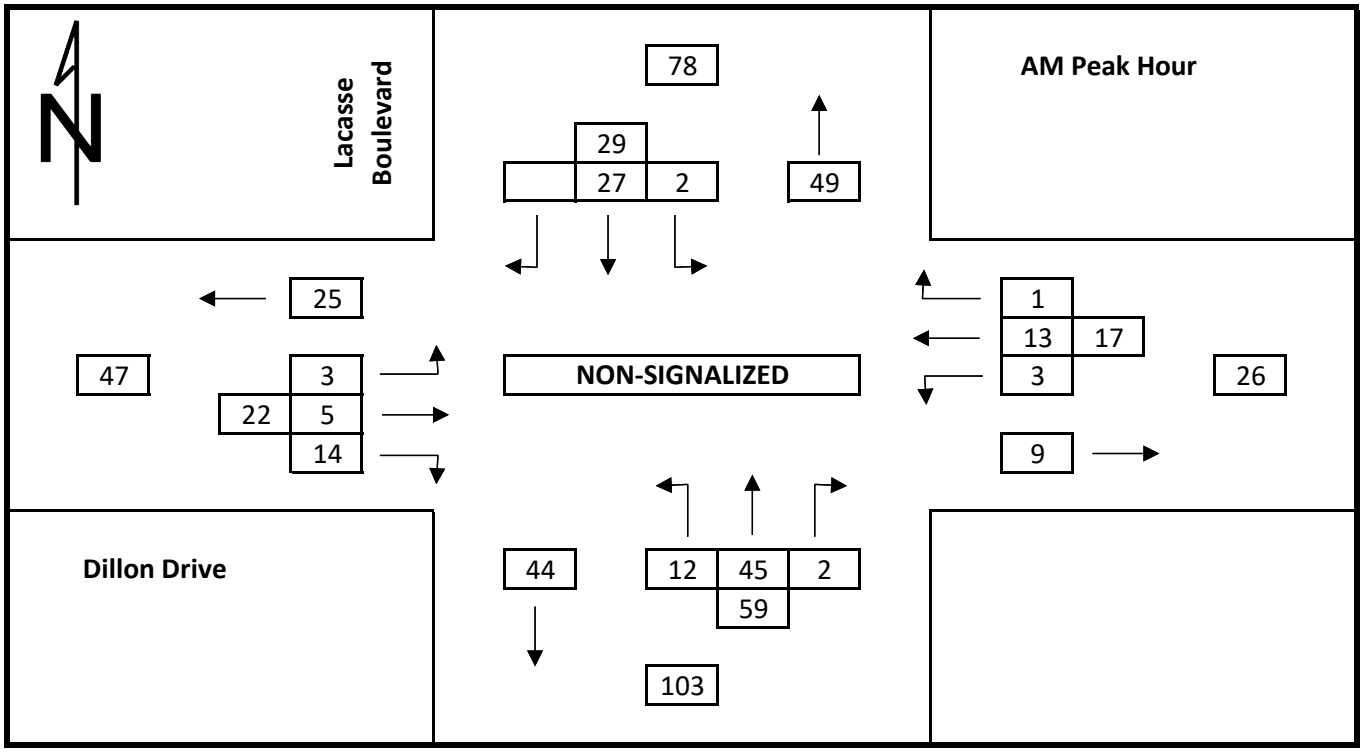
Dillon Drive at Site Access

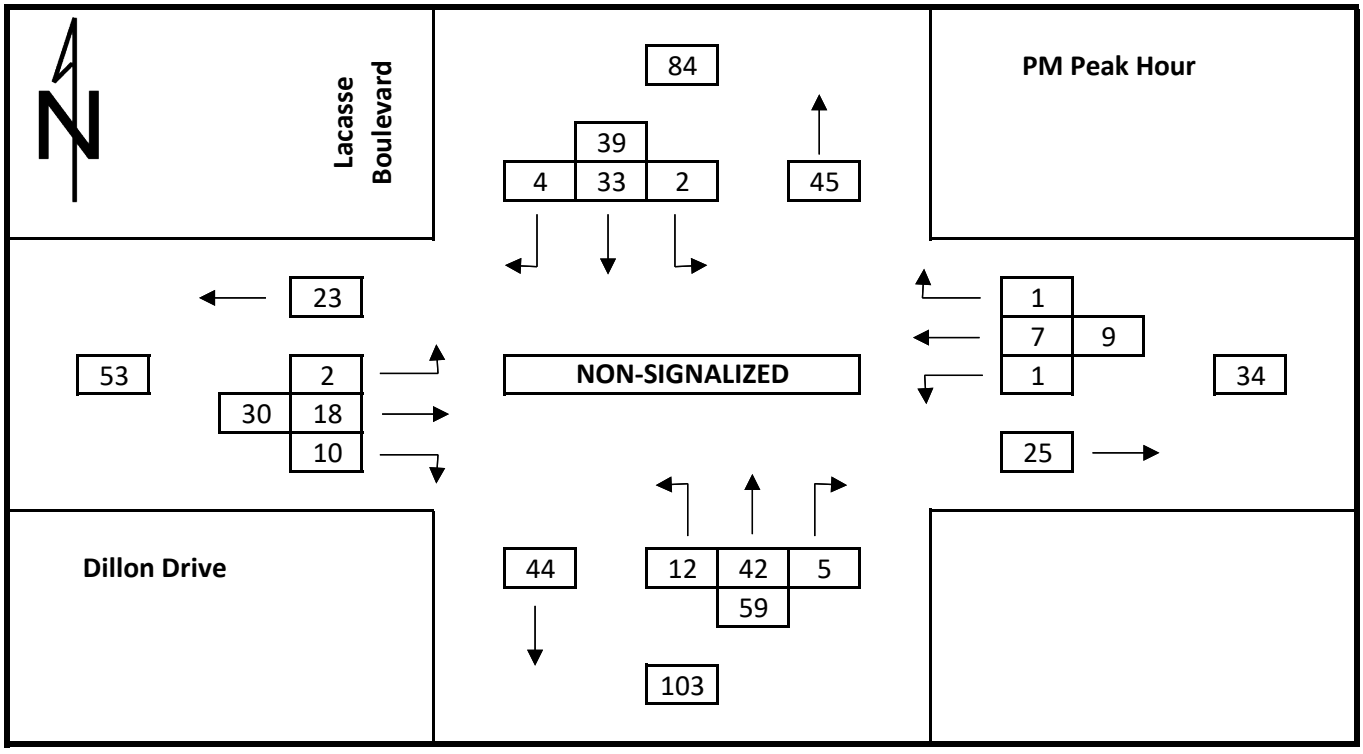




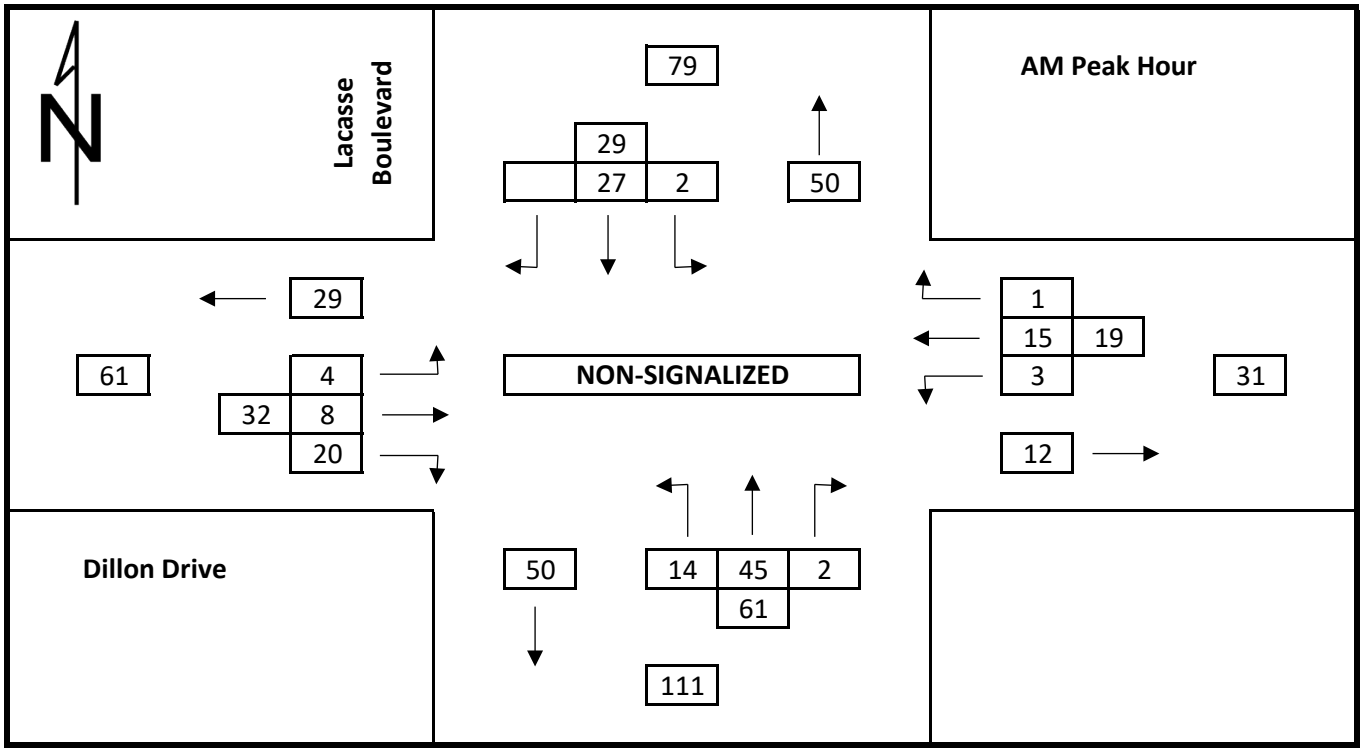
Existing Traffic Counts

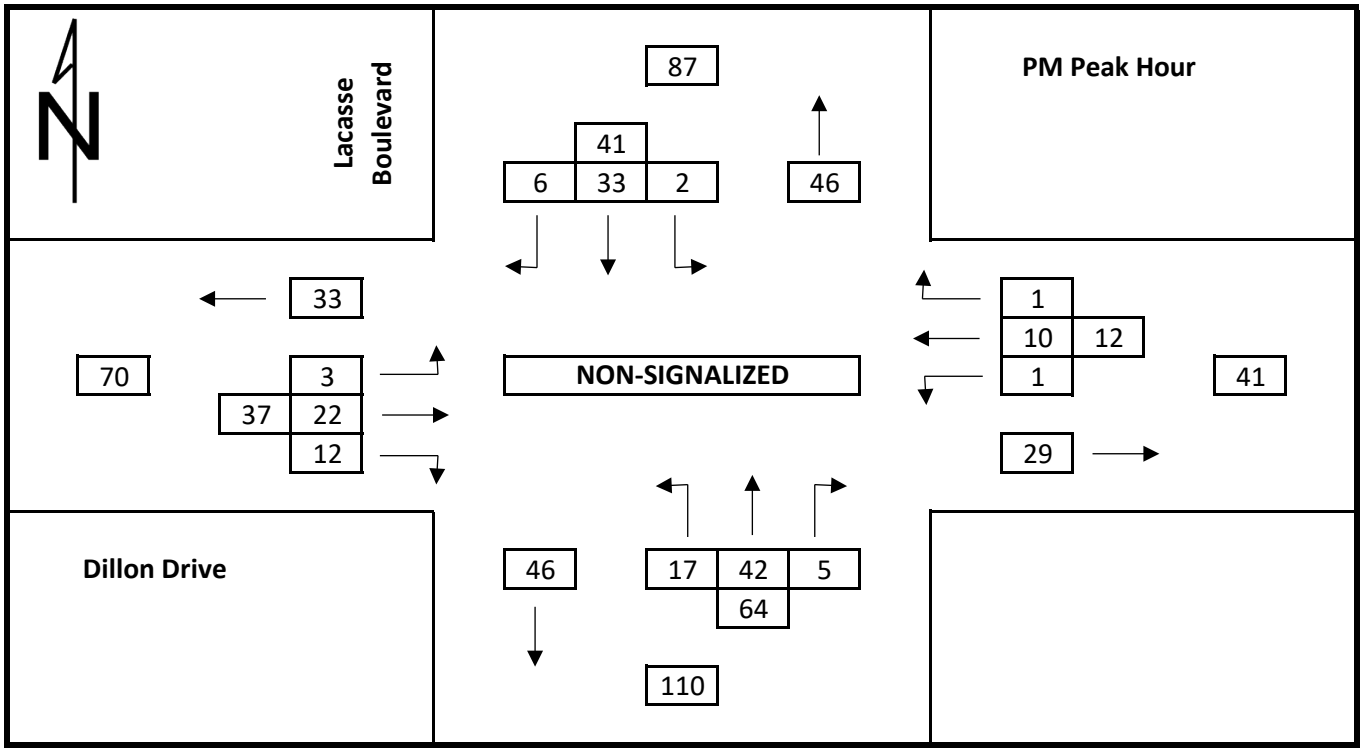
Dillon Drive at Lacasse Boulevard





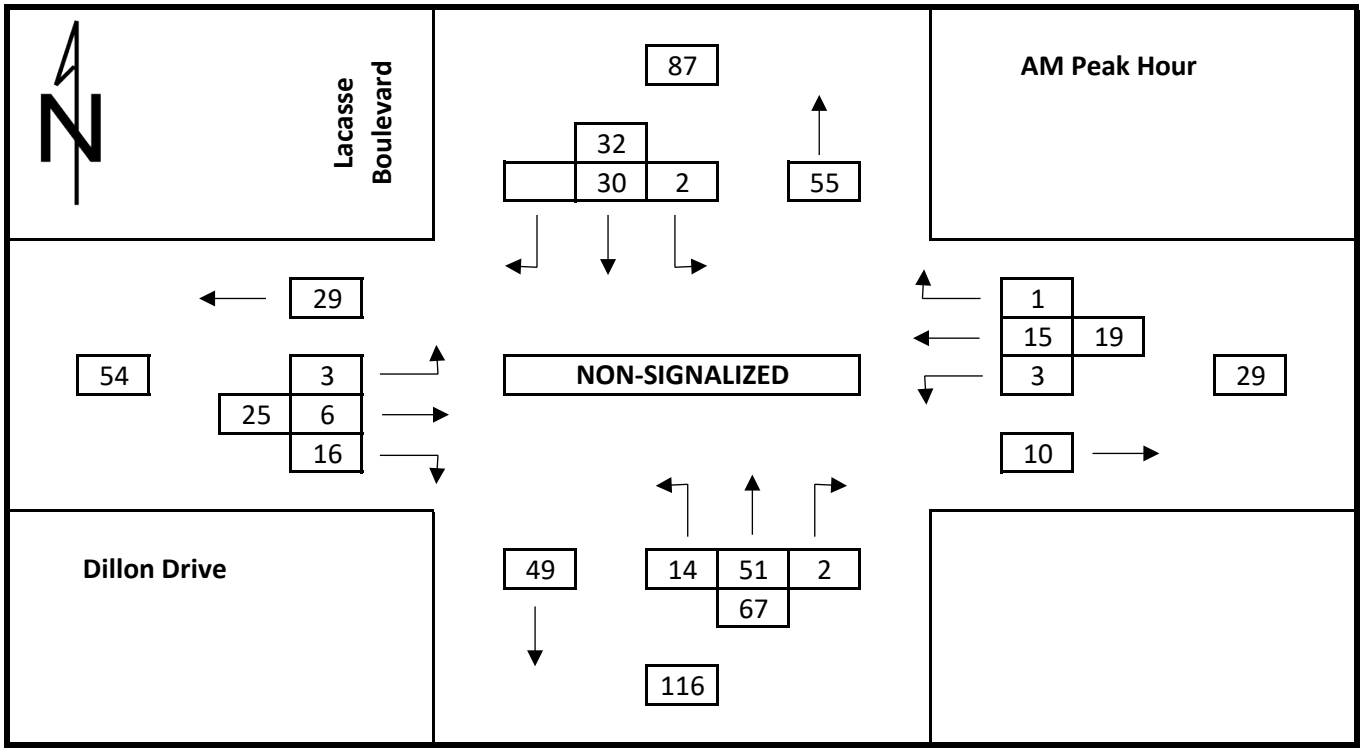
Existing + Site Generated Traffic
Dillon Drive at Lacasse Boulevard

