

**1878 HURON CHURCH ROAD  
COMMERCIAL / RETAIL  
DEVELOPMENT  
WINDSOR, ON**

**TRAFFIC IMPACT STUDY**



**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

# 1878 HURON CHURCH ROAD COMMERCIAL / RETAIL DEVELOPMENT

## WINDSOR, ON – TRAFFIC IMPACT STUDY (APRIL 2023)

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## INTRODUCTION AND BACKGROUND

A commercial / retail infilling development is proposed for lands at 1878 Huron Church Road, in Windsor, ON. As illustrated on Figure 1, the development lands are currently comprised of a small existing commercial building at the north end of the property, with undeveloped lands to the south. The lands front both Huron Church Road and Daytona Avenue.

The study area is defined on Figure 2; it includes Huron Church Road and its intersections with Malden Road and Industrial Drive / Northwood Street, and the proposed site accesses. Huron Church Road, also known as Highway 3, is a six-lane, north / south divided roadway at this location; it provides access through the centre of Windsor (from the Ambassador Bridge to the E.C. Row Expressway, Highway 3, and Highway 401). This corridor currently accommodates numerous hotels and restaurants, as well as some other commercial / industrial land uses. Malden Road, also known as County Road 3, is an arterial road which intersects Huron Church Road at a signalized intersection north of the site. Industrial Drive / Northwood Street intersects with Huron Church Road at a signalized intersection south of the site. Industrial Drive is a local roadway which links numerous industrial properties west of Huron Church Road; Northwood Street is a collector roadway which links residential areas to the east. Daytona Avenue is a collector / service road that runs parallel to Huron Church Road; it provides supplementary, all-directional site access to the various land uses along the east side of Huron Church Road.

The site plan is provided on Figure 3; the proposed development consists of two 2,000 sq. ft. drive-through restaurants, a total of 12,836 sq. ft. of retail space divided into ten units, and 1,700 sq. ft. of office space. The easterly restaurant drive-through will accommodate an 11-vehicle queue, and the westerly restaurant drive-through will accommodate an 8-vehicle queue. A total of 121 parking spaces will be provided to service the site, including four accessibility spaces. Access will be provided via one right-in / right-out driveway at Huron Church Road and two all-directional accesses at Daytona Avenue; a right-out egress lane is also proposed to Huron Church Road for the westerly restaurant drive-through at the northwest corner of the site.

The purpose of this traffic impact study is to examine the potential impact of the proposed development on area traffic operations, particularly along the Huron Church Road corridor.

## TRAFFIC DATA COLLECTION

As provided in Appendix A, weekday turning movement counts (dated 19 and 20 February 2020) were provided by the City of Windsor for the signalized intersections of Malden Road at Huron Church Road and Industrial Drive / Northwood Street at Huron Church Road, respectively, while Saturday counts were collected by RC Spencer Associates Inc. on 21 January 2022.

## METHODOLOGY

The aforementioned traffic data provided the basis for industry-standard traffic operations analysis; the software package utilized for the analysis (Synchro 11) calculates various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches.

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

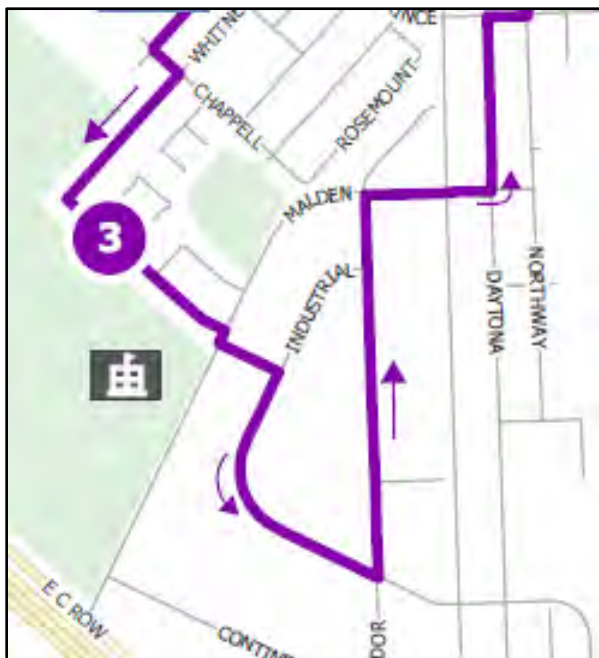
Trip generation for the proposed development was estimated from the Institute of Transportation Engineers Trip Generation Manual (11<sup>th</sup> Edition). The dataset's average rate was used instead of the fitted curve equation because the equation is not provided in most instances. The reference material is provided in Appendix B and is summarized below:

ITE Land Use Code 934 – Fast-Food Restaurant w/ Drive-Through Window is the most appropriate code for the two proposed 2,000 sq. ft. drive-through restaurant; it provides generation rates of 44.61 trips per 1,000 Sq. Ft. GFA in the AM peak hour, with 51% entering and 49% exiting, 33.03 trips per 1,000 Sq. Ft. GFA in the PM peak hour, with 52% entering and 48% exiting, and 55.25 trips per 1,000 Sq. Ft. GFA in the Saturday peak hour, with 51% entering and 49% exiting.

ITE Land Use Code 822 – Strip Retail Plaza (<40k) is the most appropriate code for the proposed retail land use. The combined square footage of the proposed retail space is estimated to be a total of 12,836 sq. ft. of gross leasable area (GLA). It provides average trip generation rates of 2.36 trips per 1,000 sq. ft. GLA in the AM peak hour, with 60% entering and 40% exiting, and 6.59 trips per 1,000 sq. ft. GLA in the PM peak hour, with 50% entering and 50% exiting, and 6.57 trips per 1,000 sq. ft. GLA in the Saturday peak hour, with 51% entering and 49% exiting.

ITE Land Use Code 712 – Small Office Building is the most appropriate code for the proposed 875 sq. ft. office; it provides average trip generation rates of 1.67 trips per 1,000 sq. ft. GLA in the PM peak hour, with 82% entering and 18% exiting and 2.16 trips per 1,000 sq. ft. GLA in the PM peak hour, with 34% entering and 66% exiting. No data was provided for the Saturday peak hour.

The total trips generated by the proposed development are estimated to be 111 entering and 101 exiting during the AM peak hour, 112 entering and 108 exiting during the PM peak hour, and 156 entering and 149 exiting during the Saturday peak hour. Although this report conservatively considers the “worst-case” traffic scenarios (with respect to trip generation, distribution, modal split, and assignment), it is likely that the number of “new” on-street auto trips will be much lower than estimated, possibly up to 50% less. If modal split and pass-by trip reductions are applied, the “additional” trips generated by the development are estimated to be considerably lower during all peak hours. Given the development’s proximity to other significant retail, hotels, and restaurants, pass-by trips and modal split may significantly reduce the traffic impact of the subject development on Huron Church Road.



Per the City of Windsor’s Active Transportation Master Plan (pg. 35), modal split for the site could be approximately 16% within a ten-year horizon if the target for walking, cycling, and transit is reached; currently, it is assumed to be about 8%. Windsor Transit also provides one route within the study area; as shown to the right, Route 3 provides two stops on Malden Road, just north of the proposed site at Ambassador Drive at Malden Road and on Daytona Avenue (north of Malden Road). Sidewalks are provided on both sides of Huron Church Road, the west side of Daytona Avenue, and the north side of Malden Road, but cycling facilities are not provided within the study area.

The existing transit and pedestrian facilities will progress the modal split target defined by the City of Windsor. For discussion purposes only, a 50% reduction was applied to the restaurant uses, and a 34% reduction was applied to the retail uses for pass-by trips (as recommended by the ITE Trip Generation Manual); these reductions were applied to the trips generated after the 8% modal split reduction, but no internal capture benefit was considered (because the pass-by percentages are high). The potential reductions for each land use are provided in the table below:

**Table 1: Trip Generation**

LUC	Equation/Rate	Size	AM Peak			PM Peak			Saturday Peak		
			In	Out	Total	In	Out	Total	In	Out	Total
934	Rate	1000 sq. ft.	91	87	178	69	63	132	113	108	221
Modal Split (8%)			7	7	14	5	6	11	9	9	18
Internal Capture (0%)			0	0	0	0	0	0	0	0	0
Pass-by Trips (50%)			42	40	82	32	29	61	52	50	102
Total New Trips			42	40	82	32	29	61	52	50	102
822	Rate	1000 sq. ft.	18	12	30	85	42	43	43	41	84
Modal Split (8%)			1	1	2	3	4	7	3	4	7
Internal Capture (0%)			0	0	0	0	0	0	0	0	0
Pass-by Trips (34%)			6	3	9	13	13	26	13	13	26
Total New Trips			11	7	18	26	25	51	27	24	51
712	Rate	1000 sq. ft.	2	1	3	1	3	4	0	0	0
Modal Split (0%)			0	0	0	0	0	0	0	0	0
Internal Capture (0%)			0	0	0	0	0	0	0	0	0
Pass-by Trips (0%)			0	0	0	0	0	0	0	0	0
Total New Trips			2	1	3	1	3	4	0	0	0
<b>Total New Trip Generation</b>			<b>46</b>	<b>48</b>	<b>94</b>	<b>59</b>	<b>57</b>	<b>116</b>	<b>79</b>	<b>74</b>	<b>153</b>
<b>Total Trip Generation</b>			<b>111</b>	<b>101</b>	<b>212</b>	<b>112</b>	<b>108</b>	<b>220</b>	<b>156</b>	<b>149</b>	<b>305</b>

Site generated traffic was distributed to and from the site in accordance with the north / south origin-destination matrices derived from the turning movement counts obtained at the nearby signalized intersections and according to the permitted movements at the proposed Huron Church Road site accesses. Site access to and from Huron Church Road is via a right-out egress at Huron Church Road (to accommodate the proposed drive-through) and a right-in / right-out control to facilitate primary access. To be conservative and to evaluate the “worst-case” scenarios for the Huron Church Road intersections, all site generated traffic utilizing the two Daytona Avenue accesses was routed through the signalized intersections via Malden Road and Northwood Street; traffic utilizing the drive-through lane to Huron Church Road must turn north and then be distributed accordingly, with some circling back to the south via Daytona Avenue. The resulting site-generated turning movements are illustrated on Figure 4.

## CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed Synchro 11 analyses were carried out with respect to the following traffic scenarios:

- Existing Traffic;
- Existing Traffic + Site Generated Traffic;
- Total Traffic 2028 (Background Traffic 2028 + Site Generated Traffic);
- Total Traffic 2033 (Background Traffic 2033 + Site Generated Traffic).

To be conservative, the analysis was carried out assuming full build-out conditions for existing, 2028, and 2033 horizon years. Background traffic was increased by 1.5% per year, compounded annually, for the 2028 and 2033 horizon forecasts. Figures 5 to 8 summarize existing and total traffic estimates that result from adding site generated traffic to 2028 and 2033 horizon year forecasts; the effect of adding site generated traffic and background traffic growth at each intersection can be found in Appendix C. Signal timings (provided by the City) were implemented into the modelling; the resulting simulation reports are provided in Appendix D. To quantify and qualify the impact of traffic growth on area intersection, the results were summarized as follows:

### Malden Road at Huron Church Road

The intersection of Malden Road at Huron Church Road is currently signalized. The northbound and southbound legs consist of a dedicated left turn lane, two through lanes, and a through / right turn lane; the eastbound and westbound legs consist of a dedicated left turn lane and a through / right turn lane. The intersection is currently operating at a good level of service. Based on the level of service results reported in Tables 2 and 3, it is anticipated that the addition of site generated traffic and background traffic growth will have a nominal impact on future traffic operations; the overall signalized level of service is a consistent LOS B in all scenarios. Even in the most critical traffic scenario, it is anticipated that approach level of service results will remain satisfactory except for the eastbound approach, which exhibits two seconds of additional control delay, resulting in an eastbound LOS E in the AM and PM peak hours. The northbound approach fluctuates by 2-3 seconds delay in each of the peak hours.

**Table 2: Overall Signalized Intersection Level of Service – Malden Road at Huron Church Road**

Scenario	Malden Road at Huron Church Road		
	AM Peak Hour	PM Peak Hour	Sat. Peak Hour
Existing Traffic	B	B	B
Existing + Site Generated Traffic	B	B	B
Total Traffic 2028	B	B	B
Total Traffic 2033	B	B	B

**Table 3: Level of Service by Approach – Malden Road at Huron Church Road**

Scenario	Malden Road at Huron Church Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	D	D	B	B	D	D	B	B	D	D	B	A
Existing + Site Gen Traffic	D	D	B	B	D	D	B	B	D	D	B	A
Total Traffic 2028	E	D	B	B	E	D	B	B	D	D	B	A
Total Traffic 2033	E	D	B	B	E	D	B	B	D	D	B	A

**Right-Out Egress at Huron Church Road**

The proposed right-out site egress at Huron Church Road will be stop-controlled on the westbound approach, with a single lane for egress; it will only be utilized by vehicles using the drive-through lane for the restaurant on the northwest corner of the site. From Table 4, it is anticipated that this access will operate at a satisfactory level of service in all horizon scenarios.

**Table 4: Level of Service by Approach – RO Egress at Huron Church Road**

Scenario	RO Egress at Huron Church Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Gen Traffic	-	C	A	A	-	C	A	A	-	B	A	A
Total Traffic 2028	-	C	A	A	-	C	A	A	-	B	A	A
Total Traffic 2033	-	C	A	A	-	C	A	A	-	B	A	A

**Right-In / Right-Out Site Access at Huron Church Road**

The proposed right-in / right-out site access at Huron Church Road will be stop-controlled on the westbound approach, with a single lane for ingress and a single lane for egress. Based on the level of service results provided in Table 5, it is anticipated that this access will operate at a satisfactory level of service in all horizon scenarios. Assuming no site generated trip reductions, control delay of up to 25.2 seconds could be experienced by vehicles utilizing this egress in the future 2033 AM peak hour scenario, but the corresponding 95<sup>th</sup> percentile queue length is expected to be less than one vehicle length, so queuing should be sufficiently contained on-site.

**Table 5: Level of Service by Approach – RI/RO Access at Huron Church Road**

Scenario	RI/RO Access at Huron Church Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Gen Traffic	-	C	A	A	-	C	A	A	-	B	A	A
Total Traffic 2028	-	C	A	A	-	C	A	A	-	C	A	A
Total Traffic 2033	-	D	A	A	-	C	A	A	-	C	A	A

**Northerly and Southerly Site Accesses at Daytona Avenue**

The proposed northerly and southerly all-directional site accesses at Daytona Avenue will be stop-controlled on the eastbound approaches, with a single lane for ingress and a single lane for egress. It is anticipated that these site accesses will operate at a good level of service in all horizon scenarios. These intersections were not modelled because most vehicles utilizing these accesses will be heading south (and will indirectly affect the traffic operations on Huron Church Road).

**Industrial Drive / Northwood Street at Huron Church Road**

The intersection of Industrial Drive / Northwood Street at Huron Church Road is currently signalized. The northbound leg consists of a dedicated left turn lane, two through lanes, and a through / right turn lane; the southbound leg consists of a dedicated left turn lane, three through lanes, and a channelized right turn lane. The westbound leg consists of a dedicated left turn lane and a through / right turn lane; the eastbound leg consists of one shared lane, but it is wide enough for right-turning vehicles to by-pass the lane to make the turn. The intersection is currently operating at a satisfactory level of service. From Tables 6 and 7, it is anticipated that the addition of site generated traffic and background traffic growth will have a nominal impact on future traffic operations; the overall signalized level of service will remain a consistent LOS C in all scenarios. Even in the most critical traffic scenario, it is anticipated that level of service results will remain satisfactory, except for the westbound approach exhibiting up to 4-5 seconds of additional delay, resulting in LOS E in the PM peak hour.

**Table 6: Overall Signalized Level of Service – Industrial Drive / Northwood Street at Huron Church Rd.**

Scenario	Industrial Dr. / Northwood St. at Huron Church Rd.		
	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
Existing Traffic	C	C	C
Existing + Site Generated Traffic	C	C	C
Total Traffic 2028	C	C	C
Total Traffic 2033	C	C	C

**Table 7: Level of Service by Approach – Industrial Drive / Northwood Street at Huron Church Road**

Scenario	Industrial Drive / Northwood Street at Huron Church Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	B	D	B	B	B	D	B	C	D	D	B	B
Existing + Site Gen Traffic	B	D	C	B	B	D	B	B	C	E	B	A
Total Traffic 2028	B	D	C	B	B	E	C	B	C	D	B	A
Total Traffic 2033	B	D	C	B	B	E	C	C	C	D	B	A

## SIGHT LINE ANALYSIS

A sight line analysis was completed for both the proposed right-out egress access and right-in / right-out site access at Huron Church Road; the review was completed in accordance with the TAC Geometric Design Guide for Canadian Roads (2017). A design speed of 80 km/h was assumed based on the posted speed limit of 60 km/h. The design vehicle, a passenger vehicle, was positioned at 4.4m from the edge of the nearest travel lane, as recommended by the TAC guideline. As calculated in Appendix E, the intersection sight distance for a right turn egress maneuver was determined to be 145m; left turns are prohibited.

Based on the resulting sight lines illustrated on Figures 9A and 9B, it is the engineers' opinion that there is sufficient sight distance for safe egress from the proposed site accesses; the proposed site accesses pose no undue hazard to the safety of traffic operations on Huron Church Road. Sight line analyses were also completed for the proposed site accesses at Daytona Avenue; the reviews were completed in accordance with the TAC Geometric Design Guide for Canadian Roads (2017). A design speed of 60 km/h was assumed based on the posted speed limit of 50 km/h. The design vehicle, a passenger vehicle, was positioned at 4.4m from the edge of the nearest travel lane, as recommended by the TAC guideline.

As calculated in Appendix E, the intersection sight distance was determined to be 125m for the worst-case left turn egress maneuver, while intersection sight distance for a right turn egress maneuver was determined to be 108m; Based on the resulting sight lines illustrated on Figures 9C and 9D, it is the engineers' opinion that there is sufficient sight distance in both directions for safe egress from the proposed site accesses; the proposed site accesses pose no undue hazard to the safety of traffic operations at these locations.

## SUMMARY AND CONCLUSIONS

A commercial / retail infilling development is proposed for lands at 1878 Huron Church Road, in Windsor, ON. The development lands are currently comprised of a small existing commercial building at the north end of the property, with undeveloped lands to the south. The study area includes Huron Church Road and its intersections with Malden Road and Industrial Drive / Northwood Street, and the proposed site accesses. The proposed development consists of two 2,000 sq. ft. drive-through restaurants, a total of 12,836 sq. ft. of retail space divided into ten units, and 1,700 sq. ft. of office space. A total of 121 parking spaces will be provided to service the site, including four accessibility spaces. Access will be provided via one right-in / right-out driveway at Huron Church Road and two all-directional accesses at Daytona Avenue; a right-out egress lane is also proposed to Huron Church Road for the westerly restaurant drive-through.


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 proposed development on area traffic operations. No trip generation reductions were considered, although as little as 50% of the site generated traffic could result in “new” on-street trips. Upon completion of the analysis, it was concluded that:

- The existing signalized intersection of Malden Road at Huron Church Road is currently operating at a good level of service; even with the addition of site generated and background traffic growth, it is anticipated that the intersection will continue to operate at a good level of service in all horizon traffic scenarios;
- The proposed westbound stop-controlled right-out site egress at Huron Church Road is expected to operate at a satisfactory level of service in all horizon traffic scenarios;
- The proposed westbound stop-controlled right-in / right-out site access at Huron Church Road is expected to operate at a satisfactory level of service in all horizon traffic scenarios;
- The proposed eastbound stop-controlled all-directional site accesses at Daytona Avenue are expected to operate at a good level of service in all horizon traffic scenarios; no modelling was necessary to validate these conclusions;
- The existing signalized intersection of Industrial Drive / Northwood Street at Huron Church Road is currently operating at a satisfactory level of service; even with the addition of site generated and background traffic growth, it is anticipated that the intersection will continue to operate at a satisfactory level of service in all horizon traffic scenarios;

Therefore, based on the results of the technical work, it is the engineers’ opinion that the proposed development will not adversely impact area traffic operations. Geometric and / or traffic control improvements are not required to enhance horizon traffic operations.

All of which is respectfully submitted,

**RC Spencer Associates Inc.**



**Aaron D. Blata, M.Eng., P.Eng., PTOE**  
Professional Traffic Operations Engineer  
Associate / Leamington Office Manager



**Richard C. Spencer, M.A.Sc., P.Eng., PE**  
Fellow Member, ITE  
President / Windsor Office Manager





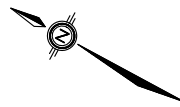
		<p>Windsor: 800 University Avenue W. - Windsor ON N9A 5R9          Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4          Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p>				DESIGN A.D.B. CHECKED A.D.B. DRAWN F.C. CHECKED A.D.B. DATE APRIL 2023 SCALE N.T.S.		1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT  <h3 style="text-align: center;">AREA PLAN</h3>		PROJECT NO. 23-1384  FIGURE NO. 1  OF 9	
				2. UPDATED REPORT FIGURES 05 APR. 2023 F.C. A.D.B. 1. COMPLETED REPORT FIGURES 02 MAR. 2023 F.C. A.D.B.							
NO.		REVISION		DATE		BY		APP			



						DESIGN	A.D.B.	1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT	PROJECT NO.	23-1384	
						CHECKED	A.D.B.				
						DRAWN	F.C.	STUDY AREA	FIGURE NO.	2	
						CHECKED	A.D.B.				
						DATE	APRIL 2023				
						SCALE	N.T.S.			OF	9
NO.	REVISION	DATE	BY	APP							


**RC SPENCER ASSOCIATES INC.**  
 Consulting Engineers  
 Windsor: 200 University Avenue W. - Windsor ON N9A 5P9  
 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4  
 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6


 Professional Engineers  
 Ontario



**CURRENT ZONING**  
COMMERCIAL DISTRICT 4.3 (CD4.3)  
**PERMITTED USES**  
Hotel, Micro-Brewery, Restaurant, Any use accessory to the preceding uses. An Outdoor Storage Yard is prohibited.  
**PROVISIONS**  
Building Height - maximum 20.0 m  
Landscape Open Space Yard - minimum 15.0% of lot area

**PROPOSED ZONING**  
COMMERCIAL DISTRICT 4.1 (CD4.1)  
**PERMITTED USES**  
Business Office  
Food Outlet - Drive-Through Food  
Food Outlet - Take-Out  
Hotel  
Medical Office  
Personal Service Shop  
Restaurant  
Restaurant with Drive-Through  
Retail Store  
Warehouse  
Wholesale Store  
The following existing uses: Any use permitted in Section Any use accessory to the preceding uses.  
**PROVISIONS**  
Lot Width - minimum 30.0 m  
Main Building Height - maximum 20.0 m

**PROPOSED USES STATISTICS**

AREA	REQUIRED	AVAILABLE
RESTAURANT WITH DRIVE THRU AREA		
UNIT # 1	2,000sq.f	
UNIT # 2	2,000sq.f	
TOTAL	4,000sq.f (371.6sq.m)	
PARKING		
1 PARKING SPACE / 7.5sq.m	49	56
RETAIL STORE AREA		
12,836sq.f ( 1,192.5sq.m)		
PARKING		
1 PARKING SPACE / 22.5sq.m	53	60
BUSINESS OFFICE AREA		
1,700sq.f ( 157.9sq.m)		
PARKING		
1 PARKING SPACE / 45sq.m	3	5
TOTAL PARKING	105	121

**ACCESSIBLE PARKING SPACES**

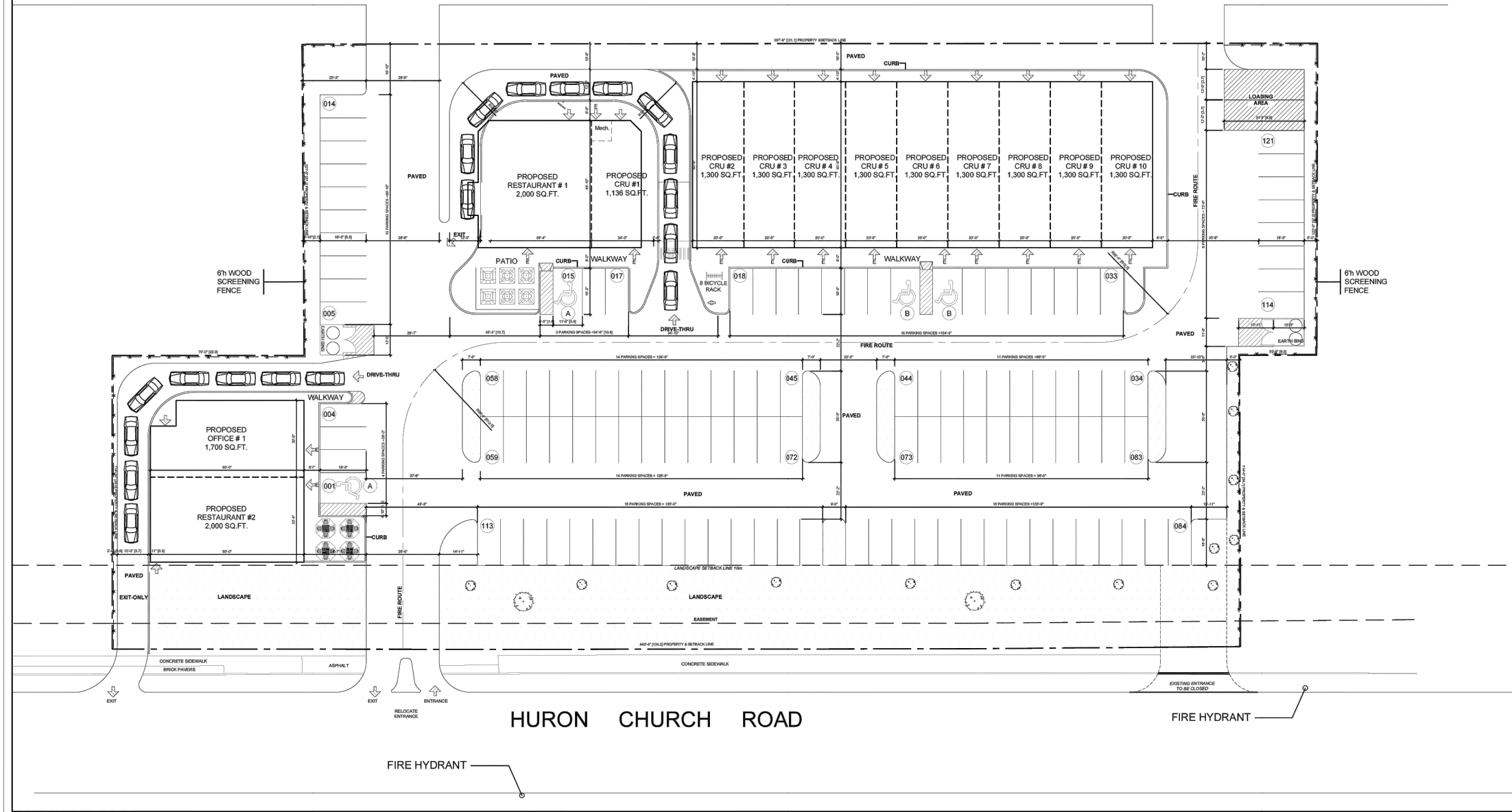
	REQUIRED	AVAILABLE
TYPE A	1	2
TYPE B	2	2
BICYCLE PARKING SPACES	6	8
NUMBER OF LOADING	1	2



**AVANT GROUP INCORPORATION**  
5980 Tecumseh Rd. East, Windsor, ON, N8T 1E3  
Phone: 519-919-2010 | 519 300-9838  
Email: info@avantgroupincorp.com  
Website: www.avantgroupincorp.com

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**DAYTONA AVENUE**



1 PROPOSED SITE PLAN  
SP-1 1/32"=1'-0"

**CLIENT**

**PROJECT TITLE**  
DEVELOP  
1878 HURON CHURCH WINDSOR,  
ONTARIO

**DRAWING TITLE**  
PROPOSED SITE PLAN  
OPTION #3

**NOTE**  
KEY PLAN  
GENERAL NOTES:  
1. DO NOT SCALE DRAWINGS  
2. VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AS REQUIRED PRIOR TO BIDDING AND COMMENCEMENT OF WORK.  
3. COORDINATE ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS PRIOR TO COMMENCEMENT OF WORK.  
4. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY, IN WRITING PRIOR TO PROCEEDING WITH ANY WORK.  
5. ALL WORK SHALL COMPLY OR EXCEED THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, FIRE CODE, PLUMBING CODE, ELECTRICAL CODE, AND LOCAL BY-LAWS.

The Architect noted above has exercised responsible control with respect to design activities. The Architect's Seal Number is the Architect's BCAL.

**REVISION RECORD**

#	DESCRIPTION	DATE
1	CLIENT REVIEW	2022-09-14
2	REVISION	2023-01-30
3	REVISION	2023-03-20

**PROJECT NOTE**  
PROJECT NUMBER 22-003  
DATE 2022-09-14  
DRAWN BY S.M.  
CHECKED BY M.H.  
APPROVED BY M.H.

SHEET SIZE  
**ARCH D (24" x 36")**  
SHEET NUMBER  
**SP-1**  
SCALE AS NOTED

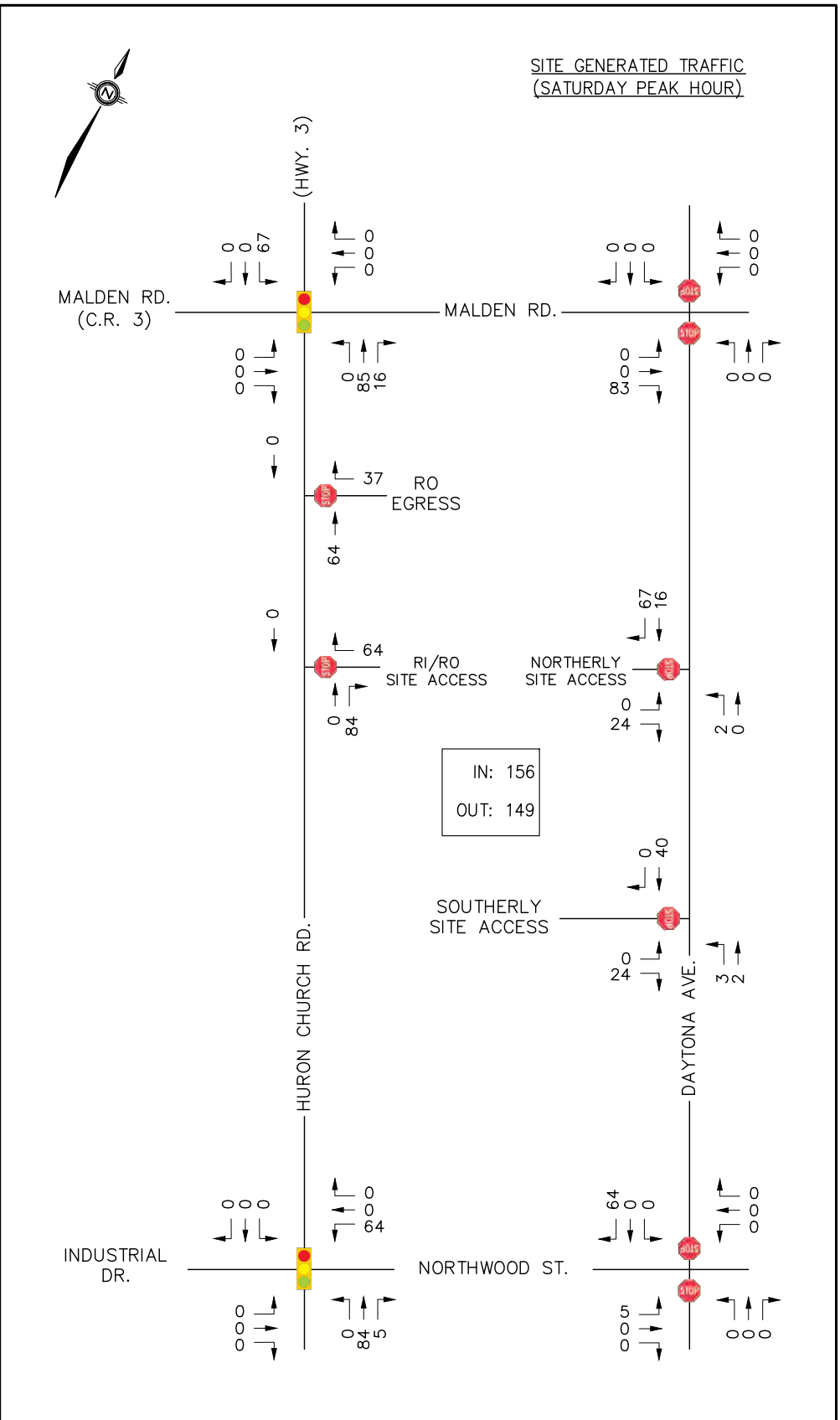
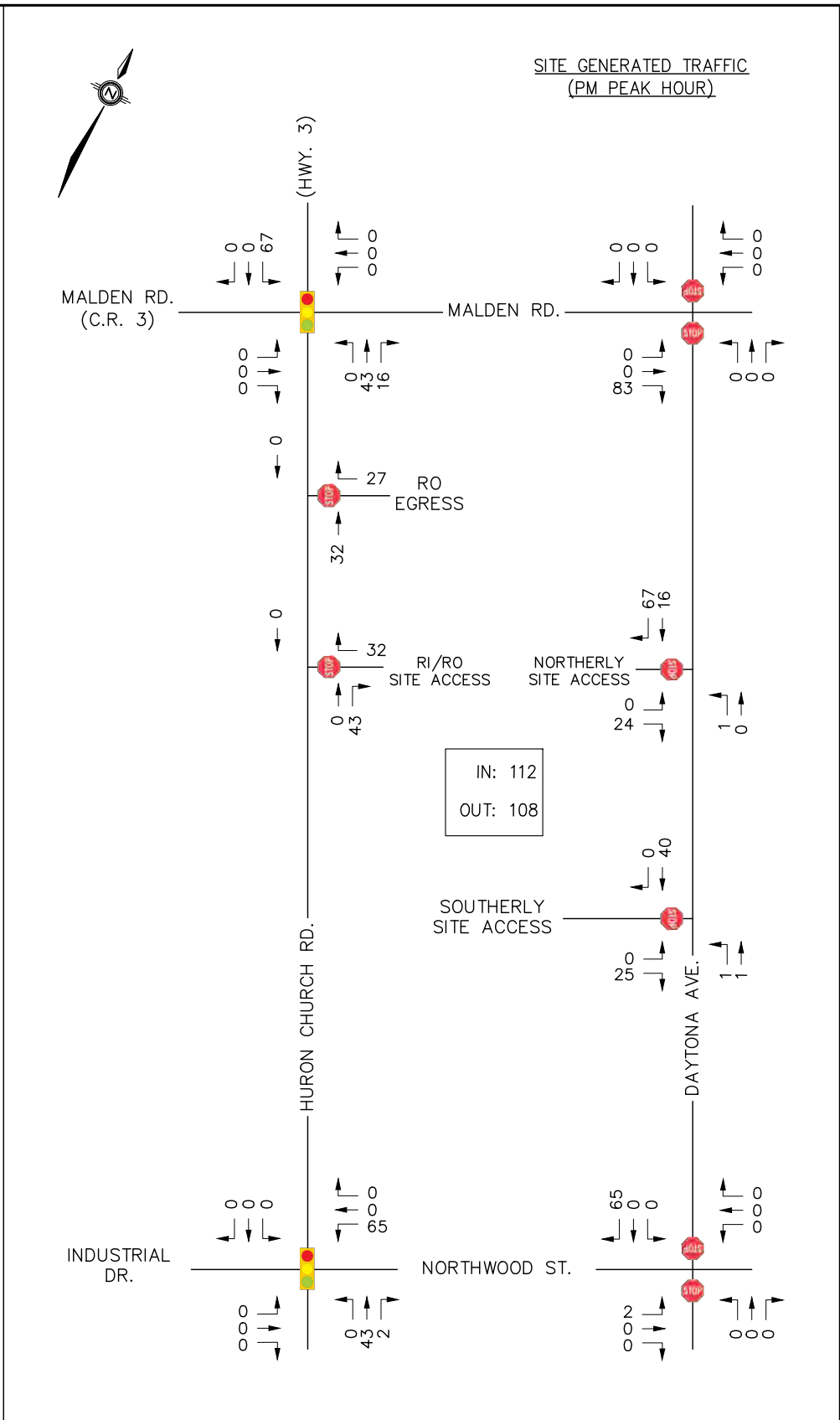
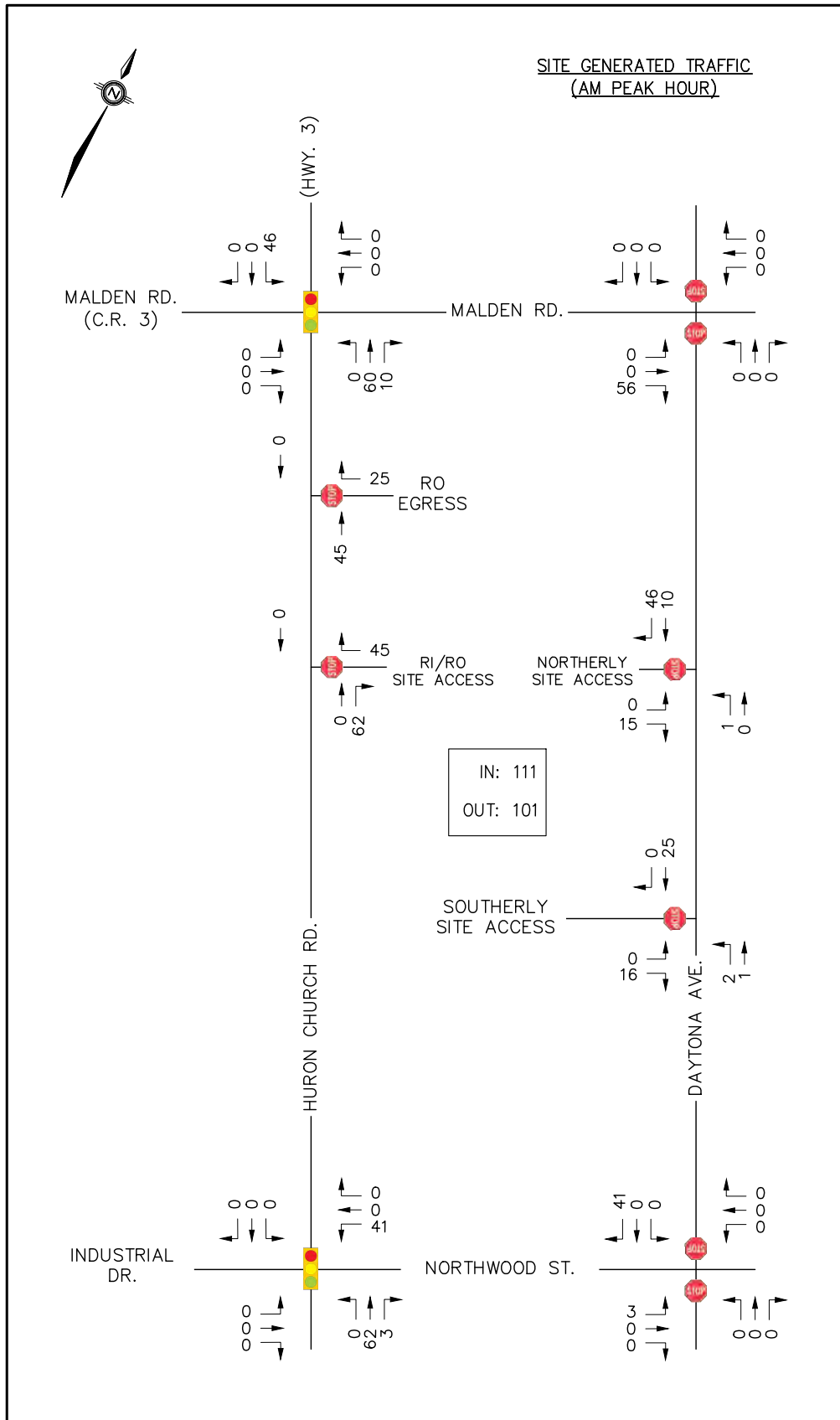


NO.	REVISION	DATE	BY	APP
2.	UPDATED REPORT FIGURES	05 APR. 2023	F.C.	A.D.B.
1.	COMPLETED REPORT FIGURES	02 MAR. 2023	F.C.	A.D.B.

1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT

**SITE PLAN**

PROJECT NO.  
23-1384  
FIGURE NO.  
3  
OF  
9



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**RC SPENCER ASSOCIATES INC.**  
Consulting Engineers  
Windsor: 200 University Avenue W. - Windsor ON N9A 5P9  
Leamington: 18 Falbot Street W. - Leamington ON N8H 1M4  
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

Professional Engineers  
Ontario

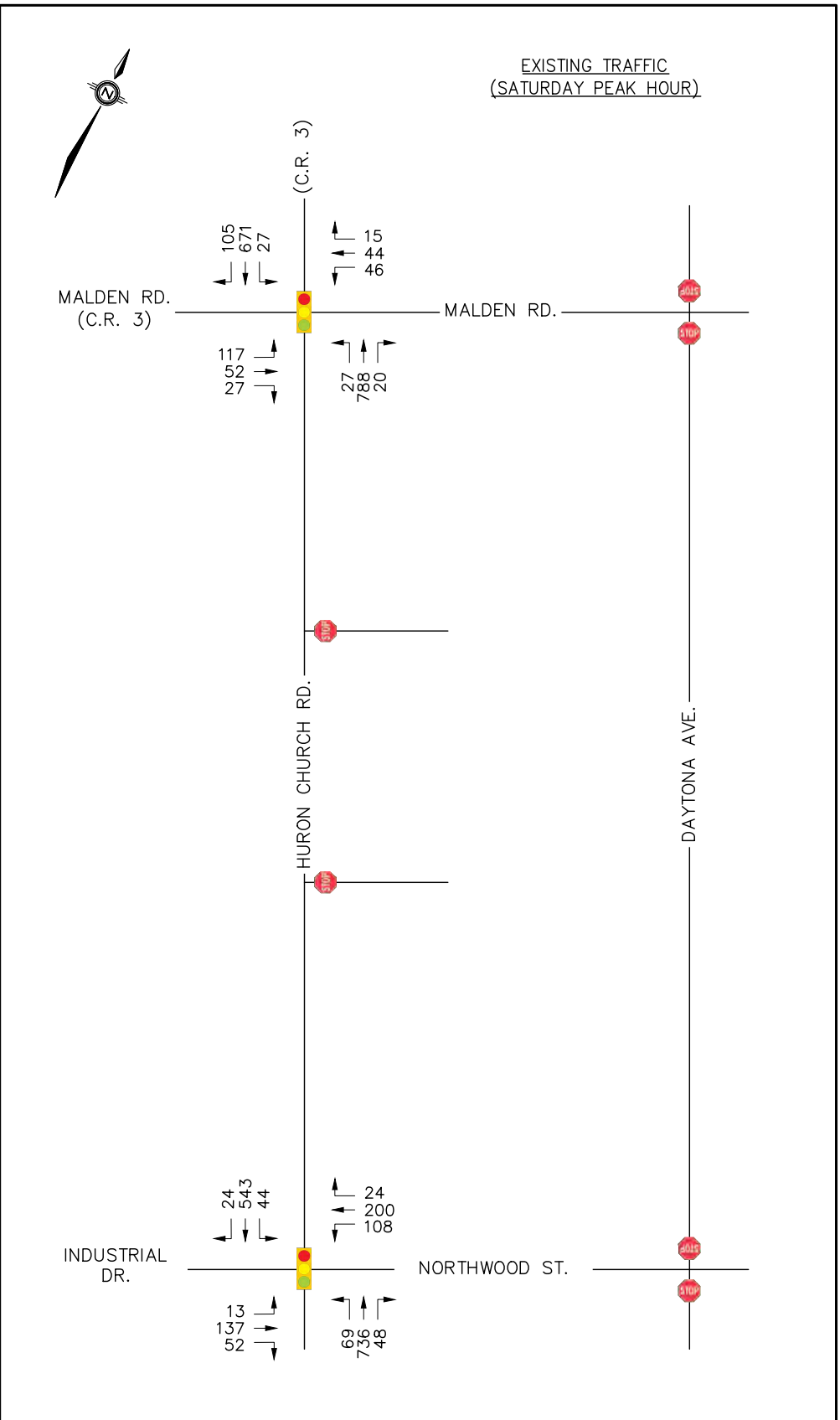
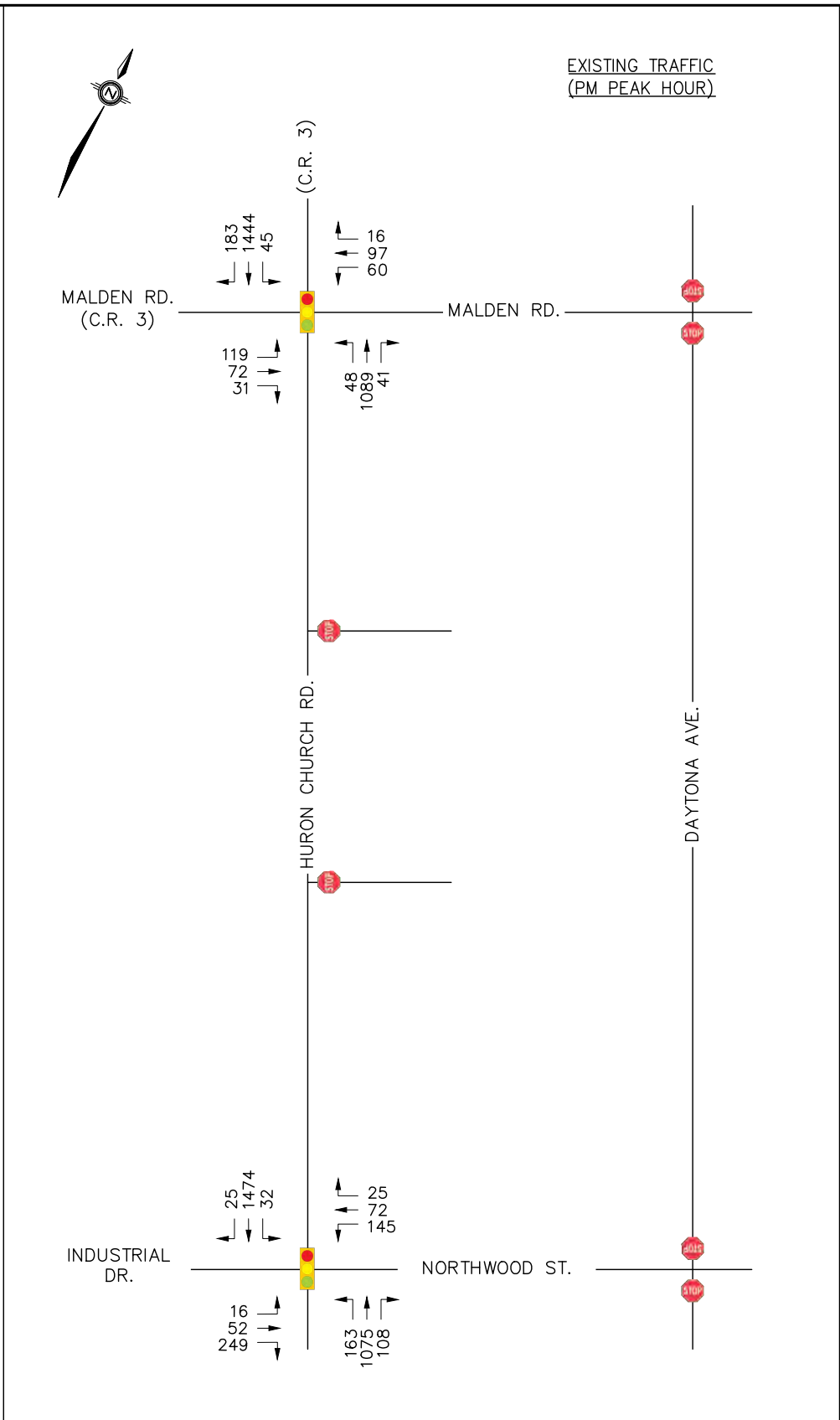
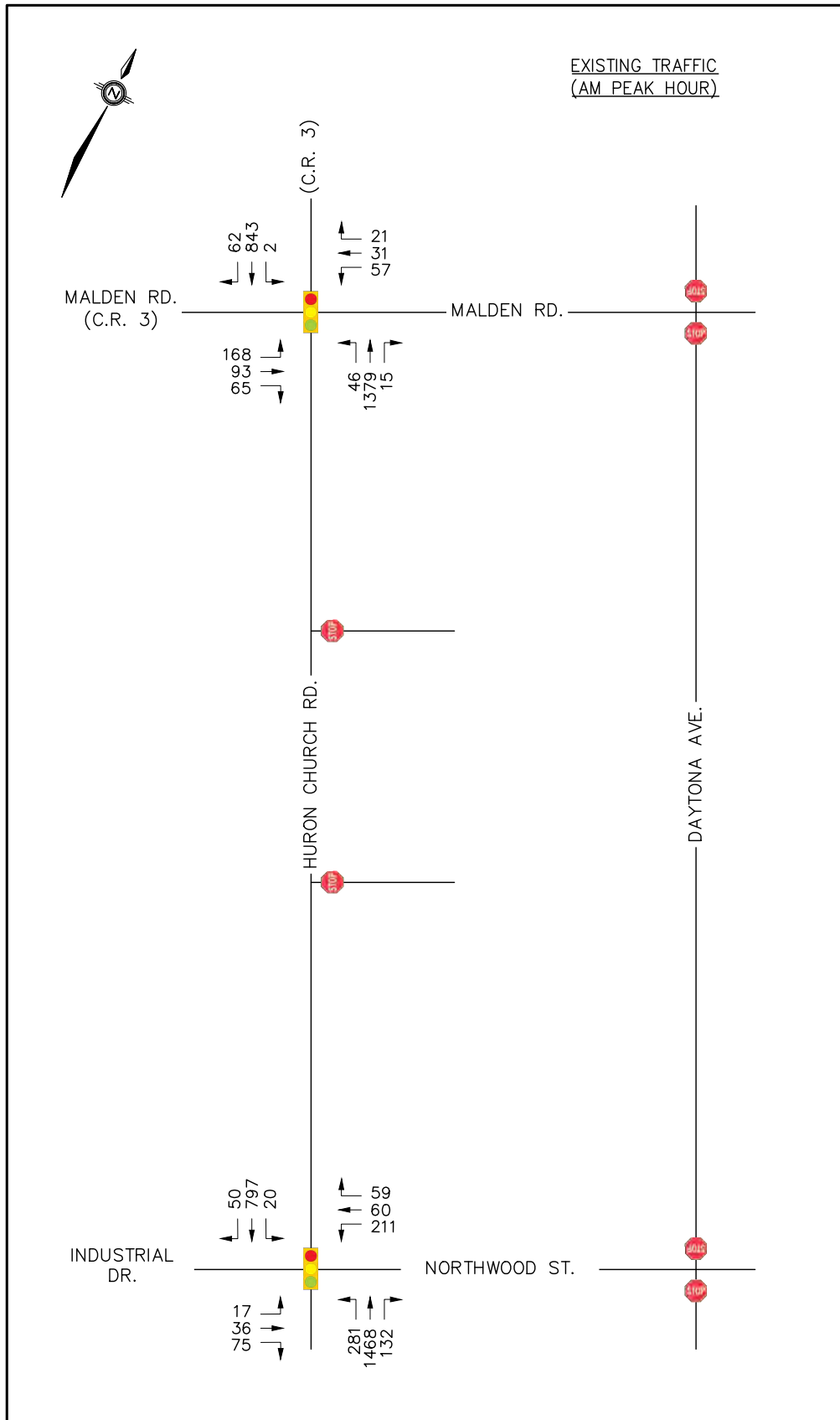
NO.	REVISION	DATE	BY	APP
2.	UPDATED REPORT FIGURES	05 APR. 2023	F.C.	A.D.B.
1.	COMPLETED REPORT FIGURES	02 MAR. 2023	F.C.	A.D.B.

DESIGN	A.D.B.
CHECKED	A.D.B.
DRAWN	F.C.
CHECKED	A.D.B.
DATE	APRIL 2023
SCALE	N.T.S.

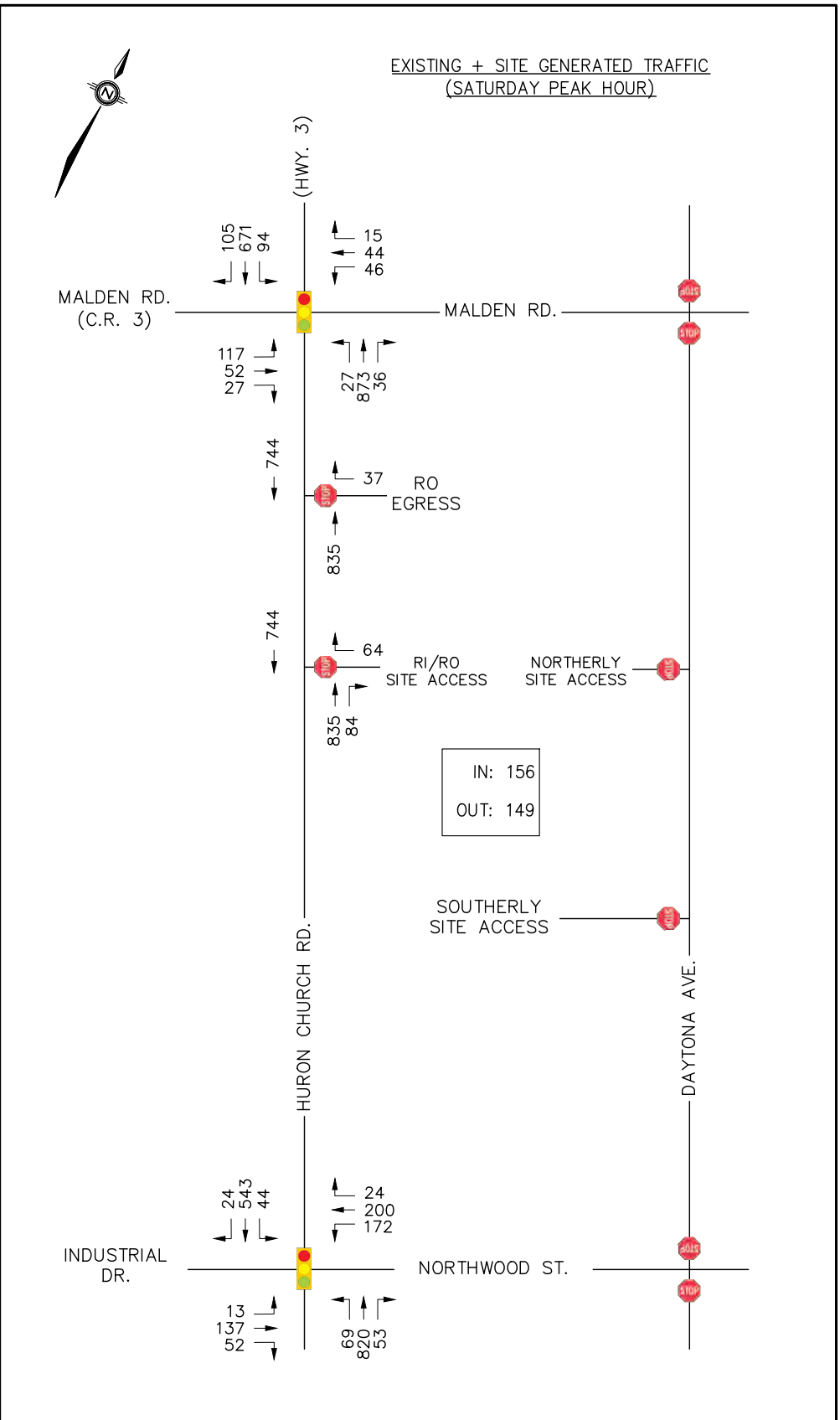
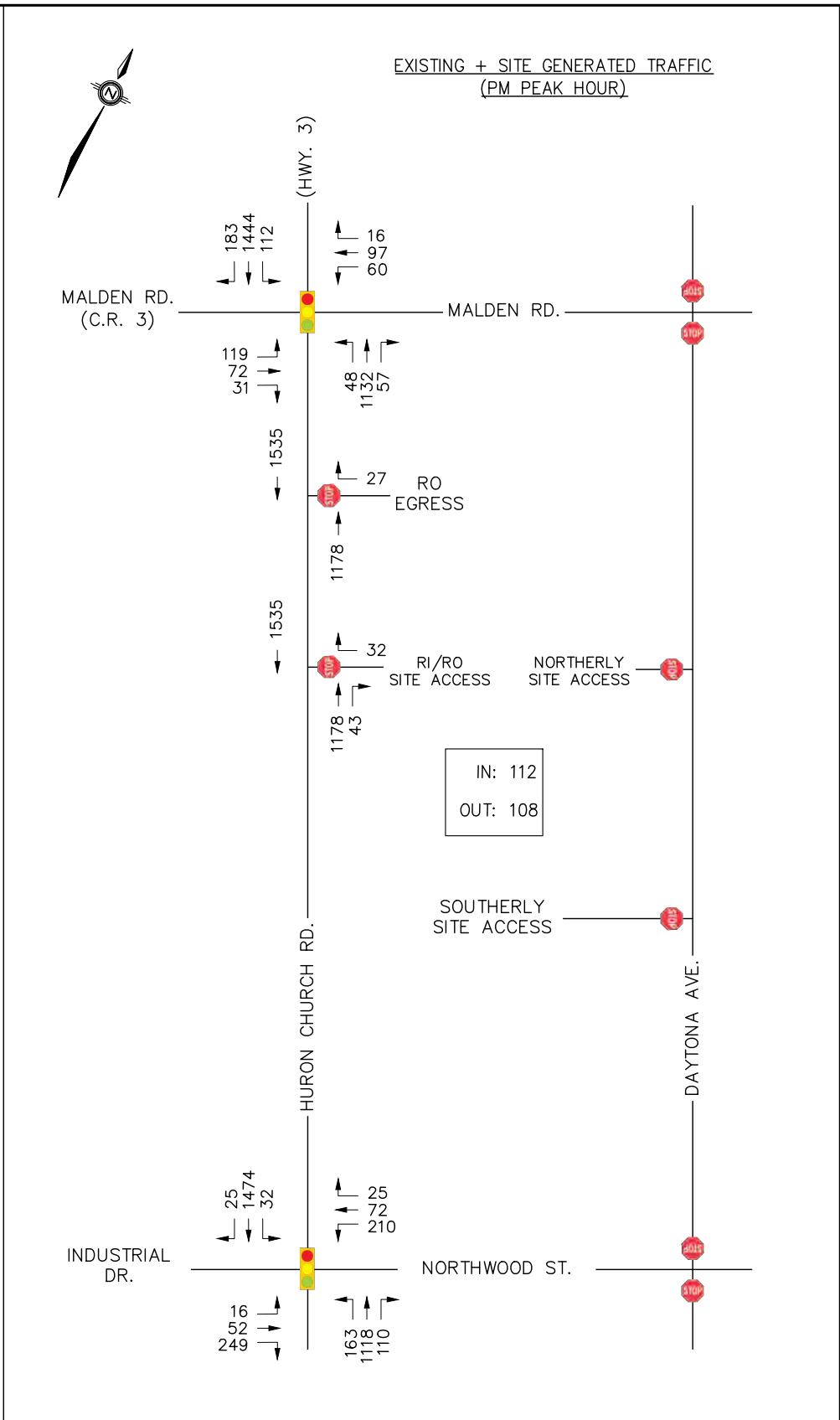
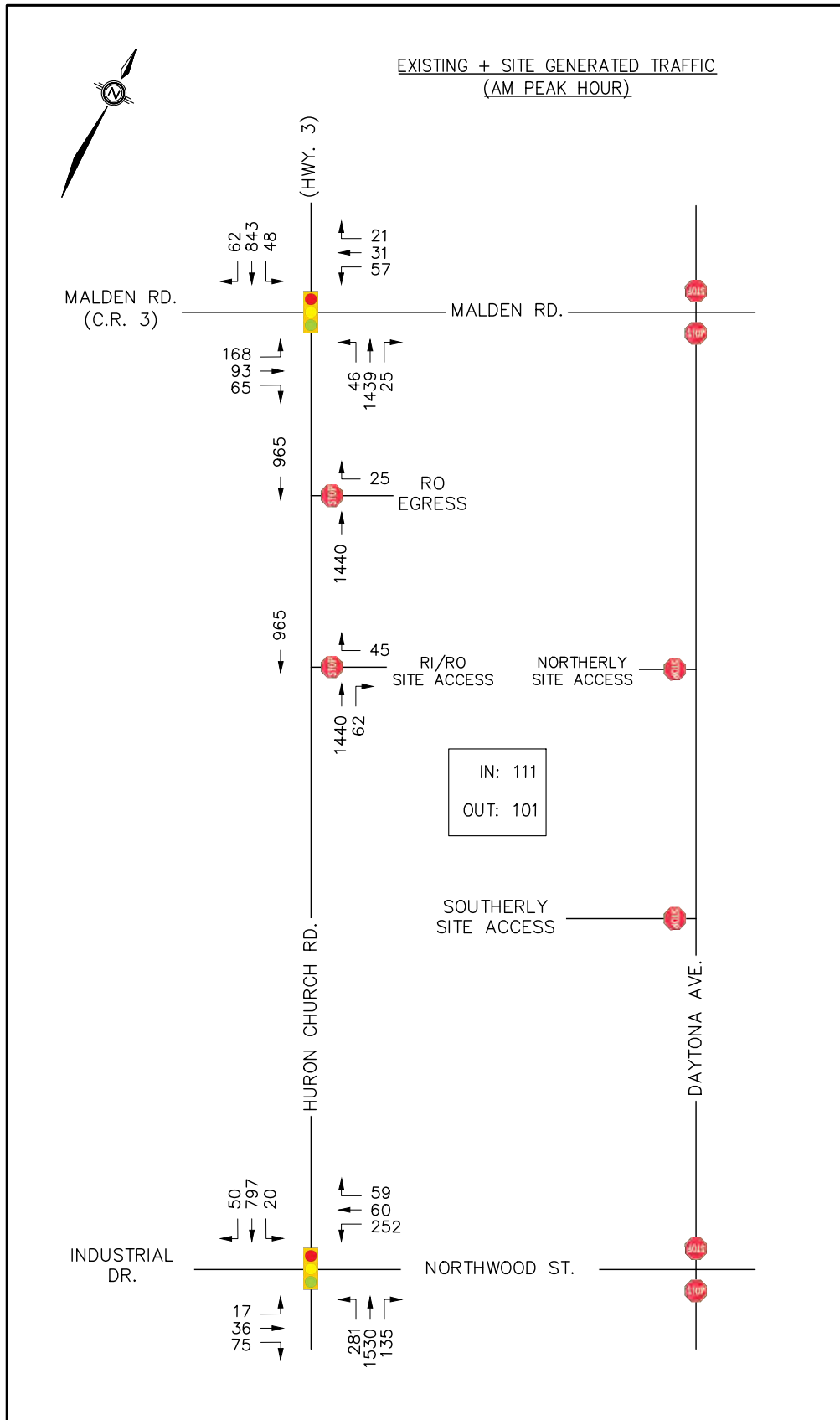
1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT

**SITE GENERATED TRAFFIC (AM / PM / SATURDAY PEAK HOUR)**

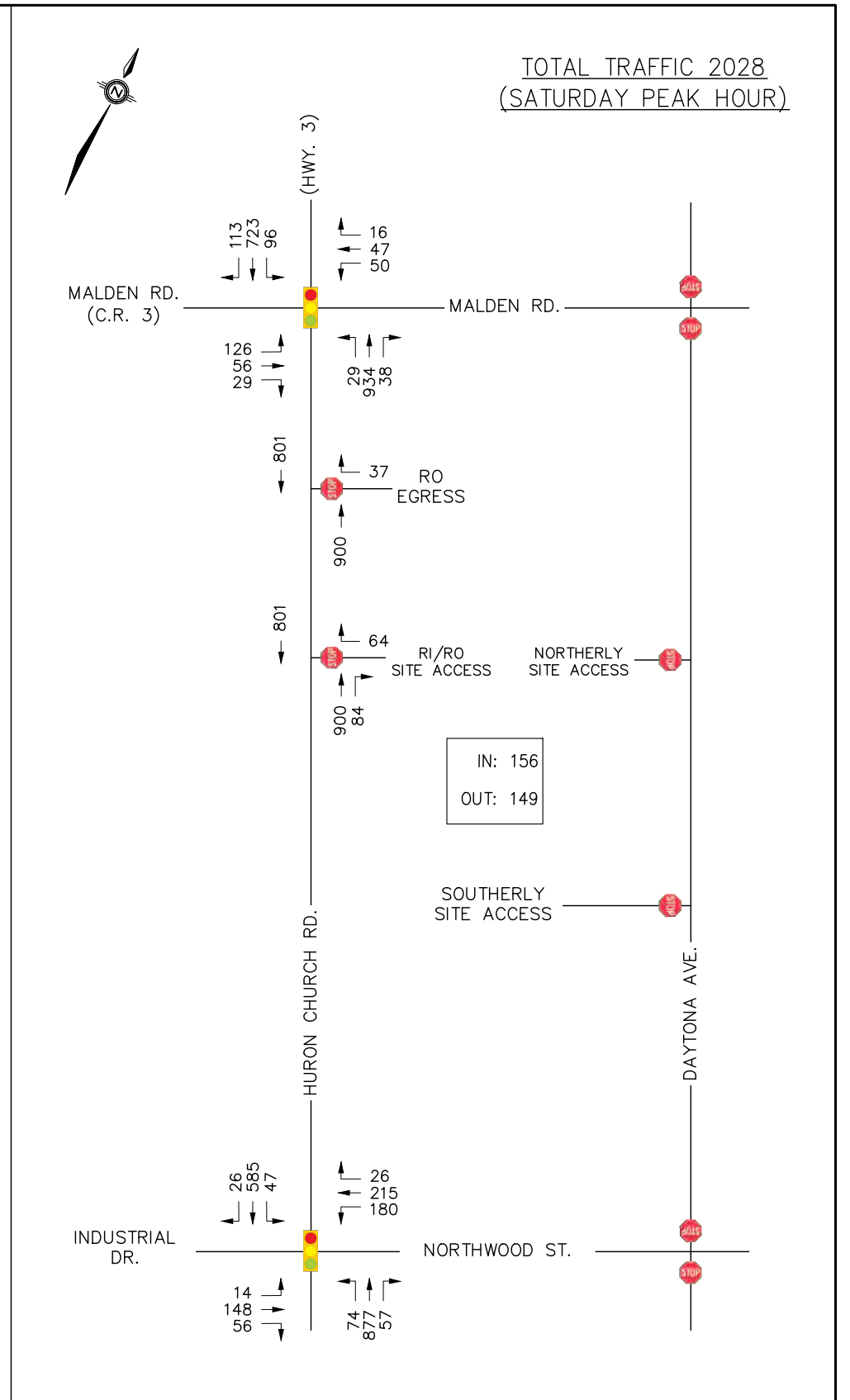
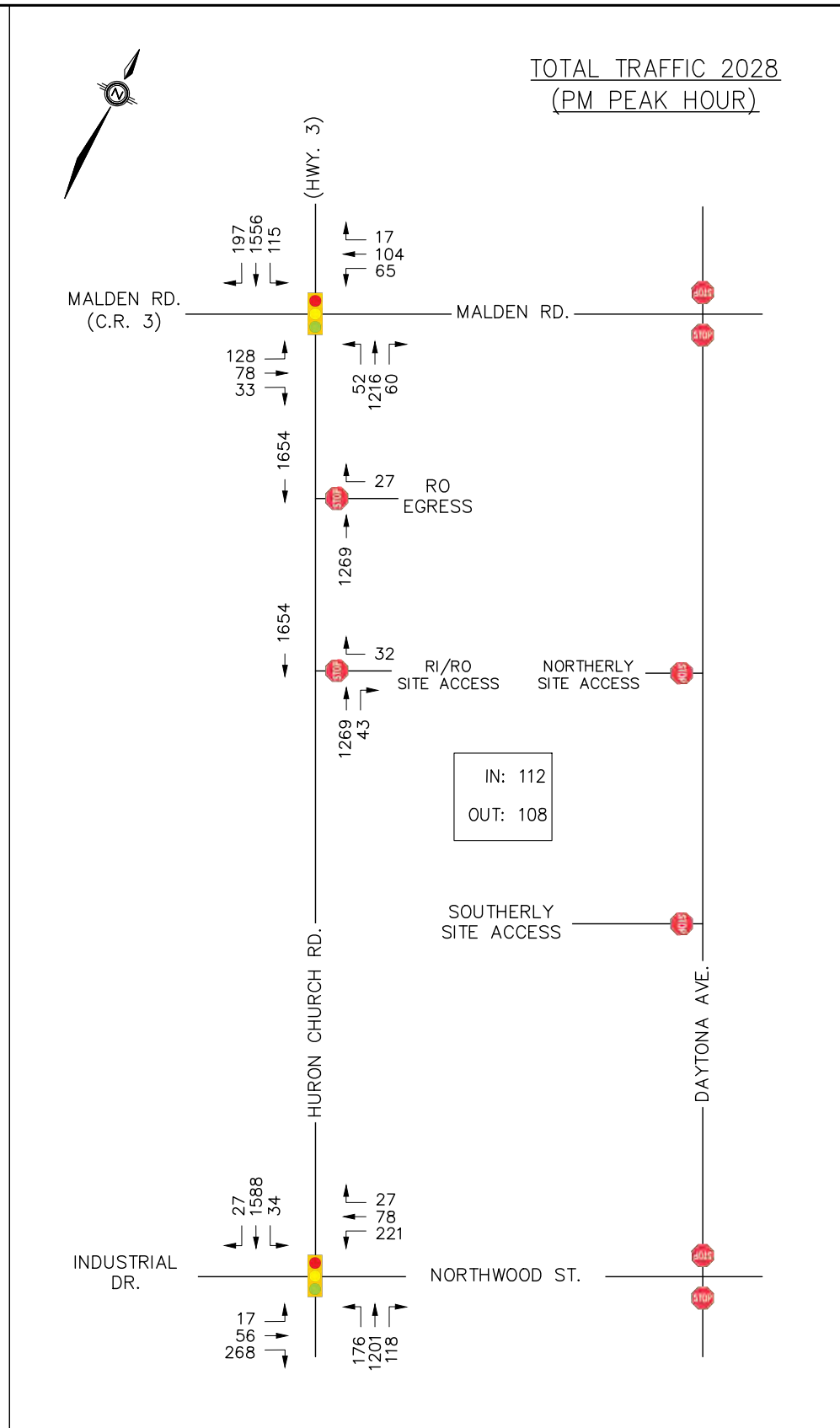
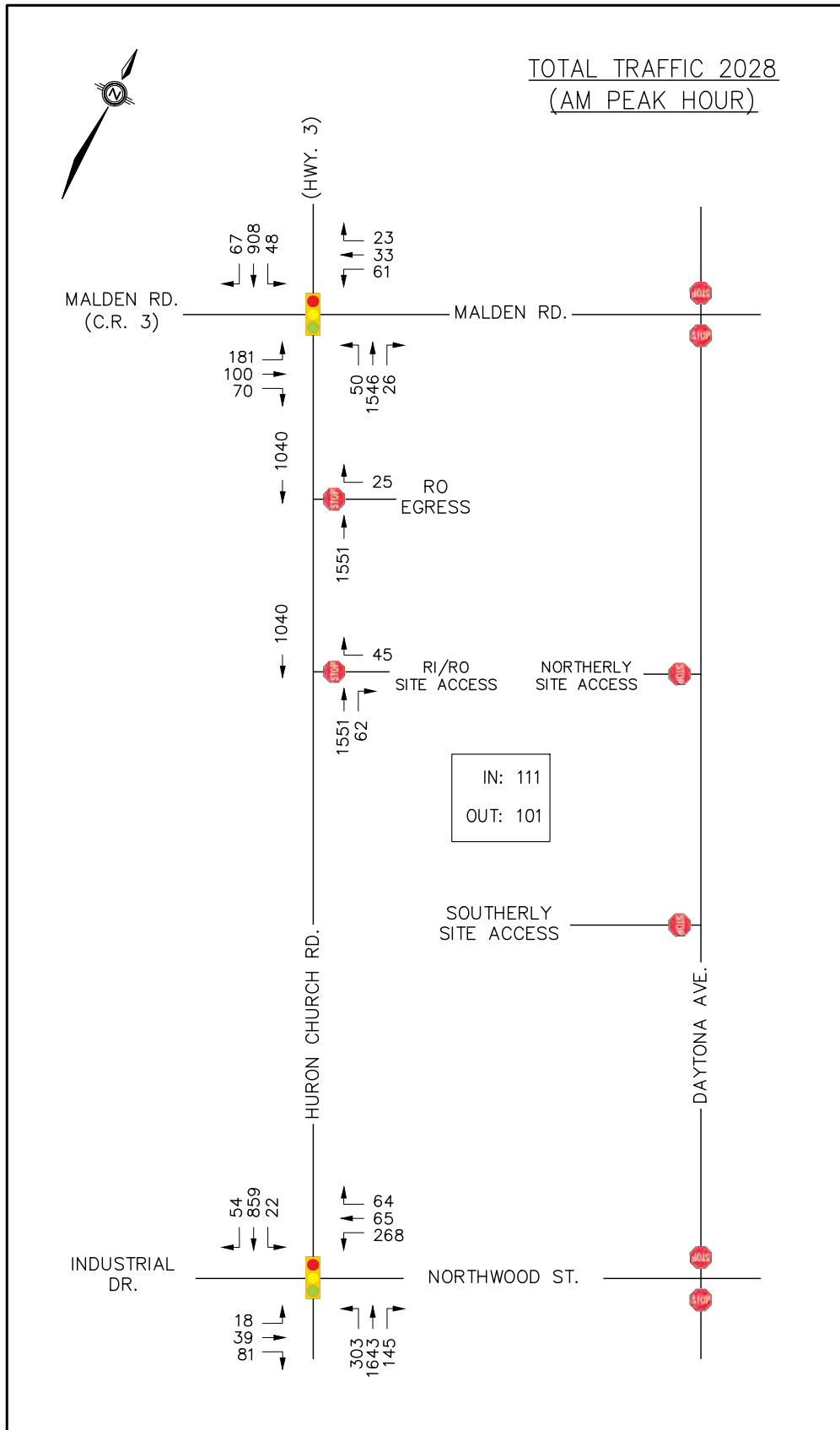
PROJECT NO.	23-1384
FIGURE NO.	4
OF	9



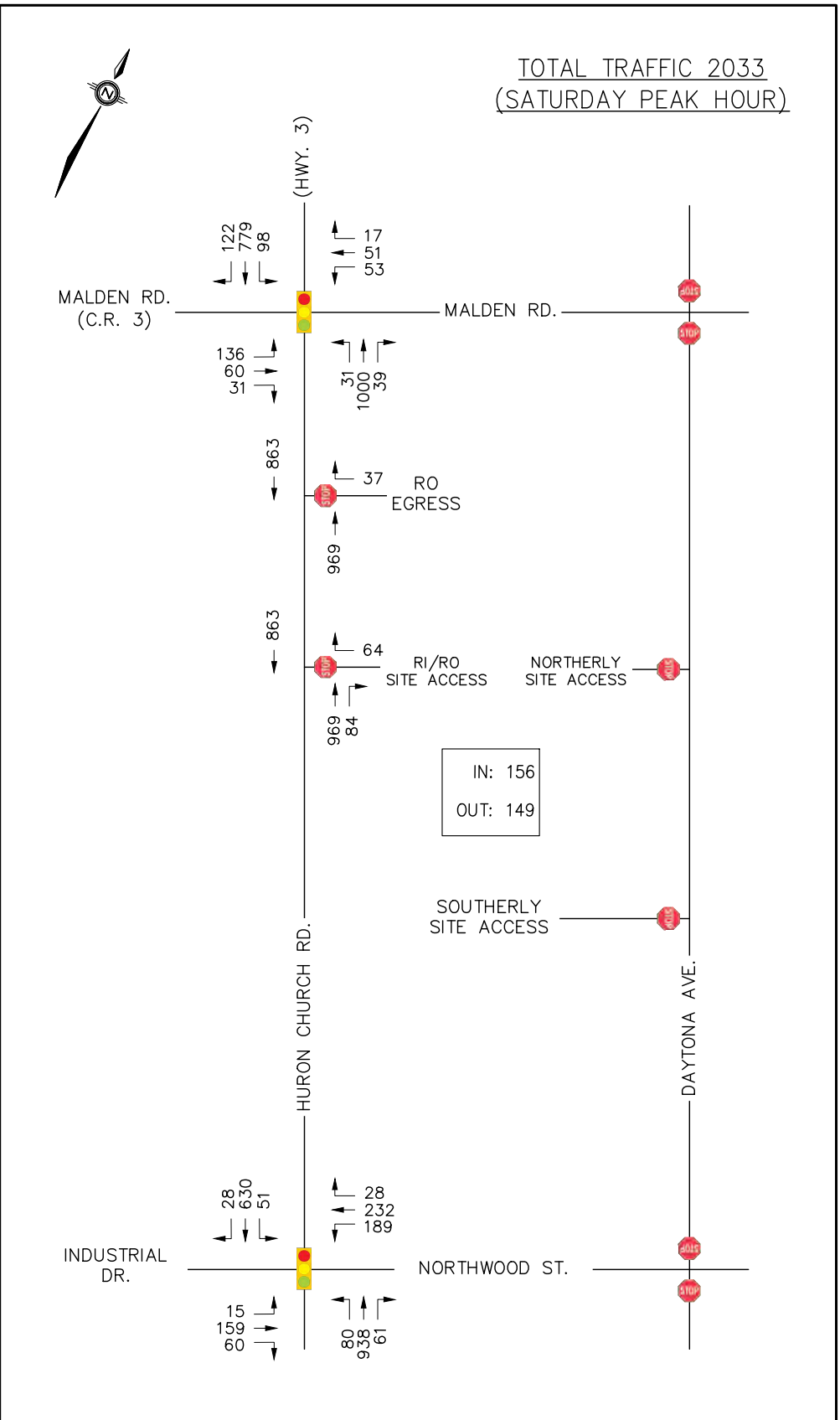
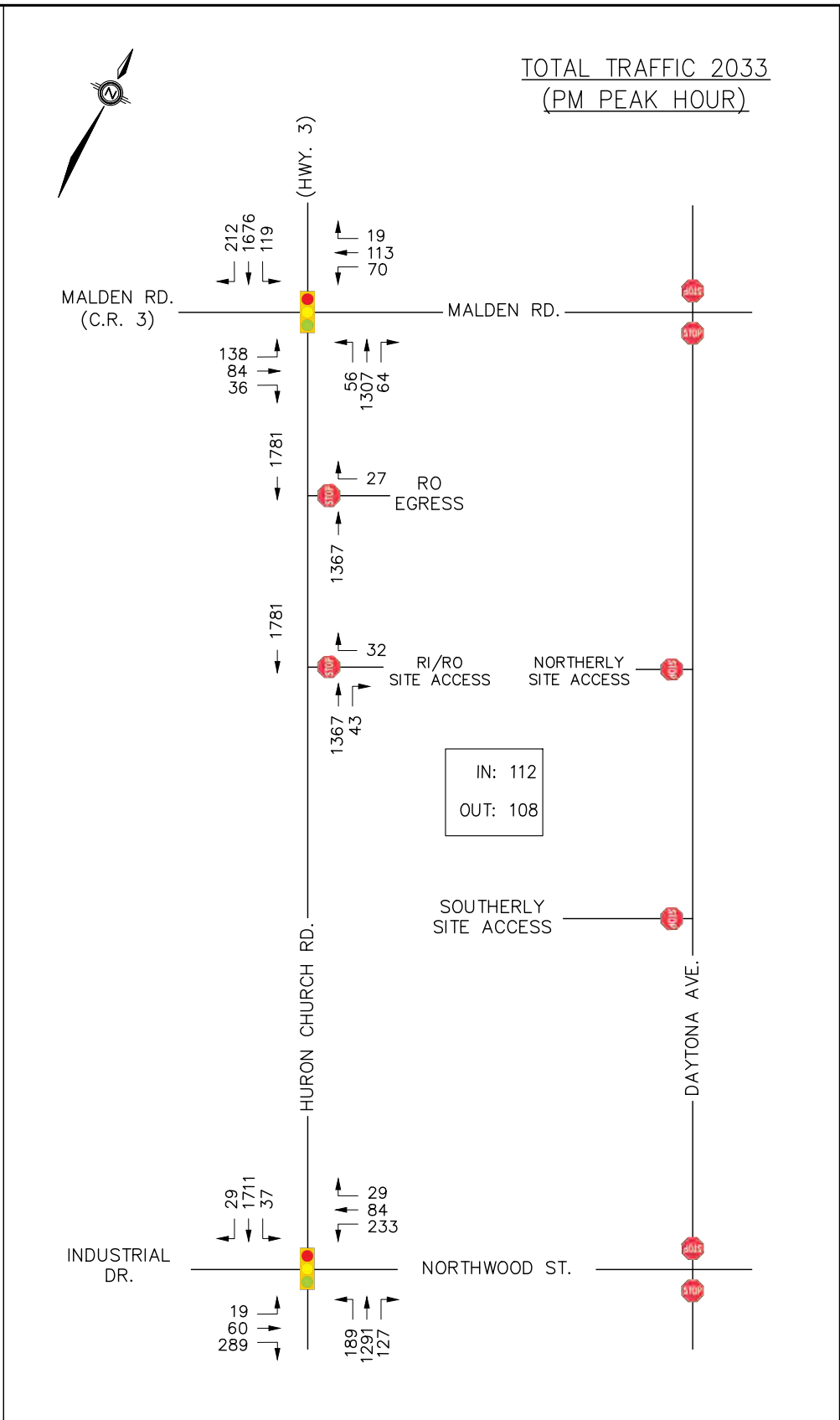
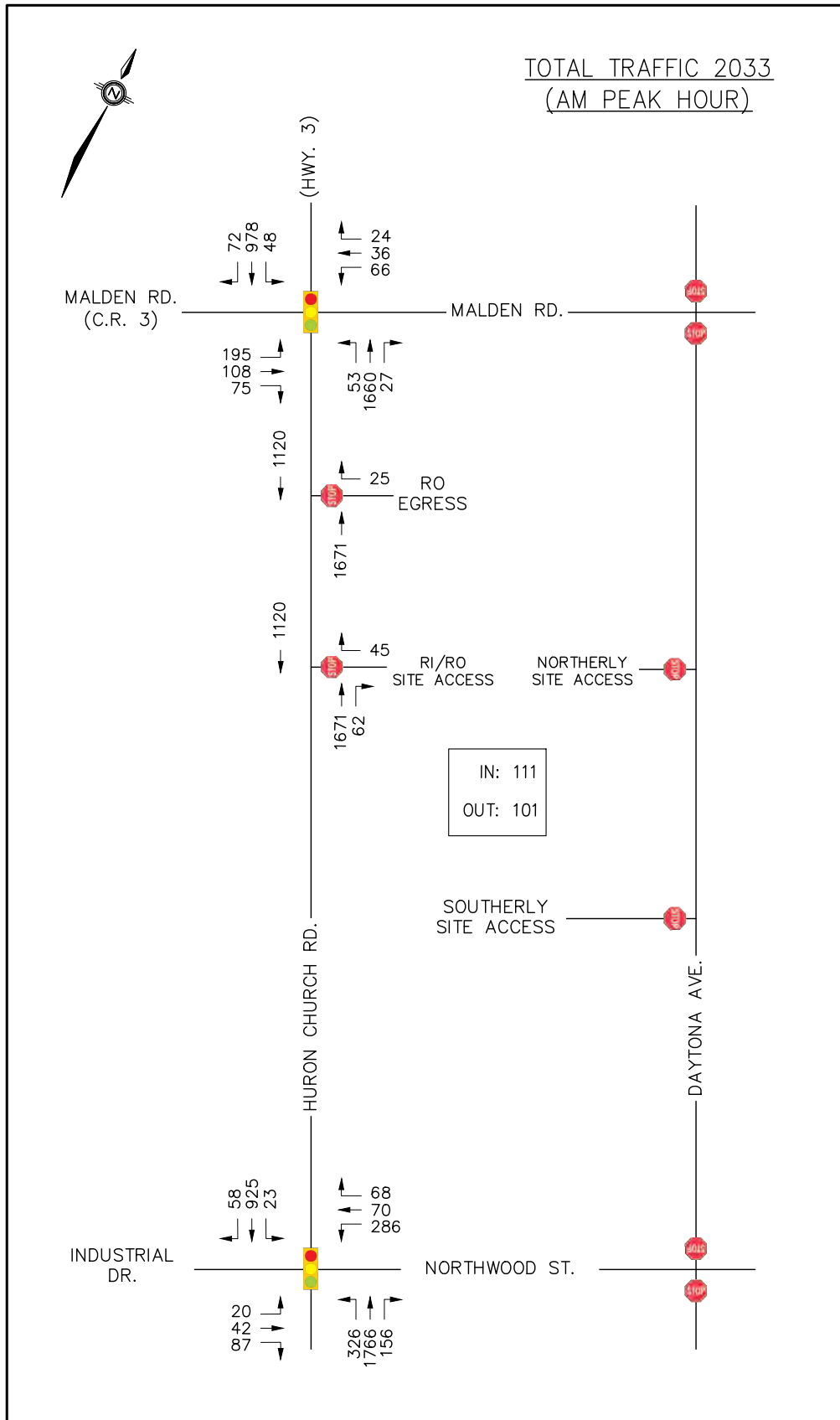
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				CHECKED	A.D.B.		FIGURE NO.	5									
				DRAWN	F.C.	<b>EXISTING TRAFFIC (AM / PM / SATURDAY PEAK HOUR)</b>	OF	9									
				2. UPDATED REPORT FIGURES	05 APR. 2023		F.C.	A.D.B.	SCALE	N.T.S.							
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				NO.	REVISION	DATE	BY	APP									
1.	COMPLETED REPORT FIGURES	02 MAR. 2023	F.C.	A.D.B.													
				SCALE	N.T.S.												



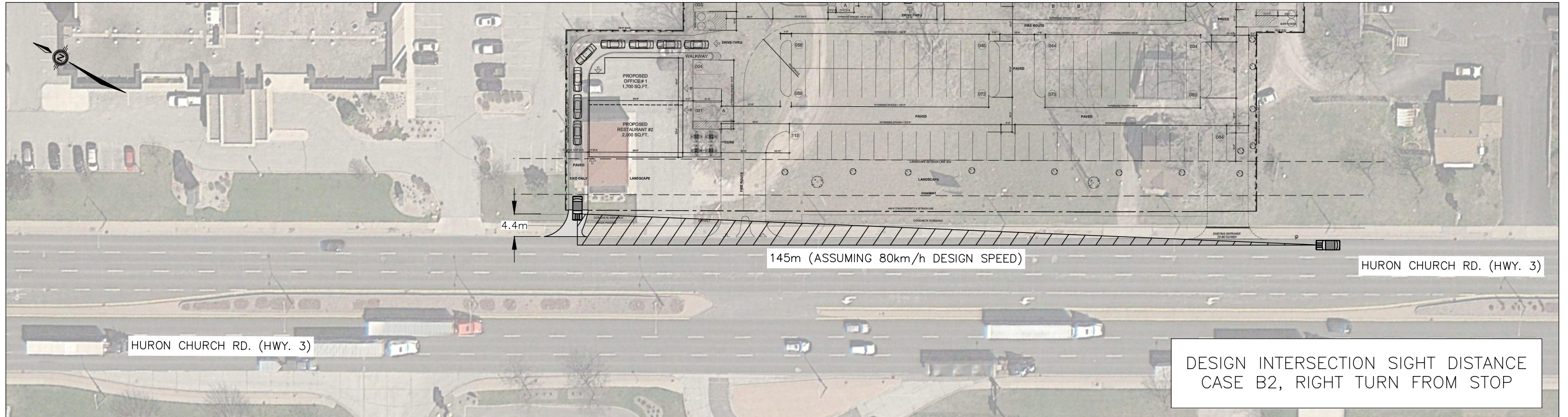
<p>RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 200 University Avenue W. - Windsor ON N9A 5P9 Leamington: 18 Falbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6</p> <p>Professional Engineers Ontario</p>				DESIGN	A.D.B.	1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT	PROJECT NO.	23-1384			
				CHECKED	A.D.B.		EXISTING + SITE GENERATED TRAFFIC (AM / PM / SATURDAY PEAK HOUR)	FIGURE NO.	6		
				2. UPDATED REPORT FIGURES	05 APR. 2023	F.C.	A.D.B.	CHECKED	A.D.B.	OF	9
				1. COMPLETED REPORT FIGURES	02 MAR. 2023	F.C.	A.D.B.	DATE	APRIL 2023		
				NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.	