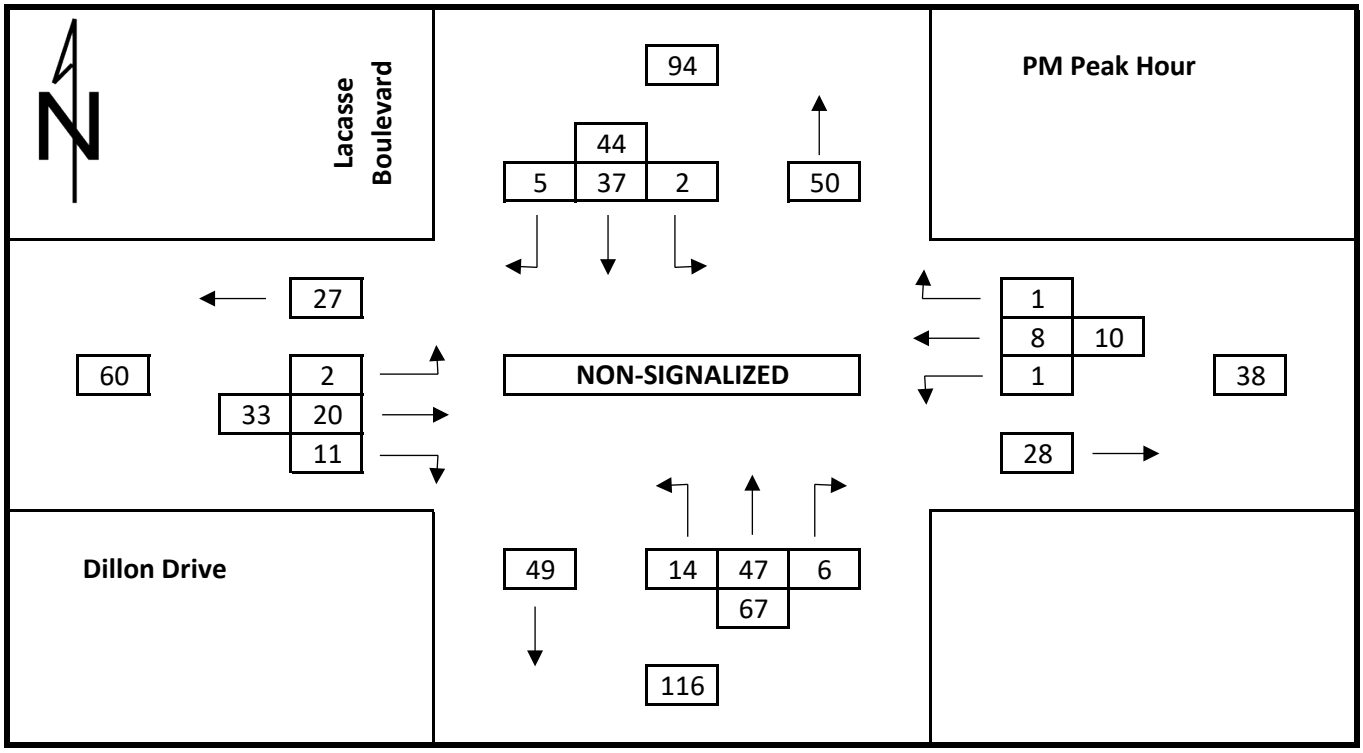




Background Traffic Year 2025

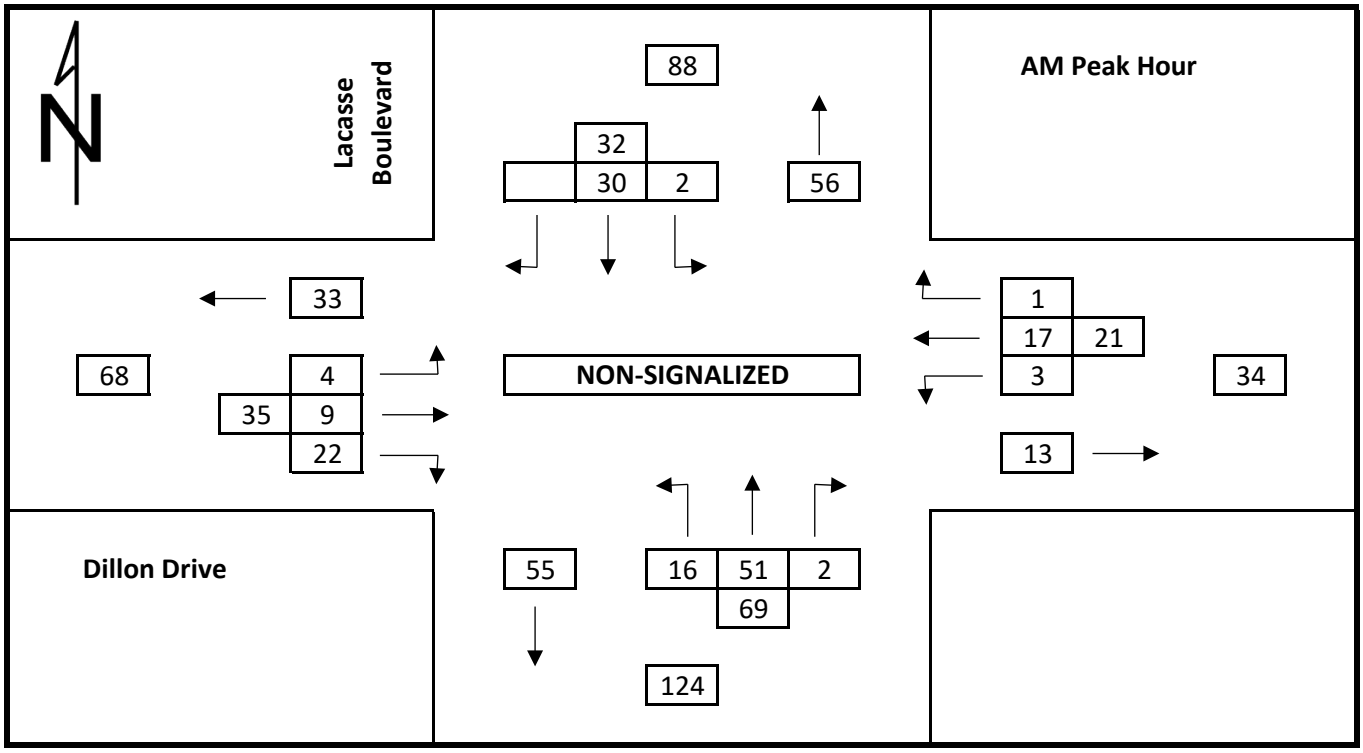
Dillon Drive at Lacasse Boulevard

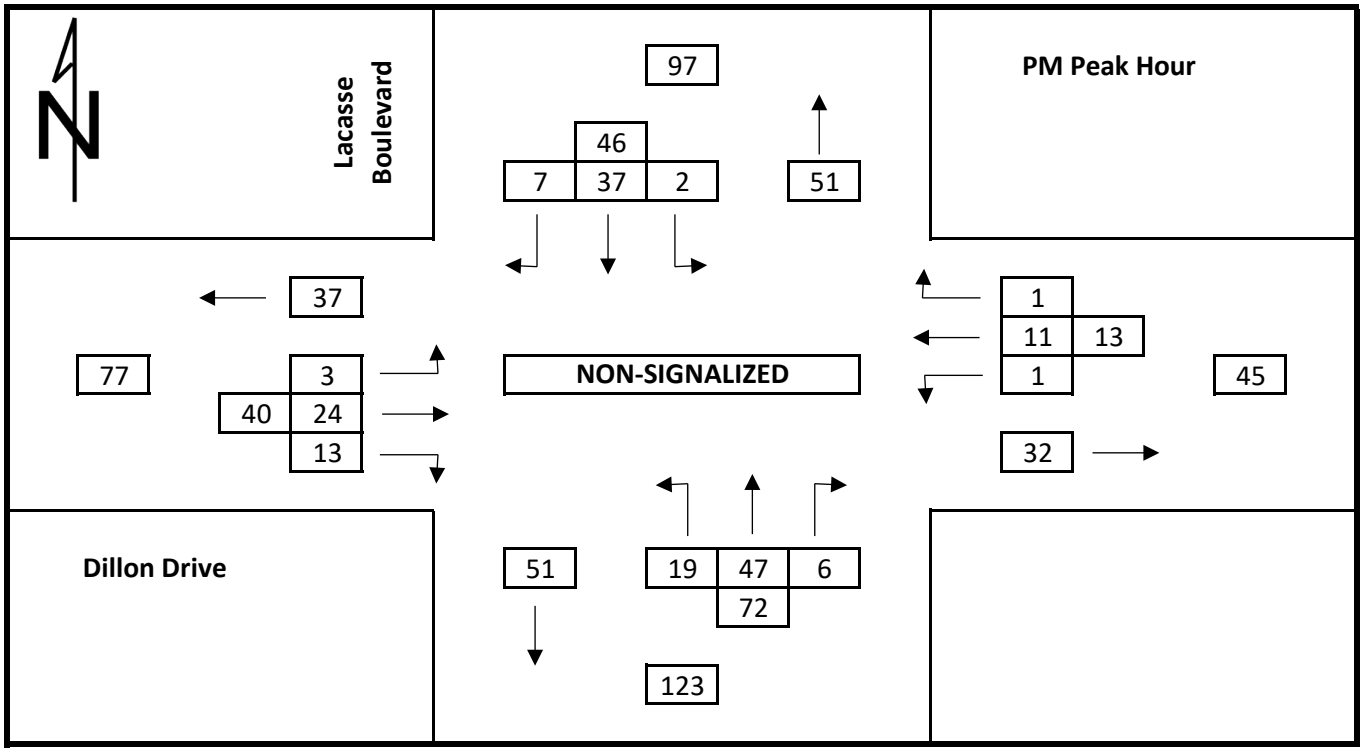




Total Traffic 2025

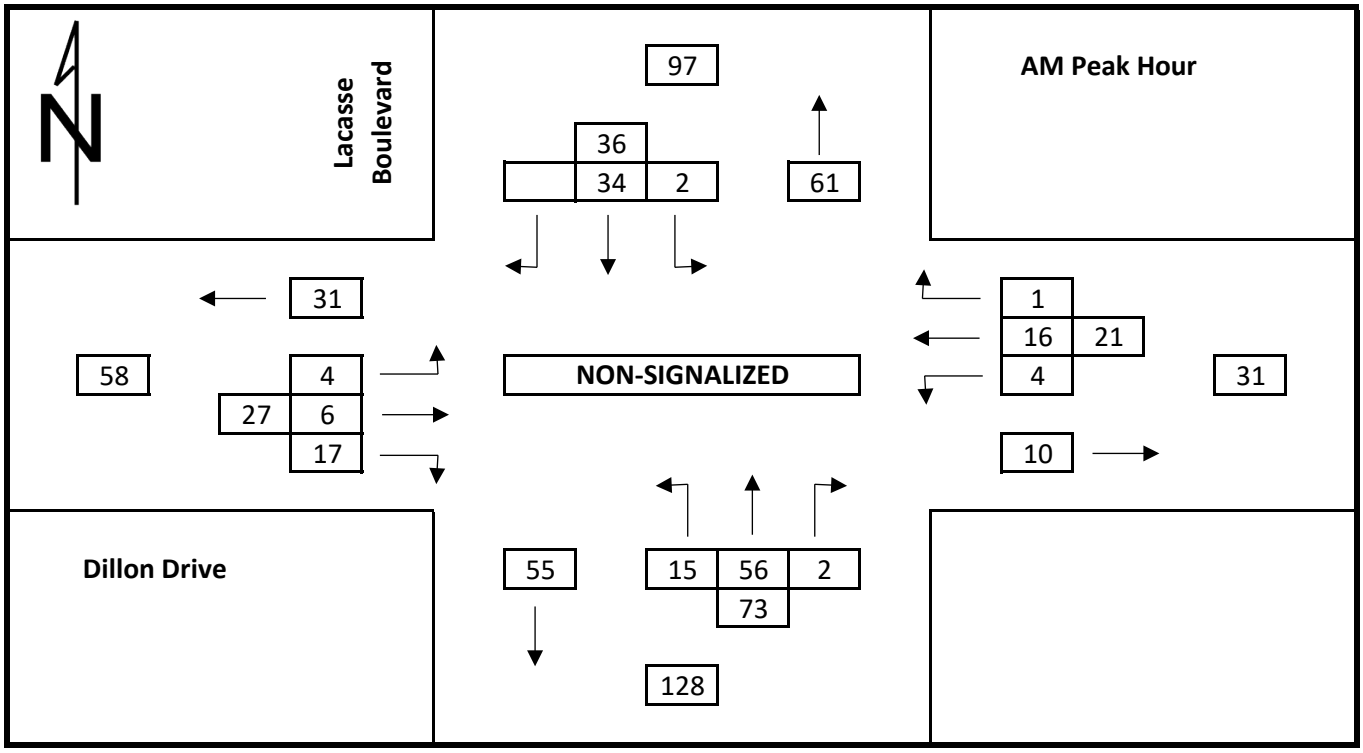
Dillon Drive at Lacasse Boulevard

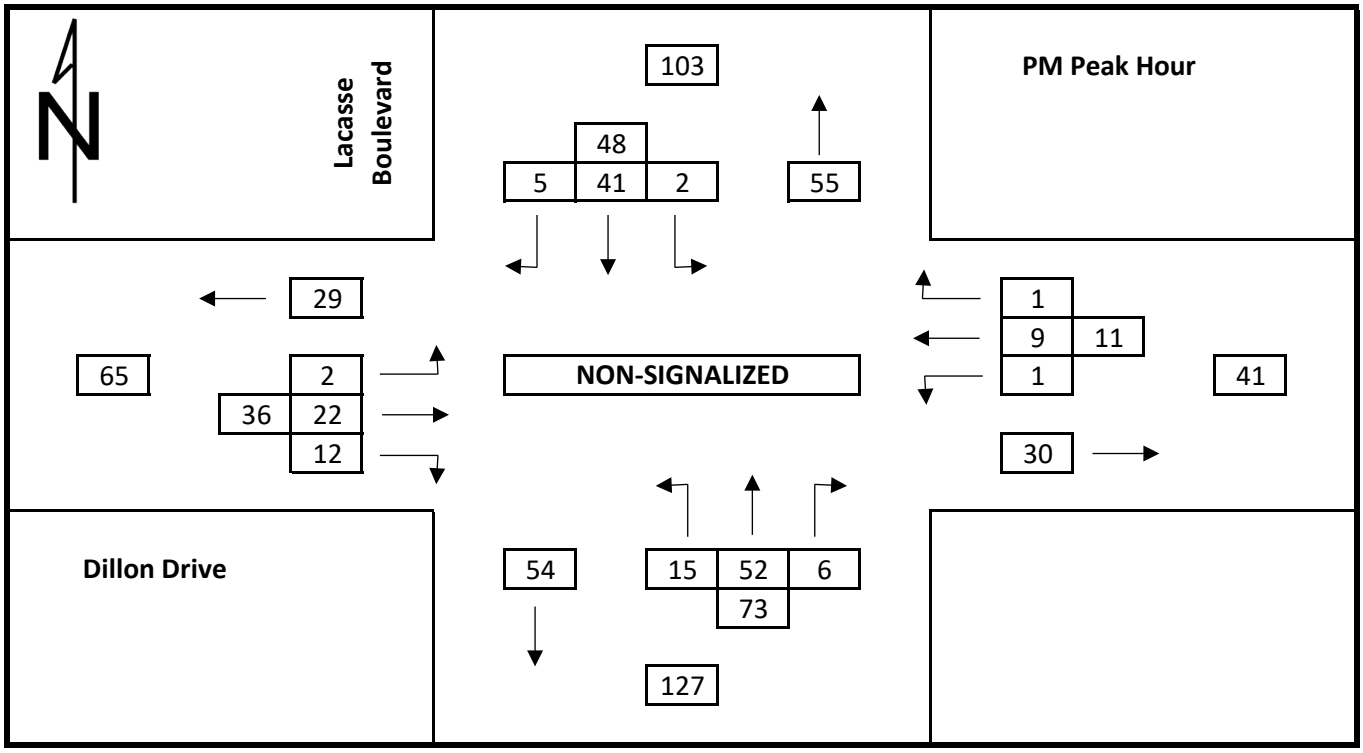




Background Traffic Year 2030

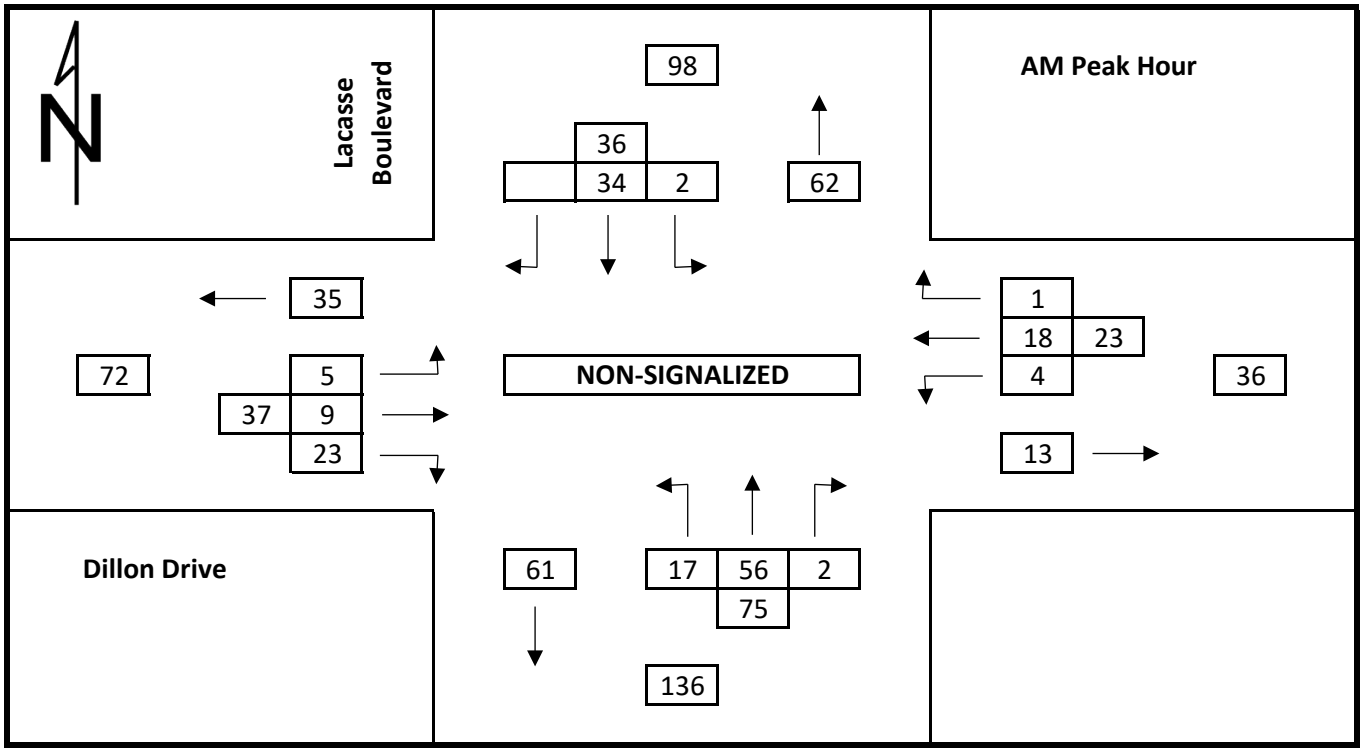
Dillon Drive at Lacasse Boulevard

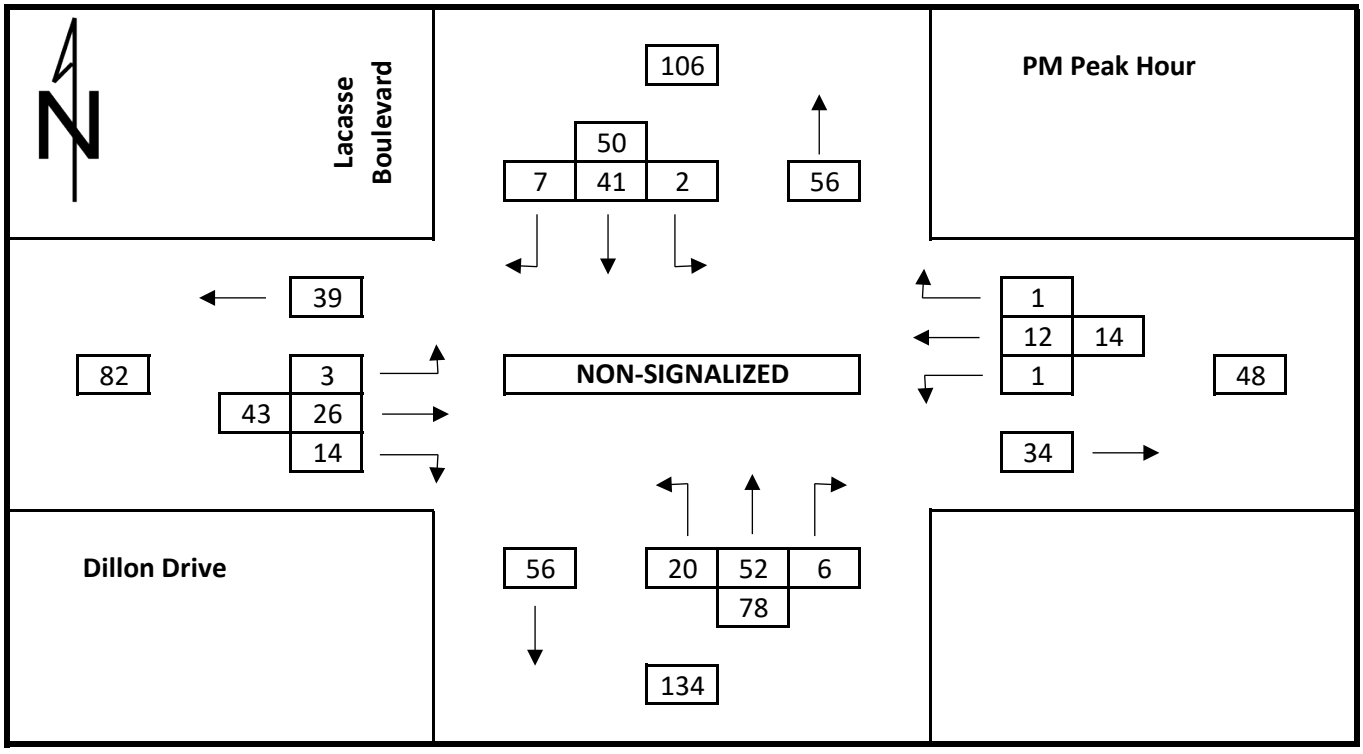




Total Traffic 2030

Dillon Drive at Lacasse Boulevard





Appendix D

DETAILED SYNCHRO RESULTS

Dillon Drive at Lesperance Road

Dillon Drive at St. Pierre Street

Dillon Drive at Site Access

Dillon Drive at Lacasse Boulevard

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	5	13	26	2	15	3	102	13	4	88	3
Future Vol, veh/h	3	5	13	26	2	15	3	102	13	4	88	3
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	3	5	14	28	2	16	3	111	14	4	96	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	241	239	100	241	233	120	100	0	0	126	0	0
Stage 1	107	107	-	125	125	-	-	-	-	-	-	-
Stage 2	134	132	-	116	108	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	717	666	945	699	671	931	1505	-	-	1473	-	-
Stage 1	903	811	-	862	796	-	-	-	-	-	-	-
Stage 2	874	791	-	872	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	699	661	943	681	666	929	1504	-	-	1472	-	-
Mov Cap-2 Maneuver	699	661	-	681	666	-	-	-	-	-	-	-
Stage 1	900	808	-	859	794	-	-	-	-	-	-	-
Stage 2	854	789	-	850	807	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.1	0.2	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	819	750	1472	-	-
HCM Lane V/C Ratio	0.002	-	-	0.028	0.062	0.003	-	-
HCM Control Delay (s)	7.4	-	-	9.5	10.1	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	8	17	15	9	8	19	145	21	8	124	2
Future Vol, veh/h	3	8	17	15	9	8	19	145	21	8	124	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	10	20	18	11	10	23	175	25	10	149	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	436	440	172	441	429	210	163	0	0	212	0	0
Stage 1	182	182	-	246	246	-	-	-	-	-	-	-
Stage 2	254	258	-	195	183	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	534	514	861	515	521	830	1428	-	-	1370	-	-
Stage 1	824	753	-	742	706	-	-	-	-	-	-	-
Stage 2	755	698	-	791	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	500	492	845	477	499	815	1413	-	-	1356	-	-
Mov Cap-2 Maneuver	500	492	-	477	499	-	-	-	-	-	-	-
Stage 1	803	740	-	723	688	-	-	-	-	-	-	-
Stage 2	716	680	-	750	739	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	12.2	0.8	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1413	-	-	661	540	1356	-	-
HCM Lane V/C Ratio	0.016	-	-	0.051	0.071	0.007	-	-
HCM Control Delay (s)	7.6	-	-	10.7	12.2	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	6	13	33	3	19	3	102	15	4	88	3
Future Vol, veh/h	3	6	13	33	3	19	3	102	15	4	88	3
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	3	7	14	36	3	21	3	111	16	4	96	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	245	241	100	243	234	121	100	0	0	128	0	0
Stage 1	107	107	-	126	126	-	-	-	-	-	-	-
Stage 2	138	134	-	117	108	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	713	664	945	697	670	930	1505	-	-	1470	-	-
Stage 1	903	811	-	861	796	-	-	-	-	-	-	-
Stage 2	870	789	-	871	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	691	659	943	677	665	928	1504	-	-	1469	-	-
Mov Cap-2 Maneuver	691	659	-	677	665	-	-	-	-	-	-	-
Stage 1	900	808	-	858	794	-	-	-	-	-	-	-
Stage 2	845	787	-	848	807	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.2	0.2	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	808	746	1469	-	-
HCM Lane V/C Ratio	0.002	-	-	0.03	0.08	0.003	-	-
HCM Control Delay (s)	7.4	-	-	9.6	10.2	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	10	17	18	11	9	19	145	28	10	124	2
Future Vol, veh/h	3	10	17	18	11	9	19	145	28	10	124	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	12	20	22	13	11	23	175	34	12	149	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	446	453	172	450	437	214	163	0	0	221	0	0
Stage 1	186	186	-	250	250	-	-	-	-	-	-	-
Stage 2	260	267	-	200	187	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	526	506	861	508	516	826	1428	-	-	1360	-	-
Stage 1	820	750	-	739	704	-	-	-	-	-	-	-
Stage 2	749	692	-	786	749	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	489	484	845	468	493	811	1413	-	-	1346	-	-
Mov Cap-2 Maneuver	489	484	-	468	493	-	-	-	-	-	-	-
Stage 1	799	736	-	720	686	-	-	-	-	-	-	-
Stage 2	707	674	-	741	735	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	12.4	0.8	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1413	-	-	639	529	1346	-	-
HCM Lane V/C Ratio	0.016	-	-	0.057	0.087	0.009	-	-
HCM Control Delay (s)	7.6	-	-	11	12.4	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	6	15	29	2	17	3	115	15	5	99	3
Future Vol, veh/h	3	6	15	29	2	17	3	115	15	5	99	3
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	3	7	16	32	2	18	3	125	16	5	108	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	271	269	112	272	262	135	112	0	0	142	0	0
Stage 1	121	121	-	140	140	-	-	-	-	-	-	-
Stage 2	150	148	-	132	122	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	686	641	930	666	646	914	1490	-	-	1453	-	-
Stage 1	888	800	-	847	785	-	-	-	-	-	-	-
Stage 2	857	779	-	855	799	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	666	637	928	645	641	912	1489	-	-	1452	-	-
Mov Cap-2 Maneuver	666	637	-	645	641	-	-	-	-	-	-	-
Stage 1	885	797	-	844	783	-	-	-	-	-	-	-
Stage 2	835	777	-	830	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.4	0.2	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	798	719	1452	-	-
HCM Lane V/C Ratio	0.002	-	-	0.033	0.073	0.004	-	-
HCM Control Delay (s)	7.4	-	-	9.7	10.4	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	9	19	17	10	9	21	163	24	9	140	2
Future Vol, veh/h	3	9	19	17	10	9	21	163	24	9	140	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	11	23	20	12	11	25	196	29	11	169	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	486	491	192	492	478	233	183	0	0	237	0	0
Stage 1	204	204	-	273	273	-	-	-	-	-	-	-
Stage 2	282	287	-	219	205	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	495	481	839	476	489	806	1404	-	-	1342	-	-
Stage 1	803	737	-	718	688	-	-	-	-	-	-	-
Stage 2	729	678	-	768	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	460	459	823	437	467	791	1390	-	-	1328	-	-
Mov Cap-2 Maneuver	460	459	-	437	467	-	-	-	-	-	-	-
Stage 1	781	724	-	698	669	-	-	-	-	-	-	-
Stage 2	687	659	-	723	723	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	12.8	0.8	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1390	-	-	630	502	1328	-	-
HCM Lane V/C Ratio	0.018	-	-	0.059	0.086	0.008	-	-
HCM Control Delay (s)	7.6	-	-	11.1	12.8	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	7	15	36	3	21	3	115	17	5	99	3
Future Vol, veh/h	3	7	15	36	3	21	3	115	17	5	99	3
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	3	8	16	39	3	23	3	125	18	5	108	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	275	271	112	274	263	136	112	0	0	144	0	0