				DESIGN A.D.B. CHECKED A.D.B. DRAWN F.C. CHECKED A.D.B. DATE APRIL 2023 SCALE N.T.S.		1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT		PROJECT NO. 23-1384	
				2. UPDATED REPORT FIGURES 05 APR. 2023 F.C. A.D.B. 1. COMPLETED REPORT FIGURES 02 MAR. 2023 F.C. A.D.B.		<b>TOTAL TRAFFIC 2028 (AM / PM / SATURDAY PEAK HOUR)</b>		FIGURE NO. 7	
								OF 9	

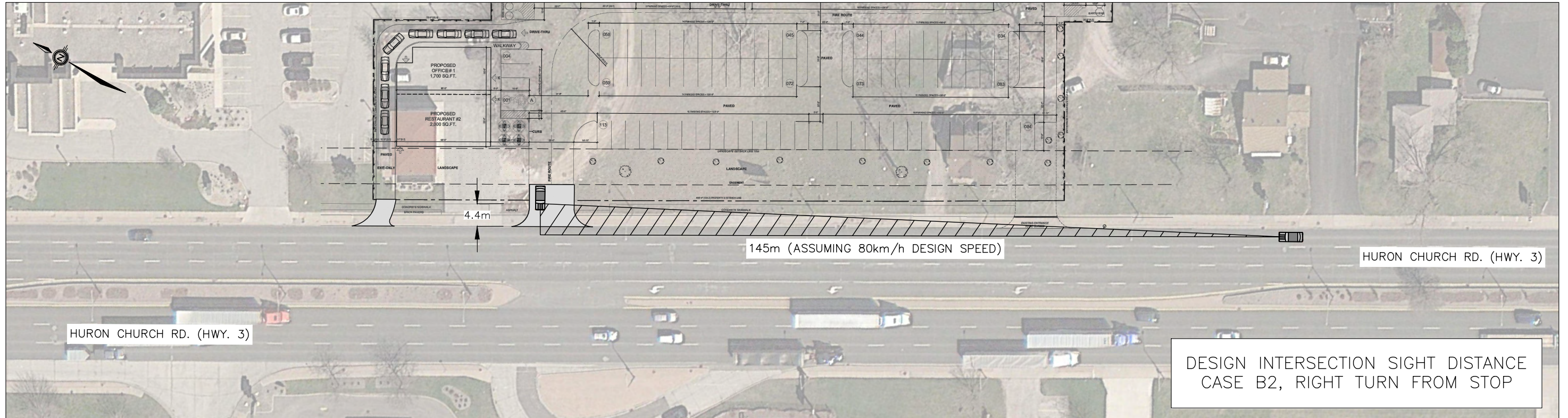


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				DRAWN	F.C.	<b>TOTAL TRAFFIC 2033 (AM / PM / SATURDAY PEAK HOUR)</b>	OF	9
				2. UPDATED REPORT FIGURES	05 APR. 2023		F.C.	A.D.B.
				1. COMPLETED REPORT FIGURES	02 MAR. 2023	DATE	APRIL 2023	
				NO.	REVISION	DATE	BY	APP

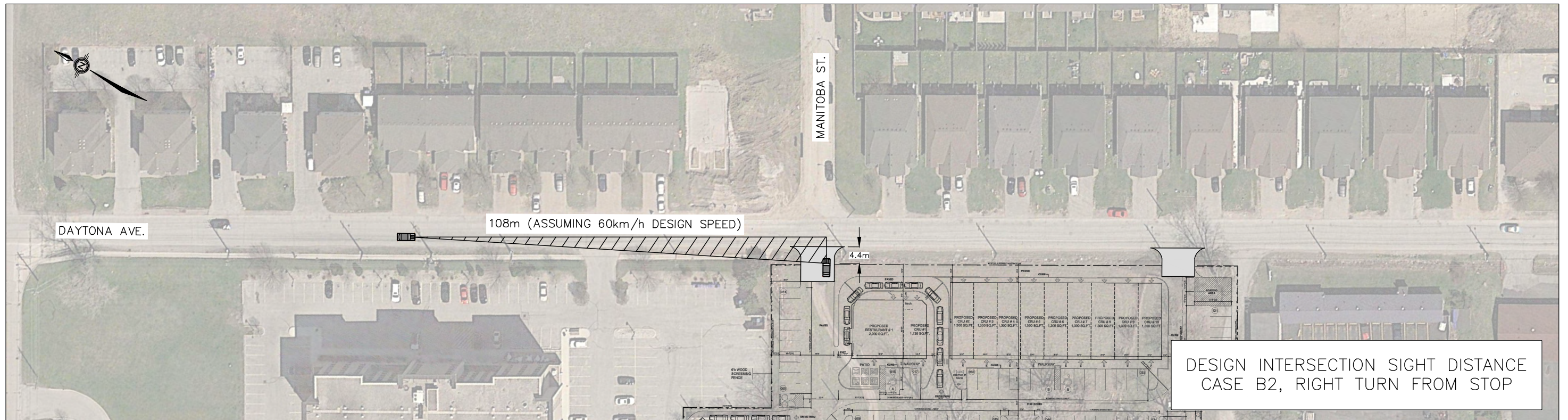
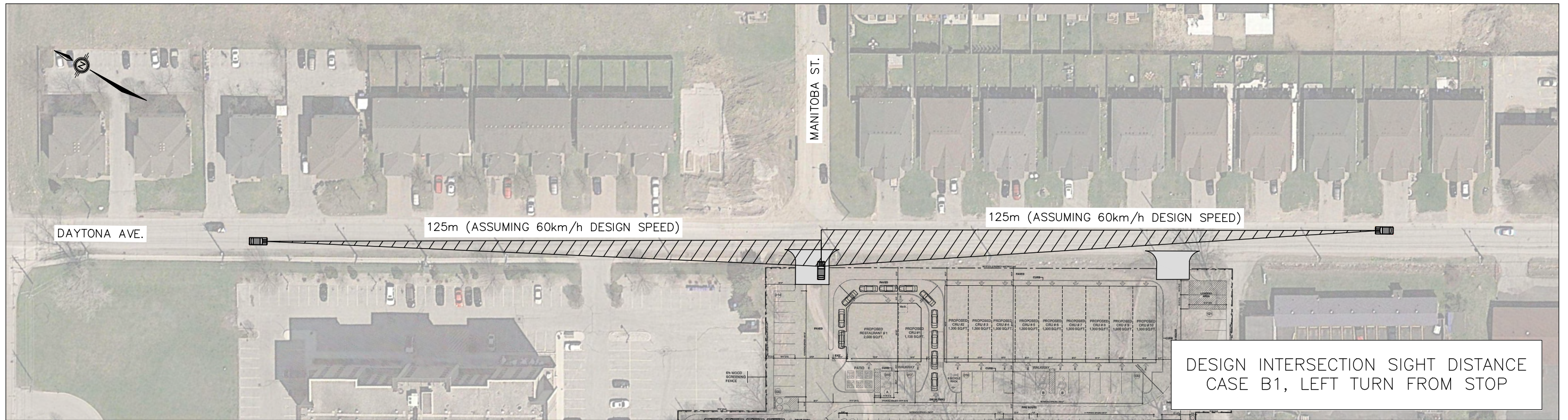


DESIGN INTERSECTION SIGHT DISTANCE  
CASE B2, RIGHT TURN FROM STOP

		<p>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</p> <p>Professional Engineers Ontario</p>				DESIGN A.D.B. CHECKED A.D.B. DRAWN F.C.		1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT		PROJECT NO. 23-1384	
				2. UPDATED REPORT FIGURES		05 APR. 2023		F.C. A.D.B.		CHECKED A.D.B.	
				1. COMPLETED REPORT FIGURES		02 MAR. 2023		F.C. A.D.B.		DATE APRIL 2023	
				NO.		REVISION		DATE		BY APP	
										SCALE N.T.S.	
								<b>SIGHT LINE ANALYSIS: SITE EGRESS AT HURON CHURCH RD.</b>		FIGURE NO. 9A	
										OF 9	



						DESIGN A.D.B. CHECKED A.D.B. DRAWN F.C.		1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT		PROJECT NO. 23-1384			
		Windsor: 200 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				2. UPDATED REPORT FIGURES 05 APR. 2023 F.C. A.D.B. 1. COMPLETED REPORT FIGURES 02 MAR. 2023 F.C. A.D.B.		CHECKED A.D.B. DATE APRIL 2023		<b>SIGHT LINE ANALYSIS:          RI/RO ACCESS AT HURON CHURCH RD.</b>		FIGURE NO. 9B	
				NO. REVISION DATE BY APP		SCALE N.T.S.		OF 9					



**RC SPENCER ASSOCIATES INC.**  
 Consulting Engineers  
 Windsor: 200 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

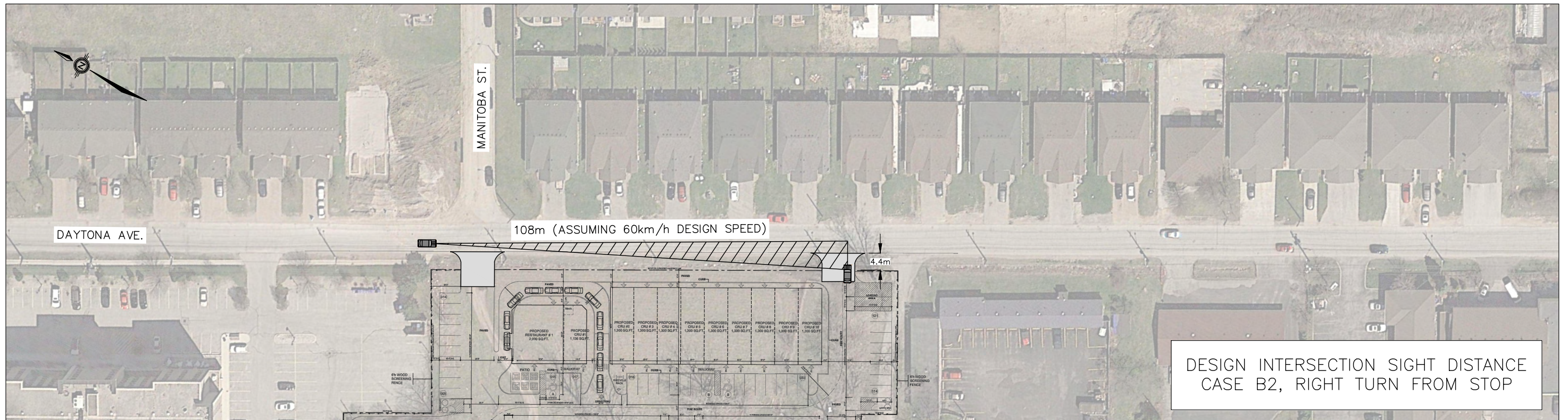
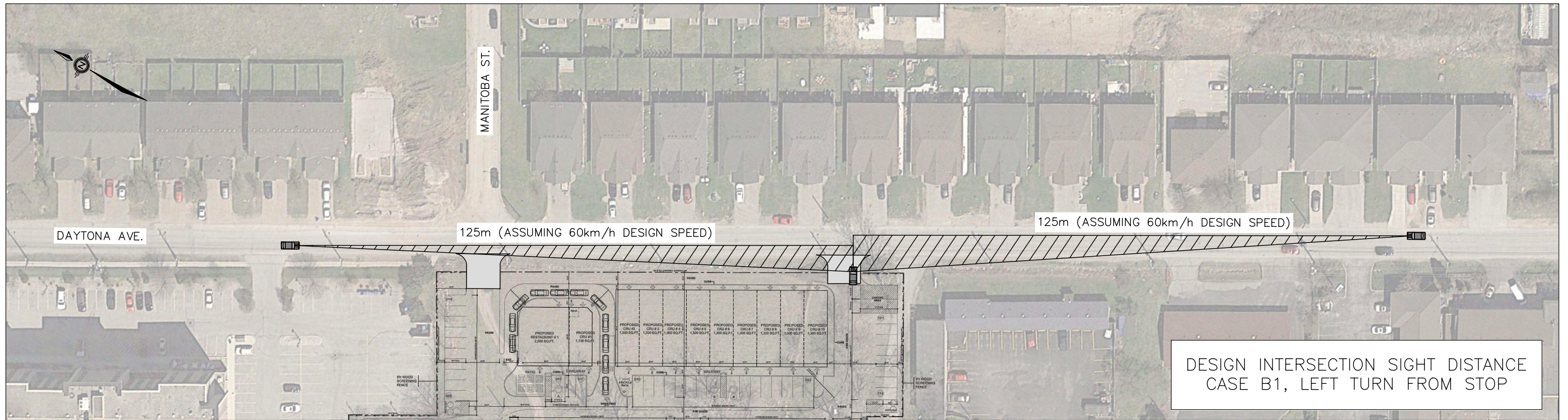
NO.	REVISION	DATE	BY	APP	SCALE
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1.	COMPLETED REPORT FIGURES	02 MAR. 2023	F.C.	A.D.B.	DATE APRIL 2023
					SCALE N.T.S.

DESIGN	A.D.B.
CHECKED	A.D.B.
DRAWN	F.C.
CHECKED	A.D.B.
DATE	APRIL 2023
SCALE	N.T.S.

1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT

**SIGHT LINE ANALYSIS:  
 NORTHERLY SITE ACCESS AT  
 DAYTONA AVE.**

PROJECT NO.	23-1384
FIGURE NO.	9C
OF	9



		<p>Windsor: 200 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</p>				DESIGN A.D.B.	1878 HURON CHURCH RD. COMMERCIAL / RETAIL DEVELOPMENT	PROJECT NO.
						CHECKED A.D.B.		23-1384
						DRAWN F.C.	<p align="center"><b>SIGHT LINE ANALYSIS: SOUTHERLY SITE ACCESS AT DAYTONA AVE.</b></p>	FIGURE NO.
		2. UPDATED REPORT FIGURES		05 APR. 2023	F.C.	A.D.B.		9D
		1. COMPLETED REPORT FIGURES		02 MAR. 2023	F.C.	A.D.B.		OF 9
NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.		

## **Appendix A**

# **TRAFFIC DATA COLLECTION**

**Malden Road at Huron Church Road  
Industrial Drive / Northwood Street at Huron Church  
Road**



**Ontario Traffic Inc.**  
TRAFFIC MONITORING ♦ SERVICES & PRODUCTS

## Project #20-035 - City of Windsor

### Intersection Count Report

**Intersection:** Huron Church Rd & Malden Rd  
**Municipality:** Windsor  
**Count Date:** Feb 19, 2020  
**Site Code:** 2003500002  
**Count Categories:** Cars, Medium Trucks, Heavy Trucks, Peds, Bicycles  
**Count Period:** 07:00-10:00, 11:00-14:00, 15:00-18:00  
**Weather:** Clear



# Peak Hour Diagram

**Specified Period**

From: 07:00:00  
To: 10:00:00

**One Hour Peak**

From: 07:30:00  
To: 08:30:00

**Intersection:** Huron Church Rd & Malden Rd  
**Site ID:** 2003500002  
**Count Date:** Feb 19, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

**North Approach**

	Out	In	Total
🚗	666	1225	1891
MT	12	21	33
HT	229	322	551
🚲	0	0	0
<b>Totals</b>	<b>907</b>	<b>1568</b>	<b>2475</b>

**Huron Church Rd**

🚲	0	0	0	0
HT	1	228	0	0
MT	1	11	0	0
🚗	60	604	2	0
<b>Totals</b>	<b>62</b>	<b>843</b>	<b>2</b>	<b>0</b>

**East Approach**

	Out	In	Total
🚗	106	104	210
MT	1	0	1
HT	2	5	7
🚲	0	1	1
<b>Totals</b>	<b>109</b>	<b>110</b>	<b>219</b>

**Malden Rd**

	HT	MT	🚗	Totals
🚲	0	0	0	0
HT	0	6	4	168
MT	1	5	0	93
🚗	0	1	0	65

**Peds: 2**



**Malden Rd**

Totals	🚗	MT	HT	🚲
0	0	0	0	0
21	21	0	0	0
31	29	0	2	0
57	56	1	0	0

**West Approach**

	Out	In	Total
🚗	309	135	444
MT	4	1	5
HT	12	3	15
🚲	1	0	1
<b>Totals</b>	<b>326</b>	<b>139</b>	<b>465</b>

Totals	🚗	MT	HT	🚲
46	1046	15	0	
MT	0	17	0	0
HT	0	316	0	0
🚲	0	0	0	0

**Huron Church Rd**

**South Approach**

	Out	In	Total
🚗	1107	724	1831
MT	17	12	29
HT	316	229	545
🚲	0	0	0
<b>Totals</b>	<b>1440</b>	<b>965</b>	<b>2405</b>

🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

**Comments**



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Malden Rd  
Count Date: Feb 19, 2020  
Period: 07:00 - 10:00

### Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Malden Rd						West Approach Malden Rd						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:30	0	223	15	0	0	238	9	337	2	0	0	348	16	6	5	0	1	27	41	15	18	0	0	74	687
07:45	0	195	16	0	0	211	14	348	4	0	0	366	13	9	0	0	0	22	44	25	16	0	0	85	684
08:00	0	222	12	0	2	234	12	340	4	0	1	356	16	7	8	0	1	31	47	23	15	0	2	85	706
08:15	2	203	19	0	0	224	11	354	5	0	0	370	12	9	8	0	1	29	36	30	16	0	0	82	705
<b>Grand Total</b>	<b>2</b>	<b>843</b>	<b>62</b>	<b>0</b>	<b>2</b>	<b>907</b>	<b>46</b>	<b>1379</b>	<b>15</b>	<b>0</b>	<b>1</b>	<b>1440</b>	<b>57</b>	<b>31</b>	<b>21</b>	<b>0</b>	<b>3</b>	<b>109</b>	<b>168</b>	<b>93</b>	<b>65</b>	<b>0</b>	<b>2</b>	<b>326</b>	<b>2782</b>
<b>Approach %</b>	0.2	92.9	6.8	0	-	-	3.2	95.8	1	0	-	-	52.3	28.4	19.3	0	-	-	51.5	28.5	19.9	0	-	-	-
<b>Totals %</b>	0.1	30.3	2.2	0	-	32.6	1.7	49.6	0.5	0	-	51.8	2	1.1	0.8	0	-	3.9	6	3.3	2.3	0	-	11.7	-
<b>PHF</b>	<b>0.25</b>	<b>0.95</b>	<b>0.82</b>	<b>0</b>	-	<b>0.95</b>	<b>0.82</b>	<b>0.97</b>	<b>0.75</b>	<b>0</b>	-	<b>0.97</b>	<b>0.89</b>	<b>0.86</b>	<b>0.66</b>	<b>0</b>	-	<b>0.88</b>	<b>0.89</b>	<b>0.78</b>	<b>0.9</b>	<b>0</b>	-	<b>0.96</b>	<b>0.99</b>
<b>Cars</b>	2	604	60	0	-	666	46	1046	15	0	-	1107	56	29	21	0	-	106	158	87	64	0	-	309	2188
<b>% Cars</b>	100	71.6	96.8	0	-	73.4	100	75.9	100	0	-	76.9	98.2	93.5	100	0	-	97.2	94	93.5	98.5	0	-	94.8	78.6
<b>Medium Trucks</b>	0	11	1	0	-	12	0	17	0	0	-	17	1	0	0	0	-	1	4	0	0	0	-	4	34
<b>% Medium Trucks</b>	0	1.3	1.6	0	-	1.3	0	1.2	0	0	-	1.2	1.8	0	0	0	-	0.9	2.4	0	0	0	-	1.2	1.2
<b>Heavy Trucks</b>	0	228	1	0	-	229	0	316	0	0	-	316	0	2	0	0	-	2	6	5	1	0	-	12	559
<b>% Heavy Trucks</b>	0	27	1.6	0	-	25.2	0	22.9	0	0	-	21.9	0	6.5	0	0	-	1.8	3.6	5.4	1.5	0	-	3.7	20.1
<b>Bicycles</b>	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
<b>% Bicycles</b>	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1.1	0	0	-	0.3	0
<b>Peds</b>	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	2	-	8
<b>% Peds</b>	-	-	-	-	25	-	-	-	-	-	12.5	-	-	-	-	-	37.5	-	-	-	-	-	25	-	-



# Peak Hour Diagram

## Specified Period

From: 11:00:00  
To: 14:00:00

## One Hour Peak

From: 12:30:00  
To: 13:30:00

**Intersection:** Huron Church Rd & Malden Rd  
**Site ID:** 2003500002  
**Count Date:** Feb 19, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

### North Approach

	Out	In	Total
	633	760	1393
MT	22	12	34
HT	366	318	684
	1	0	1
<b>Totals</b>	<b>1022</b>	<b>1090</b>	<b>2112</b>

### Huron Church Rd

	0	1	0	0
HT	4	362	0	0
MT	1	21	0	0
	89	527	17	0
<b>Totals</b>	<b>94</b>	<b>911</b>	<b>17</b>	<b>0</b>

### East Approach

	Out	In	Total
	111	89	200
MT	1	1	2
HT	0	5	5
	0	0	0
<b>Totals</b>	<b>112</b>	<b>95</b>	<b>207</b>

### Malden Rd

	HT	MT		Totals
	0	0	0	0
HT	0	6	5	124
MT	0	5	1	46
	0	2	0	30
<b>Totals</b>	<b>0</b>	<b>135</b>	<b>52</b>	<b>32</b>

Peds: 2



Peds: 2

Peds: 4

Peds: 5

### Malden Rd

Totals		MT	HT	
0	0	0	0	0
21	21	0	0	0
48	48	0	0	0
43	42	1	0	0

### West Approach

	Out	In	Total
	200	183	383
MT	6	4	10
HT	13	4	17
	0	0	0
<b>Totals</b>	<b>219</b>	<b>191</b>	<b>410</b>

Totals				
49	934	26	0	
	46	615	26	0
MT	3	7	0	0
HT	0	312	0	0
	0	0	0	0

### Huron Church Rd

### South Approach

	Out	In	Total
	687	599	1286
MT	10	22	32
HT	312	364	676
	0	1	1
<b>Totals</b>	<b>1009</b>	<b>986</b>	<b>1995</b>

- Cars

MT - Medium Trucks

HT - Heavy Trucks

- Bicycles

## Comments



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Malden Rd  
Count Date: Feb 19, 2020  
Period: 11:00 - 14:00

### Peak Hour Data (12:30 - 13:30)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Malden Rd						West Approach Malden Rd						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:30	4	241	29	0	1	274	12	264	5	0	2	281	11	16	9	0	1	36	28	12	8	0	0	48	639
12:45	3	216	16	0	0	235	11	226	5	0	1	242	7	10	7	0	0	24	30	11	7	0	1	48	549
13:00	5	218	23	0	1	246	8	230	8	0	1	246	13	11	3	0	2	27	45	17	9	0	1	71	590
13:15	5	236	26	0	0	267	18	214	8	0	1	240	12	11	2	0	1	25	32	12	8	0	0	52	584
<b>Grand Total</b>	<b>17</b>	<b>911</b>	<b>94</b>	<b>0</b>	<b>2</b>	<b>1022</b>	<b>49</b>	<b>934</b>	<b>26</b>	<b>0</b>	<b>5</b>	<b>1009</b>	<b>43</b>	<b>48</b>	<b>21</b>	<b>0</b>	<b>4</b>	<b>112</b>	<b>135</b>	<b>52</b>	<b>32</b>	<b>0</b>	<b>2</b>	<b>219</b>	<b>2362</b>
<b>Approach %</b>	1.7	89.1	9.2	0	-	-	4.9	92.6	2.6	0	-	-	38.4	42.9	18.8	0	-	-	61.6	23.7	14.6	0	-	-	-
<b>Totals %</b>	0.7	38.6	4	0	-	43.3	2.1	39.5	1.1	0	-	42.7	1.8	2	0.9	0	-	4.7	5.7	2.2	1.4	0	-	9.3	-
<b>PHF</b>	<b>0.85</b>	<b>0.95</b>	<b>0.81</b>	<b>0</b>	-	<b>0.93</b>	<b>0.68</b>	<b>0.88</b>	<b>0.81</b>	<b>0</b>	-	<b>0.9</b>	<b>0.83</b>	<b>0.75</b>	<b>0.58</b>	<b>0</b>	-	<b>0.78</b>	<b>0.75</b>	<b>0.76</b>	<b>0.89</b>	<b>0</b>	-	<b>0.77</b>	<b>0.92</b>
<b>Cars</b>	17	527	89	0	-	633	46	615	26	0	-	687	42	48	21	0	-	111	124	46	30	0	-	200	1631
<b>% Cars</b>	100	57.8	94.7	0	-	61.9	93.9	65.8	100	0	-	68.1	97.7	100	100	0	-	99.1	91.9	88.5	93.8	0	-	91.3	69.1
<b>Medium Trucks</b>	0	21	1	0	-	22	3	7	0	0	-	10	1	0	0	0	-	1	5	1	0	0	-	6	39
<b>% Medium Trucks</b>	0	2.3	1.1	0	-	2.2	6.1	0.7	0	0	-	1	2.3	0	0	0	-	0.9	3.7	1.9	0	0	-	2.7	1.7
<b>Heavy Trucks</b>	0	362	4	0	-	366	0	312	0	0	-	312	0	0	0	0	-	0	6	5	2	0	-	13	691
<b>% Heavy Trucks</b>	0	39.7	4.3	0	-	35.8	0	33.4	0	0	-	30.9	0	0	0	0	-	0	4.4	9.6	6.3	0	-	5.9	29.3
<b>Bicycles</b>	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
<b>% Bicycles</b>	0	0.1	0	0	-	0.1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
<b>Peds</b>	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	4	-	-	-	-	-	2	-	13
<b>% Peds</b>	-	-	-	-	15.4	-	-	-	-	-	38.5	-	-	-	-	-	30.8	-	-	-	-	-	15.4	-	-



# Peak Hour Diagram

## Specified Period

From: 15:00:00  
To: 18:00:00

## One Hour Peak

From: 16:45:00  
To: 17:45:00

**Intersection:** Huron Church Rd & Malden Rd  
**Site ID:** 2003500002  
**Count Date:** Feb 19, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

### North Approach

	Out	In	Total
🚗	1281	917	2198
MT	8	2	10
HT	382	305	687
🚲	1	0	1
<b>Totals</b>	<b>1672</b>	<b>1224</b>	<b>2896</b>

### Huron Church Rd

🚲	0	1	0	0
HT	5	377	0	0
MT	0	8	0	0
🚗	178	1058	45	0
<b>Totals</b>	<b>183</b>	<b>1444</b>	<b>45</b>	<b>0</b>

### East Approach

	Out	In	Total
🚗	173	154	327
MT	0	0	0
HT	0	4	4
🚲	0	0	0
<b>Totals</b>	<b>173</b>	<b>158</b>	<b>331</b>

### Malden Rd

	HT	MT	🚗	Totals
🚲	0	0	0	0
HT	0	2	1	119
MT	0	3	0	72
🚗	0	0	0	31

Peds: 1



Peds: 0

Peds: 2

### Malden Rd

Totals	🚗	MT	HT	🚲
0	0	0	0	0
16	16	0	0	0
97	97	0	0	0
60	60	0	0	0

Peds: 3

### West Approach

	Out	In	Total
🚗	216	322	538
MT	1	1	2
HT	5	5	10
🚲	0	0	0
<b>Totals</b>	<b>222</b>	<b>328</b>	<b>550</b>

Totals	🚗	MT	HT	🚲
48	47	785	40	0
1089	1	1	0	0
41	0	303	1	0
0	0	0	0	0

### Huron Church Rd

### South Approach

	Out	In	Total
🚗	872	1149	2021
MT	2	8	10
HT	304	377	681
🚲	0	1	1
<b>Totals</b>	<b>1178</b>	<b>1535</b>	<b>2713</b>

🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

## Comments



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Malden Rd  
Count Date: Feb 19, 2020  
Period: 15:00 - 18:00

### Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Malden Rd						West Approach Malden Rd						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	9	375	54	0	0	438	10	287	3	0	0	300	13	27	3	0	0	43	22	14	10	0	0	46	827
17:00	11	325	42	0	1	378	15	298	11	0	0	324	16	19	4	0	1	39	45	27	14	0	0	86	827
17:15	9	387	45	0	0	441	15	253	11	0	3	279	18	29	5	0	1	52	18	17	4	0	0	39	811
17:30	16	357	42	0	0	415	8	251	16	0	0	275	13	22	4	0	0	39	34	14	3	0	0	51	780
<b>Grand Total</b>	<b>45</b>	<b>1444</b>	<b>183</b>	<b>0</b>	<b>1</b>	<b>1672</b>	<b>48</b>	<b>1089</b>	<b>41</b>	<b>0</b>	<b>3</b>	<b>1178</b>	<b>60</b>	<b>97</b>	<b>16</b>	<b>0</b>	<b>2</b>	<b>173</b>	<b>119</b>	<b>72</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>222</b>	<b>3245</b>
<b>Approach %</b>	2.7	86.4	10.9	0	-	-	4.1	92.4	3.5	0	-	-	34.7	56.1	9.2	0	-	-	53.6	32.4	14	0	-	-	-
<b>Totals %</b>	1.4	44.5	5.6	0	-	51.5	1.5	33.6	1.3	0	-	36.3	1.8	3	0.5	0	-	5.3	3.7	2.2	1	0	-	6.8	-
<b>PHF</b>	<b>0.7</b>	<b>0.93</b>	<b>0.85</b>	<b>0</b>	<b>0.95</b>	<b>0.95</b>	<b>0.8</b>	<b>0.91</b>	<b>0.64</b>	<b>0</b>	<b>0.91</b>	<b>0.91</b>	<b>0.83</b>	<b>0.84</b>	<b>0.8</b>	<b>0</b>	<b>0.83</b>	<b>0.83</b>	<b>0.66</b>	<b>0.67</b>	<b>0.55</b>	<b>0</b>	<b>0.65</b>	<b>0.98</b>	<b>0.98</b>
<b>Cars</b>	45	1058	178	0	-	1281	47	785	40	0	-	872	60	97	16	0	-	173	116	69	31	0	-	216	2542
<b>% Cars</b>	100	73.3	97.3	0	-	76.6	97.9	72.1	97.6	0	-	74	100	100	100	0	-	100	97.5	95.8	100	0	-	97.3	78.3
<b>Medium Trucks</b>	0	8	0	0	-	8	1	1	0	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	11
<b>% Medium Trucks</b>	0	0.6	0	0	-	0.5	2.1	0.1	0	0	-	0.2	0	0	0	0	-	0	0.8	0	0	0	-	0.5	0.3
<b>Heavy Trucks</b>	0	377	5	0	-	382	0	303	1	0	-	304	0	0	0	0	-	0	2	3	0	0	-	5	691
<b>% Heavy Trucks</b>	0	26.1	2.7	0	-	22.8	0	27.8	2.4	0	-	25.8	0	0	0	0	-	0	1.7	4.2	0	0	-	2.3	21.3
<b>Bicycles</b>	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
<b>% Bicycles</b>	0	0.1	0	0	-	0.1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
<b>Peds</b>					1	-					3	-					2	-					0	-	6
<b>% Peds</b>					16.7	-					50	-					33.3	-					0	-	-

Date: 21 January 2023  
 Counted By: Matthew A.  
 Weather Conditions: Sunny  
 Malden Rd. at Huron Church Rd.

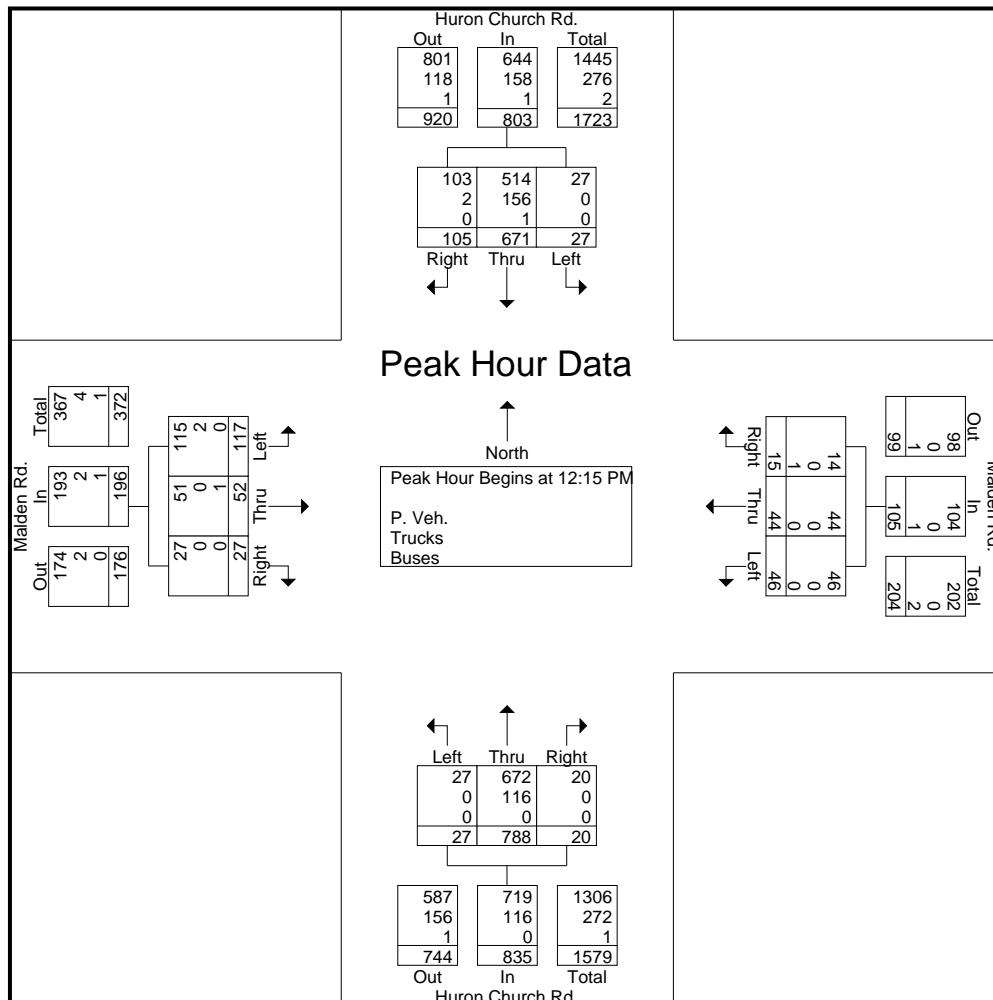


Groups Printed- P. Veh. - Trucks - Buses

Start Time	Malden Rd. E/B					Malden Rd. W/B					Huron Church Rd. N/B					Huron Church Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total			
10:00 AM	12	9	23	(0)	44	0	5	5	(0)	10	9	137	6	(0)	152	17	118	4	(0)	139	0	345	345
10:15 AM	7	6	29	(0)	42	2	7	9	(0)	18	5	133	8	(1)	146	19	157	2	(0)	178	1	384	385
10:30 AM	5	8	22	(0)	35	0	5	10	(2)	15	5	163	5	(0)	173	13	137	2	(2)	152	4	375	379
10:45 AM	6	10	21	(0)	37	3	8	2	(0)	13	2	185	4	(1)	191	16	124	3	(0)	143	1	384	385
Total	30	33	95	(0)	158	5	25	26	(2)	56	21	618	23	(2)	662	65	536	11	(2)	612	6	1488	1494
11:00 AM	13	17	25	(2)	55	3	9	11	(7)	23	8	175	10	(0)	193	24	149	5	(2)	178	11	449	460
11:15 AM	10	9	21	(0)	40	4	10	11	(0)	25	10	203	8	(0)	221	22	174	8	(0)	204	0	490	490
11:30 AM	18	13	29	(0)	60	4	6	9	(4)	19	1	175	6	(2)	182	18	176	3	(3)	197	9	458	467
11:45 AM	6	13	28	(0)	47	1	11	16	(0)	28	6	181	4	(0)	191	30	181	4	(3)	215	3	481	484
Total	47	52	103	(2)	202	12	36	47	(11)	95	25	734	28	(2)	787	94	680	20	(8)	794	23	1878	1901
12:00 PM	10	18	28	(0)	56	1	18	17	(0)	36	9	155	6	(0)	170	29	146	4	(0)	179	0	441	441
12:15 PM	13	13	28	(0)	54	3	11	11	(0)	25	8	203	9	(5)	220	38	188	6	(0)	232	5	531	536
12:30 PM	5	15	31	(1)	51	6	13	8	(8)	27	6	181	3	(0)	190	20	156	8	(0)	184	9	452	461
12:45 PM	4	10	28	(7)	42	5	8	14	(0)	27	6	223	6	(5)	235	22	182	4	(0)	208	12	512	524
Total	32	56	115	(8)	203	15	50	50	(8)	115	29	762	24	(10)	815	109	672	22	(0)	803	26	1936	1962
01:00 PM	5	14	30	(4)	49	1	12	13	(6)	26	0	181	9	(5)	190	25	145	9	(3)	179	18	444	462
01:15 PM	5	10	21	(2)	36	2	7	16	(1)	25	8	178	4	(0)	190	26	203	6	(0)	235	3	486	489
01:30 PM	8	13	22	(4)	43	1	12	11	(6)	24	5	185	6	(3)	196	21	157	2	(3)	180	16	443	459
01:45 PM	9	13	22	(0)	44	1	13	11	(0)	25	6	171	11	(1)	188	32	206	1	(2)	239	3	496	499
Total	27	50	95	(10)	172	5	44	51	(13)	100	19	715	30	(9)	764	104	711	18	(8)	833	40	1869	1909
Grand Total	136	191	408	(20)	735	37	155	174	(34)	366	94	2829	105	(23)	3028	372	2599	71	(18)	3042	95	7171	7266
Apprch %	18.5	26	55.5			10.1	42.3	47.5			3.1	93.4	3.5			12.2	85.4	2.3					
Total %	1.9	2.7	5.7		10.2	0.5	2.2	2.4		5.1	1.3	39.5	1.5		42.2	5.2	36.2	1		42.4	1.3	98.7	
P. Veh.	133	182	404		739	36	154	172		396	93	2433	105		2654	367	1941	68		2394	0	0	6183
% P. Veh.	97.8	95.3	99	100	97.9	97.3	99.4	98.9	100	99	98.9	86	100	100	87	98.7	74.7	95.8	100	78.2	0	0	85.1
Trucks	3	1	4		8	0	1	2		3	1	395	0		396	5	657	2		664	0	0	1071
% Trucks	2.2	0.5	1	0	1.1	0	0.6	1.1	0	0.8	1.1	14	0	0	13	1.3	25.3	2.8	0	21.7	0	0	14.7
Buses	0	8	0		8	1	0	0		1	0	1	0		1	0	1	1		2	0	0	12
% Buses	0	4.2	0	0	1.1	2.7	0	0	0	0.2	0	0	0	0	0	0	0	1.4	0	0.1	0	0	0.2



Start Time	Malden Rd. E/B				Malden Rd. W/B				Huron Church Rd. N/B				Huron Church Rd. S/B				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:15 PM																	
12:15 PM	13	13	28	54	3	11	11	25	8	203	9	220	38	188	6	232	531
12:30 PM	5	15	31	51	6	13	8	27	6	181	3	190	20	156	8	184	452
12:45 PM	4	10	28	42	5	8	14	27	6	223	6	235	22	182	4	208	512
01:00 PM	5	14	30	49	1	12	13	26	0	181	9	190	25	145	9	179	444
Total Volume	27	52	117	196	15	44	46	105	20	788	27	835	105	671	27	803	1939
% App. Total	13.8	26.5	59.7		14.3	41.9	43.8		2.4	94.4	3.2		13.1	83.6	3.4		
PHF	.519	.867	.944	.907	.625	.846	.821	.972	.625	.883	.750	.888	.691	.892	.750	.865	.913
P. Veh.	27	51	115	193	14	44	46	104	20	672	27	719	103	514	27	644	1660
% P. Veh.	100	98.1	98.3	98.5	93.3	100	100	99.0	100	85.3	100	86.1	98.1	76.6	100	80.2	85.6
Trucks	0	0	2	2	0	0	0	0	0	116	0	116	2	156	0	158	276
% Trucks	0	0	1.7	1.0	0	0	0	0	0	14.7	0	13.9	1.9	23.2	0	19.7	14.2
Buses	0	1	0	1	1	0	0	1	0	0	0	0	0	1	0	1	3
% Buses	0	1.9	0	0.5	6.7	0	0	1.0	0	0	0	0	0	0.1	0	0.1	0.2





**Ontario Traffic Inc.**  
TRAFFIC MONITORING + SERVICES & PRODUCTS

## Project #20-035 - City of Windsor

### Intersection Count Report

**Intersection:** Huron Church Rd & Northwood St-Industrial Dr  
**Municipality:** Windsor  
**Count Date:** Feb 20, 2020  
**Site Code:** 2003500003  
**Count Categories:** Cars, Medium Trucks, Heavy Trucks, Peds, Bicycles  
**Count Period:** 07:00-10:00, 11:00-14:00, 15:00-18:00  
**Weather:** Clear



# Peak Hour Diagram

**Specified Period**

From: 07:00:00  
To: 10:00:00

**One Hour Peak**

From: 07:45:00  
To: 08:45:00

**Intersection:** Huron Church Rd & Northwood St-Industrial Dr  
**Site ID:** 2003500003  
**Count Date:** Feb 20, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

**North Approach**

	Out	In	Total
🚗	671	1223	1894
MT	9	20	29
HT	187	301	488
🚲	0	0	0
<b>Totals</b>	<b>867</b>	<b>1544</b>	<b>2411</b>

**Huron Church Rd**

🚲	0	0	0	0
HT	2	185	0	0
MT	2	7	0	0
🚗	46	605	20	0
<b>Totals</b>	<b>50</b>	<b>797</b>	<b>20</b>	<b>0</b>

**East Approach**

	Out	In	Total
🚗	325	180	505
MT	1	3	4
HT	4	5	9
🚲	0	0	0
<b>Totals</b>	<b>330</b>	<b>188</b>	<b>518</b>

**Industrial Dr**

🚲	HT	MT	🚗	Totals
0	0	0	0	0
0	5	0	12	17
0	2	1	33	36
0	18	7	50	75

**Peds: 0**

**Peds: 0**



**Peds: 2**

**Peds: 4**

**Northwood St**

Totals	🚗	MT	HT	🚲
0	0	0	0	0
59	59	0	0	0
60	56	1	3	0
211	210	0	1	0

**West Approach**

	Out	In	Total
🚗	95	367	462
MT	8	7	15
HT	25	17	42
🚲	0	0	0
<b>Totals</b>	<b>128</b>	<b>391</b>	<b>519</b>

Totals	🚗	MT	HT	🚲
281	265	1152	127	0
MT	4	20	2	0
HT	12	296	3	0
🚲	0	0	0	0

**Huron Church Rd**

**South Approach**

	Out	In	Total
🚗	1544	865	2409
MT	26	14	40
HT	311	204	515
🚲	0	0	0
<b>Totals</b>	<b>1881</b>	<b>1083</b>	<b>2964</b>

🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

**Comments**



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Northwood St-Industrial Dr  
 Count Date: Feb 20, 2020  
 Period: 07:00 - 10:00

### Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Northwood St						West Approach Industrial Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	0	206	21	0	0	227	90	401	32	0	1	523	39	22	12	0	0	73	7	12	24	0	0	43	866
08:00	6	185	9	0	0	200	70	367	45	0	0	482	49	14	13	0	0	76	3	13	18	0	0	34	792
08:15	7	196	9	0	0	212	70	364	27	0	3	461	66	14	20	0	2	100	2	8	15	0	0	25	798
08:30	7	210	11	0	0	228	51	336	28	0	0	415	57	10	14	0	0	81	5	3	18	0	0	26	750
<b>Grand Total</b>	<b>20</b>	<b>797</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>867</b>	<b>281</b>	<b>1468</b>	<b>132</b>	<b>0</b>	<b>4</b>	<b>1881</b>	<b>211</b>	<b>60</b>	<b>59</b>	<b>0</b>	<b>2</b>	<b>330</b>	<b>17</b>	<b>36</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>128</b>	<b>3206</b>
Approach %	2.3	91.9	5.8	0	-	-	14.9	78	7	0	-	-	63.9	18.2	17.9	0	-	-	13.3	28.1	58.6	0	-	-	-
Totals %	0.6	24.9	1.6	0	-	27	8.8	45.8	4.1	0	-	58.7	6.6	1.9	1.8	0	-	10.3	0.5	1.1	2.3	0	-	-	4
<b>PHF</b>	<b>0.71</b>	<b>0.95</b>	<b>0.6</b>	<b>0</b>	<b>0</b>	<b>0.95</b>	<b>0.78</b>	<b>0.92</b>	<b>0.73</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>0.8</b>	<b>0.68</b>	<b>0.74</b>	<b>0</b>	<b>0</b>	<b>0.83</b>	<b>0.61</b>	<b>0.69</b>	<b>0.78</b>	<b>0</b>	<b>0</b>	<b>0.74</b>	<b>0.93</b>
Cars	20	605	46	0	-	671	265	1152	127	0	-	1544	210	56	59	0	-	325	12	33	50	0	-	95	2635
% Cars	100	75.9	92	0	-	77.4	94.3	78.5	96.2	0	-	82.1	99.5	93.3	100	0	-	98.5	70.6	91.7	66.7	0	-	74.2	82.2
Medium Trucks	0	7	2	0	-	9	4	20	2	0	-	26	0	1	0	0	-	1	0	1	7	0	-	8	44
% Medium Trucks	0	0.9	4	0	-	1	1.4	1.4	1.5	0	-	1.4	0	1.7	0	0	-	0.3	0	2.8	9.3	0	-	6.3	1.4
Heavy Trucks	0	185	2	0	-	187	12	296	3	0	-	311	1	3	0	0	-	4	5	2	18	0	-	25	527
% Heavy Trucks	0	23.2	4	0	-	21.6	4.3	20.2	2.3	0	-	16.5	0.5	5	0	0	-	1.2	29.4	5.6	24	0	-	19.5	16.4
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	0	-	6
% Peds	-	-	-	-	0	-	-	-	-	-	66.7	-	-	-	-	-	33.3	-	-	-	-	-	0	-	-



# Peak Hour Diagram

**Specified Period**

From: 11:00:00  
To: 14:00:00

**One Hour Peak**

From: 12:15:00  
To: 13:15:00

**Intersection:** Huron Church Rd & Northwood St-Industrial Dr  
**Site ID:** 2003500003  
**Count Date:** Feb 20, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

**North Approach**

	Out	In	Total
🚗	567	638	1205
MT	14	12	26
HT	355	278	633
🚲	0	0	0
<b>Totals</b>	<b>936</b>	<b>928</b>	<b>1864</b>

**Huron Church Rd**

🚲	0	0	0	0
HT	6	349	0	0
MT	5	9	0	0
🚗	37	518	12	0
<b>Totals</b>	<b>48</b>	<b>876</b>	<b>12</b>	<b>0</b>

**East Approach**

	Out	In	Total
🚗	180	135	315
MT	1	1	2
HT	2	1	3
🚲	0	0	0
<b>Totals</b>	<b>183</b>	<b>137</b>	<b>320</b>

**Industrial Dr**

🚲	HT	MT	🚗	Totals
0	0	0	0	0
0	4	0	17	21
0	1	1	23	25
0	25	3	51	79

Peds: 0



Peds: 0

Peds: 0

Peds: 1

**Northwood St**

Totals	🚗	MT	HT	🚲
0	0	0	0	0
21	21	0	0	0
55	53	0	2	0
107	106	1	0	0

**West Approach**

	Out	In	Total
🚗	91	209	300
MT	4	13	17
HT	30	33	63
🚲	0	0	0
<b>Totals</b>	<b>125</b>	<b>255</b>	<b>380</b>

Totals	🚗	MT	HT	🚲
152	119	600	100	0
MT	8	12	0	0
HT	25	274	0	0
🚲	0	0	0	0

**Huron Church Rd**

**South Approach**

	Out	In	Total
🚗	819	675	1494
MT	20	13	33
HT	299	374	673
🚲	0	0	0
<b>Totals</b>	<b>1138</b>	<b>1062</b>	<b>2200</b>

🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

**Comments**



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Northwood St-Industrial Dr  
 Count Date: Feb 20, 2020  
 Period: 11:00 - 14:00

### Peak Hour Data (12:15 - 13:15)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Northwood St						West Approach Industrial Dr						Total Vehicles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
12:15	0	238	10	0	0	248	37	234	30	0	0	301	21	11	3	0	0	35	6	5	14	0	0	25	609	
12:30	2	214	17	0	0	233	34	218	30	0	0	282	27	12	4	0	0	43	6	6	27	0	0	39	597	
12:45	4	228	11	0	0	243	44	222	17	0	0	283	24	16	8	0	0	48	3	5	18	0	0	26	600	
13:00	6	196	10	0	0	212	37	212	23	0	1	272	35	16	6	0	0	57	6	9	20	0	0	35	576	
<b>Grand Total</b>	<b>12</b>	<b>876</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>936</b>	<b>152</b>	<b>886</b>	<b>100</b>	<b>0</b>	<b>1</b>	<b>1138</b>	<b>107</b>	<b>55</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>183</b>	<b>21</b>	<b>25</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>125</b>	<b>2382</b>	
<b>Approach %</b>	1.3	93.6	5.1	0	-	-	13.4	77.9	8.8	0	-	-	58.5	30.1	11.5	0	-	-	16.8	20	63.2	0	-	-	-	
<b>Totals %</b>	0.5	36.8	2	0	39.3	6.4	37.2	4.2	0	47.8	4.5	2.3	0.9	0	7.7	0.9	1	3.3	0	5.2						
<b>PHF</b>	<b>0.5</b>	<b>0.92</b>	<b>0.71</b>	<b>0</b>	<b>0.94</b>	<b>0.86</b>	<b>0.95</b>	<b>0.83</b>	<b>0</b>	<b>0.95</b>	<b>0.76</b>	<b>0.86</b>	<b>0.66</b>	<b>0</b>	<b>0.8</b>	<b>0.88</b>	<b>0.69</b>	<b>0.73</b>	<b>0</b>	<b>0.8</b>	<b>0.98</b>					
<b>Cars</b>	12	518	37	0	567	119	600	100	0	819	106	53	21	0	180	17	23	51	0	91	1657					
<b>% Cars</b>	100	59.1	77.1	0	60.6	78.3	67.7	100	0	72	99.1	96.4	100	0	98.4	81	92	64.6	0	72.8	69.6					
<b>Medium Trucks</b>	0	9	5	0	14	8	12	0	0	20	1	0	0	0	1	0	1	3	0	4	39					
<b>% Medium Trucks</b>	0	1	10.4	0	1.5	5.3	1.4	0	0	1.8	0.9	0	0	0	0.5	0	4	3.8	0	3.2	1.6					
<b>Heavy Trucks</b>	0	349	6	0	355	25	274	0	0	299	0	2	0	0	2	4	1	25	0	30	686					
<b>% Heavy Trucks</b>	0	39.8	12.5	0	37.9	16.4	30.9	0	0	26.3	0	3.6	0	0	1.1	19	4	31.6	0	24	28.8					
<b>Bicycles</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
<b>% Bicycles</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
<b>Peds</b>					0	-				1	-					0	-					0	-	1		
<b>% Peds</b>					0	-				100	-					0	-					0	-			



# Peak Hour Diagram

**Specified Period**

From: 15:00:00  
To: 18:00:00

**One Hour Peak**

From: 15:45:00  
To: 16:45:00

**Intersection:** Huron Church Rd & Northwood St-Industrial Dr  
**Site ID:** 2003500003  
**Count Date:** Feb 20, 2020

**Weather conditions:**

**\*\* Signalized Intersection \*\***

**Major Road:** Huron Church Rd runs N/S

**North Approach**

	Out	In	Total
🚗	1134	820	1954
MT	28	8	36
HT	369	288	657
🚲	0	0	0
<b>Totals</b>	<b>1531</b>	<b>1116</b>	<b>2647</b>

**Huron Church Rd**

🚲	0	0	0	0
HT	11	358	0	0
MT	1	17	10	0
🚗	13	1099	22	0
<b>Totals</b>	<b>25</b>	<b>1474</b>	<b>32</b>	<b>0</b>

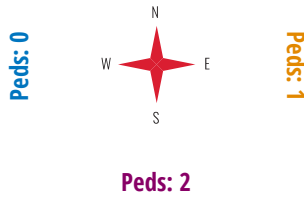
**East Approach**

	Out	In	Total
🚗	218	177	395
MT	6	12	18
HT	18	3	21
🚲	0	0	0
<b>Totals</b>	<b>242</b>	<b>192</b>	<b>434</b>

**Industrial Dr**

🚲	HT	MT	🚗	Totals
0	0	0	0	0
0	0	1	15	16
0	1	2	49	52
0	9	4	236	249

**Peds: 1**



**Northwood St**

Totals	🚗	MT	HT	🚲
0	0	0	0	0
25	23	0	2	0
72	52	5	15	0
145	143	1	1	0

**West Approach**

	Out	In	Total
🚗	300	183	483
MT	7	16	23
HT	10	61	71
🚲	0	0	0
<b>Totals</b>	<b>317</b>	<b>260</b>	<b>577</b>

Totals	🚗	MT	HT	🚲
163	118	782	106	0
MT	10	7	0	0
HT	35	286	2	0
🚲	0	0	0	0

**Huron Church Rd**

**South Approach**

	Out	In	Total
🚗	1006	1478	2484
MT	17	22	39
HT	323	368	691
🚲	0	0	0
<b>Totals</b>	<b>1346</b>	<b>1868</b>	<b>3214</b>

🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

**Comments**



**Ontario Traffic Inc.**  
TRAFFIC MONITORING SERVICES & PRODUCTS

## Peak Hour Summary

Intersection: Huron Church Rd & Northwood St-Industrial Dr  
 Count Date: Feb 20, 2020  
 Period: 15:00 - 18:00

### Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Huron Church Rd						South Approach Huron Church Rd						East Approach Northwood St						West Approach Industrial Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
15:45	8	364	7	0	0	379	49	274	23	0	0	346	43	18	6	0	1	67	2	5	39	0	0	46	838
16:00	6	368	10	0	0	384	40	280	23	0	0	343	43	19	6	0	0	68	5	14	76	0	0	95	890
16:15	11	371	5	0	0	387	47	262	28	0	0	337	27	20	10	0	0	57	1	14	56	0	0	71	852
16:30	7	371	3	0	1	381	27	259	34	0	2	320	32	15	3	0	0	50	8	19	78	0	0	105	856
<b>Grand Total</b>	<b>32</b>	<b>1474</b>	<b>25</b>	<b>0</b>	<b>1</b>	<b>1531</b>	<b>163</b>	<b>1075</b>	<b>108</b>	<b>0</b>	<b>2</b>	<b>1346</b>	<b>145</b>	<b>72</b>	<b>25</b>	<b>0</b>	<b>1</b>	<b>242</b>	<b>16</b>	<b>52</b>	<b>249</b>	<b>0</b>	<b>0</b>	<b>317</b>	<b>3436</b>
Approach %	2.1	96.3	1.6	0	-	-	12.1	79.9	8	0	-	-	59.9	29.8	10.3	0	-	-	5	16.4	78.5	0	-	-	-
Totals %	0.9	42.9	0.7	0	44.6		4.7	31.3	3.1	0	39.2		4.2	2.1	0.7	0	7		0.5	1.5	7.2	0		9.2	
<b>PHF</b>	<b>0.73</b>	<b>0.99</b>	<b>0.63</b>	<b>0</b>	<b>0.99</b>		<b>0.83</b>	<b>0.96</b>	<b>0.79</b>	<b>0</b>	<b>0.97</b>		<b>0.84</b>	<b>0.9</b>	<b>0.63</b>	<b>0</b>	<b>0.89</b>		<b>0.5</b>	<b>0.68</b>	<b>0.8</b>	<b>0</b>		<b>0.75</b>	<b>0.97</b>
Cars	22	1099	13	0	1134		118	782	106	0	1006		143	52	23	0	218		15	49	236	0	300	2658	
% Cars	68.8	74.6	52	0	74.1		72.4	72.7	98.1	0	74.7		98.6	72.2	92	0	90.1		93.8	94.2	94.8	0	94.6	77.4	
Medium Trucks	10	17	1	0	28		10	7	0	0	17		1	5	0	0	6		1	2	4	0	7	58	
% Medium Trucks	31.3	1.2	4	0	1.8		6.1	0.7	0	0	1.3		0.7	6.9	0	0	2.5		6.3	3.8	1.6	0	2.2	1.7	
Heavy Trucks	0	358	11	0	369		35	286	2	0	323		1	15	2	0	18		0	1	9	0	10	720	
% Heavy Trucks	0	24.3	44	0	24.1		21.5	26.6	1.9	0	24		0.7	20.8	8	0	7.4		0	1.9	3.6	0	3.2	21	
Bicycles	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	
% Bicycles	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	
Peds					1	-					2	-					1	-					0	-	4
% Peds					25	-					50	-					25	-					0	-	

Date: 21 January 2023  
 Counted By: Franklib C.  
 Weather Conditions: Sunny  
 Industrial/Northwood at Huron Church

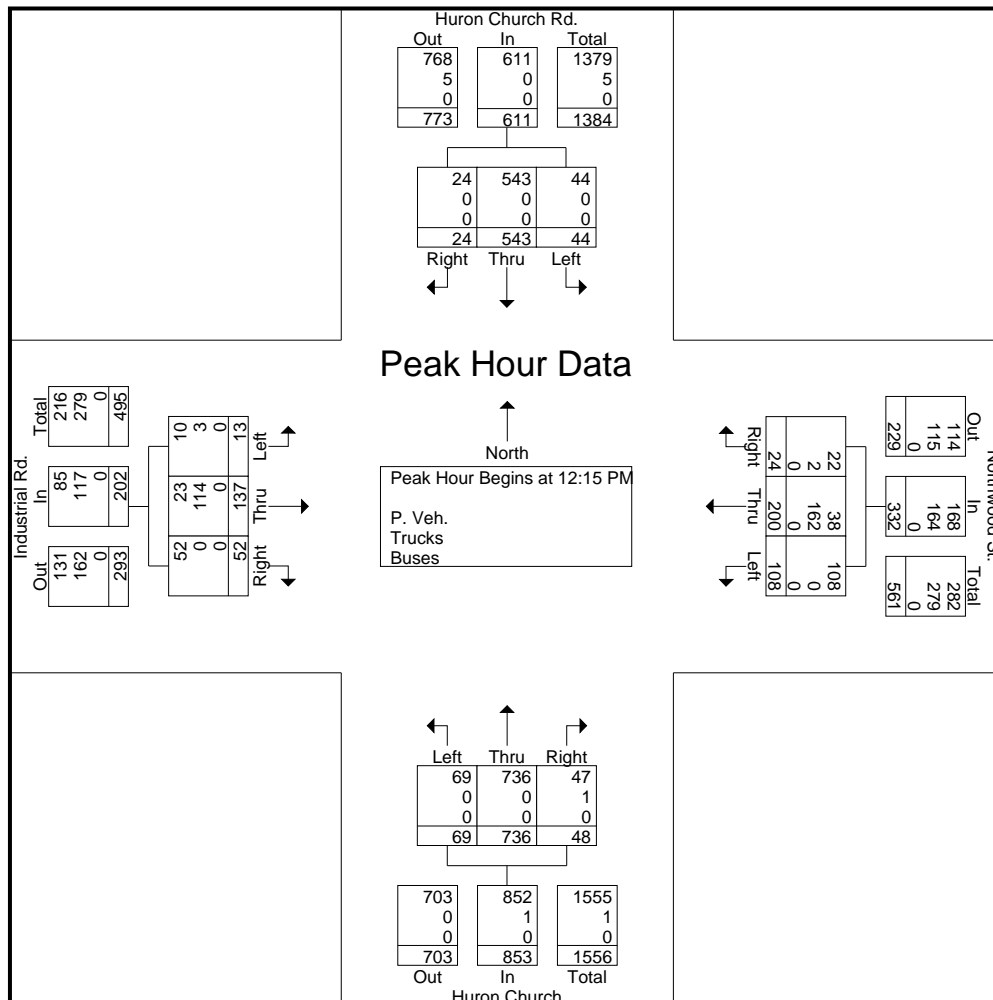


Groups Printed- P. Veh. - Trucks - Buses

Start Time	Industrial Rd. E/B					Northwood St. W/B					Huron Church N/B					Huron Church Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total			
10:00 AM	16	39	4	(1)	59	6	29	12	(0)	47	6	134	14	(0)	154	2	85	3	(1)	90	2	350	352
10:15 AM	8	15	4	(5)	27	8	57	17	(0)	82	9	139	17	(0)	165	6	89	5	(0)	100	5	374	379
10:30 AM	12	27	4	(0)	43	5	53	34	(0)	92	13	144	19	(0)	176	7	83	20	(0)	110	0	421	421
10:45 AM	7	24	2	(3)	33	4	39	17	(0)	60	13	140	19	(0)	172	6	92	8	(0)	106	3	371	374
Total	43	105	14	(9)	162	23	178	80	(0)	281	41	557	69	(0)	667	21	349	36	(1)	406	10	1516	1526
11:00 AM	16	36	6	(6)	58	7	29	27	(1)	63	22	176	14	(1)	212	7	103	10	(0)	120	8	453	461
11:15 AM	10	30	2	(0)	42	6	65	16	(0)	87	4	188	18	(0)	210	3	131	7	(0)	141	0	480	480
11:30 AM	19	26	4	(0)	49	6	59	24	(0)	89	15	144	22	(0)	181	8	129	8	(0)	145	0	464	464
11:45 AM	11	25	1	(0)	37	1	49	28	(0)	78	15	155	19	(0)	189	5	133	7	(0)	145	0	449	449
Total	56	117	13	(6)	186	20	202	95	(1)	317	56	663	73	(1)	792	23	496	32	(0)	551	8	1846	1854
12:00 PM	6	36	2	(2)	44	6	34	29	(0)	69	11	172	23	(0)	206	7	124	14	(0)	145	2	464	466
12:15 PM	13	36	3	(1)	52	3	60	18	(0)	81	6	202	22	(0)	230	6	141	11	(0)	158	1	521	522
12:30 PM	13	34	3	(2)	50	5	56	29	(0)	90	11	167	21	(0)	199	4	134	12	(0)	150	2	489	491
12:45 PM	7	32	5	(5)	44	8	54	30	(0)	92	12	194	16	(0)	222	6	124	13	(0)	143	5	501	506
Total	39	138	13	(10)	190	22	204	106	(0)	332	40	735	82	(0)	857	23	523	50	(0)	596	10	1975	1985
01:00 PM	19	35	2	(3)	56	8	30	31	(0)	69	19	173	10	(0)	202	8	144	8	(4)	160	7	487	494
01:15 PM	9	19	2	(0)	30	9	63	26	(0)	98	20	182	17	(0)	219	5	146	9	(0)	160	0	507	507
01:30 PM	8	32	3	(1)	43	4	53	32	(0)	89	10	167	12	(0)	189	8	133	7	(1)	148	2	469	471
01:45 PM	7	28	3	(1)	38	2	47	26	(0)	75	11	181	16	(0)	208	4	143	5	(0)	152	1	473	474
Total	43	114	10	(5)	167	23	193	115	(0)	331	60	703	55	(0)	818	25	566	29	(5)	620	10	1936	1946
Grand Total	181	474	50	(30)	705	88	777	396	(1)	1261	197	2658	279	(1)	3134	92	1934	147	(6)	2173	38	7273	7311
Apprch %	25.7	67.2	7.1			7	61.6	31.4			6.3	84.8	8.9			4.2	89	6.8					
Total %	2.5	6.5	0.7		9.7	1.2	10.7	5.4		17.3	2.7	36.5	3.8		43.1	1.3	26.6	2		29.9	0.5	99.5	
P. Veh.	181	92	42		345	84	105	390		580	195	2658	279		3133	87	1934	145		2172	0	0	6230
% P. Veh.	100	19.4	84	100	46.9	95.5	13.5	98.5	100	46	99	100	100	100	99.9	94.6	100	98.6	100	99.7	0	0	85.2
Trucks	0	382	8		390	4	672	6		682	2	0	0		2	5	0	2		7	0	0	1081
% Trucks	0	80.6	16	0	53.1	4.5	86.5	1.5	0	54	1	0	0	0	0.1	5.4	0	1.4	0	0.3	0	0	14.8
Buses	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Start Time	Industrial Rd. E/B				Northwood St. W/B				Huron Church N/B				Huron Church Rd. S/B				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:15 PM																	
12:15 PM	13	36	3	52	3	60	18	81	6	202	22	230	6	141	11	158	521
12:30 PM	13	34	3	50	5	56	29	90	11	167	21	199	4	134	12	150	489
12:45 PM	7	32	5	44	8	54	30	92	12	194	16	222	6	124	13	143	501
01:00 PM	19	35	2	56	8	30	31	69	19	173	10	202	8	144	8	160	487
Total Volume	52	137	13	202	24	200	108	332	48	736	69	853	24	543	44	611	1998
% App. Total	25.7	67.8	6.4		7.2	60.2	32.5		5.6	86.3	8.1		3.9	88.9	7.2		
PHF	.684	.951	.650	.902	.750	.833	.871	.902	.632	.911	.784	.927	.750	.943	.846	.955	.959
P. Veh.	52	23	10	85	22	38	108	168	47	736	69	852	24	543	44	611	1716
% P. Veh.	100	16.8	76.9	42.1	91.7	19.0	100	50.6	97.9	100	100	99.9	100	100	100	100	85.9
Trucks	0	114	3	117	2	162	0	164	1	0	0	1	0	0	0	0	282
% Trucks	0	83.2	23.1	57.9	8.3	81.0	0	49.4	2.1	0	0	0.1	0	0	0	0	14.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## **Appendix B**

# **ITE TRIP GENERATION MANUAL – 11<sup>TH</sup> EDITION REFERENCES**

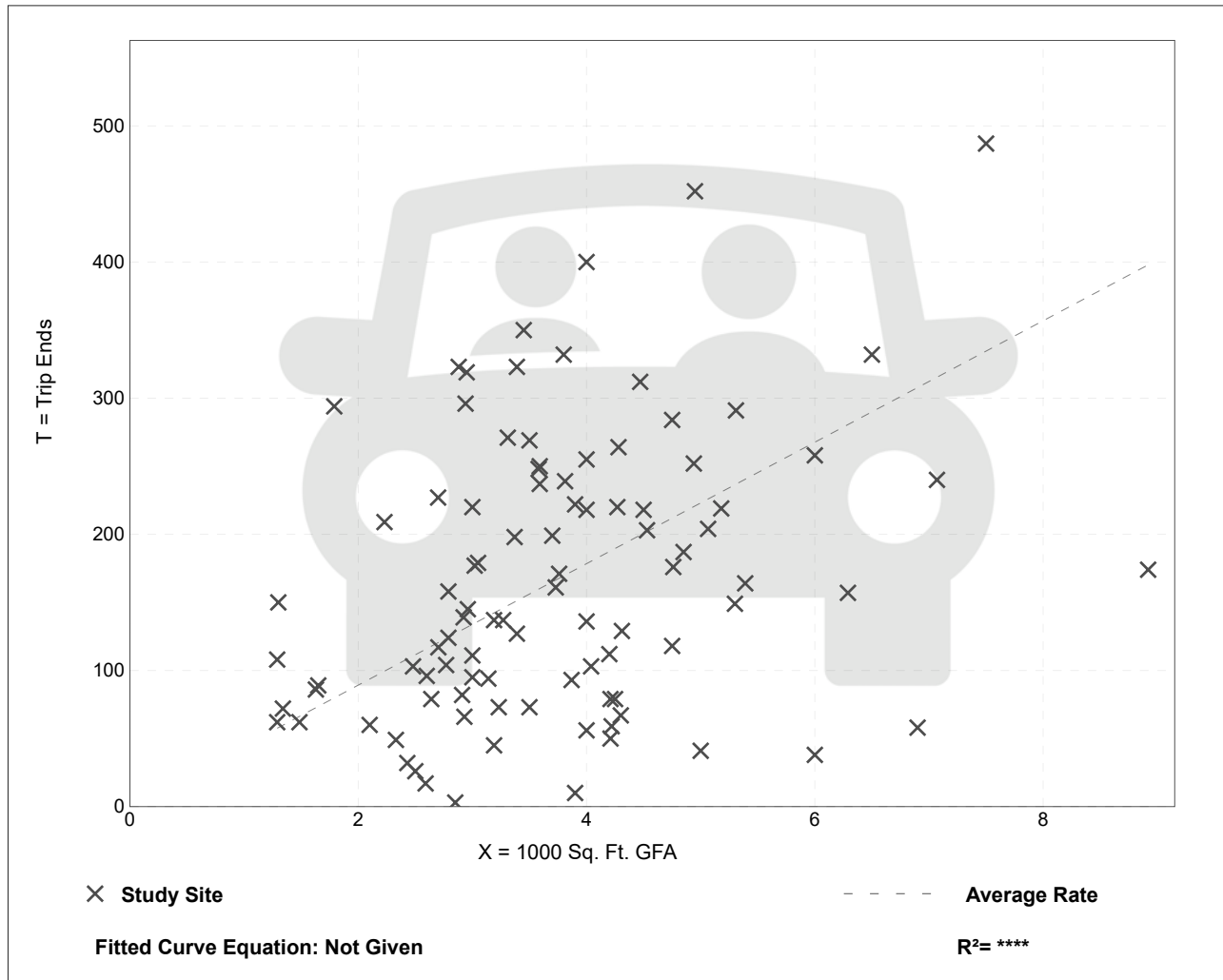
# Fast-Food Restaurant with Drive-Through Window (934)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**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: 96  
 Avg. 1000 Sq. Ft. GFA: 4  
 Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
44.61	1.05 - 164.25	27.14

## Data Plot and Equation



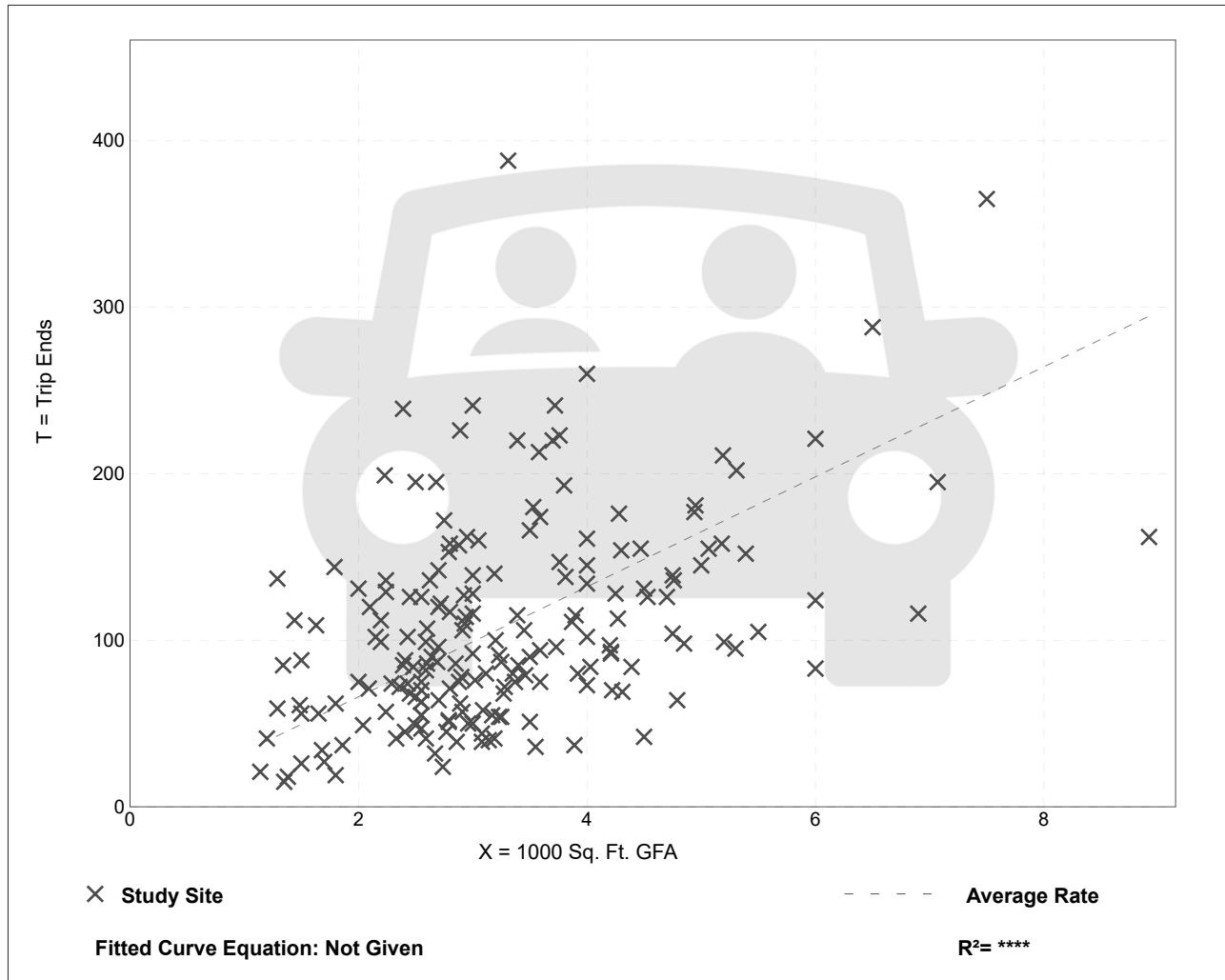
# Fast-Food Restaurant with Drive-Through Window (934)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**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: 190  
 Avg. 1000 Sq. Ft. GFA: 3  
 Directional Distribution: 52% entering, 48% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
33.03	8.77 - 117.22	17.59

## Data Plot and Equation



# Fast-Food Restaurant with Drive-Through Window (934)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 53

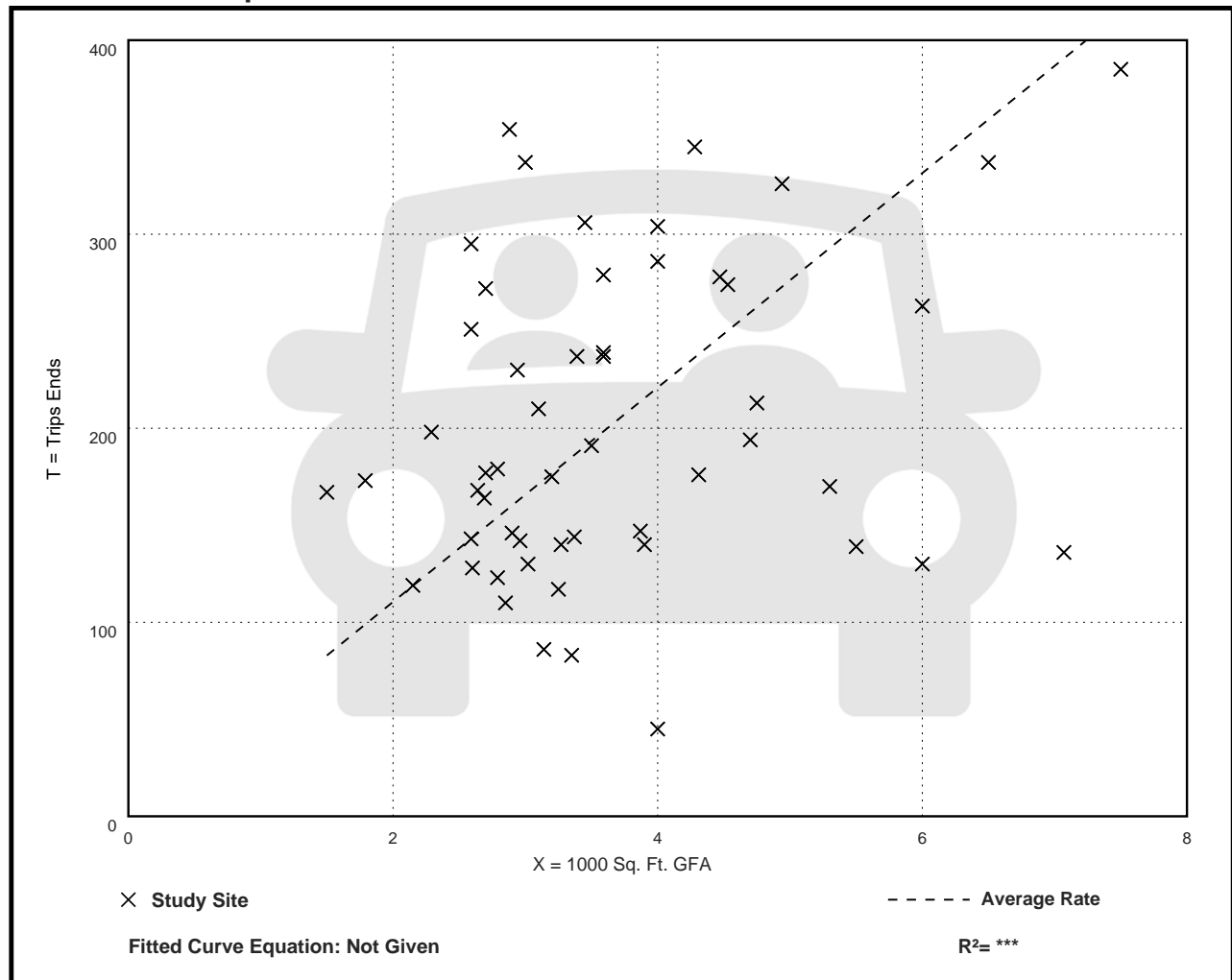
Avg. 1000 Sq. Ft. GFA: 4

Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
55.25	11.25 - 122.92	24.62

## Data Plot and Equation



# Strip Retail Plaza (<40k)

## (822)

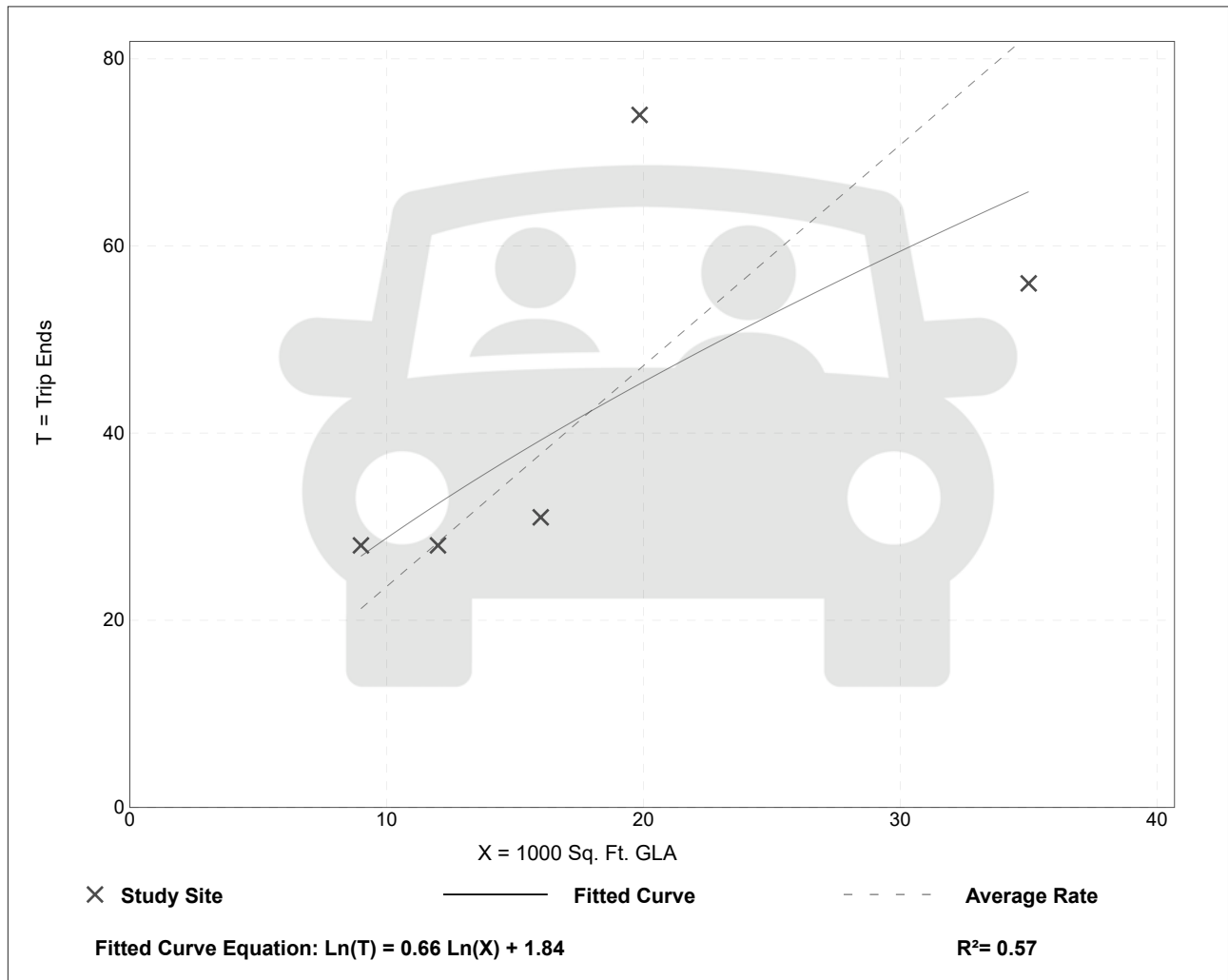
**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 5  
 Avg. 1000 Sq. Ft. GLA: 18  
 Directional Distribution: 60% entering, 40% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

### Data Plot and Equation

*Caution – Small Sample Size*



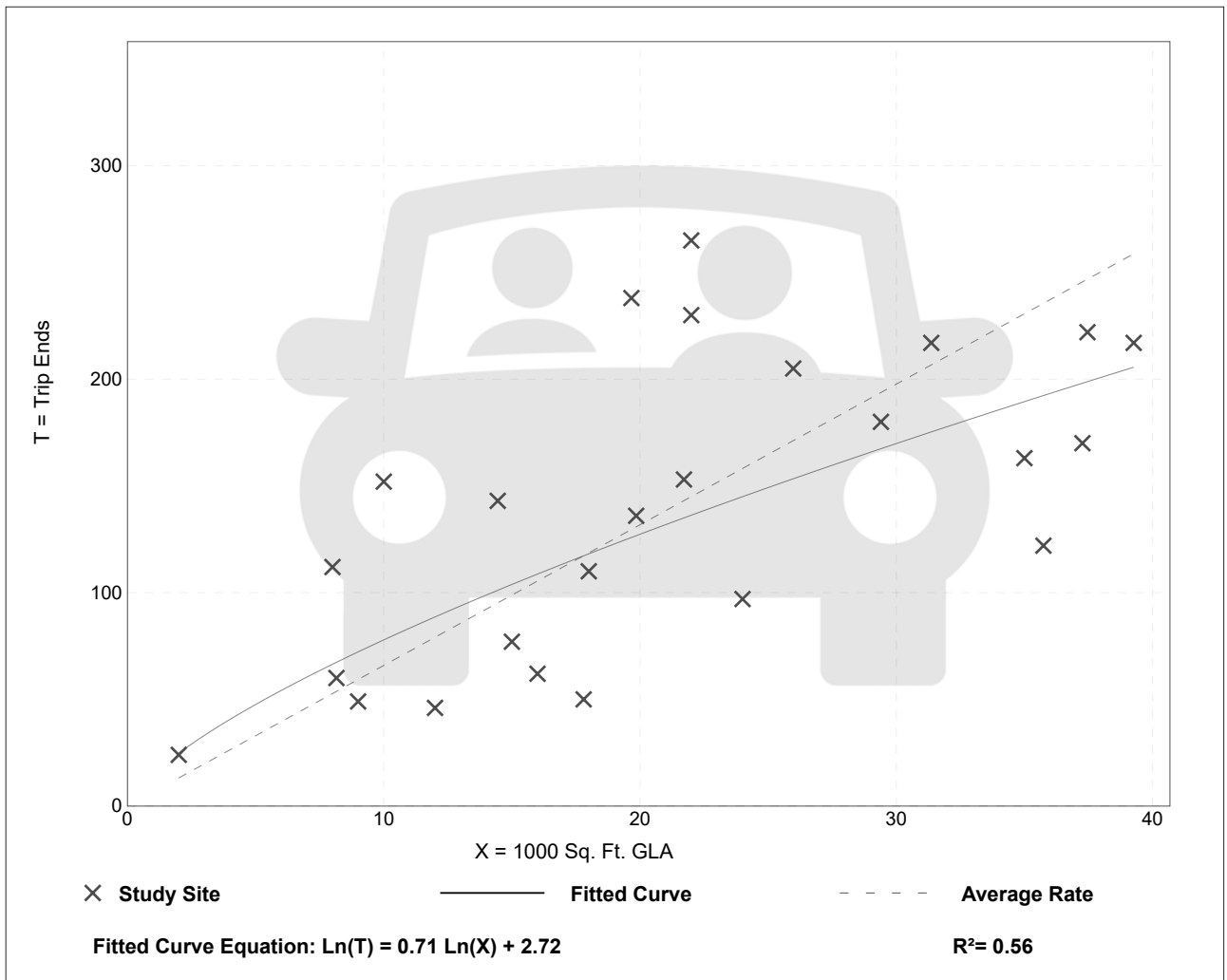
# Strip Retail Plaza (<40k) (822)

**Vehicle Trip Ends vs:** 1000 Sq. Ft. GLA  
**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: 25  
 Avg. 1000 Sq. Ft. GLA: 21  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

## Data Plot and Equation



# Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Saturday, Peak Hour of Generator