Stage 1	121	121	-	141	141	-	-	-	-	-	-	-
Stage 2	154	150	-	133	122	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	681	639	930	664	646	913	1490	-	-	1451	-	-
Stage 1	888	800	-	845	784	-	-	-	-	-	-	-
Stage 2	853	777	-	854	799	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	657	635	928	643	641	911	1489	-	-	1450	-	-
Mov Cap-2 Maneuver	657	635	-	643	641	-	-	-	-	-	-	-
Stage 1	885	797	-	842	782	-	-	-	-	-	-	-
Stage 2	826	775	-	827	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.5	0.2	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	787	717	1450	-	-
HCM Lane V/C Ratio	0.002	-	-	0.035	0.091	0.004	-	-
HCM Control Delay (s)	7.4	-	-	9.7	10.5	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	11	19	20	12	10	21	163	31	11	140	2
Future Vol, veh/h	3	11	19	20	12	10	21	163	31	11	140	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	13	23	24	14	12	25	196	37	13	169	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	496	503	192	501	486	237	183	0	0	245	0	0
Stage 1	208	208	-	277	277	-	-	-	-	-	-	-
Stage 2	288	295	-	224	209	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	487	474	839	469	484	802	1404	-	-	1333	-	-
Stage 1	799	734	-	714	685	-	-	-	-	-	-	-
Stage 2	724	673	-	763	733	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	450	452	823	428	461	787	1390	-	-	1319	-	-
Mov Cap-2 Maneuver	450	452	-	428	461	-	-	-	-	-	-	-
Stage 1	777	719	-	694	666	-	-	-	-	-	-	-
Stage 2	679	654	-	715	718	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	13.2	0.7	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1390	-	-	610	491	1319	-	-
HCM Lane V/C Ratio	0.018	-	-	0.065	0.103	0.01	-	-
HCM Control Delay (s)	7.6	-	-	11.3	13.2	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	6	16	32	2	19	4	127	16	5	109	4
Future Vol, veh/h	4	6	16	32	2	19	4	127	16	5	109	4
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	7	17	35	2	21	4	138	17	5	118	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	298	295	122	299	289	149	123	0	0	156	0	0
Stage 1	131	131	-	156	156	-	-	-	-	-	-	-
Stage 2	167	164	-	143	133	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	658	620	918	640	624	898	1477	-	-	1436	-	-
Stage 1	877	792	-	830	772	-	-	-	-	-	-	-
Stage 2	840	766	-	843	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	637	615	916	619	619	896	1476	-	-	1435	-	-
Mov Cap-2 Maneuver	637	615	-	619	619	-	-	-	-	-	-	-
Stage 1	873	789	-	827	769	-	-	-	-	-	-	-
Stage 2	815	763	-	817	787	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	10.6	0.2	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1476	-	-	776	696	1435	-	-
HCM Lane V/C Ratio	0.003	-	-	0.036	0.083	0.004	-	-
HCM Control Delay (s)	7.4	-	-	9.8	10.6	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	10	21	19	11	10	24	180	26	10	154	2
Future Vol, veh/h	4	10	21	19	11	10	24	180	26	10	154	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	5	12	25	23	13	12	29	217	31	12	186	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	536	541	209	543	527	255	200	0	0	260	0	0
Stage 1	223	223	-	303	303	-	-	-	-	-	-	-
Stage 2	313	318	-	240	224	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	459	451	821	440	459	784	1384	-	-	1316	-	-
Stage 1	784	723	-	692	667	-	-	-	-	-	-	-
Stage 2	702	657	-	748	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	423	429	806	400	437	769	1370	-	-	1303	-	-
Mov Cap-2 Maneuver	423	429	-	400	437	-	-	-	-	-	-	-
Stage 1	760	709	-	671	646	-	-	-	-	-	-	-
Stage 2	657	637	-	700	708	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	13.6	0.8	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1370	-	-	595	467	1303	-	-
HCM Lane V/C Ratio	0.021	-	-	0.071	0.103	0.009	-	-
HCM Control Delay (s)	7.7	-	-	11.5	13.6	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	7	16	39	3	23	4	127	18	5	109	4
Future Vol, veh/h	4	7	16	39	3	23	4	127	18	5	109	4
Conflicting Peds, #/hr	0	0	0	1	0	1	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	4	8	17	42	3	25	4	138	20	5	118	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	302	298	122	301	290	150	123	0	0	159	0	0
Stage 1	131	131	-	157	157	-	-	-	-	-	-	-
Stage 2	171	167	-	144	133	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	654	617	918	638	624	896	1477	-	-	1433	-	-
Stage 1	877	792	-	829	772	-	-	-	-	-	-	-
Stage 2	836	764	-	842	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	629	612	916	616	619	894	1476	-	-	1432	-	-
Mov Cap-2 Maneuver	629	612	-	616	619	-	-	-	-	-	-	-
Stage 1	873	789	-	826	769	-	-	-	-	-	-	-
Stage 2	806	761	-	815	787	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.8	0.2	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1476	-	-	766	692	1432	-	-
HCM Lane V/C Ratio	0.003	-	-	0.038	0.102	0.004	-	-
HCM Control Delay (s)	7.4	-	-	9.9	10.8	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	12	21	22	13	11	24	180	33	12	154	2
Future Vol, veh/h	4	12	21	22	13	11	24	180	33	12	154	2
Conflicting Peds, #/hr	2	0	2	10	0	10	12	0	12	6	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	450	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	9	0	2	0	2	2	0	4	0
Mvmt Flow	5	14	25	27	16	13	29	217	40	14	186	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	547	554	209	552	535	259	200	0	0	269	0	0
Stage 1	227	227	-	307	307	-	-	-	-	-	-	-
Stage 2	320	327	-	245	228	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.19	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.581	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	451	443	821	434	454	780	1384	-	-	1306	-	-
Stage 1	780	720	-	688	665	-	-	-	-	-	-	-
Stage 2	696	651	-	743	719	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	413	420	806	392	431	766	1370	-	-	1293	-	-
Mov Cap-2 Maneuver	413	420	-	392	431	-	-	-	-	-	-	-
Stage 1	756	705	-	667	644	-	-	-	-	-	-	-
Stage 2	648	631	-	691	704	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	14	0.8	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1370	-	-	575	457	1293	-	-
HCM Lane V/C Ratio	0.021	-	-	0.078	0.121	0.011	-	-
HCM Control Delay (s)	7.7	-	-	11.8	14	7.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.4	0	-	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	22	4	1	28	0	8	5	1	1	8	5
Future Vol, veh/h	2	22	4	1	28	0	8	5	1	1	8	5
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	3	30	5	1	38	0	11	7	1	1	11	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.2	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	7%	3%	7%
Vol Thru, %	36%	79%	97%	57%
Vol Right, %	7%	14%	0%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	28	29	14
LT Vol	8	2	1	1
Through Vol	5	22	28	8
RT Vol	1	4	0	5
Lane Flow Rate	19	38	40	19
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.042	0.044	0.021
Departure Headway (Hd)	4.121	3.925	4.002	3.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	866	912	895	927
Service Time	2.157	1.95	2.027	1.886
HCM Lane V/C Ratio	0.022	0.042	0.045	0.02
HCM Control Delay	7.3	7.1	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	30	2	2	24	2	7	4	4	1	5	3