**Setting/Location: General Urban/Suburban**

Number of Studies: 12

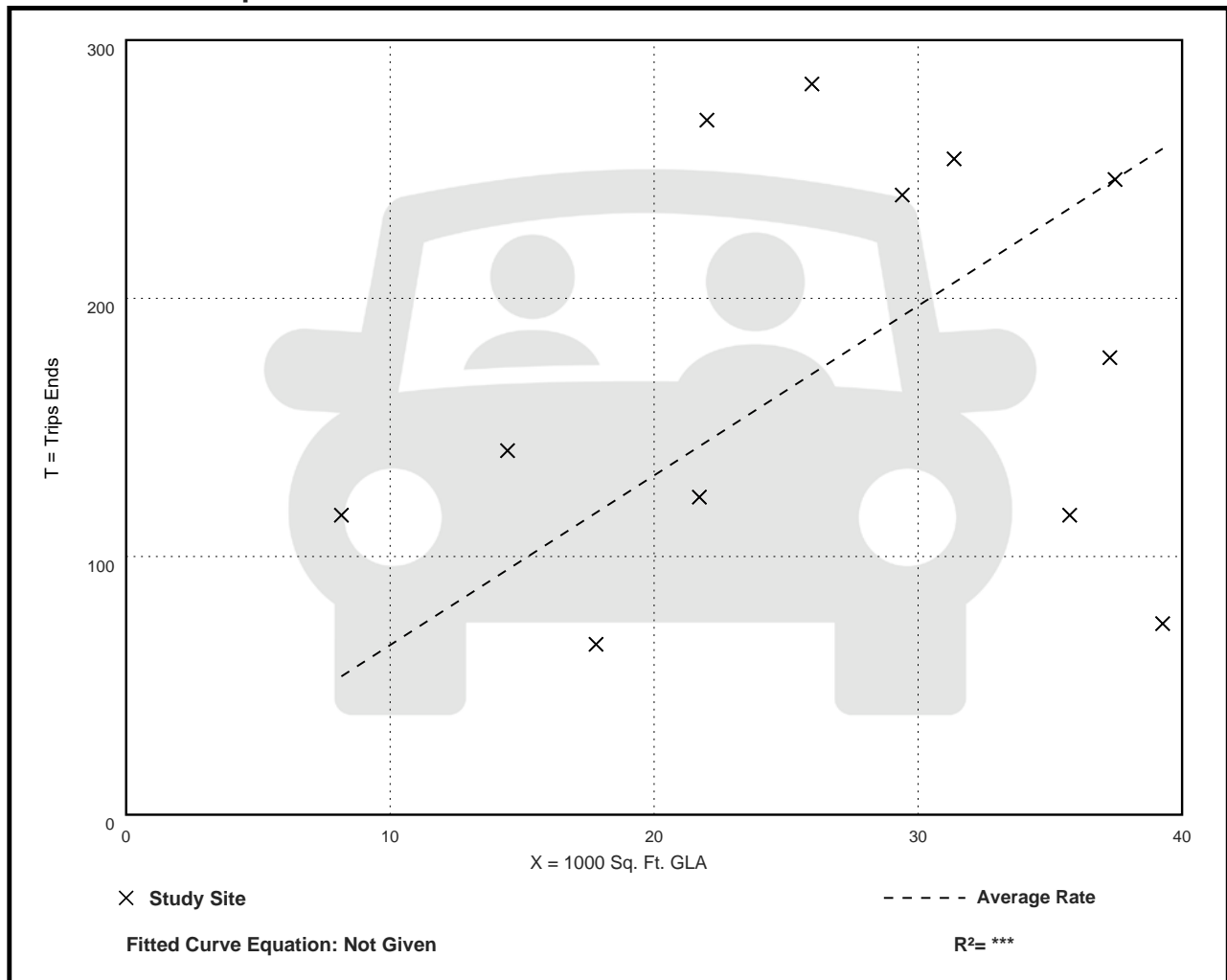
Avg. 1000 Sq. Ft. GLA: 27

Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.57	1.88 - 14.23	3.45

## Data Plot and Equation



# Small Office Building (712)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

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: 21

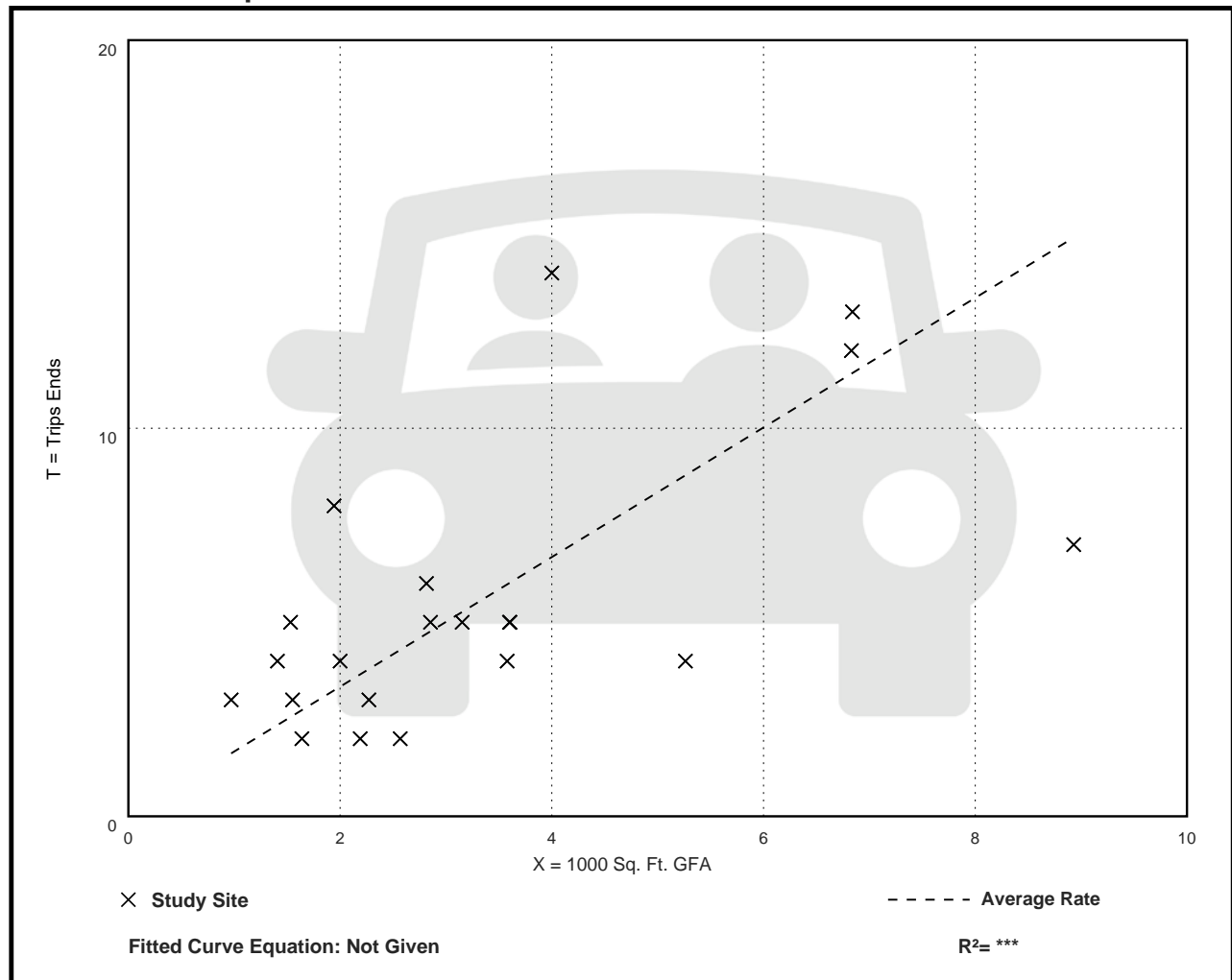
Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 82% entering, 18% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.67	0.76 - 4.12	0.88

## Data Plot and Equation



# Small Office Building (712)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

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: 21

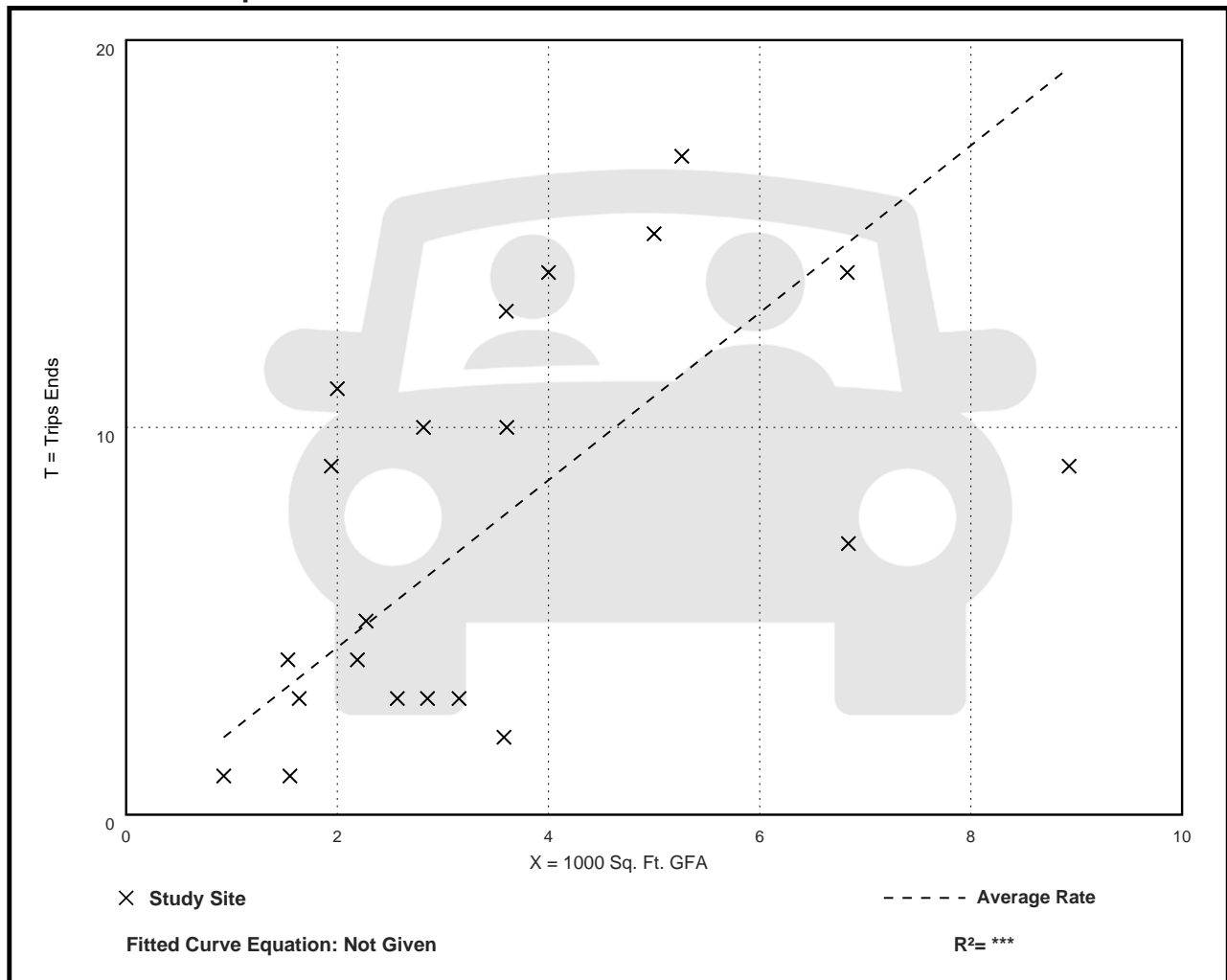
Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 34% entering, 66% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.16	0.56 - 5.50	1.26

## Data Plot and Equation



**Proposed Site Development Trip Generation and Distribution**

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

**Assumed Land Use (1):** Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934

**Average Vehicle Trip Ends vs.:** 1000 Sq. Ft. GFA

**ITE Trip Generation Data collected on a:** Weekday

**AM Peak Hour:**  = Average Rate 

51	% Entering
49	% Exiting

**PM Peak Hour:**  = Average Rate 

52	% Entering
48	% Exiting

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	4	178	91	87
<b>PM Peak</b>	4	132	69	63

<b>Total Trips Generated by Site</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	91	87
<b>PM Peak</b>	69	63

**Windsor ATMP: Adjustment for Modal Split =**

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	4	14	7	7
<b>PM Peak</b>	4	11	5	6

**ITE Trip Generation Manual: Adjustment for Pass-by Trips =**

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	4	82	42	40
<b>PM Peak</b>	4	61	32	29

**ITE Trip Generation Manual: Adjustment for Internal Capture =**

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	4	0	0	0
<b>PM Peak</b>	4	0	0	0

<b>Total Additional On-Street Trips Generated</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	42	40
<b>PM Peak</b>	32	29

**Proposed Site Development Trip Generation and Distribution**

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

**Assumed Land Use (1):** Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934

**Average Vehicle Trip Ends vs.:** 1000 Sq. Ft. GFA

**ITE Trip Generation Data collected on a:** Saturday

**Sat. Peak Hour:**

55.25
-------

 = Average Rate 

51
49

 % Entering  
% Exiting

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	4	221	113	108

<b>Total Trips Generated by Site</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	113	108

**Windsor ATMP:** Adjustment for Modal Split = 

8%
----

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	4	18	9	9

**ITE Trip Generation Manual:** Adjustment for Pass-by Trips = 

50%
-----

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	4	102	52	50

**ITE Trip Generation Manual:** Adjustment for Internal Capture = 

0%
----

<b>Assumed Land Use (1): Fast-Food Restaurant w/ Drive-Thru Window - ITE No. 934</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	4	0	0	0

<b>Total Additional On-Street Trips Generated</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	52	50

**Proposed Site Development Trip Generation and Distribution**

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

**Assumed Land Use (2):** Strip Retail Plaza (<40k) - ITE No. 822

**Average Vehicle Trip Ends vs.:** 1000 Sq. Ft. GLA

**ITE Trip Generation Data collected on a:** Weekday

**AM Peak Hour:**  = Average Rate 

60	% Entering
40	% Exiting

**PM Peak Hour:**  = Average Rate 

50	% Entering
50	% Exiting

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	12.836	30	18	12
<b>PM Peak</b>	12.836	85	42	43

<b>Total Trips Generated by Site</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	18	12
<b>PM Peak</b>	42	43

**Windsor ATMP: Adjustment for Modal Split =**

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	12.836	2	1	1
<b>PM Peak</b>	12.836	7	3	4

**ITE Trip Generation Manual: Adjustment for Pass-by Trips =**

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	12.836	9	6	3
<b>PM Peak</b>	12.836	26	13	13

**ITE Trip Generation Manual: Adjustment for Internal Capture =**

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	12.836	0	0	0
<b>PM Peak</b>	12.836	0	0	0

<b>Total Additional On-Street Trips Generated</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	11	7
<b>PM Peak</b>	26	25

**Proposed Site Development Trip Generation and Distribution**

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

**Assumed Land Use (2):** Strip Retail Plaza (<40k) - ITE No. 822

**Average Vehicle Trip Ends vs.:** 1000 Sq. Ft. GLA

**ITE Trip Generation Data collected on a:** Saturday

**Sat. Peak Hour:**  = Average Rate 

51	% Entering
49	% Exiting

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	12.836	84	43	41

<b>Total Trips Generated by Site</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	43	41

**Windsor ATMP:** Adjustment for Modal Split =

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	12.836	7	3	4

**ITE Trip Generation Manual:** Adjustment for Pass-by Trips =

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	12.836	26	13	13

**ITE Trip Generation Manual:** Adjustment for Internal Capture =

<b>Assumed Land Use (2): Strip Retail Plaza (&lt;40k) - ITE No. 822</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	12.836	0	0	0

<b>Total Additional On-Street Trips Generated</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>Sat. Peak</b>	27	24

**Proposed Site Development Trip Generation and Distribution**

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

**Assumed Land Use (4):** Small Office Building - ITE No. 712

**Average Vehicle Trip Ends vs.:** 1000 Sq. Ft. GFA

**ITE Trip Generation Data collected on a:** Weekday

**AM Peak Hour:**  = Average Rate 

82	% Entering
18	% Exiting

**PM Peak Hour:**  = Average Rate 

34	% Entering
66	% Exiting

<b>Assumed Land Use (4): Small Office Building - ITE No. 712</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	1.7	3	2	1
<b>PM Peak</b>	1.7	4	1	3

<b>Total Trips Generated by Site</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	2	1
<b>PM Peak</b>	1	3

**Windsor ATMP: Adjustment for Modal Split =**

<b>Assumed Land Use (4): Small Office Building - ITE No. 712</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	1.7	0	0	0
<b>PM Peak</b>	1.7	0	0	0

**ITE Trip Generation Manual: Adjustment for Pass-by Trips =**

<b>Assumed Land Use (4): Small Office Building - ITE No. 712</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	1.7	0	0	0
<b>PM Peak</b>	1.7	0	0	0

**ITE Trip Generation Manual: Adjustment for Internal Capture =**

<b>Assumed Land Use (4): Small Office Building - ITE No. 712</b>				
	<b>1000 Sq. Ft. GFA</b>	<b>Trips Generated</b>	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	1.7	0	0	0
<b>PM Peak</b>	1.7	0	0	0

<b>Total Additional On-Street Trips Generated</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	2	1
<b>PM Peak</b>	1	3

## Proposed Site Development Trip Generation and Distribution

**Project:** 1878 Huron Church Road Commercial / Retail Development

**Site:** Windsor, ON

<b>Total Trip Generation</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	111	101
<b>PM Peak</b>	112	108
<b>Sat Peak</b>	156	149

<b>Total Additional On-Street Trips</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	46	48
<b>PM Peak</b>	59	57
<b>Sat Peak</b>	79	74

<b>Total Pass-By Trips</b>		
	<b>Trips Entering</b>	<b>Trips Exiting</b>
<b>AM Peak</b>	48	44
<b>PM Peak</b>	45	42
<b>Sat Peak</b>	65	63

## **Appendix C**

# **TRAFFIC PROJECTION FIGURES**

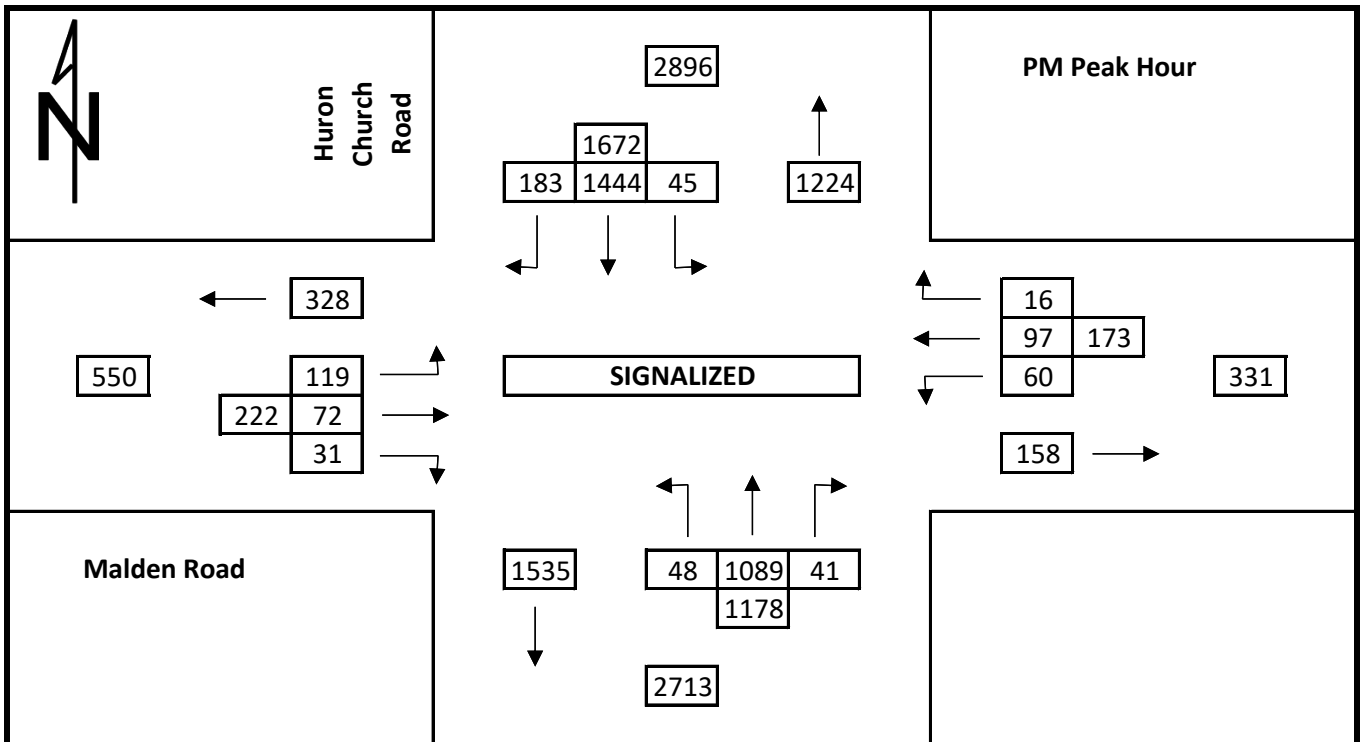
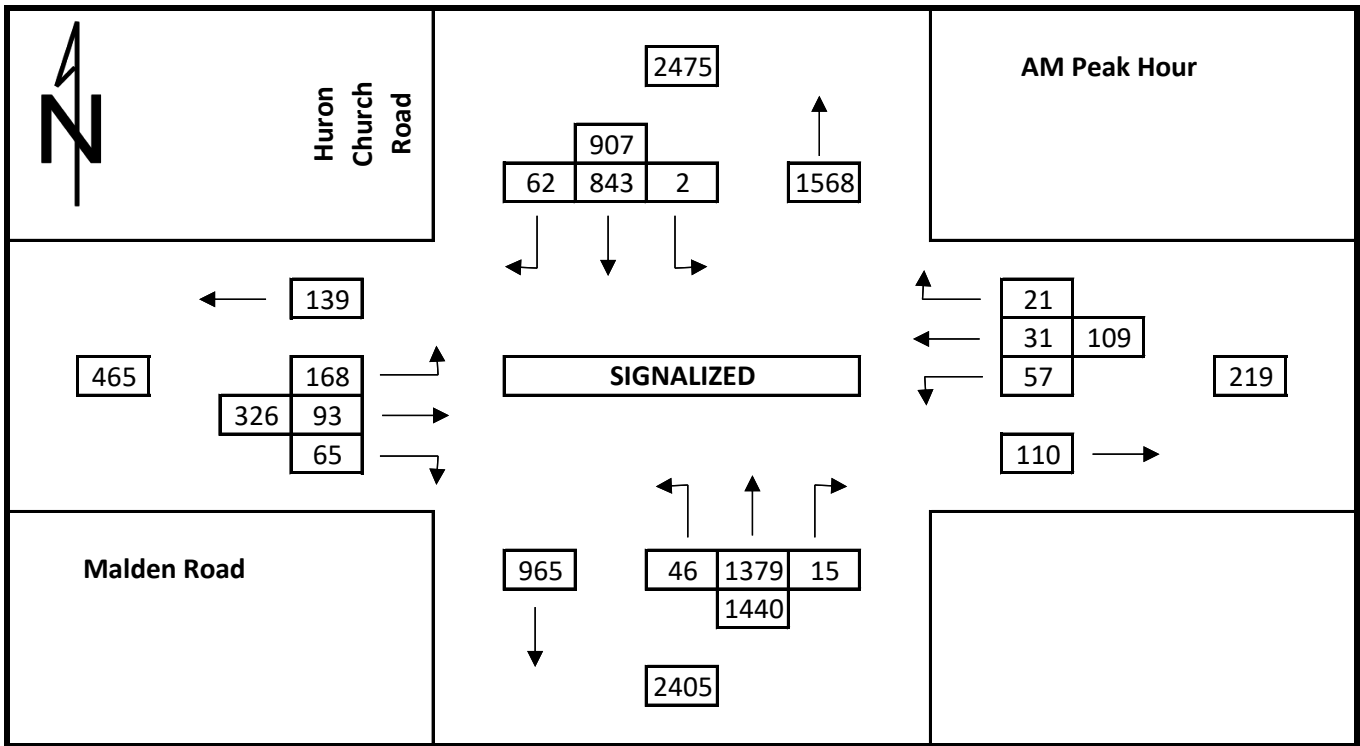
**Malden Road at Huron Church Road**

**RI/RO Access at Huron Church Road**

**Industrial Drive / Northwood Street at Huron Church  
Road**

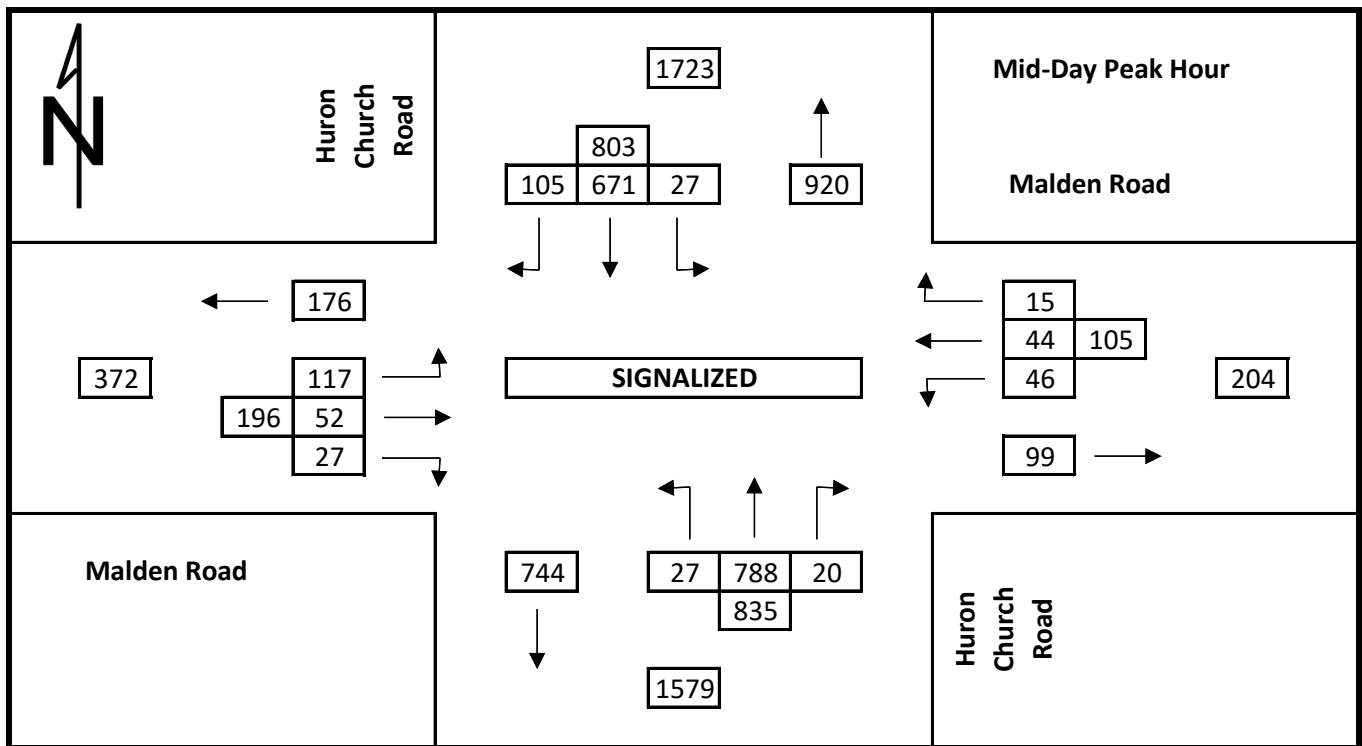
## Existing Traffic Counts

### Malden Road at Huron Church Road

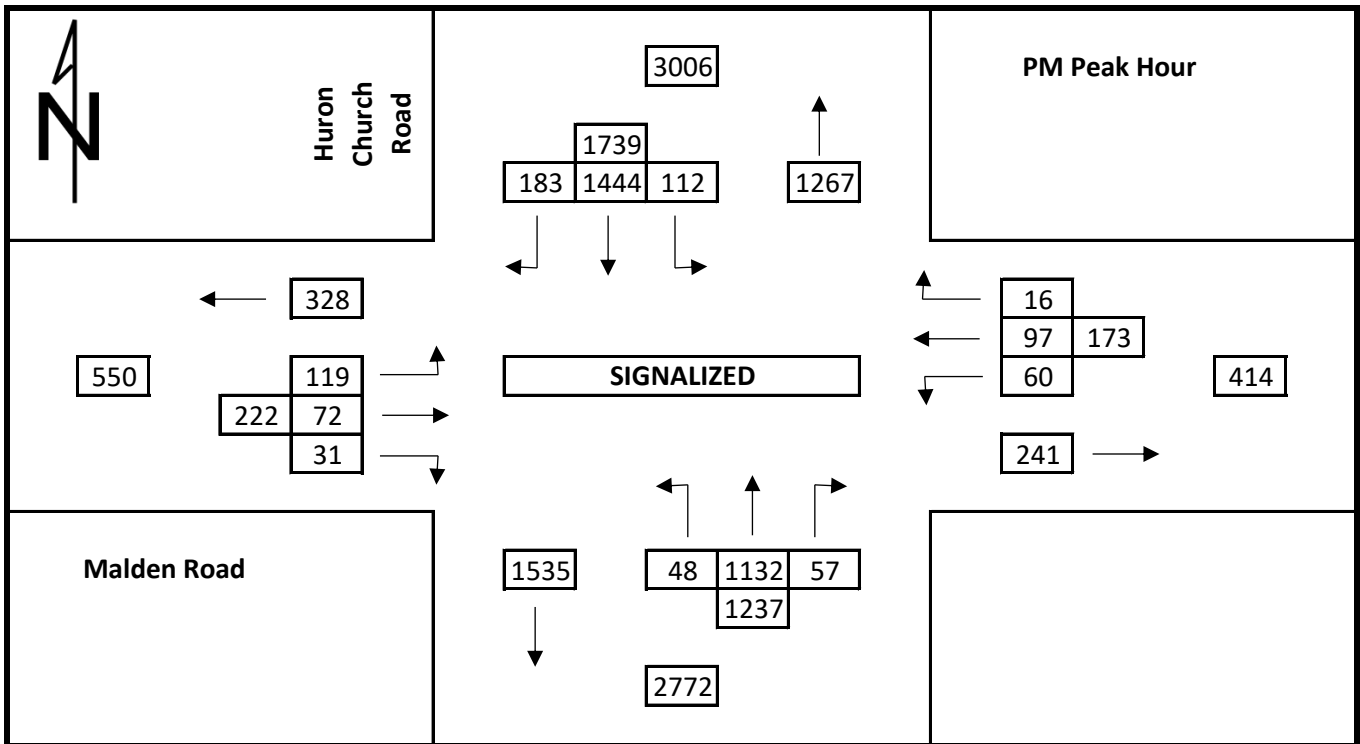
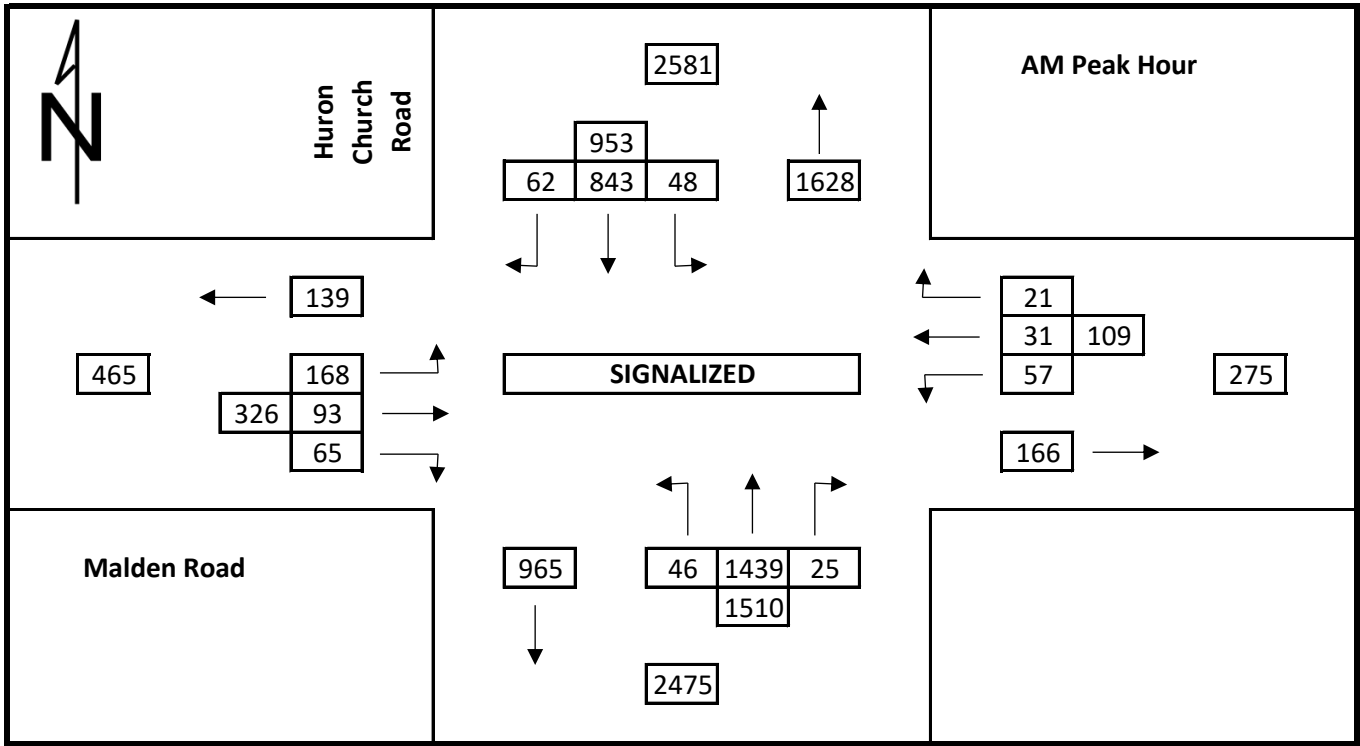


## Existing Traffic Counts

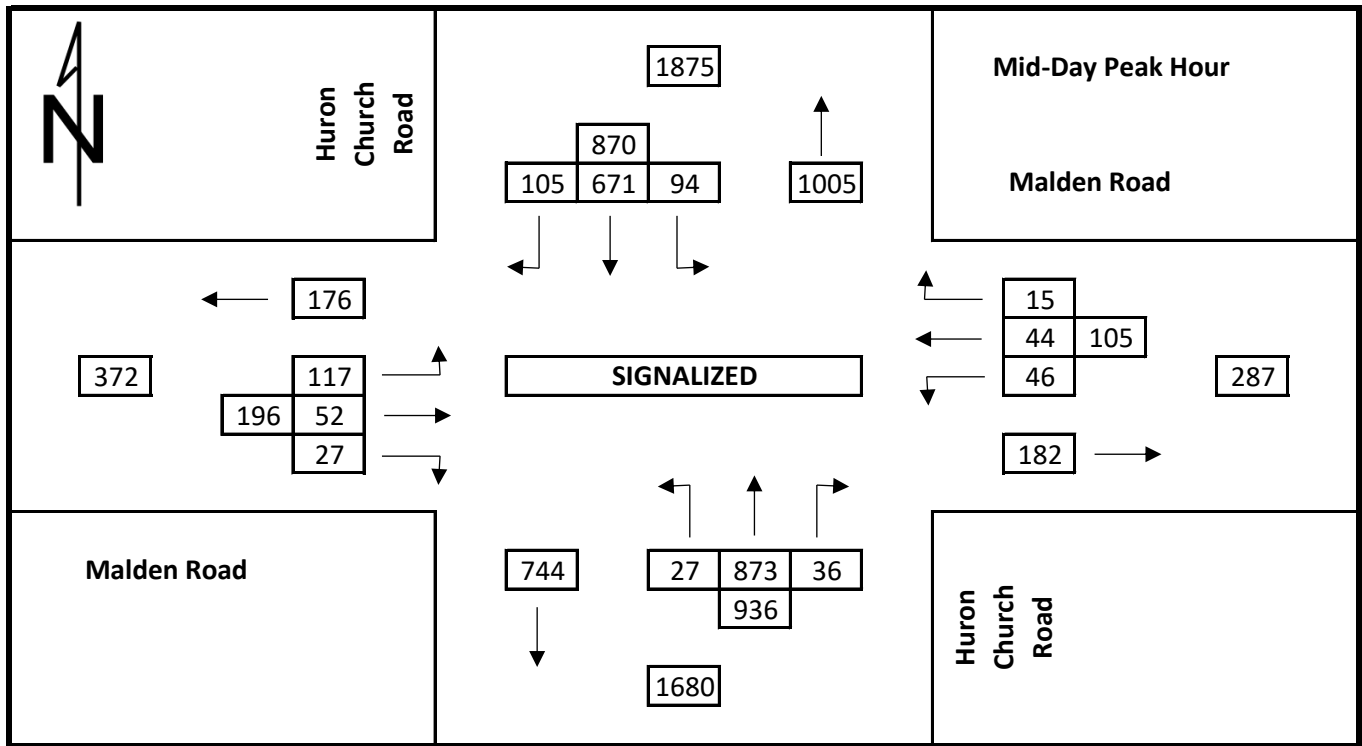
### Malden Road at Huron Church Road



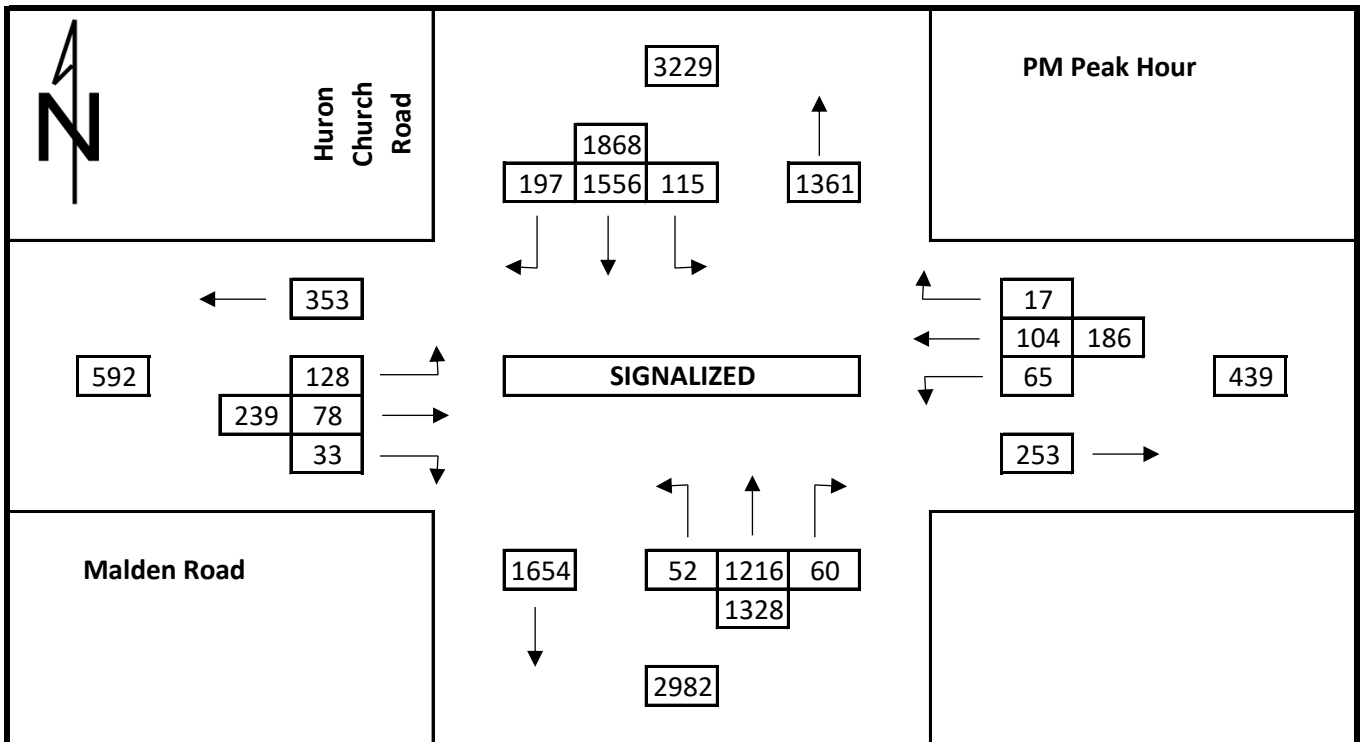
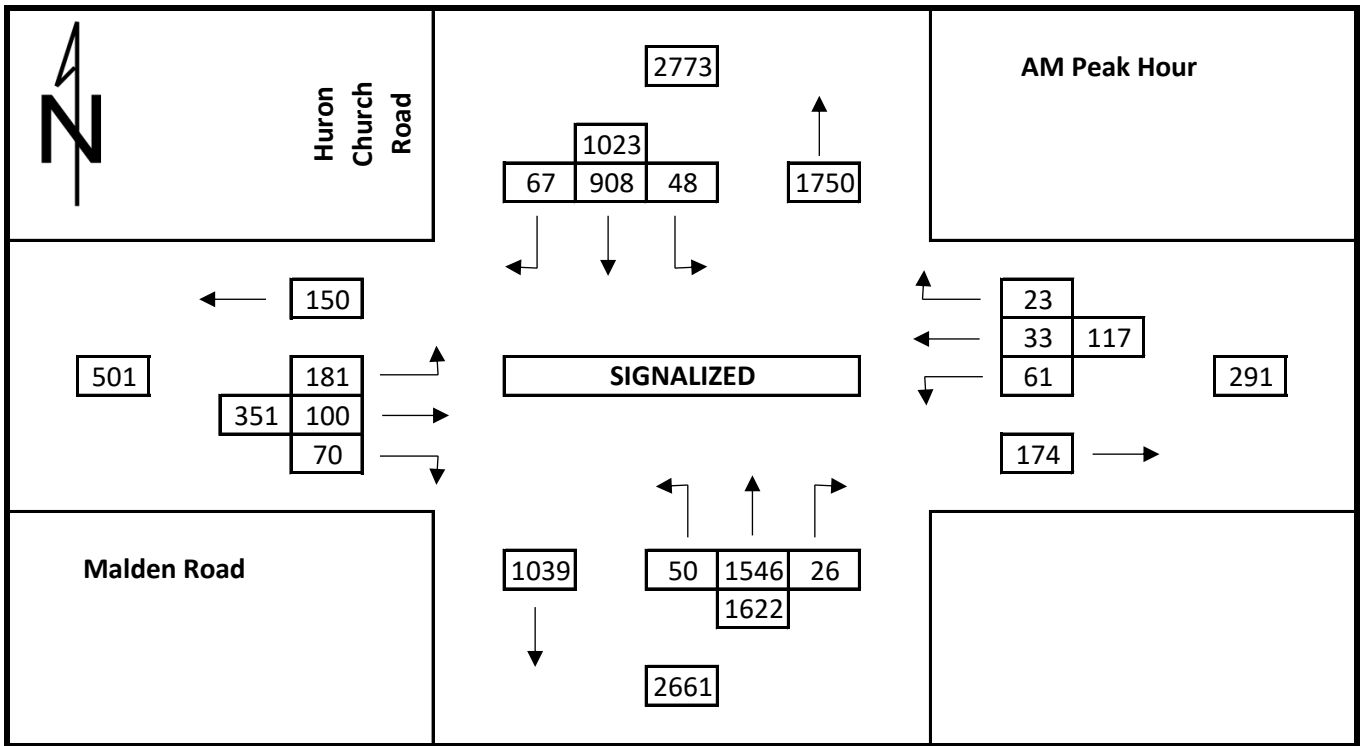
**Existing + Site Generated Traffic**  
Malden Road at Huron Church Road



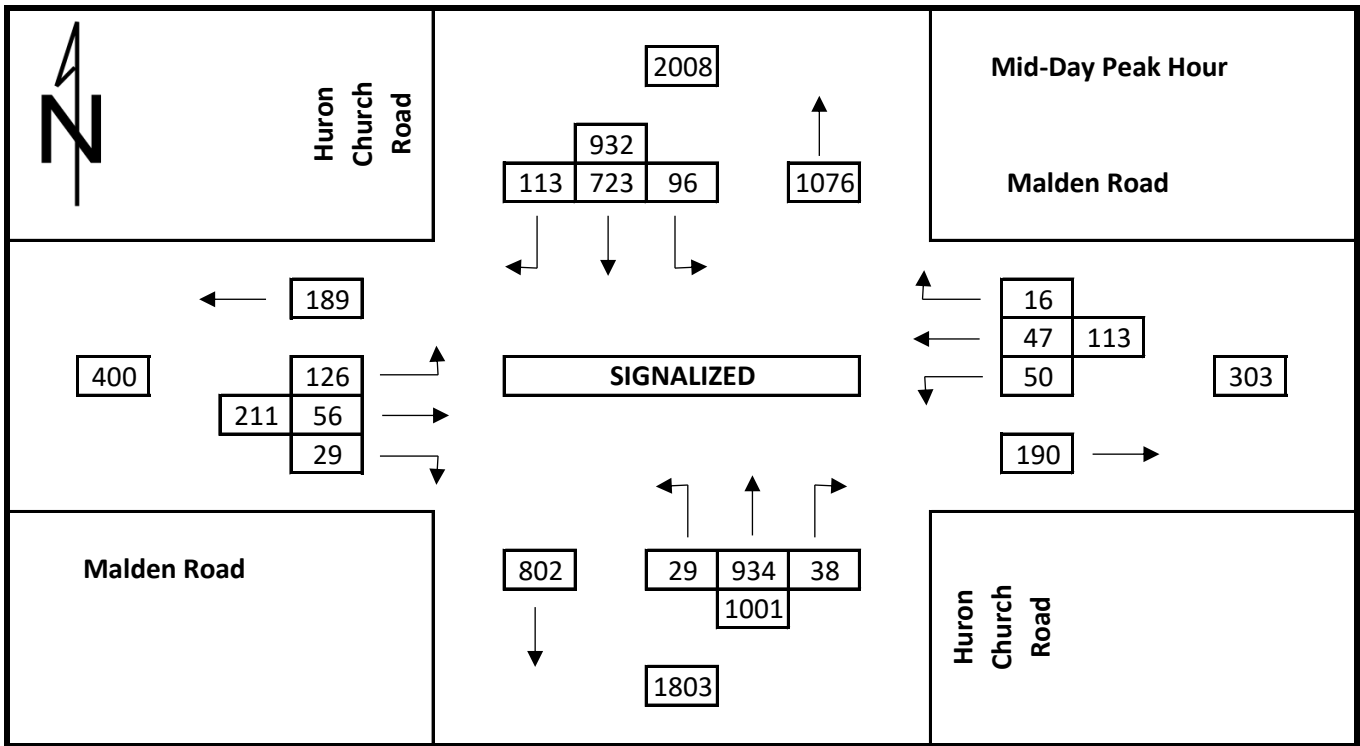
**Existing + Site Generated Traffic**  
Malden Road at Huron Church Road



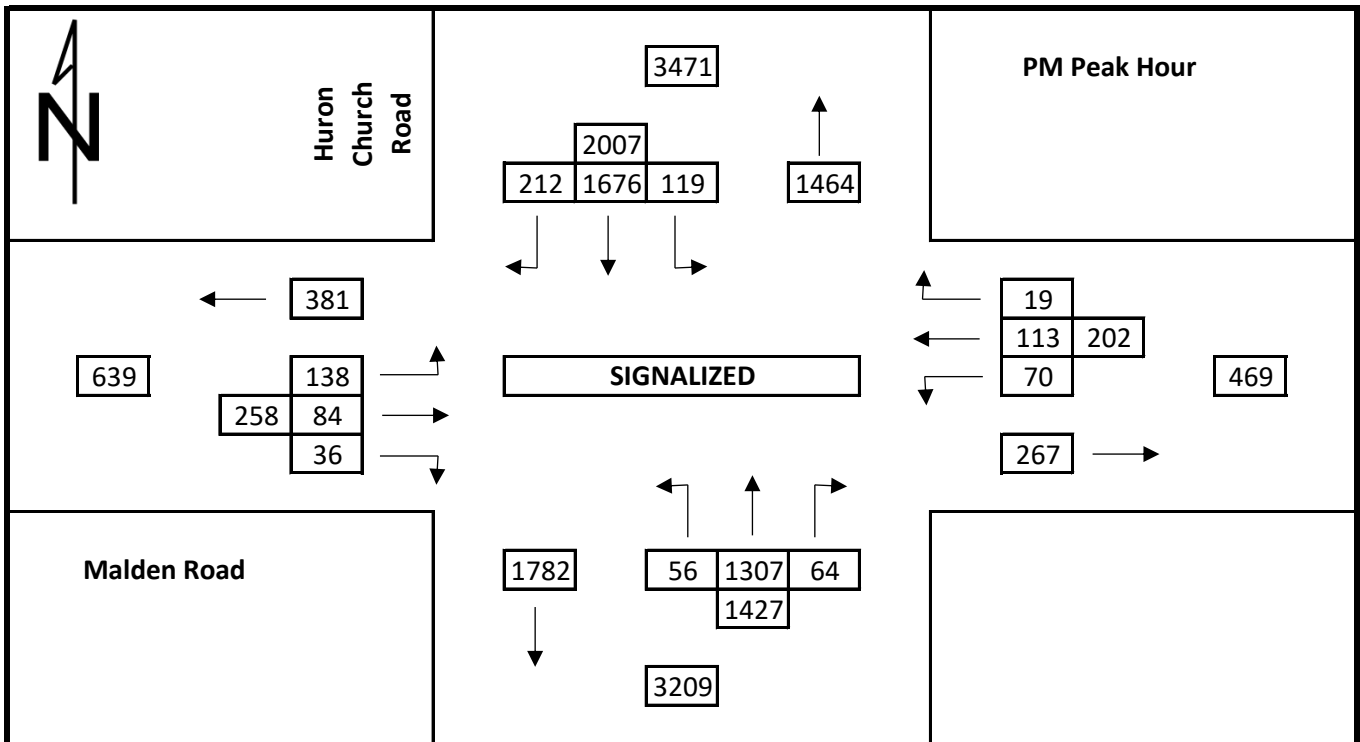
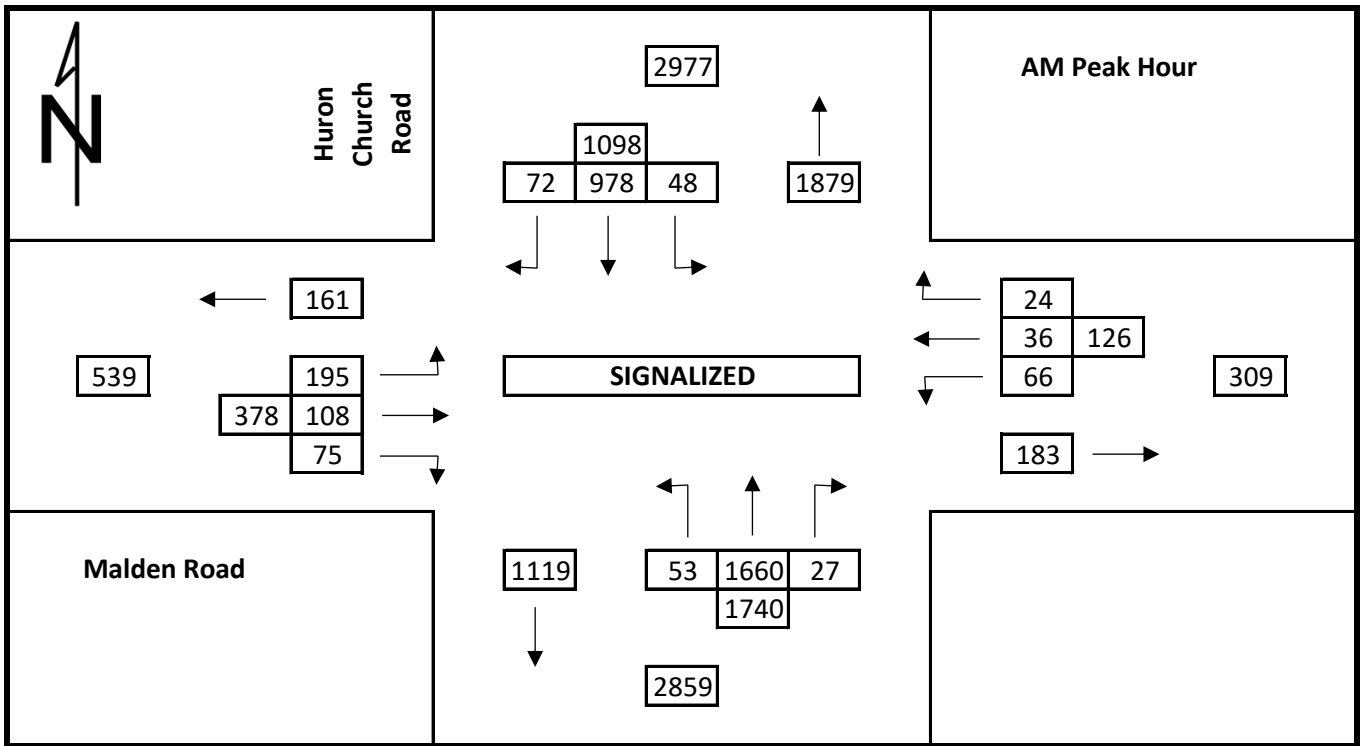
**Total Traffic 2028**  
Malden Road at Huron Church Road



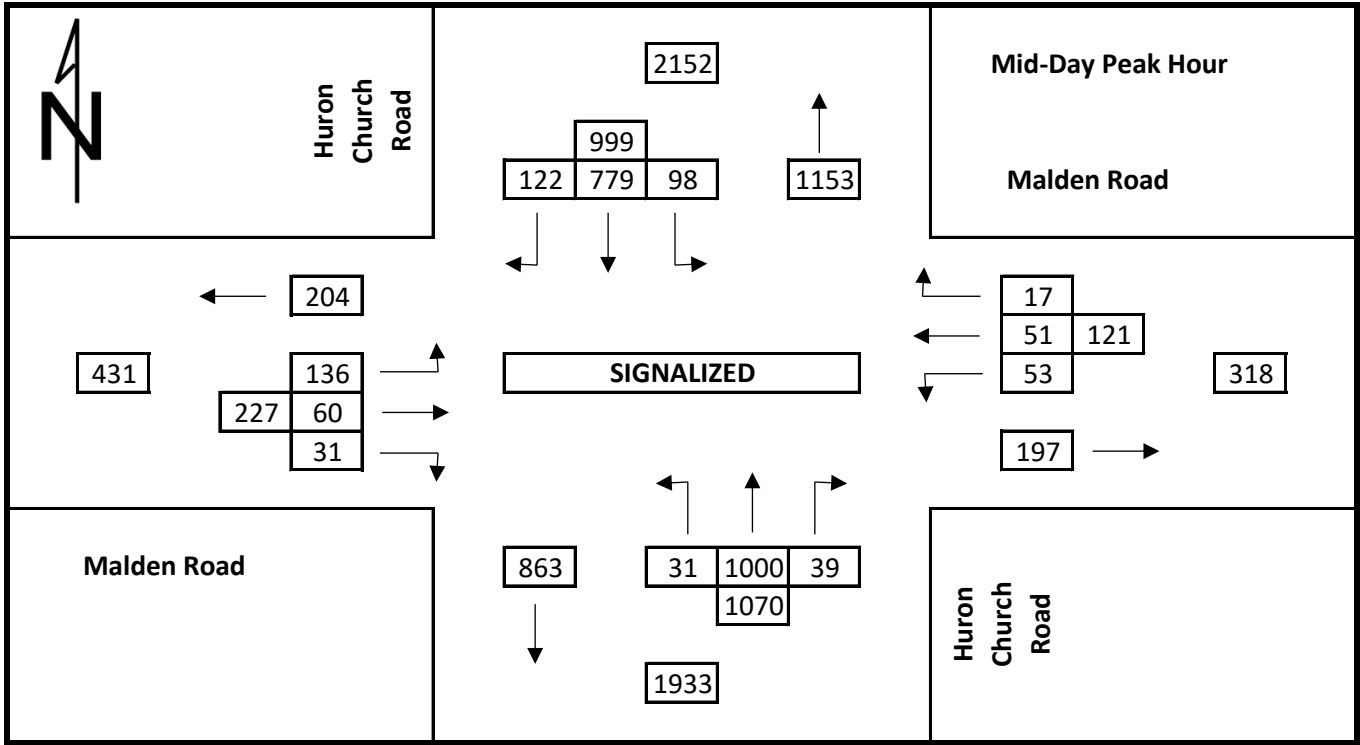
**Total Traffic 2028**  
Malden Road at Huron Church Road



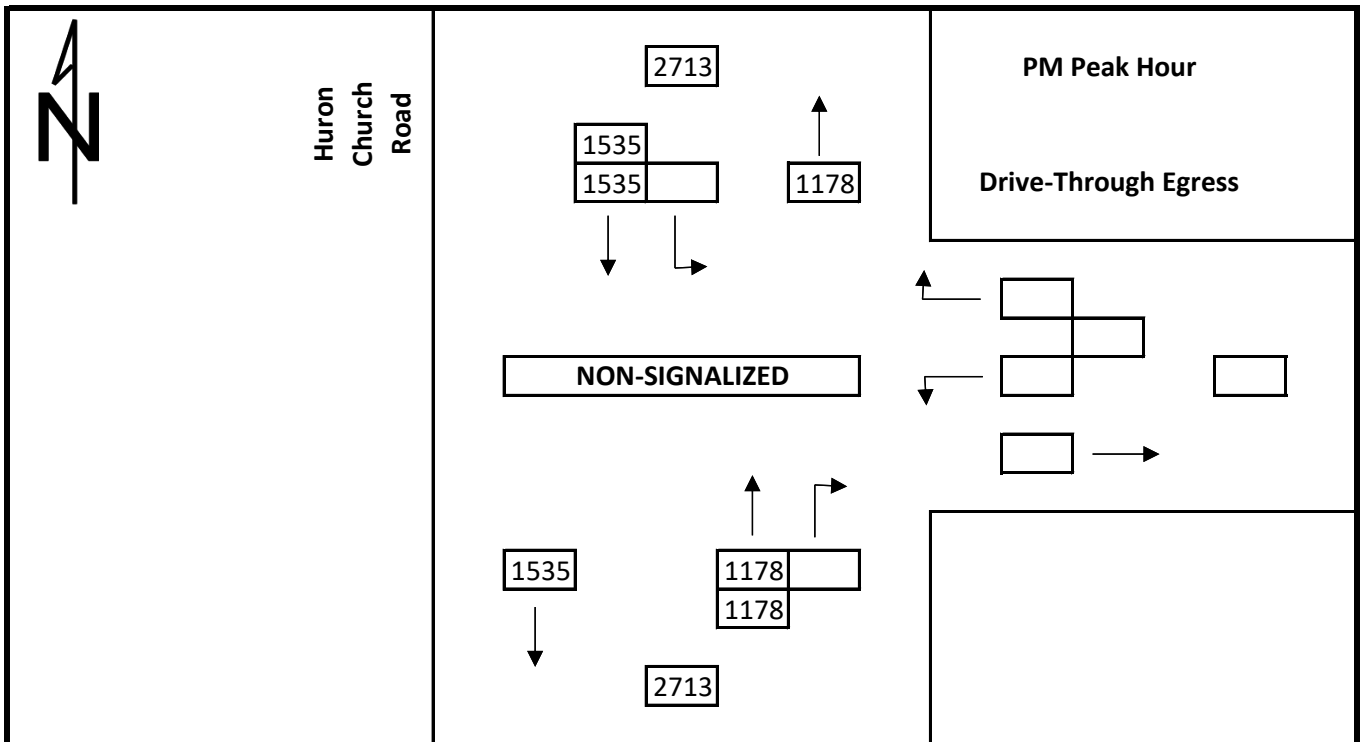
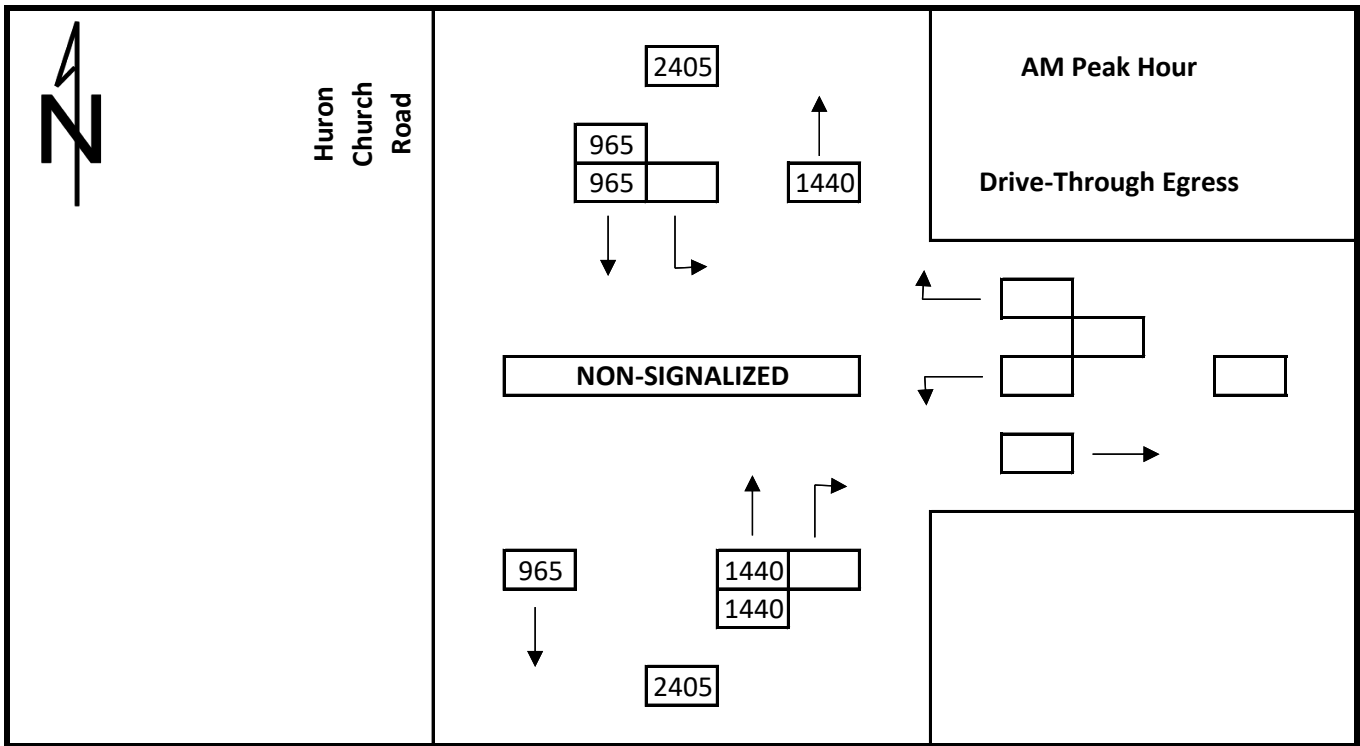
**Total Traffic 2033**  
Malden Road at Huron Church Road



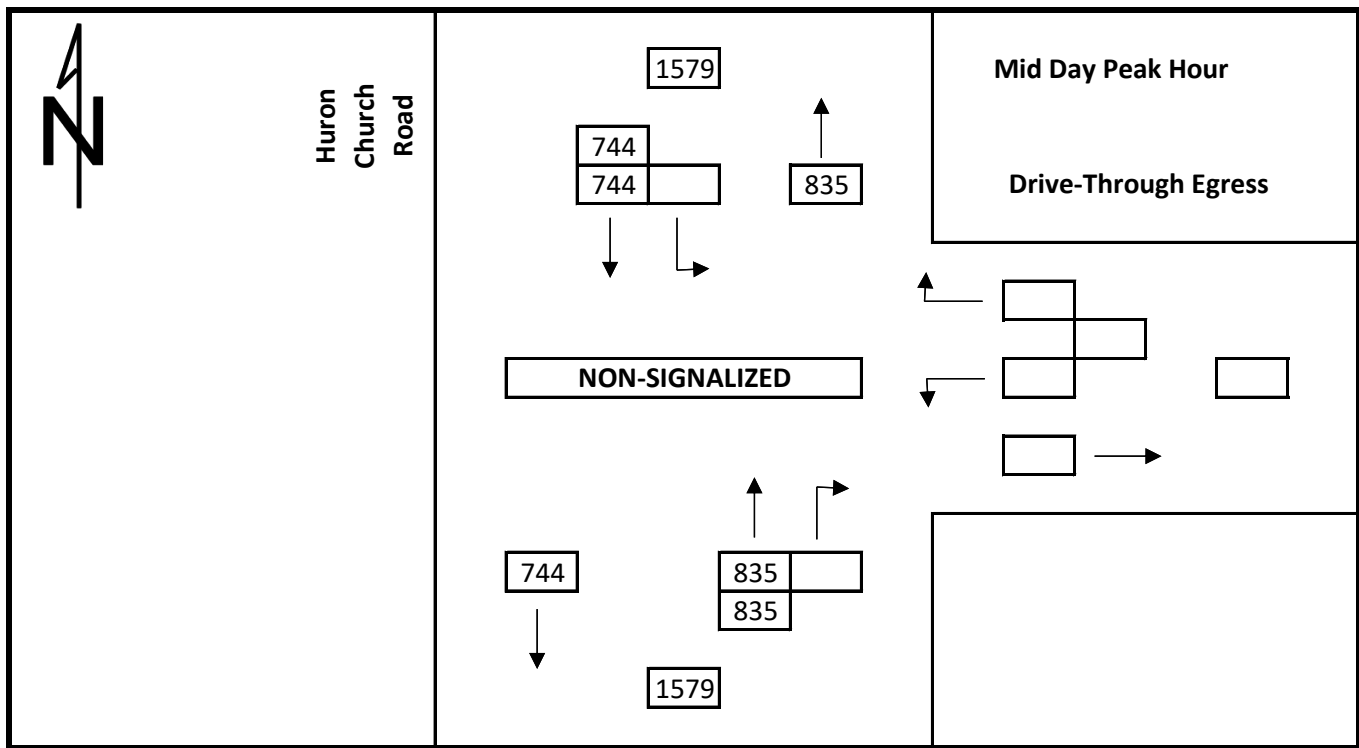
**Total Traffic 2033**  
Malden Road at Huron Church Road



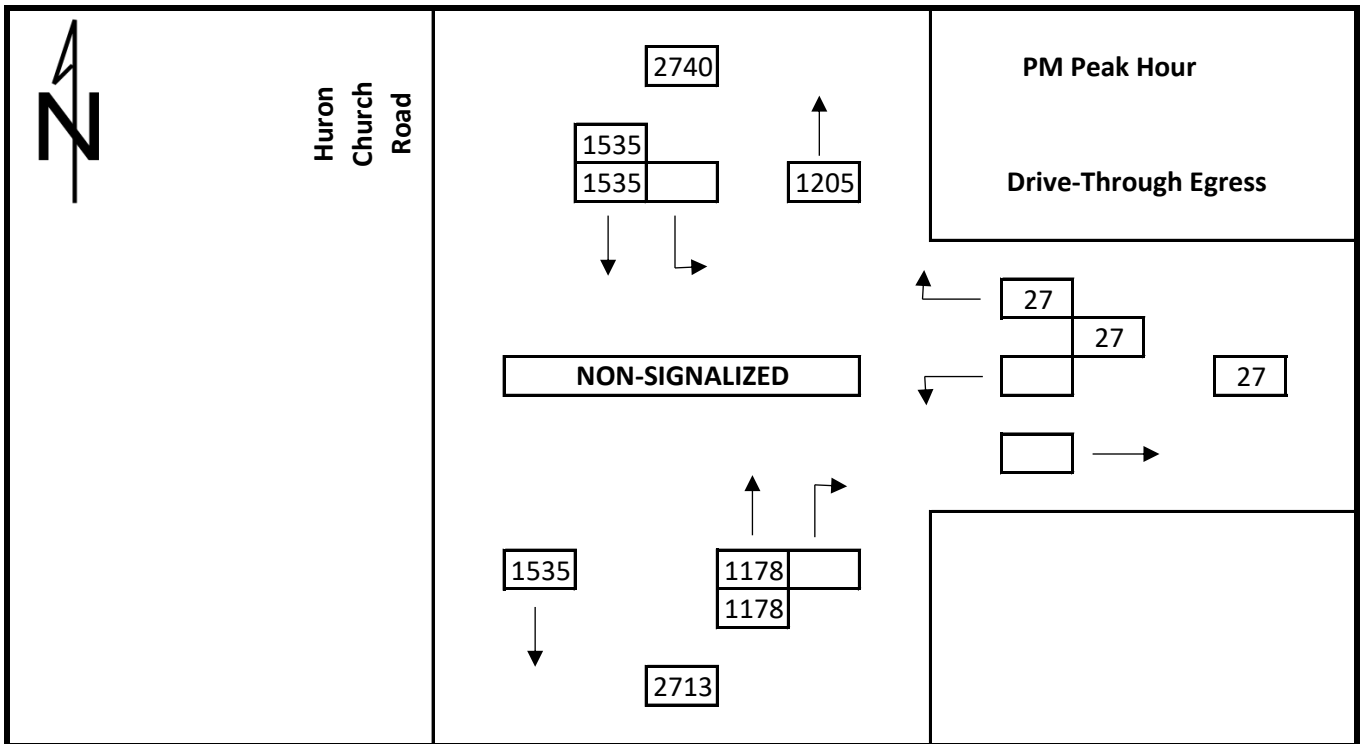
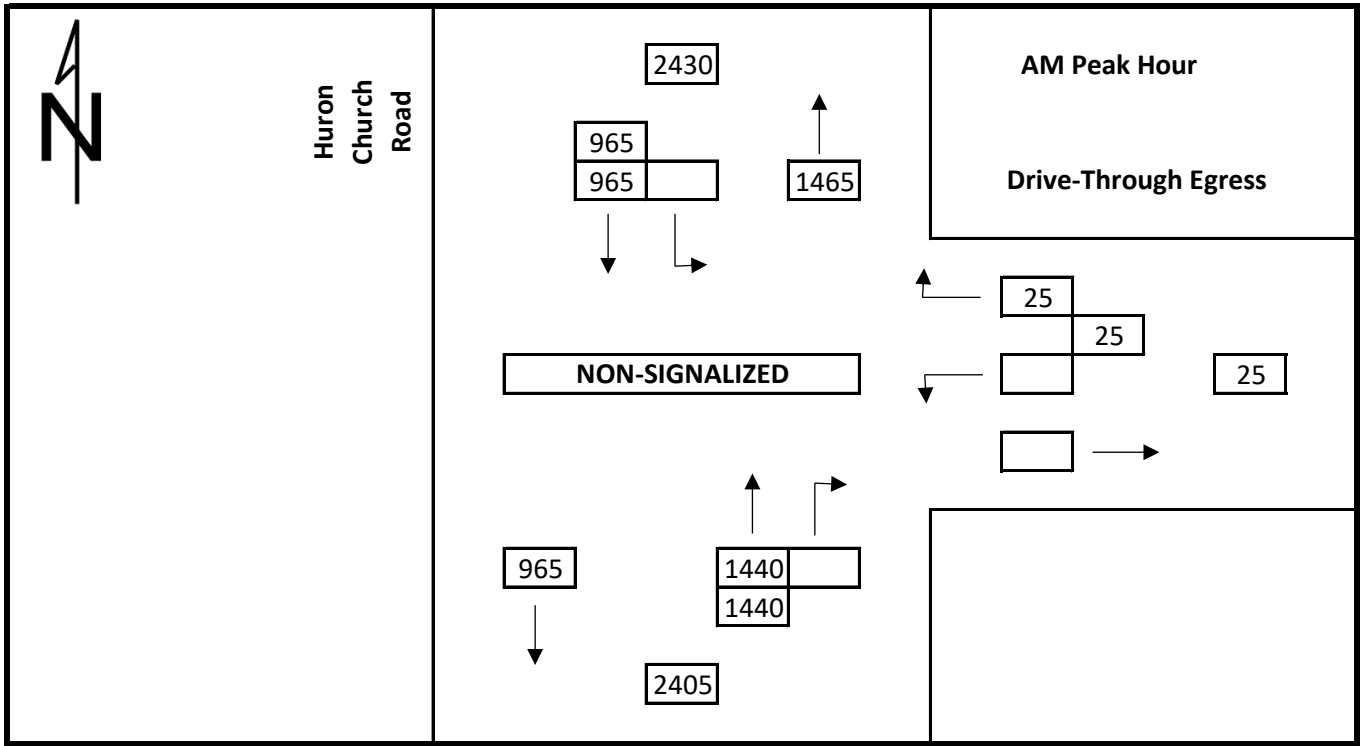
**Existing Traffic Counts**  
 Drive-Through Egress at Huron Church Road



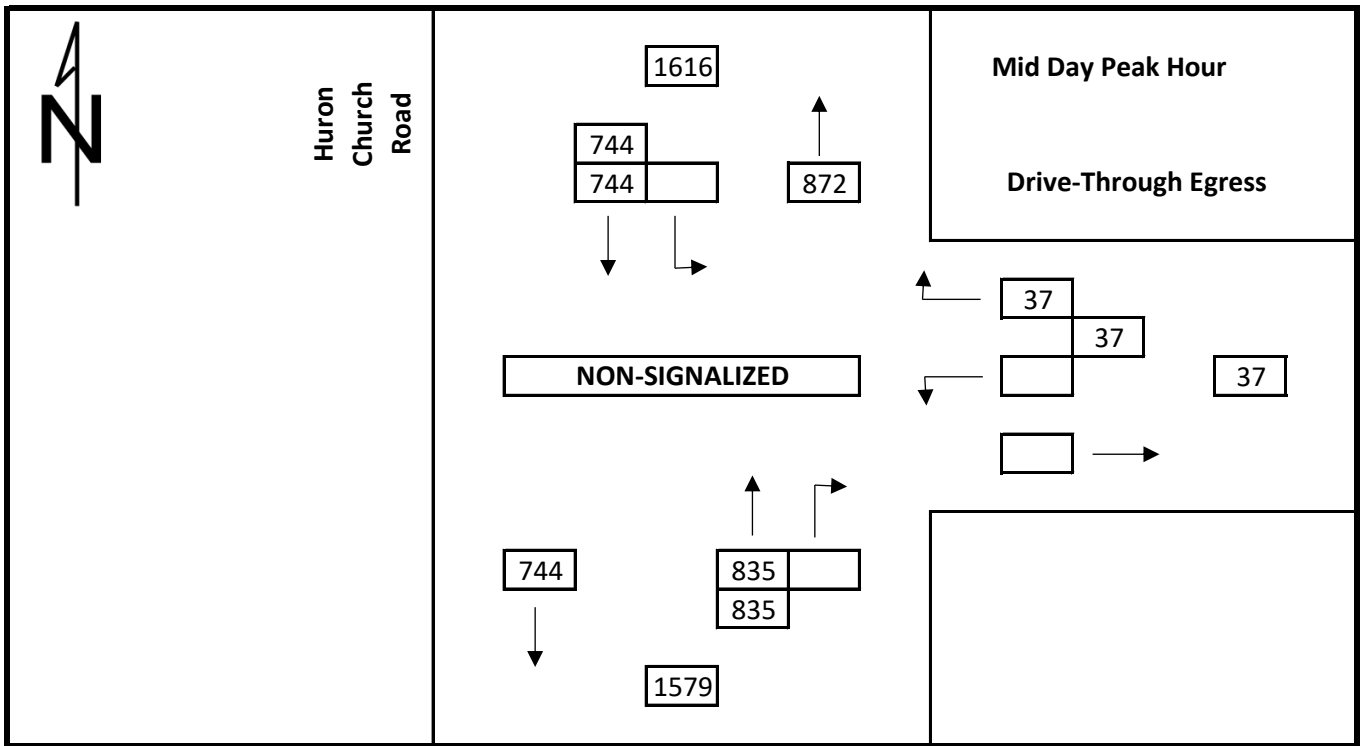
**Existing Traffic Counts**  
 Drive-Through Egress at Huron Church Road



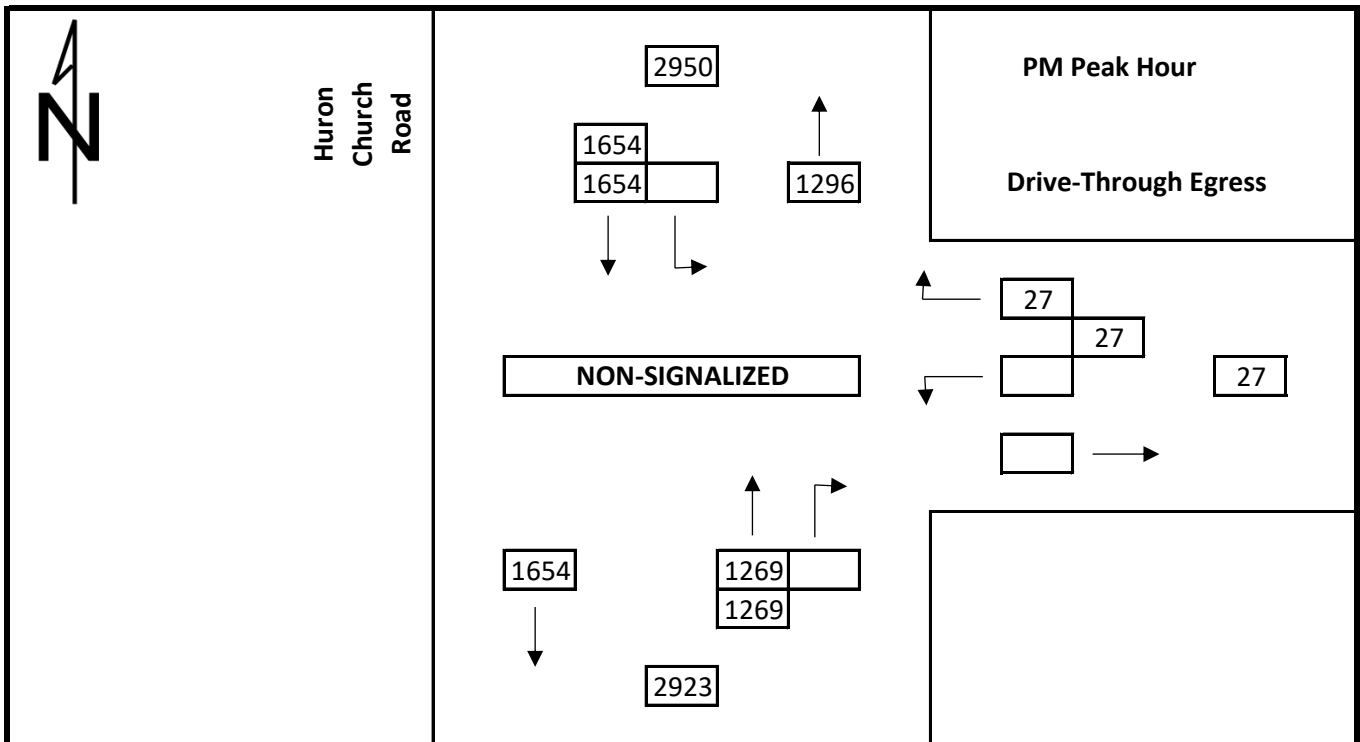
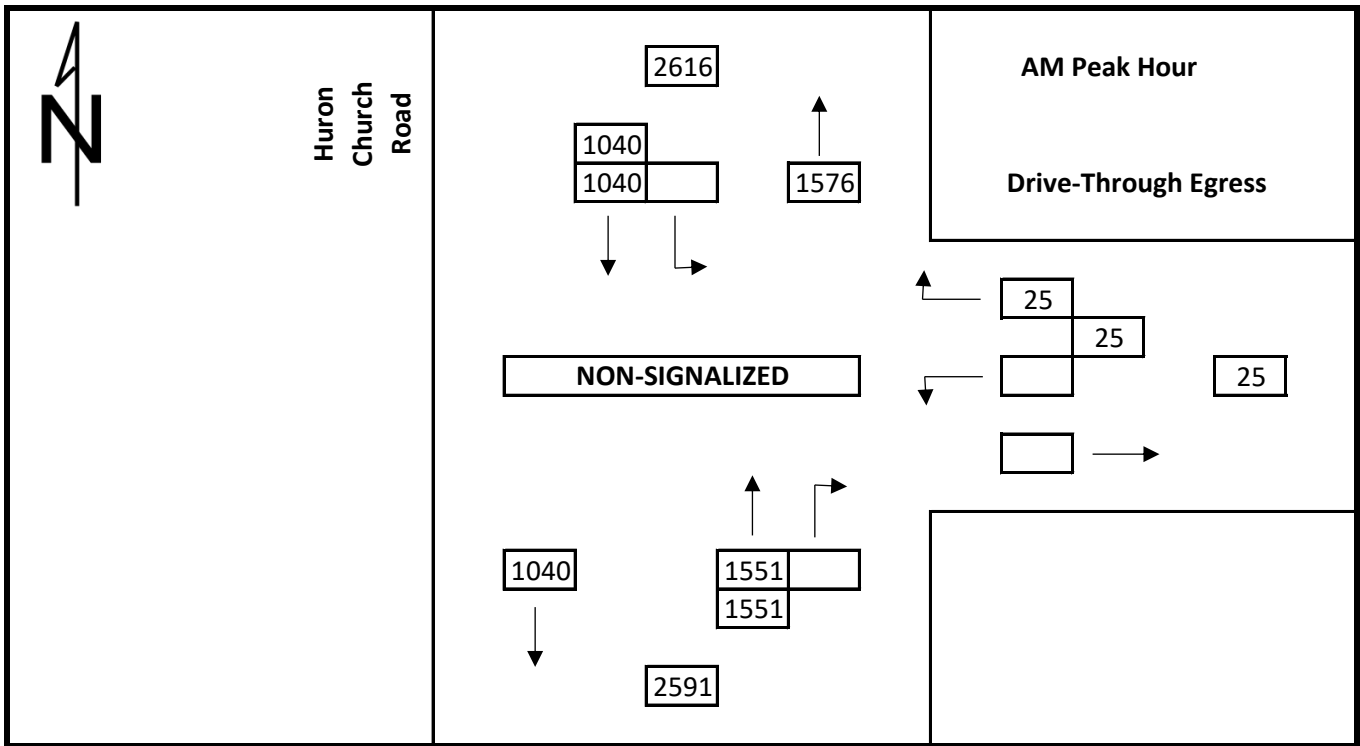
**Existing + Site Generated Traffic**  
 Drive-Through Egress at Huron Church Road



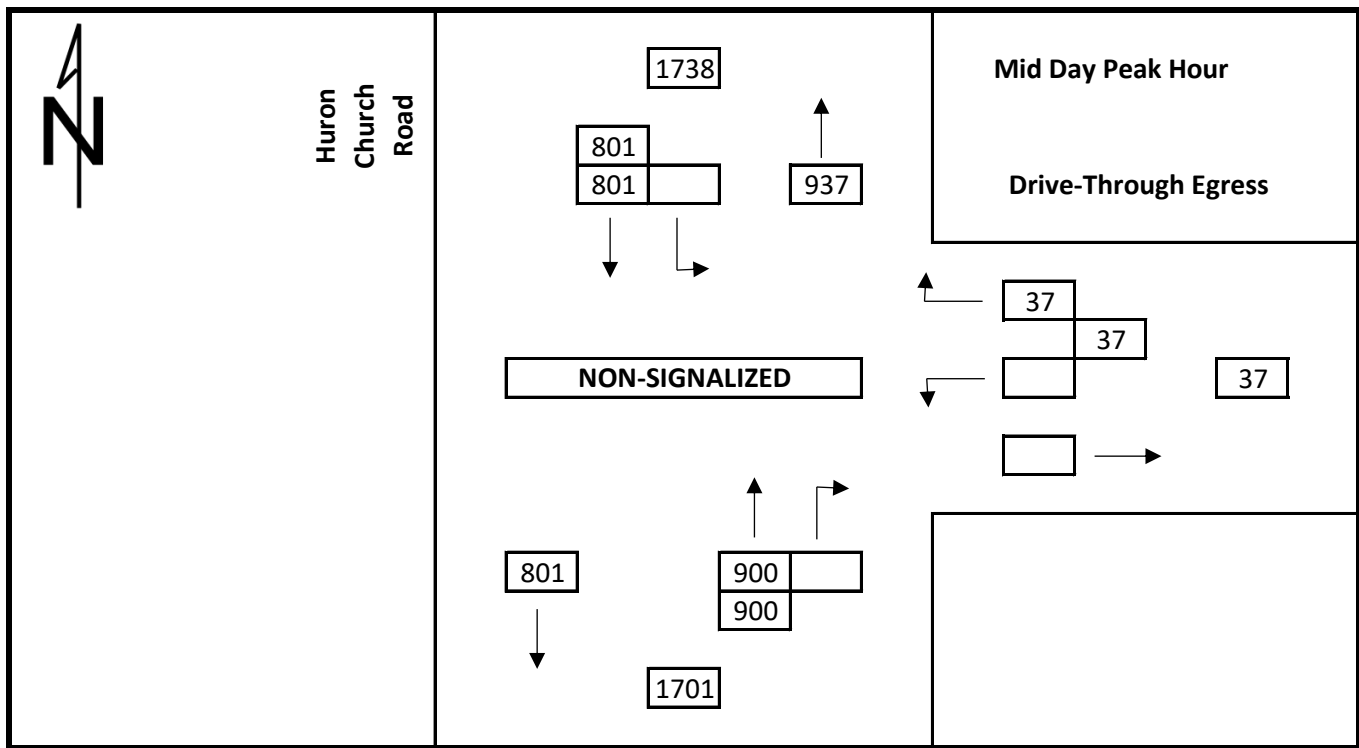
**Existing + Site Generated Traffic**  
Drive-Through Egress at Huron Church Road



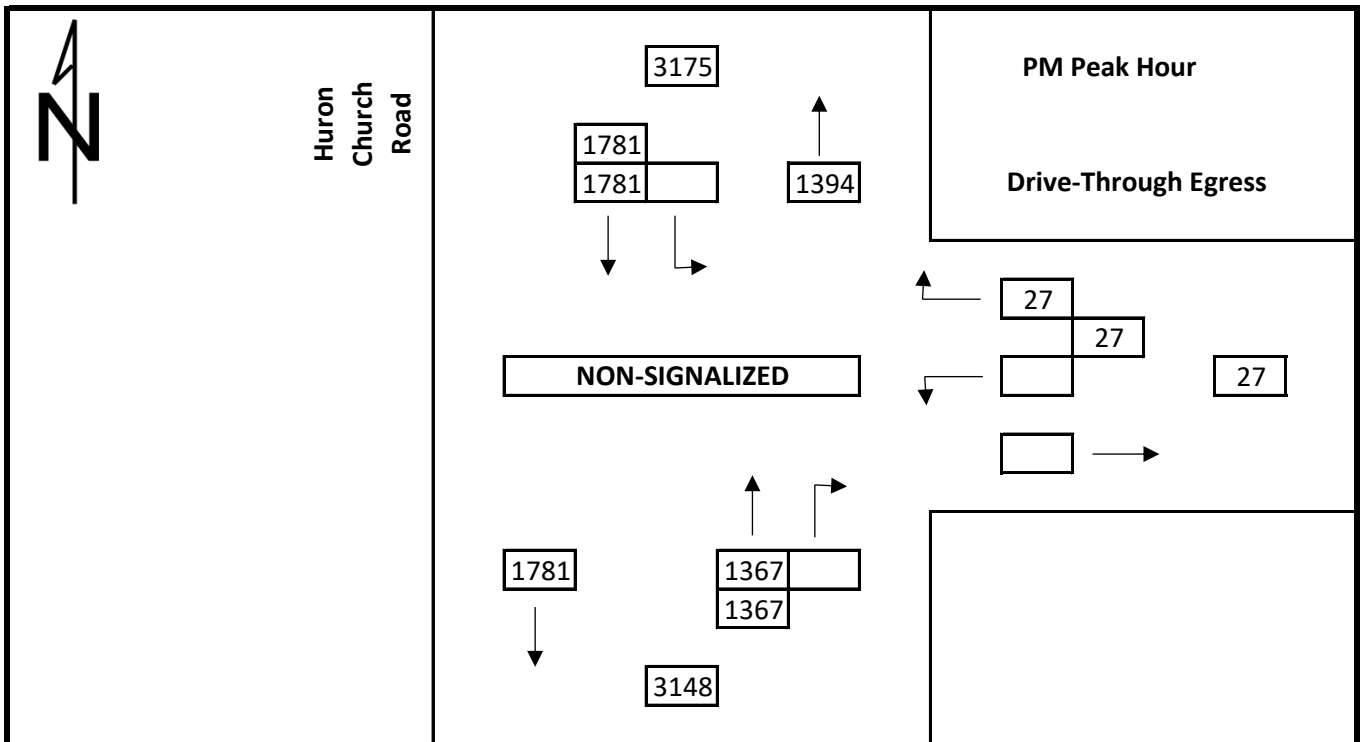
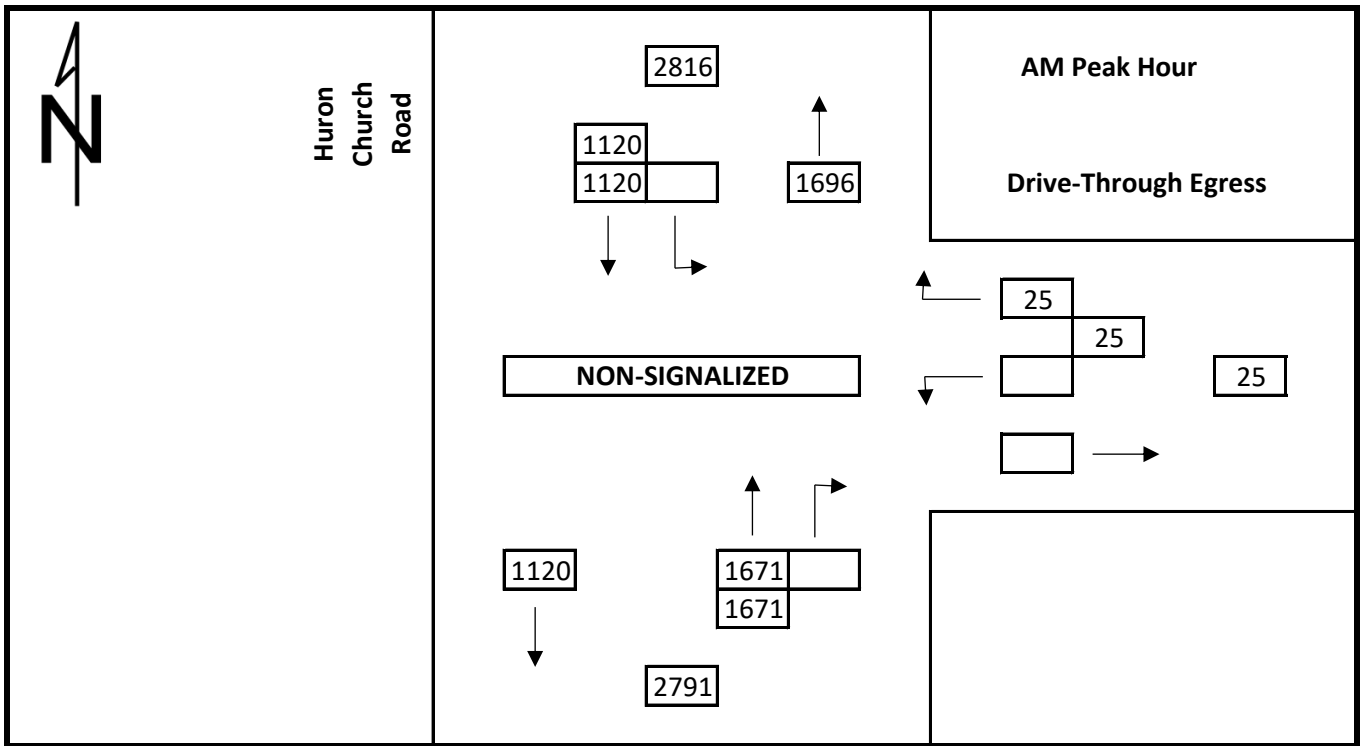
**Total Traffic 2028**  
 Drive-Through Egress at Huron Church Road