Future Vol, veh/h	5	30	2	2	24	2	7	4	4	1	5	3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	7	41	3	3	32	3	9	5	5	1	7	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.2	7.1	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	14%	7%	11%
Vol Thru, %	27%	81%	86%	56%
Vol Right, %	27%	5%	7%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	37	28	9
LT Vol	7	5	2	1
Through Vol	4	30	24	5
RT Vol	4	2	2	3
Lane Flow Rate	20	50	38	12
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.055	0.042	0.013
Departure Headway (Hd)	3.995	3.98	3.965	3.889
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	893	901	904	916
Service Time	2.033	1.999	1.986	1.93
HCM Lane V/C Ratio	0.022	0.055	0.042	0.013
HCM Control Delay	7.1	7.2	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	25	4	1	40	0	8	5	1	1	8	5
Future Vol, veh/h	2	25	4	1	40	0	8	5	1	1	8	5
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	3	34	5	1	55	0	11	7	1	1	11	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	6%	2%	7%
Vol Thru, %	36%	81%	98%	57%
Vol Right, %	7%	13%	0%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	31	41	14
LT Vol	8	2	1	1
Through Vol	5	25	40	8
RT Vol	1	4	0	5
Lane Flow Rate	19	42	56	19
Geometry Grp	1	1	1	1
Degree of Util (X)	0.022	0.047	0.062	0.021
Departure Headway (Hd)	4.158	3.944	4.004	3.886
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	857	907	894	916
Service Time	2.202	1.972	2.029	1.931
HCM Lane V/C Ratio	0.022	0.046	0.063	0.021
HCM Control Delay	7.3	7.2	7.3	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	41	2	2	30	2	7	4	4	1	5	3
Future Vol, veh/h	5	41	2	2	30	2	7	4	4	1	5	3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	7	55	3	3	41	3	9	5	5	1	7	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	10%	6%	11%
Vol Thru, %	27%	85%	88%	56%
Vol Right, %	27%	4%	6%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	48	34	9
LT Vol	7	5	2	1
Through Vol	4	41	30	5
RT Vol	4	2	2	3
Lane Flow Rate	20	65	46	12
Geometry Grp	1	1	1	1
Degree of Util (X)	0.023	0.072	0.051	0.013
Departure Headway (Hd)	4.035	3.987	3.982	3.93
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	899	899	905
Service Time	2.083	2.009	2.008	1.981
HCM Lane V/C Ratio	0.023	0.072	0.051	0.013
HCM Control Delay	7.2	7.3	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	25	5	1	32	0	9	6	1	1	9	6
Future Vol, veh/h	2	25	5	1	32	0	9	6	1	1	9	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	3	34	7	1	44	0	12	8	1	1	12	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	56%	6%	3%	6%
Vol Thru, %	38%	78%	97%	56%
Vol Right, %	6%	16%	0%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	32	33	16
LT Vol	9	2	1	1
Through Vol	6	25	32	9
RT Vol	1	5	0	6
Lane Flow Rate	22	44	45	22
Geometry Grp	1	1	1	1
Degree of Util (X)	0.025	0.048	0.05	0.023
Departure Headway (Hd)	4.145	3.927	4.013	3.857
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	860	911	891	924
Service Time	2.186	1.955	2.041	1.899
HCM Lane V/C Ratio	0.026	0.048	0.051	0.024
HCM Control Delay	7.3	7.2	7.3	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	34	2	2	27	2	8	5	5	1	6	3
Future Vol, veh/h	6	34	2	2	27	2	8	5	5	1	6	3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	8	46	3	3	36	3	11	7	7	1	8	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	14%	6%	10%
Vol Thru, %	28%	81%	87%	60%
Vol Right, %	28%	5%	6%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	42	31	10
LT Vol	8	6	2	1
Through Vol	5	34	27	6
RT Vol	5	2	2	3
Lane Flow Rate	24	57	42	14
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.063	0.046	0.015
Departure Headway (Hd)	4.002	3.998	3.983	3.928
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	896	899	906
Service Time	2.047	2.021	2.01	1.975
HCM Lane V/C Ratio	0.027	0.064	0.047	0.015
HCM Control Delay	7.2	7.3	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	28	5	1	44	0	9	6	1	1	9	6
Future Vol, veh/h	2	28	5	1	44	0	9	6	1	1	9	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	3	38	7	1	60	0	12	8	1	1	12	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	56%	6%	2%	6%
Vol Thru, %	38%	80%	98%	56%
Vol Right, %	6%	14%	0%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	35	45	16
LT Vol	9	2	1	1
Through Vol	6	28	44	9
RT Vol	1	5	0	6
Lane Flow Rate	22	48	62	22
Geometry Grp	1	1	1	1
Degree of Util (X)	0.025	0.053	0.069	0.024
Departure Headway (Hd)	4.182	3.947	4.015	3.894
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	851	905	891	913
Service Time	2.233	1.98	2.045	1.946
HCM Lane V/C Ratio	0.026	0.053	0.07	0.024
HCM Control Delay	7.3	7.2	7.3	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	45	2	2	33	2	8	5	5	1	6	3
Future Vol, veh/h	6	45	2	2	33	2	8	5	5	1	6	3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	8	61	3	3	45	3	11	7	7	1	8	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.3	7.2	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	11%	5%	10%
Vol Thru, %	28%	85%	89%	60%
Vol Right, %	28%	4%	5%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	53	37	10
LT Vol	8	6	2	1
Through Vol	5	45	33	6
RT Vol	5	2	2	3
Lane Flow Rate	24	72	50	14
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.08	0.056	0.015
Departure Headway (Hd)	4.042	4.004	3.999	3.969
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	879	895	895	894
Service Time	2.099	2.03	2.028	2.027
HCM Lane V/C Ratio	0.027	0.08	0.056	0.016
HCM Control Delay	7.2	7.4	7.3	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.2	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	27	5	1	35	0	10	6	1	1	10	6
Future Vol, veh/h	2	27	5	1	35	0	10	6	1	1	10	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	3	37	7	1	48	0	14	8	1	1	14	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.3	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	59%	6%	3%	6%
Vol Thru, %	35%	79%	97%	59%
Vol Right, %	6%	15%	0%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	34	36	17
LT Vol	10	2	1	1
Through Vol	6	27	35	10
RT Vol	1	5	0	6
Lane Flow Rate	23	47	49	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.027	0.051	0.055	0.025
Departure Headway (Hd)	4.166	3.943	4.022	3.883
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	855	907	890	917
Service Time	2.21	1.972	2.051	1.929
HCM Lane V/C Ratio	0.027	0.052	0.055	0.025
HCM Control Delay	7.3	7.2	7.3	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	37	2	2	30	2	9	5	5	1	6	4
Future Vol, veh/h	6	37	2	2	30	2	9	5	5	1	6	4
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	8	50	3	3	41	3	12	7	7	1	8	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	13%	6%	9%
Vol Thru, %	26%	82%	88%	55%
Vol Right, %	26%	4%	6%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	45	34	11
LT Vol	9	6	2	1
Through Vol	5	37	30	6
RT Vol	5	2	2	4
Lane Flow Rate	26	61	46	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.068	0.051	0.016
Departure Headway (Hd)	4.033	4.005	3.993	3.904
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	894	896	910
Service Time	2.082	2.031	2.022	1.956
HCM Lane V/C Ratio	0.029	0.068	0.051	0.016
HCM Control Delay	7.2	7.3	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	30	5	1	47	0	10	6	1	1	10	6
Future Vol, veh/h	2	30	5	1	47	0	10	6	1	1	10	6
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	2	30	5	1	47	0	10	6	1	1	10	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.1	7.2	7.3	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	59%	5%	2%	6%
Vol Thru, %	35%	81%	98%	59%
Vol Right, %	6%	14%	0%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	37	48	17
LT Vol	10	2	1	1
Through Vol	6	30	47	10
RT Vol	1	5	0	6
Lane Flow Rate	17	37	48	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.02	0.04	0.053	0.018
Departure Headway (Hd)	4.143	3.925	3.991	3.861
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	912	898	924
Service Time	2.179	1.949	2.012	1.898
HCM Lane V/C Ratio	0.02	0.041	0.053	0.018
HCM Control Delay	7.3	7.1	7.2	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	48	2	2	36	2	9	5	5	1	6	4
Future Vol, veh/h	6	48	2	2	36	2	9	5	5	1	6	4
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	0	0	0	0	2	0	0	22	40	0	4	0
Mvmt Flow	8	65	3	3	49	3	12	7	7	1	8	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.3	7.3	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	11%	5%	9%
Vol Thru, %	26%	86%	90%	55%
Vol Right, %	26%	4%	5%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	56	40	11
LT Vol	9	6	2	1
Through Vol	5	48	36	6
RT Vol	5	2	2	4
Lane Flow Rate	26	76	54	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.084	0.06	0.016
Departure Headway (Hd)	4.071	4.011	4.007	3.943
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	872	892	892	899
Service Time	2.13	2.039	2.039	2.004
HCM Lane V/C Ratio	0.03	0.085	0.061	0.017
HCM Control Delay	7.3	7.4	7.3	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.2	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	3	4	25	12	10
Future Vol, veh/h	22	3	4	25	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	24	3	4	27	13	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	61	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1600	-	950	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1600	-	947	1056
Mov Cap-2 Maneuver	-	-	-	-	947	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	990	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	994	-	-	1600	-
HCM Lane V/C Ratio	0.024	-	-	0.003	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	12	10	23	6	7
Future Vol, veh/h	30	12	10	23	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	33	13	11	25	7	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	87	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	47	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1575	-	919	1037
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	981	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1575	-	913	1037
Mov Cap-2 Maneuver	-	-	-	-	913	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	974	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	976	-	-	1575	-
HCM Lane V/C Ratio	0.014	-	-	0.007	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	3	4	28	12	10
Future Vol, veh/h	25	3	4	28	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	27	3	4	30	13	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	67	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	38	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1596	-	943	1052
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	990	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1596	-	940	1052
Mov Cap-2 Maneuver	-	-	-	-	940	-
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	988	-	-	1596	-
HCM Lane V/C Ratio	0.024	-	-	0.003	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	34	12	10	26	6	7
Future Vol, veh/h	34	12	10	26	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	37	13	11	28	7	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	94	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1570	-	911	1032
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	905	1032
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	969	-	-	1570	-
HCM Lane V/C Ratio	0.015	-	-	0.007	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	3	4	31	12	10
Future Vol, veh/h	27	3	4	31	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	29	3	4	34	13	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	73	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1593	-	936	1049
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	986	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1593	-	933	1049
Mov Cap-2 Maneuver	-	-	-	-	933	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1593	-
HCM Lane V/C Ratio	0.024	-	-	0.003	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	37	12	10	29	6	7
Future Vol, veh/h	37	12	10	29	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	40	13	11	32	7	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	53	0	101	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1566	-	902	1028
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	974	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1566	-	896	1028
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	967	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	963	-	-	1566	-
HCM Lane V/C Ratio	0.015	-	-	0.007	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	5	14	3	13	1	12	45	2	2	27	0
Future Vol, veh/h	3	5	14	3	13	1	12	45	2	2	27	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	5	8	22	5	20	2	18	69	3	3	42	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	7.8	7.8	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	14%	18%	7%
Vol Thru, %	76%	23%	76%	93%
Vol Right, %	3%	64%	6%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	22	17	29
LT Vol	12	3	3	2
Through Vol	45	5	13	27
RT Vol	2	14	1	0
Lane Flow Rate	91	34	26	45
Geometry Grp	1	1	1	1
Degree of Util (X)	0.106	0.045	0.033	0.051
Departure Headway (Hd)	4.194	4.822	4.588	4.087
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	848	735	771	866
Service Time	2.253	2.901	2.671	2.158
HCM Lane V/C Ratio	0.107	0.046	0.034	0.052
HCM Control Delay	7.8	8.1	7.8	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	18	10	1	7	1	12	42	5	2	33	4
Future Vol, veh/h	2	18	10	1	7	1	12	42	5	2	33	4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	2	20	11	1	8	1	13	46	5	2	36	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	7.6	7.5	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	7%	11%	5%
Vol Thru, %	71%	60%	78%	85%
Vol Right, %	8%	33%	11%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	30	9	39
LT Vol	12	2	1	2
Through Vol	42	18	7	33
RT Vol	5	10	1	4
Lane Flow Rate	65	33	10	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.074	0.045	0.012	0.047
Departure Headway (Hd)	4.133	4.929	4.493	3.972
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	723	790	895
Service Time	2.178	2.981	2.556	2.023
HCM Lane V/C Ratio	0.075	0.046	0.013	0.048
HCM Control Delay	7.5	8.2	7.6	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0	0.1