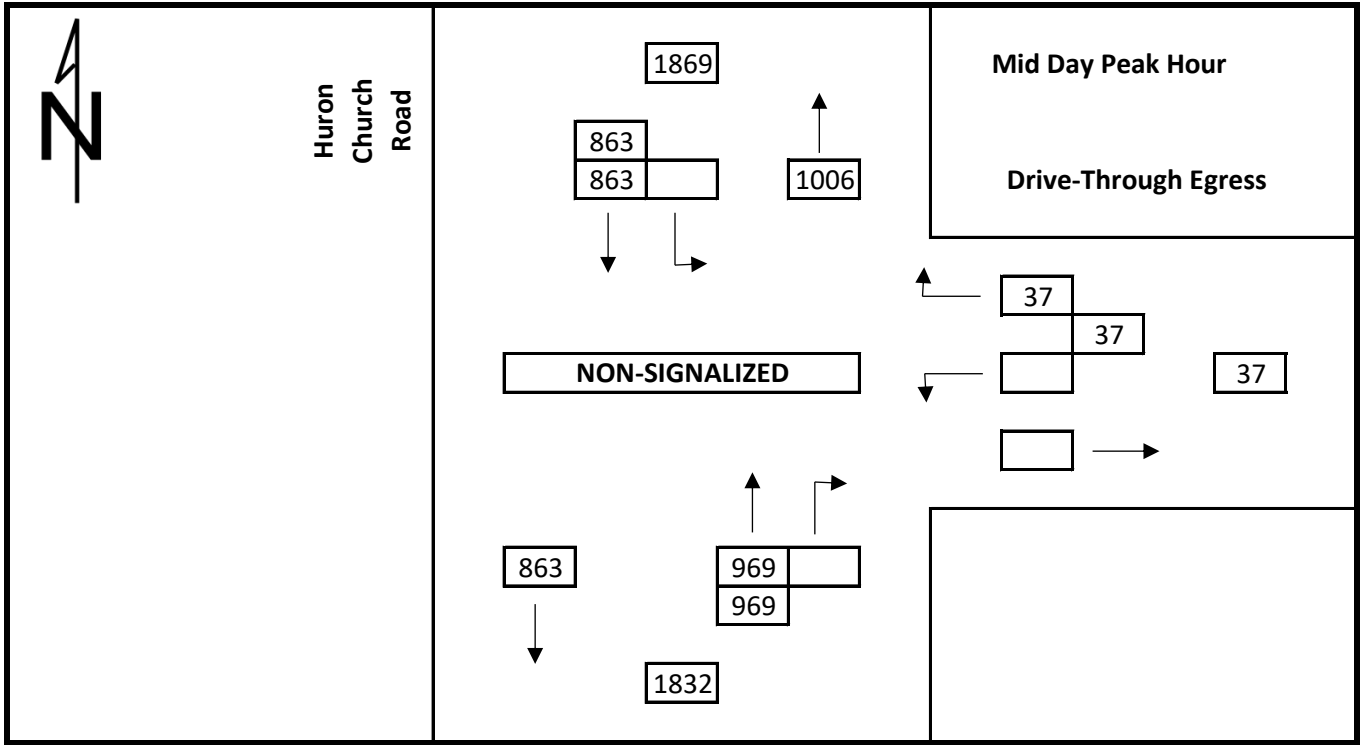
**Total Traffic 2028**  
 Drive-Through Egress at Huron Church Road



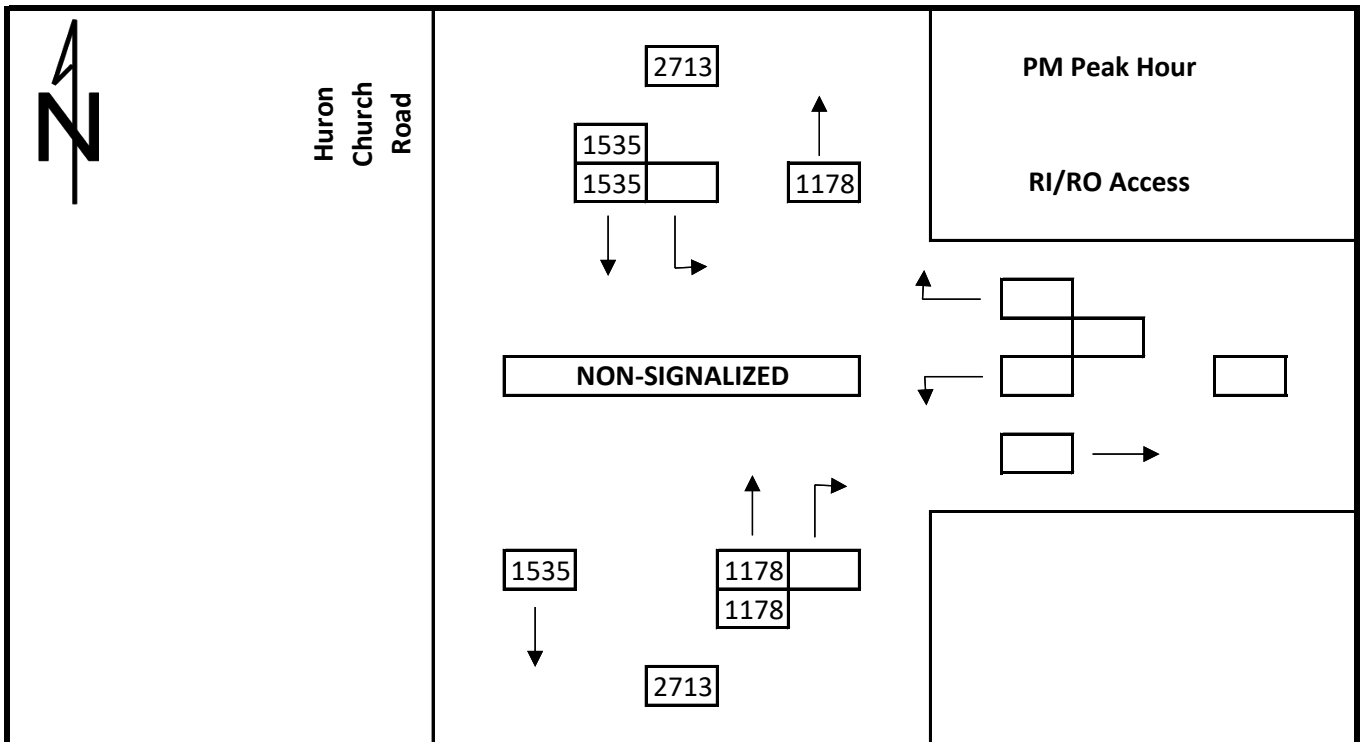
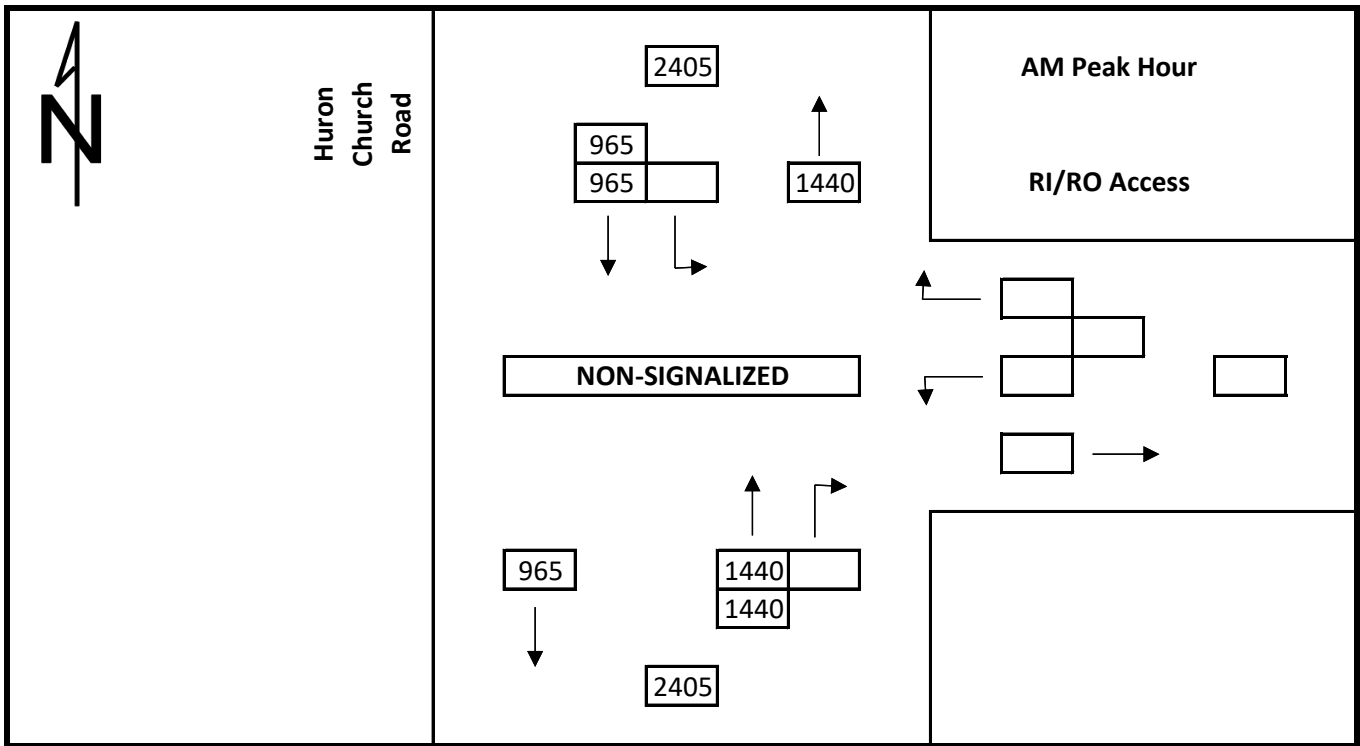
**Total Traffic 2033**  
 Drive-Through Egress at Huron Church Road



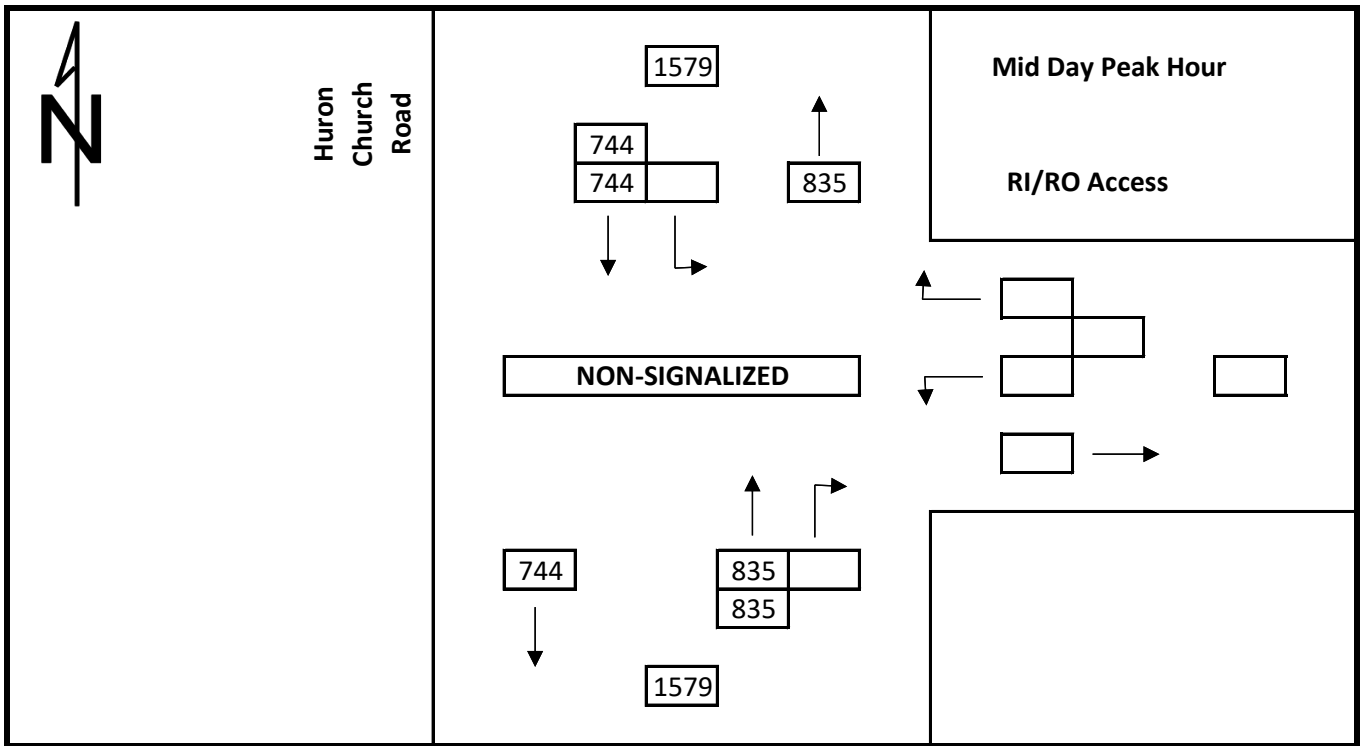
**Total Traffic 2033**  
 Drive-Through Egress at Huron Church Road



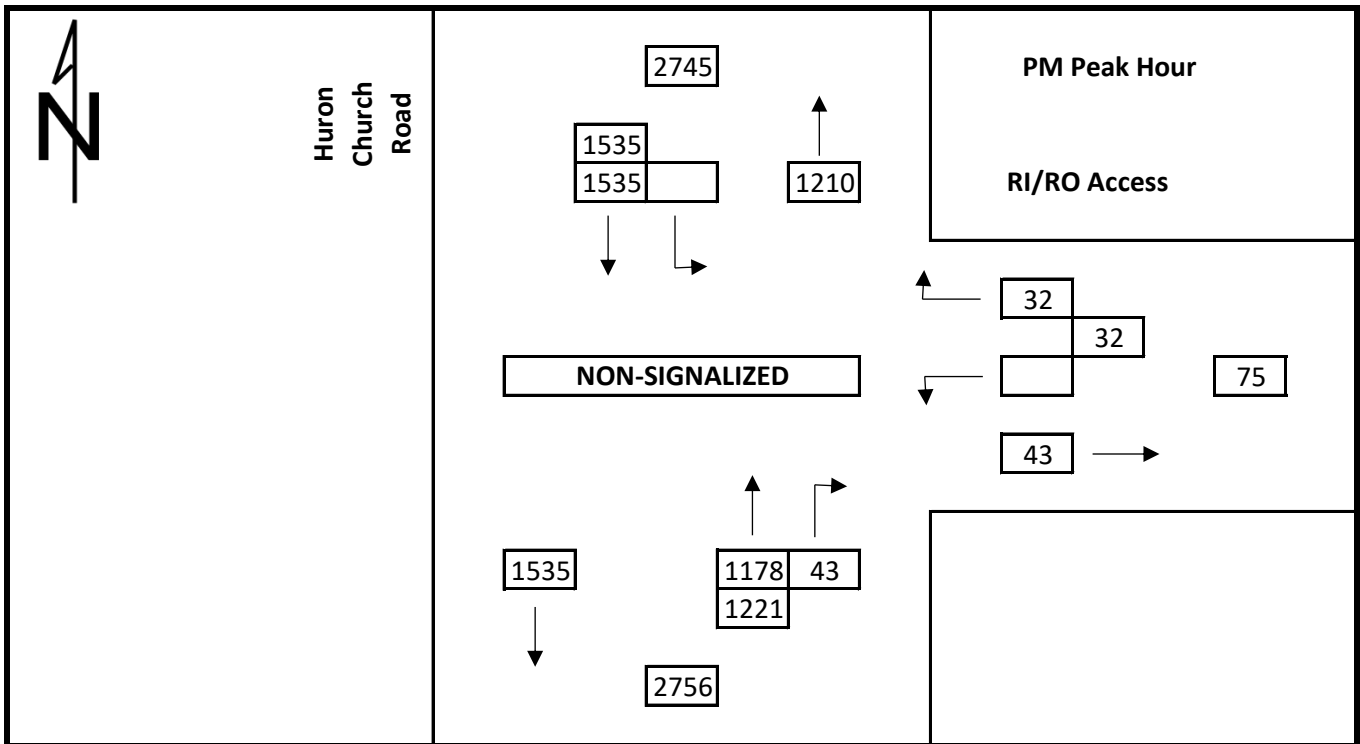
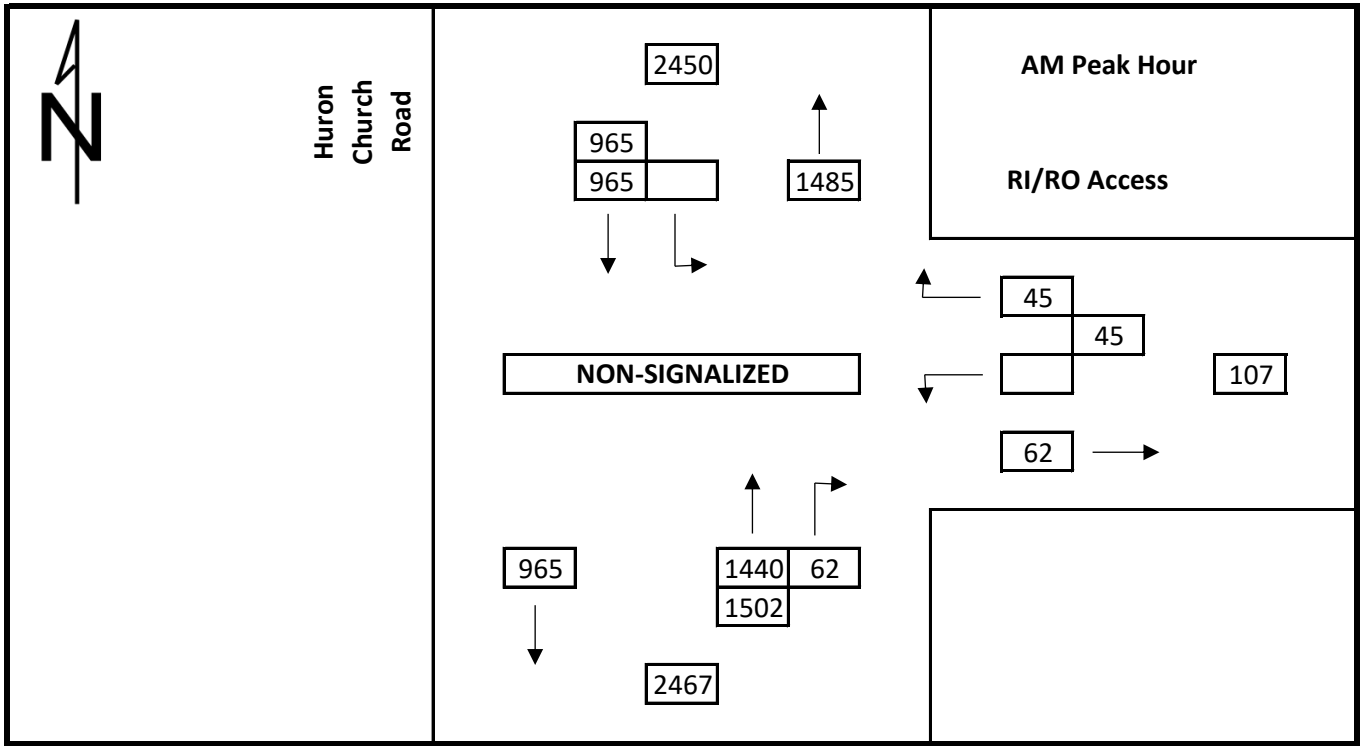
**Existing Traffic Counts**  
 RI/RO Access at Huron Church Road



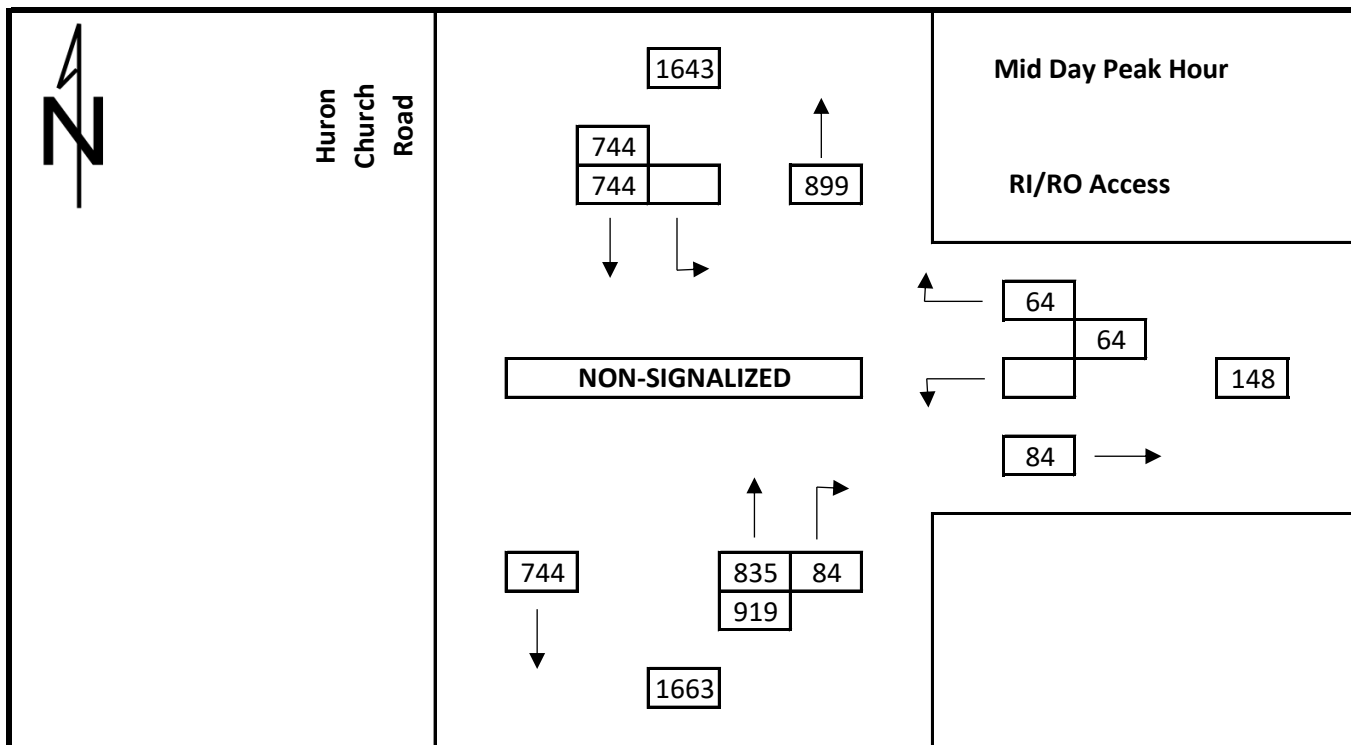
**Existing Traffic Counts**  
RI/RO Access at Huron Church Road



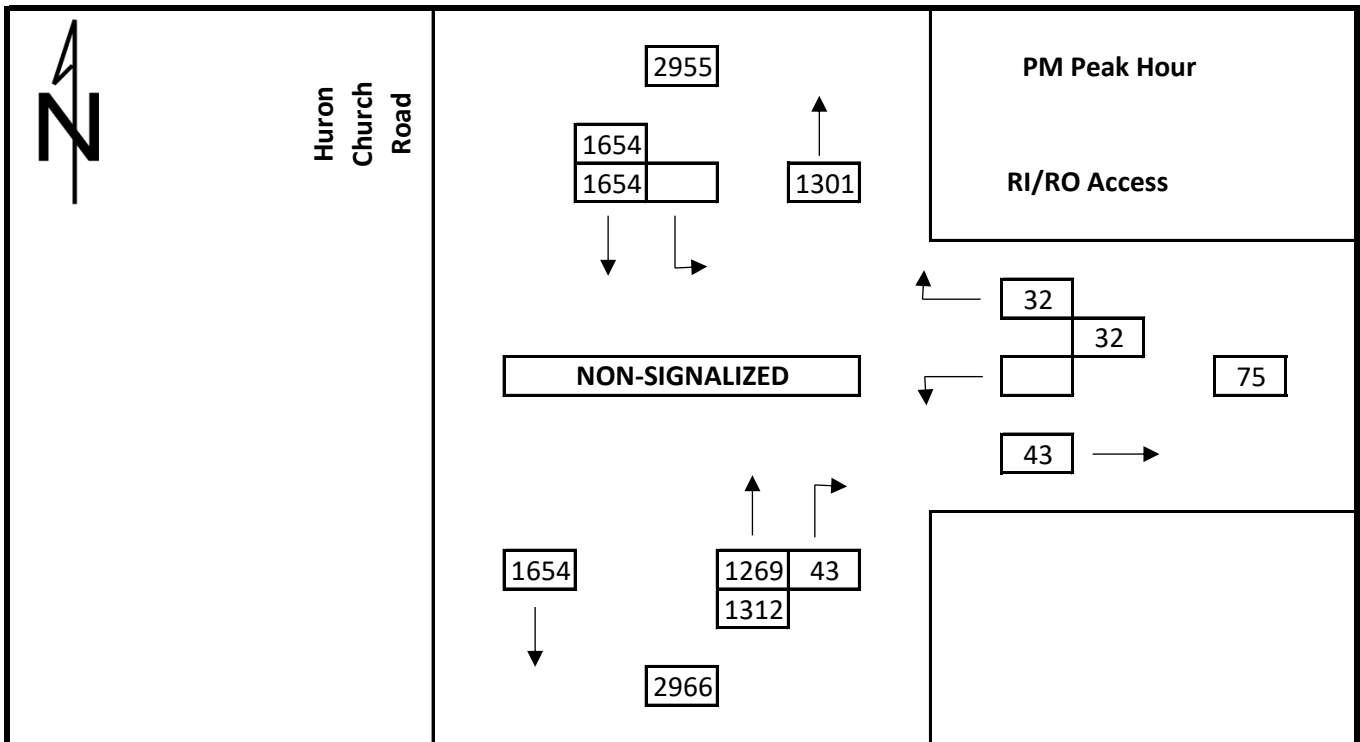
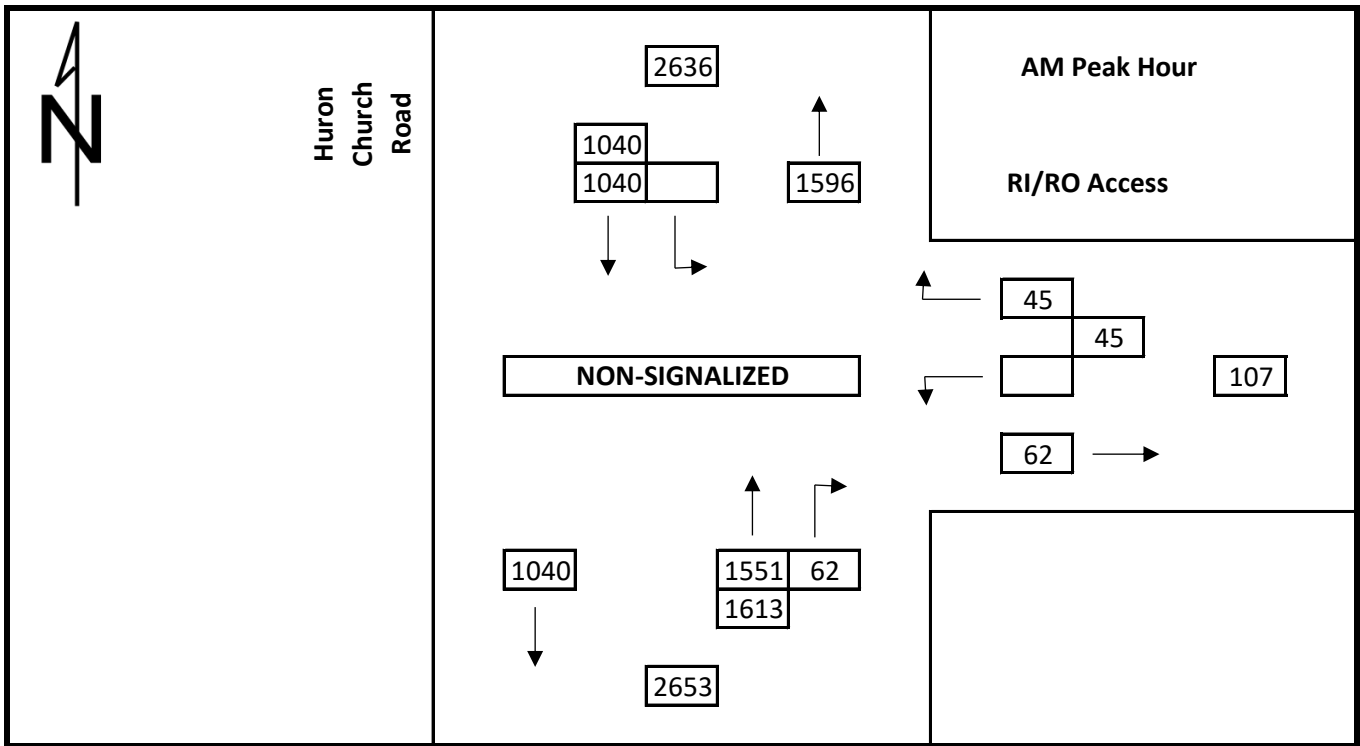
**Existing + Site Generated Traffic**  
 RI/RO Access at Huron Church Road



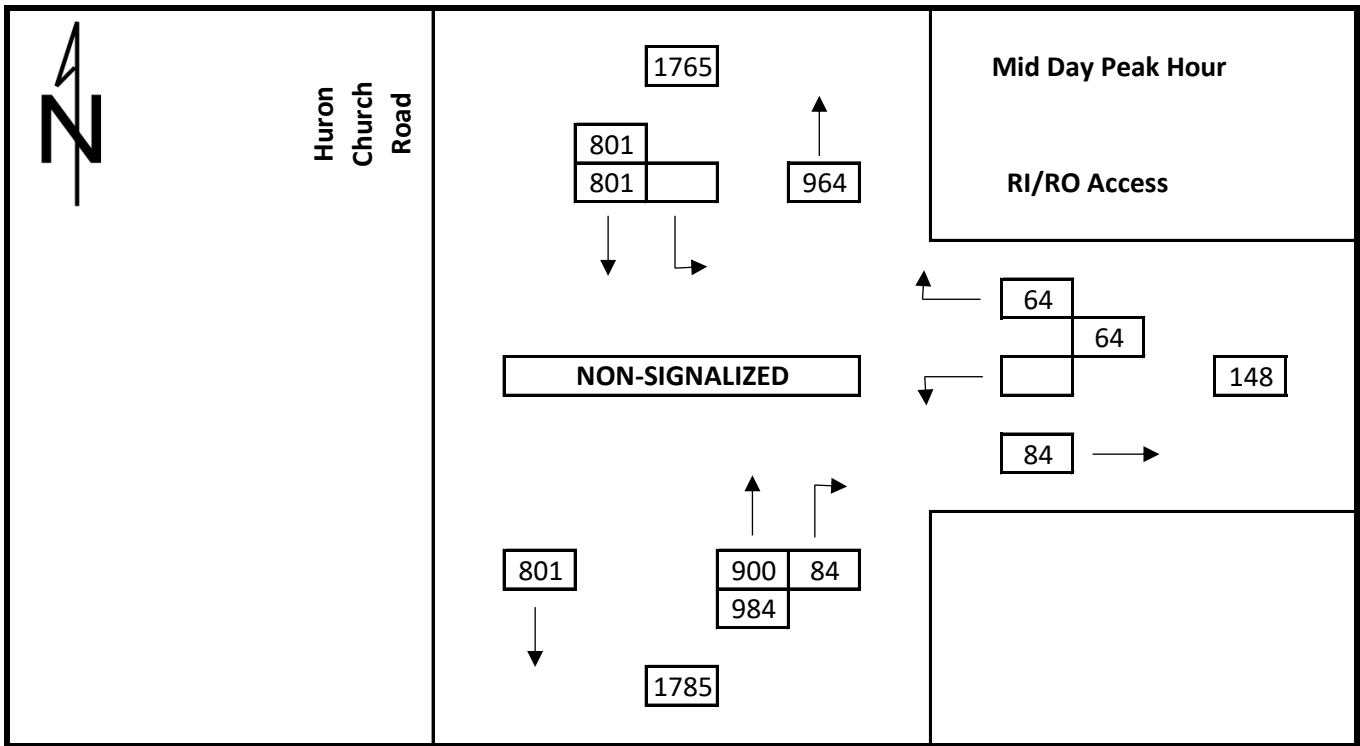
**Existing + Site Generated Traffic**  
RI/RO Access at Huron Church Road



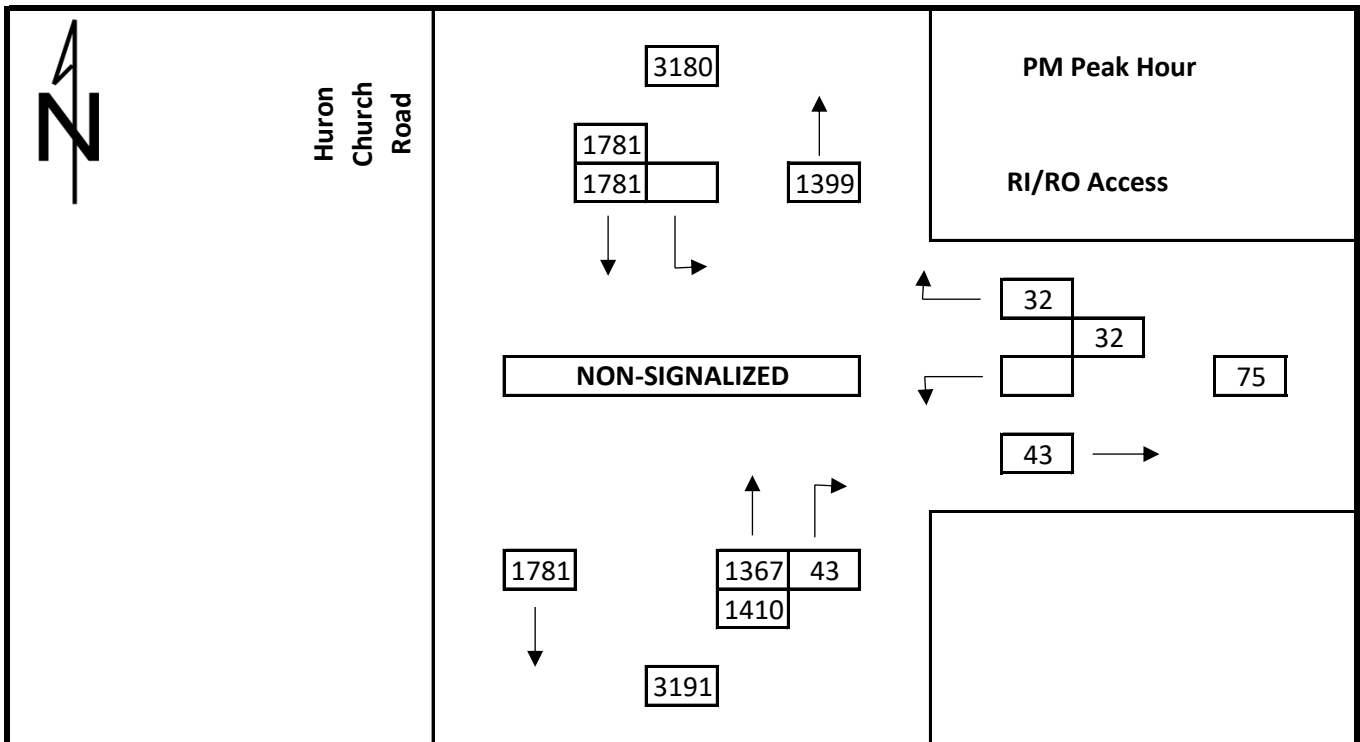
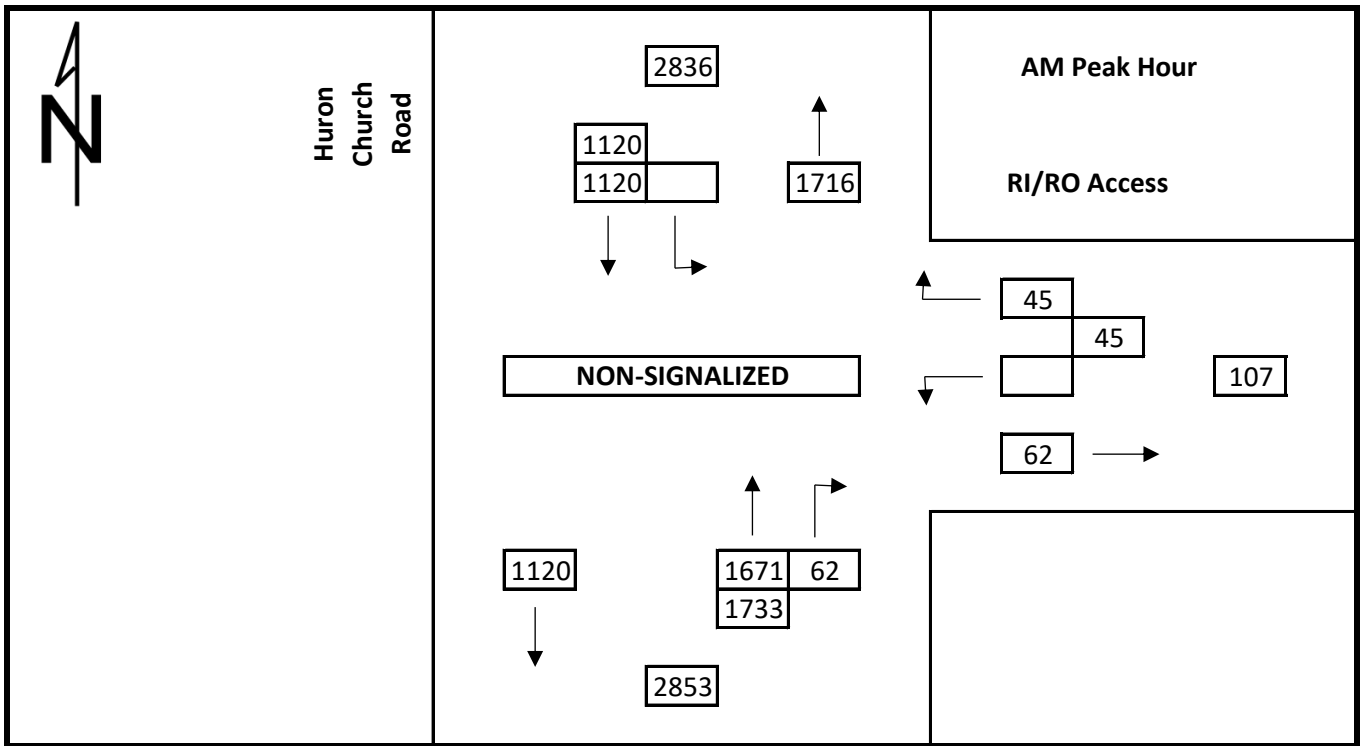
**Total Traffic 2028**  
 RI/RO Access at Huron Church Road



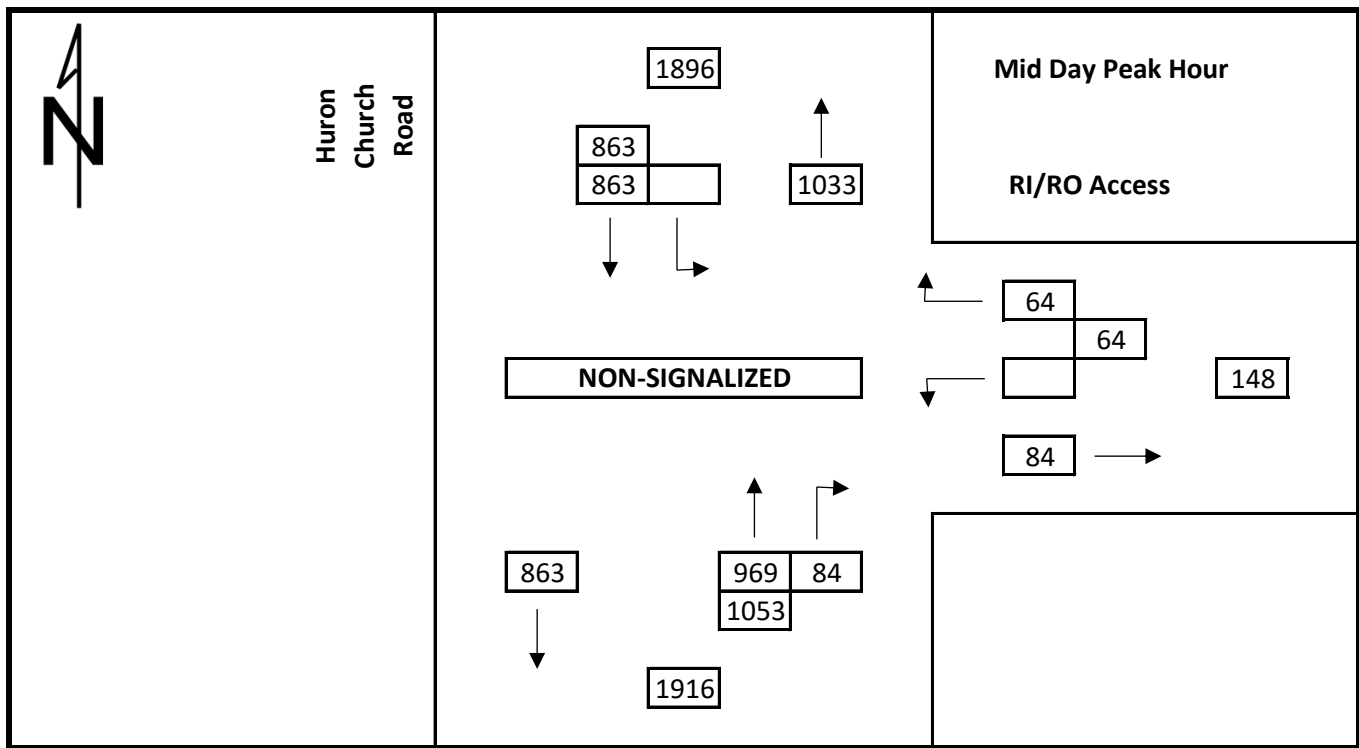
**Total Traffic 2028**  
RI/RO Access at Huron Church Road