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	8	20	3	15	1	14	45	2	2	27	0
Future Vol, veh/h	4	8	20	3	15	1	14	45	2	2	27	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	6	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	6	12	31	5	23	2	22	69	3	3	42	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.9	7.8	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	12%	16%	7%
Vol Thru, %	74%	25%	79%	93%
Vol Right, %	3%	62%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	32	19	29
LT Vol	14	4	3	2
Through Vol	45	8	15	27
RT Vol	2	20	1	0
Lane Flow Rate	94	49	29	45
Geometry Grp	1	1	1	1
Degree of Util (X)	0.11	0.054	0.037	0.051
Departure Headway (Hd)	4.233	3.913	4.604	4.122
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	901	768	861
Service Time	2.284	1.996	2.687	2.187
HCM Lane V/C Ratio	0.112	0.054	0.038	0.052
HCM Control Delay	7.8	7.2	7.9	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	22	12	1	10	1	17	42	5	2	33	6
Future Vol, veh/h	3	22	12	1	10	1	17	42	5	2	33	6
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	3	24	13	1	11	1	19	46	5	2	36	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	7.7	7.6	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	8%	8%	5%
Vol Thru, %	66%	59%	83%	80%
Vol Right, %	8%	32%	8%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	37	12	41
LT Vol	17	3	1	2
Through Vol	42	22	10	33
RT Vol	5	12	1	6
Lane Flow Rate	70	41	13	45
Geometry Grp	1	1	1	1
Degree of Util (X)	0.081	0.056	0.017	0.05
Departure Headway (Hd)	4.17	4.954	4.524	3.969
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	852	719	783	893
Service Time	2.228	3.013	2.597	2.034
HCM Lane V/C Ratio	0.082	0.057	0.017	0.05
HCM Control Delay	7.6	8.3	7.7	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	6	16	3	15	1	14	51	2	2	30	0
Future Vol, veh/h	3	6	16	3	15	1	14	51	2	2	30	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	5	9	25	5	23	2	22	78	3	3	46	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	7.9	7.9	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	12%	16%	6%
Vol Thru, %	76%	24%	79%	94%
Vol Right, %	3%	64%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	25	19	32
LT Vol	14	3	3	2
Through Vol	51	6	15	30
RT Vol	2	16	1	0
Lane Flow Rate	103	38	29	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.121	0.052	0.038	0.056
Departure Headway (Hd)	4.215	4.849	4.62	4.109
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	730	764	859
Service Time	2.284	2.939	2.716	2.193
HCM Lane V/C Ratio	0.122	0.052	0.038	0.057
HCM Control Delay	7.9	8.2	7.9	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	20	11	1	8	1	14	47	6	2	37	5
Future Vol, veh/h	2	20	11	1	8	1	14	47	6	2	37	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	2	22	12	1	9	1	15	52	7	2	41	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	7.7	7.6	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	6%	10%	5%
Vol Thru, %	70%	61%	80%	84%
Vol Right, %	9%	33%	10%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	33	10	44
LT Vol	14	2	1	2
Through Vol	47	20	8	37
RT Vol	6	11	1	5
Lane Flow Rate	74	36	11	48
Geometry Grp	1	1	1	1
Degree of Util (X)	0.085	0.05	0.014	0.053
Departure Headway (Hd)	4.143	4.952	4.524	3.978
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	859	718	783	892
Service Time	2.195	3.014	2.598	2.039
HCM Lane V/C Ratio	0.086	0.05	0.014	0.054
HCM Control Delay	7.6	8.3	7.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0	0.2

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	9	22	3	17	1	16	51	2	2	30	0
Future Vol, veh/h	4	9	22	3	17	1	16	51	2	2	30	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	6	14	34	5	26	2	25	78	3	3	46	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8	8	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	11%	14%	6%
Vol Thru, %	74%	26%	81%	94%
Vol Right, %	3%	63%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	35	21	32
LT Vol	16	4	3	2
Through Vol	51	9	17	30
RT Vol	2	22	1	0
Lane Flow Rate	106	54	32	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.074	0.043	0.058
Departure Headway (Hd)	4.253	4.961	4.745	4.247
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	830	726	759	848
Service Time	2.344	2.961	2.748	2.25
HCM Lane V/C Ratio	0.128	0.074	0.042	0.058
HCM Control Delay	8	8.4	8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	24	13	1	11	1	19	47	6	2	37	7
Future Vol, veh/h	3	24	13	1	11	1	19	47	6	2	37	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	3	26	14	1	12	1	21	52	7	2	41	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	7.7	7.7	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	7%	8%	4%
Vol Thru, %	65%	60%	85%	80%
Vol Right, %	8%	33%	8%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	40	13	46
LT Vol	19	3	1	2
Through Vol	47	24	11	37
RT Vol	6	13	1	7
Lane Flow Rate	79	44	14	51
Geometry Grp	1	1	1	1
Degree of Util (X)	0.092	0.061	0.018	0.056
Departure Headway (Hd)	4.179	4.976	4.553	3.979
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	850	714	777	890
Service Time	2.242	3.045	2.637	2.051
HCM Lane V/C Ratio	0.093	0.062	0.018	0.057
HCM Control Delay	7.7	8.4	7.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	6	17	4	16	1	15	56	2	2	34	0
Future Vol, veh/h	4	6	17	4	16	1	15	56	2	2	34	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	6	9	26	6	25	2	23	86	3	3	52	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8	8	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	15%	19%	6%
Vol Thru, %	77%	22%	76%	94%
Vol Right, %	3%	63%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	27	21	36
LT Vol	15	4	4	2
Through Vol	56	6	16	34
RT Vol	2	17	1	0
Lane Flow Rate	112	42	32	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.058	0.043	0.063
Departure Headway (Hd)	4.232	4.99	4.764	4.126
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	837	722	756	853
Service Time	2.313	2.991	2.766	2.223
HCM Lane V/C Ratio	0.134	0.058	0.042	0.064
HCM Control Delay	8	8.3	8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	22	12	1	9	1	15	52	6	2	41	5
Future Vol, veh/h	2	22	12	1	9	1	15	52	6	2	41	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	2	24	13	1	10	1	16	57	7	2	45	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	7.7	7.6	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	6%	9%	4%
Vol Thru, %	71%	61%	82%	85%
Vol Right, %	8%	33%	9%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	36	11	48
LT Vol	15	2	1	2
Through Vol	52	22	9	41
RT Vol	6	12	1	5
Lane Flow Rate	80	40	12	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.093	0.055	0.015	0.059
Departure Headway (Hd)	4.158	4.972	4.55	3.996
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	855	715	777	887
Service Time	2.216	3.041	2.634	2.063
HCM Lane V/C Ratio	0.094	0.056	0.015	0.06
HCM Control Delay	7.6	8.3	7.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0	0.2

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	9	23	4	18	1	17	56	2	2	34	0
Future Vol, veh/h	5	9	23	4	18	1	17	56	2	2	34	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	8	14	35	6	28	2	26	86	3	3	52	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8	8.1	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	14%	17%	6%
Vol Thru, %	75%	24%	78%	94%
Vol Right, %	3%	62%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	37	23	36
LT Vol	17	5	4	2
Through Vol	56	9	18	34
RT Vol	2	23	1	0
Lane Flow Rate	115	57	35	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.14	0.079	0.047	0.066
Departure Headway (Hd)	4.369	5.007	4.795	4.272
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	826	718	749	842
Service Time	2.369	3.018	2.806	2.28
HCM Lane V/C Ratio	0.139	0.079	0.047	0.065
HCM Control Delay	8.1	8.4	8	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.3	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	26	14	1	12	1	20	52	6	2	41	7
Future Vol, veh/h	3	26	14	1	12	1	20	52	6	2	41	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	60	0	0	25	5	0	8	1	29	0	0	0
Mvmt Flow	3	29	15	1	13	1	22	57	7	2	45	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	7.8	7.7	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	7%	7%	4%
Vol Thru, %	67%	60%	86%	82%
Vol Right, %	8%	33%	7%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	43	14	50
LT Vol	20	3	1	2
Through Vol	52	26	12	41
RT Vol	6	14	1	7
Lane Flow Rate	86	47	15	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.1	0.066	0.02	0.061
Departure Headway (Hd)	4.193	4.995	4.577	3.998
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	846	711	771	884
Service Time	2.262	3.071	2.669	2.079
HCM Lane V/C Ratio	0.102	0.066	0.019	0.062
HCM Control Delay	7.7	8.4	7.8	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1	0.2

Appendix E

TRAFFIC SIGNAL WARRANTS – SUMMARY OF JUSTIFICATIONS

Dillon Drive at Lesperance Road

Traffic Signal Warrants – Summary of Justifications (OTM Book 12)

Projected Total Traffic (Horizon Year 2025)

Dillon Drive at Lesperance Road

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENTS FOR TWO-LANE ROADWAYS		COMPLIANCE	
		FREE FLOW	RESTRICTED FLOW		
		OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	OPERATING SPEED LESS THAN 70 km/h	SECTIONAL %	ENTIRE %**
1. MINIMUM VEHICULAR VOLUME	A*. Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of an Average Day, and	480	720	23 (1)	18
	B***. Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	120	170	18 (2)	
2. DELAY TO CROSS TRAFFIC	A*. Vehicle Volume, Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720	19 (3)	19
	B*. Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours.	50	75	22 (4)	
3. VOLUME/DELAY COMBINATIONS	The Above Justifications (1 and 2) Both Satisfied to the Extent of 80% or more	YES ☐	NO ☑		18
4. MIN. FOUR HOUR VEHICLE VOLUME	At Plotted Point Representing Hourly Volume for Minor Approach vs. Major Approach for Four Highest Hours of an Average Day Fall above the Applicable Curve	YES ☐	NO ☐		N/A
5. COLLISION EXPERIENCE	A. Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged over a 36 Month Period, and	5		N/A	N/A
	B. Adequate Trial of Less Restrictive Remedies. Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Collisions	YES ☐	NO ☐		
6. PEDESTRIAN VOLUME AND DELAY	A. Plotted Point Representing 8 Hour Pedestrian Volume vs. 8 Hour Vehicular Volume Fall in Justified Zone, and	YES ☐	NO ☐		N/A
	B. Plotted Point Representing 8 Hour Volume of Pedestrian Experiencing Delays of 10 s or more vs. 8 Hour Pedestrian Volume Fall in Justified Zone	YES ☐	NO ☐		

Notes

* Vehicle Volume Warrants 1A and 2A for Roadways Having Two or More Moving Lanes in One Direction Should be 25% Higher than Values Given Above.

** The Lowest Sectional Percentage Governs the Entire Warrant.

*** For "T" Intersections, the Values for Warrant (1B) should be increased by 50%.

Justification 7 - Future Traffic Volumes

(1) = (282 + 384) / 4 / 720 = 23%

(2) = (65 + 60) / 4 / 170 = 18%

(3) = (217 + 324) / 4 / 720 = 19%

(4) = (35 + 32) / 4 / 75 = 22%

Traffic Signal Warrants – Summary of Justifications (OTM Book 12)

Projected Total Traffic (Horizon Year 2030)

Dillon Drive at Lesperance Road

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENTS FOR TWO-LANE ROADWAYS		COMPLIANCE	
		FREE FLOW	RESTRICTED FLOW		
		OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	OPERATING SPEED LESS THAN 70 km/h	SECTIONAL %	ENTIRE %**
1. MINIMUM VEHICULAR VOLUME	A*. Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of an Average Day, and	480	720	24 (1)	21
	B***. Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	120	170	21 (2)	
2. DELAY TO CROSS TRAFFIC	A*. Vehicle Volume, Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720	19 (3)	19
	B*. Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours.	50	75	25 (4)	
3. VOLUME/DELAY COMBINATIONS	The Above Justifications (1 and 2) Both Satisfied to the Extent of 80% or more	YES ☐	NO ☑		19
4. MIN. FOUR HOUR VEHICLE VOLUME	At Plotted Point Representing Hourly Volume for Minor Approach vs. Major Approach for Four Highest Hours of an Average Day Fall above the Applicable Curve	YES ☐	NO ☐		N/A
5. COLLISION EXPERIENCE	A. Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged over a 36 Month Period, and	5		N/A	N/A
	B. Adequate Trial of Less Restrictive Remedies. Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Collisions	YES ☐	NO ☐		
6. PEDESTRIAN VOLUME AND DELAY	A. Plotted Point Representing 8 Hour Pedestrian Volume vs. 8 Hour Vehicular Volume Fall in Justified Zone, and	YES ☐	NO ☐		N/A
	B. Plotted Point Representing 8 Hour Volume of Pedestrian Experiencing Delays of 10 s or more vs. 8 Hour Pedestrian Volume Fall in Justified Zone	YES ☐	NO ☐		

Notes

* Vehicle Volume Warrants 1A and 2A for Roadways Having Two or More Moving Lanes in One Direction Should be 25% Higher than Values Given Above.

** The Lowest Sectional Percentage Governs the Entire Warrant.

*** For "T" Intersections, the Values for Warrant (1B) should be increased by 50%.

Justification 7 - Future Traffic Volumes

(1) = (297 + 401) / 4 / 720 = 24%

(2) = (78 + 68) / 4 / 170 = 21%

(3) = (219 + 333) / 4 / 720 = 19%

(4) = (43 + 32) / 4 / 75 = 25%

Appendix F

SIGHT LINE ANALYSIS

Dillon Drive at Site Access

19-864: Victoria Development TIS - Sight Line Analysis

Design Intersection Sight Distance (TAC Geometric Design Guide for Canadian Roads)

Design Speed: 50 km/h (Posted Speed Limit = 40 km/h)

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Intersection Stopping Distance **(ISD)** = 0.278 V_{major} t_g

Where:

ISD = intersection sight distance (m)
(length of the leg of sight triangle along the major road)
V_{major} = design speed of the major road (km/h)
t_g = time gap for minor road vehicle to enter the major road (s)

ISD $_{passenger\ car}$ (left turn from stop) = 0.278 x 50 x 7.5 = **104 m**

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

ISD $_{passenger\ car}$ (right turn from stop) = 0.278 x 50 x 6.5 = **90 m**

Victoria Development, 12433 Dillon Drive, Tecumseh, Ontario

Traffic Impact Study (March 2021): Response Matrix

In response to the request made by Mr. John Henderson, P.Eng., in his Technical Submission Review letter, the following is a summary of how each concern was addressed in the revised March 2021 TIS:

Q.1	**Site Generated Traffic:** At the intersection of Dillon Drive and Lacasse Boulevard, the AM peak hour eastbound left-turn volume is shown to be 10 vehicles per hour, where it appears it should be 1 vehicle per hour. This appears to propagate through the subsequent traffic volume figures and into the Capacity and Level of Service Analysis reports in Appendix D. This will lead to overestimation of delay at the intersection of Dillon Drive and Lacasse Boulevard. Even with this issue, the delays were acceptable, however, please review and update the report accordingly.
A.1	This was a transcription error; it has since been corrected in all sections of the revised report.
Q.2	**Peak Hour Factors:** According to the Synchro reports in Appendix D, the Capacity and Level of Service Analysis used Peak Hour Factors (PHFs) of 0.92 for all intersections in all scenarios. The counts in Appendix A showed the following PHFs (at the overall intersection level): Dillon Drive at Lesperance Road – AM: 0.92, PM: 0.83; Dillon Drive at St. Pierre Street – AM: 0.73, PM: 0.74; Dillon Drive at Lacasse Boulevard – AM: 0.65, PM: 0.91. Lower PHFs will give higher peak hour delays, so using 0.92 leads to an underestimation of delays. However, given the low volumes at the study intersections, this is unlikely to lead to any erroneous conclusions. Please confirm.
A.2	All PHFs were adjusted to match the values stated above. All Synchro reports were then revised to account for this change (see Appendix D).
Q.3	**Heavy Vehicle Percentages:** According to the Synchro reports in Appendix D, the Capacity and Level of Service Analysis used heavy vehicle percentages that are inconsistent with the values from the traffic counts in Appendix A. Appendix A provides heavy vehicle percentages for the entire count period, and not just the peak hour, so the values used in the analysis may be correct if they represent the peak hours. Given the low volumes at the study intersections, the percentage of heavy vehicle used in the assessment likely had a negligible effect of reported delays and the study conclusions remain valid. Please confirm.
A.3	Heavy vehicle percentages were adjusted to match the observed percentages. The chart of percentages used in the modelling is identified on page 4 of the revised report.
Q.4	**Conflicting Pedestrian Volumes**: According to the Synchro reports in Appendix D, the Capacity and Level of Service Analysis used overly conservative volumes of conflicting pedestrians. From the counts in Appendix A, conflicting pedestrian volumes at the intersection of Dillon Drive and Lesperance Road (the only intersection where conflicting pedestrians apply to the analysis) were: Crossing North Leg: AM: 1, PM: 3; Crossing East Leg: AM: 0, PM: 1; Crossing South Leg: AM: 2, PM: 3; Crossing West Leg: AM: 0, PM: 0. Overly conservative conflicting pedestrian volumes would cause delays to be overestimated. Even with this over-estimation, all delays

	were acceptable, so the overly conservative pedestrian volumes did not lead to any erroneous conclusions.
A.4	Conflicting Pedestrian Volumes were addressed on page 4 of the revised report: "Peak hour pedestrian volumes were very low, so the impact of pedestrians on intersection operations is expected to be nominal; regardless, conservative pedestrian volumes were inputted into the Synchro 10 analysis software."
Q.5	**Intersection Configurations in the Report Text:** Readers interested in the intersection configurations used in the analysis need to search through many pages of analysis reports in Appendix D. For clarity and readability, it would be beneficial to include an outline of the intersection geometry and traffic control used in the analyses in the report text.
A.5	Geometry and traffic control for each intersection is elaborated in greater detail under the specific intersection sub-heading; see pages 4 to 8.
Q.6	**State Assumptions and Procedures for PHFs, Heavy Vehicle Percentages, and Conflicting Pedestrian Volumes:** Like the previous point, readers looking for information on these inputs need to search through analysis reports in Appendix D. For clarity and readability, it would be beneficial to include a description of any assumptions around these inputs in the report text.
A.6	Tables for the heavy vehicle percentages and the PHFs are included in the revised report on page 4; pedestrian volumes are also discussed on page 4.
Q.7	**Note Anticipated Changes to Transportation and Land Use:** The report text should include a discussion on future external changes to land use (developments) and the transportation system that may impact conditions at the study intersections. The area around each study intersection seems fully built out, so it is unlikely that there would be significant transportation or land use changes in the near future, but if that is the case, it should still be stated in the report.
A.7	This concern has been addressed in the first paragraph of the Introduction and Background section; see page 1 of the revised report.
Q.8	**Note the Capacity and Level of Service Analysis Methodology:** Include a note about the analysis methodology used in the Capacity and Level of Service Analysis (HCM 2000, HCM 2010, HCM 6th Edition, Synchro proprietary method, etc.) in the report text.
A.8	These details are addressed in the first paragraph of the Methodology section on page 2.
Q.9	**Clearly List the Intersections Included in the Study:** The intersections in the study can be inferred from the text in the Existing Conditions section and in the Capacity and Level of Service Analysis section, but there is not a clear list of the study intersections. It would be easier to understand the extent of the TIS if the study intersections were clearly listed near the start of the report, perhaps in the Introduction and Background section.
A.9	The study intersections are bulleted on page 1 in the Introduction and Background section of the revised report.
Q.10	**Clearly List the Analysis Scenarios Near the Start of the Report:** Analysis scenarios are clearly listed in the Capacity and Level of Service Analysis section and referred to in the Trip Generation and Distribution section. It would be easier to understand the extent of the TIS if the analysis

	scenarios were listed near the start of the report, perhaps in the Introduction and Background section.
A.10	The analysis scenarios are bulleted on page 1 in the Introduction and Background section of the revised report.
Q.11	**Note the Time Periods for Analysis:** Time periods for analysis can be inferred from the discussion in the report, but they are not stated clearly. It would be easier to understand the extent of the TIS if the time periods for analysis were stated clearly near the start of the report, perhaps in the Introduction and Background section.
A.11	It is stated on page 1 in the Introduction and Background section that the AM and PM peak hours would be analyzed for the given scenarios.
Q.12	**Note How the Background Growth Rate Was Applied:** The background traffic growth rate percentage is stated, but it is not stated that the growth rate was applied as a compound annual growth rate. Compound annual growth rates are used by default in many jurisdictions, but some jurisdictions use linear growth rates. Stating the growth rate type would resolve any lack of clarity on that point.
A.12	The original May 2019 report, page 2, clearly stated that, "Background traffic was increased by 2% per year for the 2025 and 2030 horizon forecasts, which provides for very conservative increases to background traffic when compounded annually." Growth is always calculated based on a compound growth rate.

All of which is respectfully submitted,

RC Spencer Associates Inc.

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