**Total Traffic 2033**  
 RI/RO Access at Huron Church Road

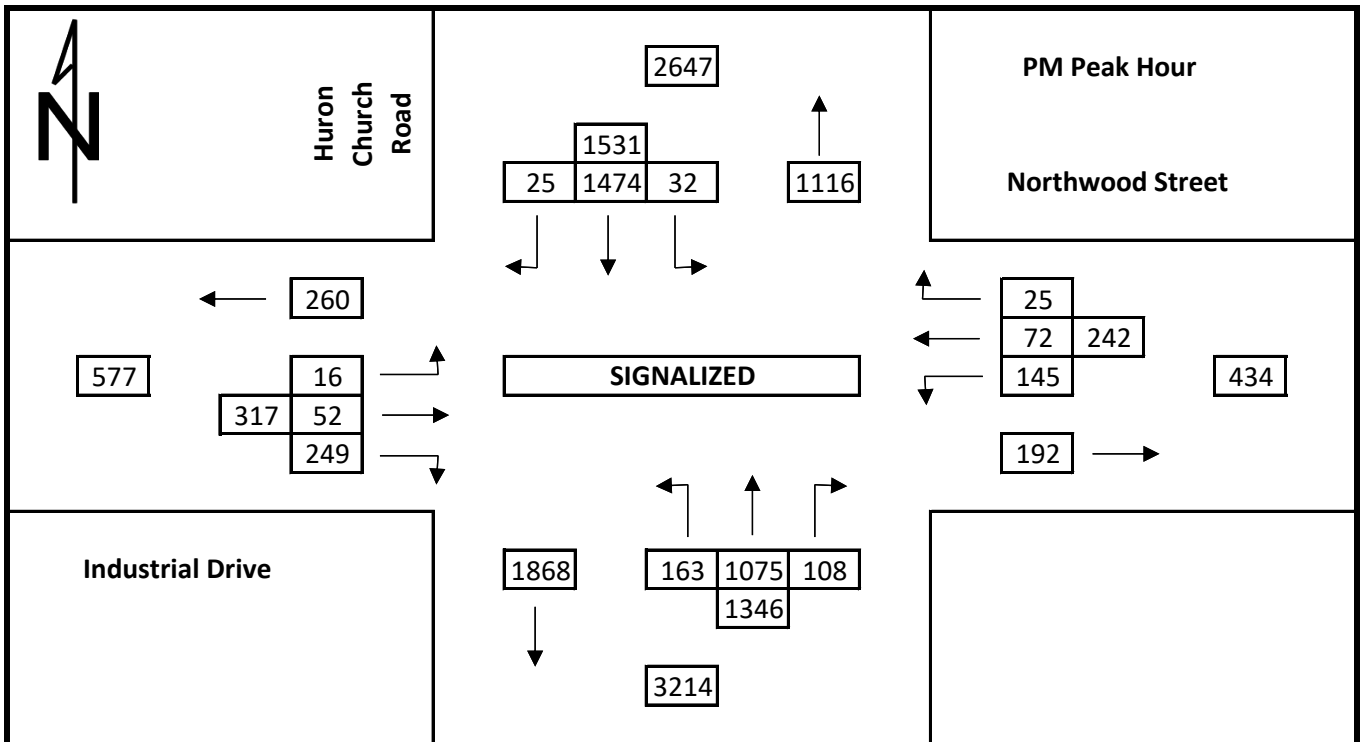
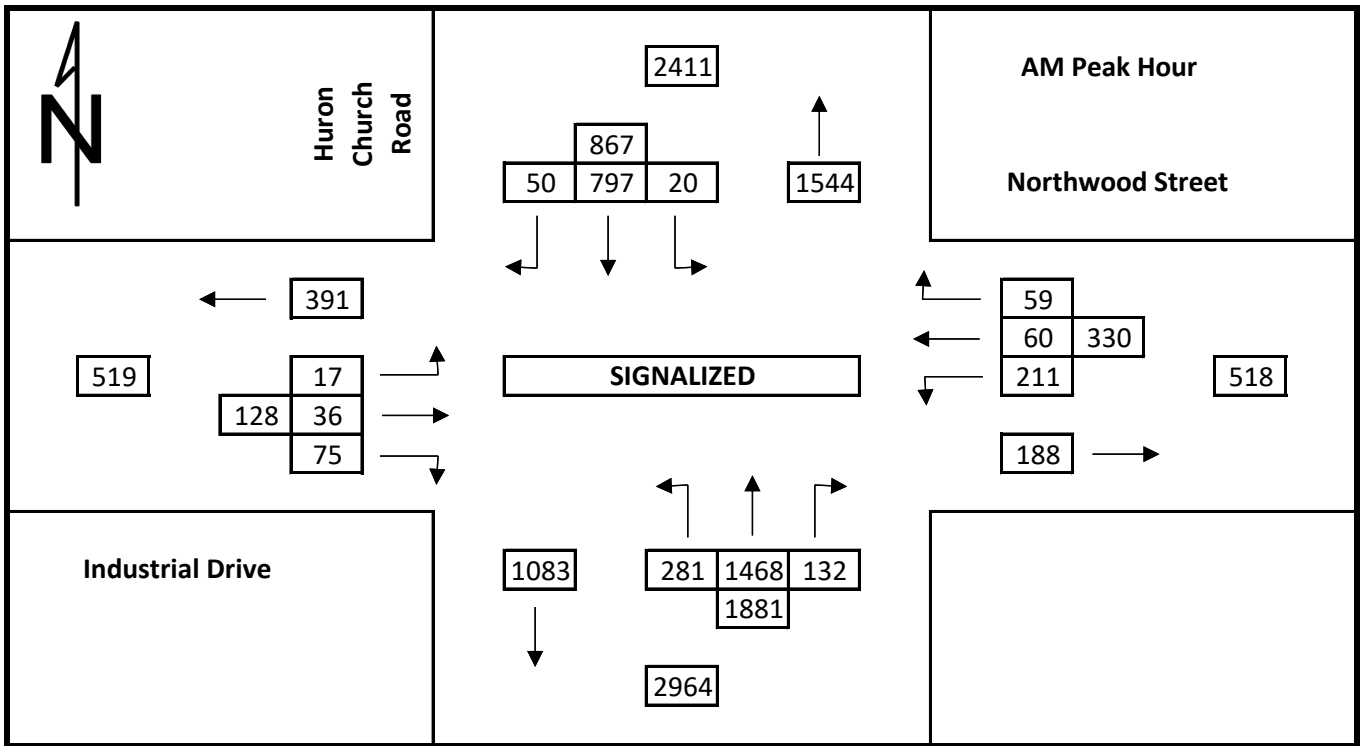


**Total Traffic 2033**  
 RI/RO Access at Huron Church Road

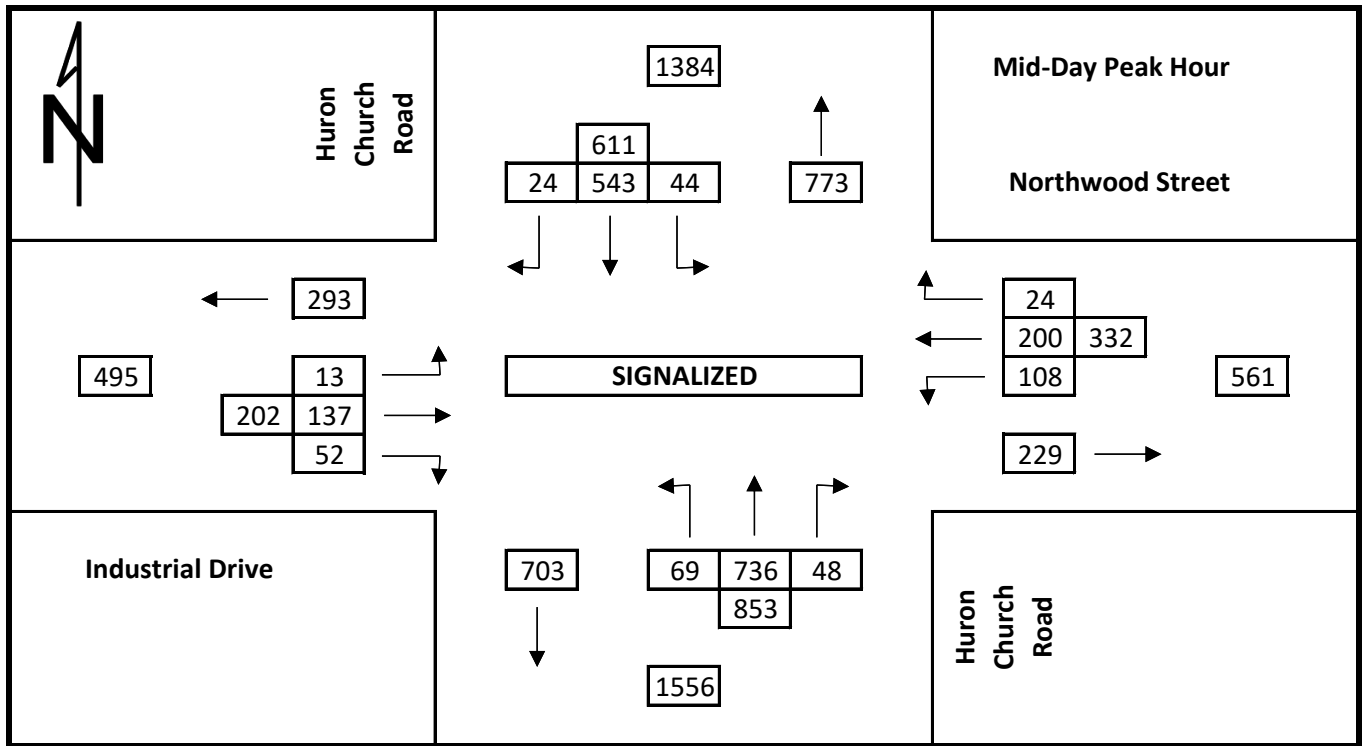


## Existing Traffic Counts

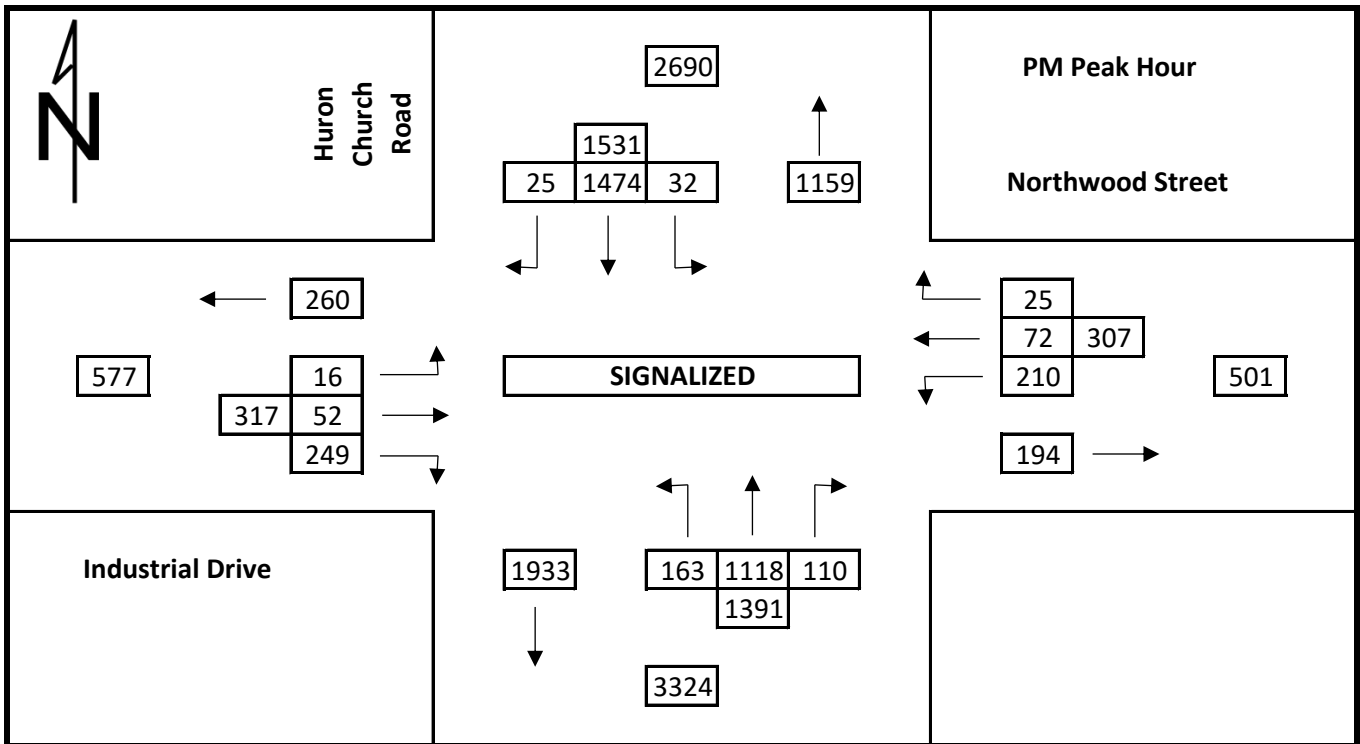
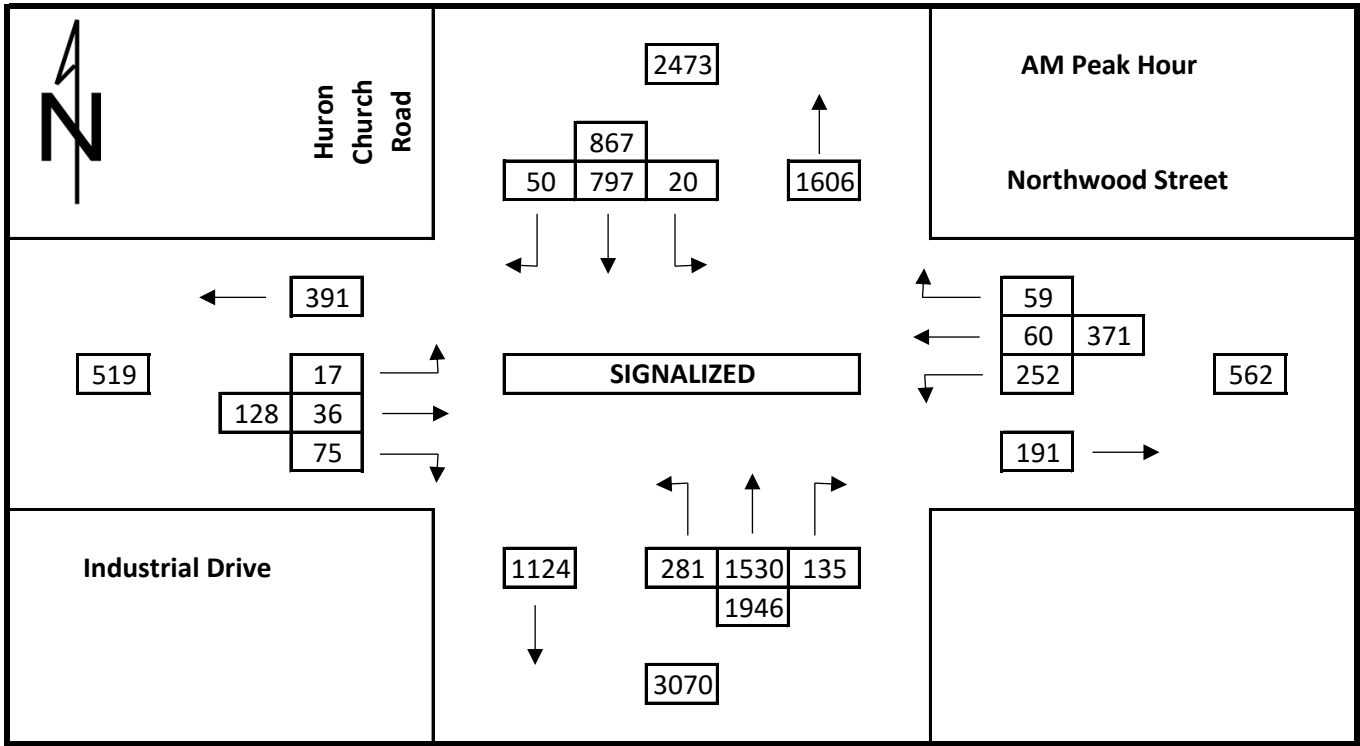
### Industrial Drive / Northwood Street at Huron Church Road



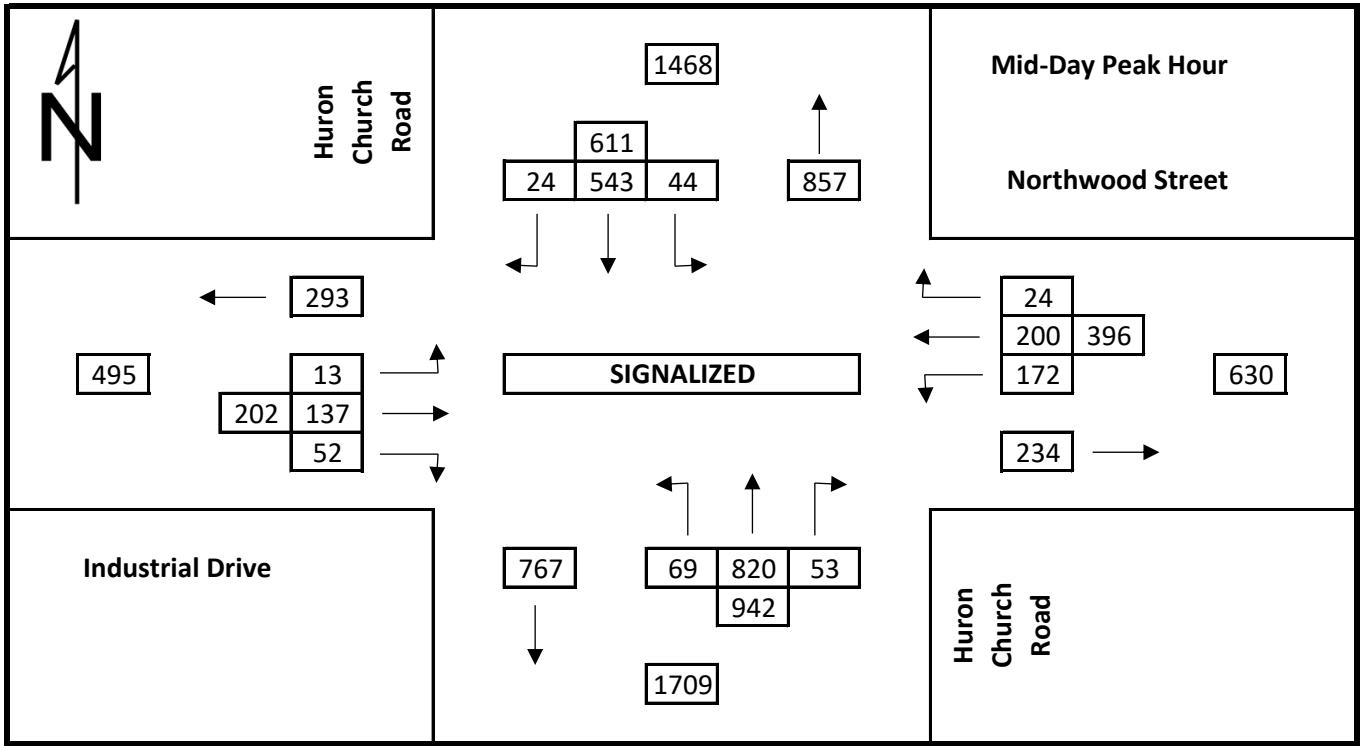
**Existing Traffic Counts**  
 Industrial Drive / Northwood Street at Huron Church Road



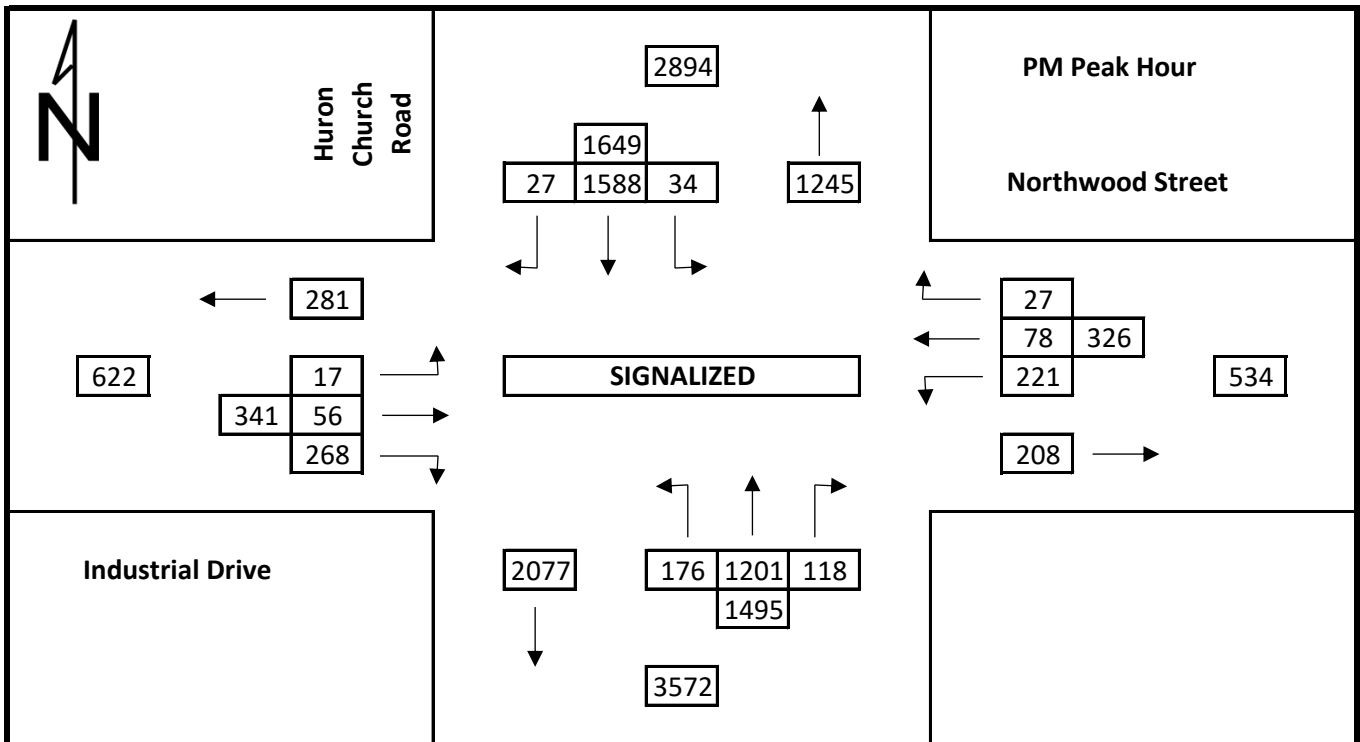
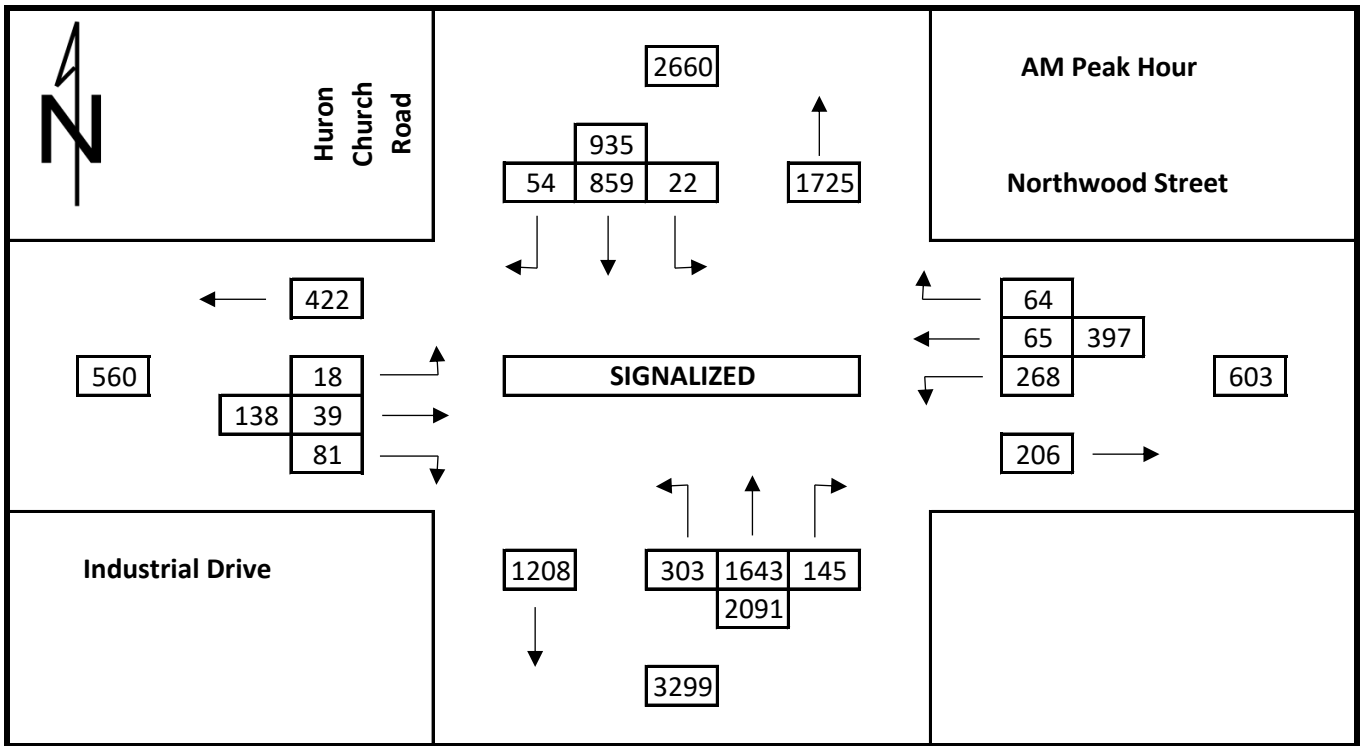
**Existing + Site Generated Traffic**  
 Industrial Drive / Northwood Street at Huron Church Road



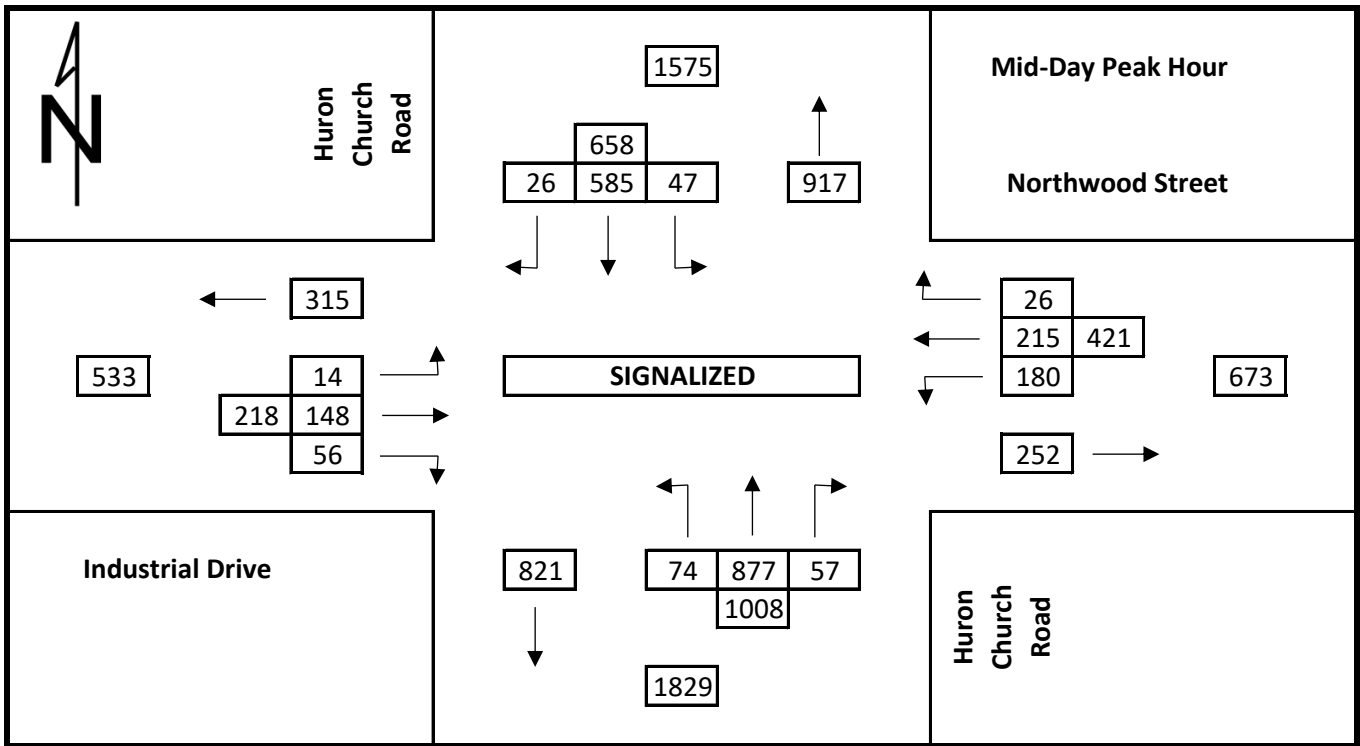
**Existing + Site Generated Traffic**  
 Industrial Drive / Northwood Street at Huron Church Road



**Total Traffic 2028**  
 Industrial Drive / Northwood Street at Huron Church Road

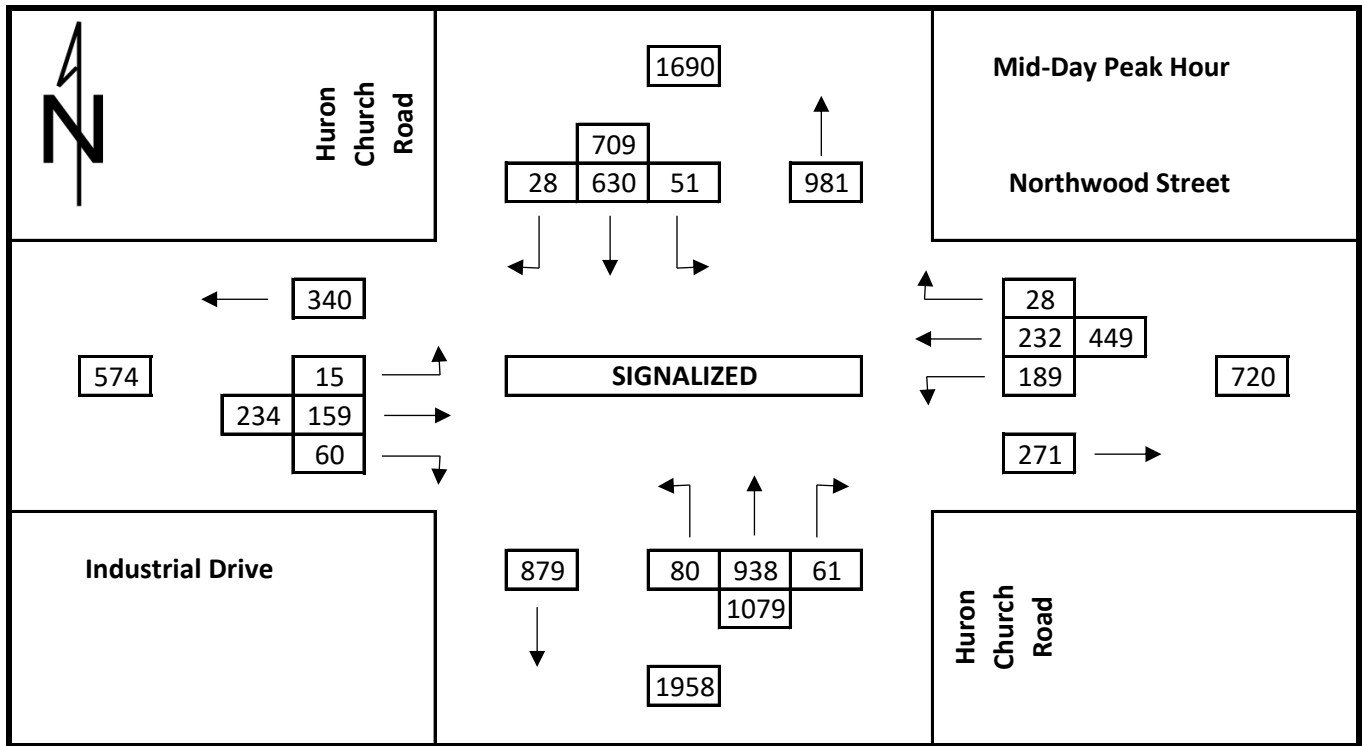


**Total Traffic 2028**  
 Industrial Drive / Northwood Street at Huron Church Road





**Total Traffic 2033**  
 Industrial Drive / Northwood Street at Huron Church Road



## **Appendix D**

# **DETAILED SYNCHRO RESULTS**






















**Malden Road at Huron Church Road**

**RI/RO Access at Huron Church Road**

**Industrial Drive / Northwood Street at Huron Church  
Road**

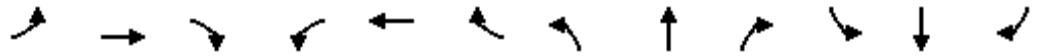
Malden Road at Huron Church Road  
Windsor, Ontario

Existing Traffic AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	93	65	57	31	21	46	1379	15	2	843	62
Future Volume (vph)	168	93	65	57	31	21	46	1379	15	2	843	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.938			0.939			0.998			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1718	0	1770	1722	0	1805	4183	0	1805	4066	0
Flt Permitted	0.720			0.521			0.249			0.147		
Satd. Flow (perm)	1291	1718	0	970	1722	0	473	4183	0	279	4066	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			23			2			14	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	2%	2%	6%	0%	0%	24%	0%	0%	28%	3%
Adj. Flow (vph)	183	101	71	62	34	23	50	1499	16	2	916	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	172	0	62	57	0	50	1515	0	2	983	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	22.1	22.1		22.1	22.1		87.5	82.9		83.1	75.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.73	0.69		0.69	0.63	
v/c Ratio	0.77	0.51		0.35	0.17		0.12	0.52		0.01	0.38	
Control Delay	67.4	41.4		46.7	26.7		5.9	10.9		6.0	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing Traffic AM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	67.4	41.4		46.7	26.7		5.9	10.9		6.0	12.5	
LOS	E	D		D	C		A	B		A	B	
Approach Delay		54.8			37.1			10.7			12.4	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	43.1	32.2		13.4	7.0		3.1	57.9		0.1	43.5	
Queue Length 95th (m)	67.6	52.9		26.5	18.4		7.5	100.2		1.0	58.4	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	290	407		218	405		491	2891		369	2558	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.63	0.42		0.28	0.14		0.10	0.52		0.01	0.38	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	17.5
Intersection LOS:	B
Intersection Capacity Utilization	68.8%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

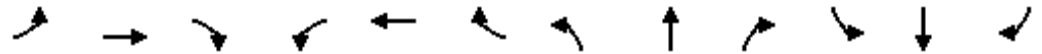
Existing Traffic PM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	72	31	60	97	16	48	1089	41	45	1444	183
Future Volume (vph)	119	72	31	60	97	16	48	1089	41	45	1444	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.954			0.979			0.995			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1763	0	1805	1860	0	1770	4061	0	1752	4113	0
Flt Permitted	0.630			0.659			0.094			0.200		
Satd. Flow (perm)	1162	1763	0	1252	1860	0	175	4061	0	369	4113	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			6			7				28
Link Speed (k/h)		50			50			60				60
Link Distance (m)		191.2			92.7			187.7				163.1
Travel Time (s)		13.8			6.7			11.3				9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	0%	0%	2%	28%	3%	3%	27%	0%
Adj. Flow (vph)	129	78	34	65	105	17	52	1184	45	49	1570	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	112	0	65	122	0	52	1229	0	49	1769	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	18.9	18.9		18.9	18.9		88.9	79.5		86.8	78.5	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.74	0.66		0.72	0.65	
v/c Ratio	0.70	0.38		0.33	0.41		0.22	0.46		0.14	0.66	
Control Delay	67.0	40.4		47.3	45.8		6.9	11.7		5.7	15.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing Traffic PM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	67.0	40.4		47.3	45.8		6.9	11.7		5.7	15.4	
LOS	E	D		D	D		A	B		A	B	
Approach Delay		54.7			46.3			11.5			15.2	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	30.7	21.2		14.5	26.2		2.7	51.6		2.6	94.1	
Queue Length 95th (m)	49.0	36.3		26.6	41.9		7.7	78.1		7.4	134.5	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	261	409		281	423		305	2693		429	2698	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.27		0.23	0.29		0.17	0.46		0.11	0.66	

Intersection Summary






















Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	18.2
Intersection LOS:	B
Intersection Capacity Utilization	64.0%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

Existing Traffic Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	52	27	46	44	15	27	788	20	27	671	105
Future Volume (vph)	117	52	27	46	44	15	27	788	20	27	671	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.949			0.962			0.996			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1734	0	1787	1801	0	1805	4545	0	1736	4175	0
Flt Permitted	0.715			0.701			0.314			0.309		
Satd. Flow (perm)	1345	1734	0	1319	1801	0	597	4545	0	565	4175	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			5			37	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	5%	2%	1%	1%	3%	0%	14%	1%	4%	25%	1%
Adj. Flow (vph)	127	57	29	50	48	16	29	857	22	29	729	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	86	0	50	64	0	29	879	0	29	843	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effect Green (s)	18.0	18.0		18.0	18.0		90.6	82.8		88.6	81.8	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.76	0.69		0.74	0.68	
v/c Ratio	0.63	0.31		0.25	0.23		0.05	0.28		0.06	0.30	
Control Delay	60.6	35.6		45.7	36.0		4.7	8.7		4.9	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing Traffic Saturday Peak Hour  
Existing Geometric Configuration

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	60.6	35.6		45.7	36.0		4.7	8.7		4.9	9.0	
LOS	E	D		D	D		A	A		A	A	
Approach Delay		50.5			40.2			8.6			8.8	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	30.1	14.7		11.2	11.3		1.4	30.4		1.4	29.7	
Queue Length 95th (m)	47.0	27.9		21.6	22.4		5.0	48.4		5.0	46.8	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	302	405		296	415		588	3136		559	2856	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.21		0.17	0.15		0.05	0.28		0.05	0.30	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	14.6
Intersection LOS:	B
Intersection Capacity Utilization	46.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



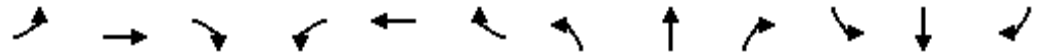
Malden Road at Huron Church Road  
Windsor, Ontario

Existing + Site Generated Traffic AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (vph)	168	93	65	57	31	21	46	1439	25	48	843	62
Future Volume (vph)	168	93	65	57	31	21	46	1439	25	48	843	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.938			0.939			0.997			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1718	0	1770	1722	0	1805	4184	0	1805	4066	0
Flt Permitted	0.720			0.521			0.259			0.121		
Satd. Flow (perm)	1291	1718	0	970	1722	0	492	4184	0	230	4066	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			23			3			14	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	2%	2%	6%	0%	0%	24%	0%	0%	28%	3%
Adj. Flow (vph)	183	101	71	62	34	23	50	1564	27	52	916	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	172	0	62	57	0	50	1591	0	52	983	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	22.1	22.1		22.1	22.1		85.7	76.3		83.8	75.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.71	0.64		0.70	0.63	
v/c Ratio	0.77	0.51		0.35	0.17		0.11	0.60		0.21	0.38	
Control Delay	67.4	41.4		46.7	26.7		1.4	8.4		7.5	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing + Site Generated Traffic AM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	67.4	41.4		46.7	26.7		1.4	8.4		7.5	12.5	
LOS	E	D		D	C		A	A		A	B	
Approach Delay		54.8			37.1			8.2			12.2	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	43.1	32.2		13.4	7.0		1.0	112.1		3.2	43.5	
Queue Length 95th (m)	67.6	52.9		26.5	18.4		m0.6	18.0		7.7	58.4	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	290	407		218	405		502	2662		339	2558	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.63	0.42		0.28	0.14		0.10	0.60		0.15	0.38	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 15.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 70.2%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

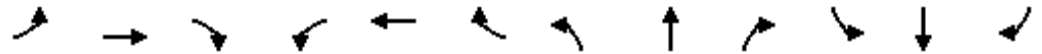
Existing + Site Generated Traffic PM Peak Hour

Existing Geometric Configuration

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	72	31	60	97	16	48	1132	57	112	1444	183
Future Volume (vph)	119	72	31	60	97	16	48	1132	57	112	1444	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.954			0.979			0.993			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1763	0	1805	1860	0	1770	4062	0	1752	4113	0
Flt Permitted	0.630			0.659			0.097			0.176		
Satd. Flow (perm)	1162	1763	0	1252	1860	0	181	4062	0	325	4113	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			6			10			28	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	0%	0%	2%	28%	3%	3%	27%	0%
Adj. Flow (vph)	129	78	34	65	105	17	52	1230	62	122	1570	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	112	0	65	122	0	52	1292	0	122	1769	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	18.9	18.9		18.9	18.9		87.2	76.2		88.1	78.5	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.73	0.64		0.73	0.65	
v/c Ratio	0.70	0.38		0.33	0.41		0.22	0.50		0.37	0.66	
Control Delay	67.0	40.4		47.3	45.8		5.2	3.4		7.8	15.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing + Site Generated Traffic PM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	67.0	40.4		47.3	45.8		5.2	3.4		7.8	15.4	
LOS	E	D		D	D		A	A		A	B	
Approach Delay		54.7			46.3			3.5			15.0	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	30.7	21.2		14.5	26.2		0.7	9.3		6.7	94.1	
Queue Length 95th (m)	49.0	36.3		26.6	41.9		m3.3	12.2		15.5	134.5	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	261	409		281	423		309	2584		401	2698	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.27		0.23	0.29		0.17	0.50		0.30	0.66	

Intersection Summary

























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 15.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 66.1%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

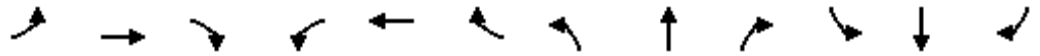
Existing + Site Generated Traffic Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (vph)	117	52	27	46	44	15	27	873	36	94	671	105
Future Volume (vph)	117	52	27	46	44	15	27	873	36	94	671	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.949			0.962			0.994			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1734	0	1787	1801	0	1805	4543	0	1736	4175	0
Flt Permitted	0.715			0.701			0.323			0.256		
Satd. Flow (perm)	1345	1734	0	1319	1801	0	614	4543	0	468	4175	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			8			37	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	5%	2%	1%	1%	3%	0%	14%	1%	4%	25%	1%
Adj. Flow (vph)	127	57	29	50	48	16	29	949	39	102	729	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	86	0	50	64	0	29	988	0	102	843	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	18.0	18.0		18.0	18.0		88.6	77.6		89.7	81.8	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.74	0.65		0.75	0.68	
v/c Ratio	0.63	0.31		0.25	0.23		0.05	0.34		0.24	0.30	
Control Delay	60.6	35.6		45.7	36.0		1.8	7.5		5.7	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Existing + Site Generated Traffic Saturday Peak Hour

Existing Geometric Configuration

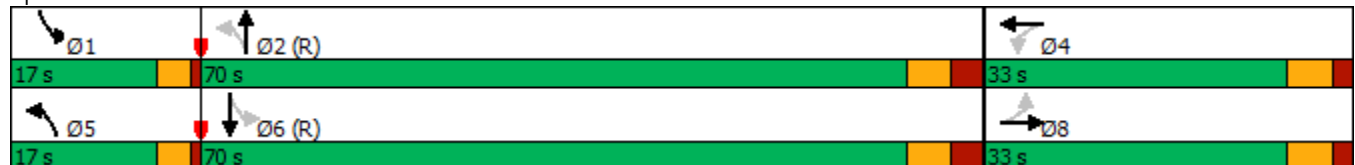


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	60.6	35.6		45.7	36.0		1.8	7.5		5.7	9.0	
LOS	E	D		D	D		A	A		A	A	
Approach Delay		50.5			40.2			7.3			8.6	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	30.1	14.7		11.2	11.3		0.4	48.9		5.2	29.7	
Queue Length 95th (m)	47.0	27.9		21.6	22.4		1.4	74.3		13.3	46.8	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	302	405		296	415		599	2939		496	2856	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.21		0.17	0.15		0.05	0.34		0.21	0.30	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	13.5
Intersection LOS:	B
Intersection Capacity Utilization	50.2%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (vph)	181	100	70	61	33	23	50	1546	26	48	908	67
Future Volume (vph)	181	100	70	61	33	23	50	1546	26	48	908	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.938			0.939			0.998			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1717	0	1770	1723	0	1805	4188	0	1805	4067	0
Flt Permitted	0.717			0.498			0.234			0.101		
Satd. Flow (perm)	1285	1717	0	928	1723	0	445	4188	0	192	4067	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			25			3			15	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	2%	2%	6%	0%	0%	24%	0%	0%	28%	3%
Adj. Flow (vph)	197	109	76	66	36	25	54	1680	28	52	987	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	185	0	66	61	0	54	1708	0	52	1060	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effect Green (s)	23.0	23.0		23.0	23.0		84.8	75.4		82.9	74.4	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.71	0.63		0.69	0.62	
v/c Ratio	0.80	0.53		0.37	0.17		0.13	0.65		0.24	0.42	
Control Delay	69.5	41.9		47.2	26.0		1.3	7.3		8.2	13.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 AM Peak Hour  
Existing Geometric Configuration

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	69.5	41.9		47.2	26.0		1.3	7.3		8.2	13.2	
LOS	E	D		D	C		A	A		A	B	
Approach Delay		56.1			37.0			7.1			13.0	
Approach LOS		E			D			A			B	
Queue Length 50th (m)	46.3	34.8		14.1	7.3		0.4	53.5		3.4	50.0	
Queue Length 95th (m)	#73.4	57.2		27.9	19.0		m0.6	25.8		7.7	64.1	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	289	407		208	407		470	2631		313	2528	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.68	0.45		0.32	0.15		0.11	0.65		0.17	0.42	

Intersection Summary






















Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 15.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.0%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 PM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	78	33	65	104	17	52	1216	60	115	1556	197
Future Volume (vph)	128	78	33	65	104	17	52	1216	60	115	1556	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.979			0.993			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1765	0	1805	1860	0	1770	4061	0	1752	4113	0
Flt Permitted	0.610			0.638			0.079			0.154		
Satd. Flow (perm)	1125	1765	0	1212	1860	0	147	4061	0	284	4113	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			6			9			28	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	0%	0%	2%	28%	3%	3%	27%	0%
Adj. Flow (vph)	139	85	36	71	113	18	57	1322	65	125	1691	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	121	0	71	131	0	57	1387	0	125	1905	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	19.9	19.9		19.9	19.9		86.2	75.1		87.2	77.4	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.72	0.63		0.73	0.64	
v/c Ratio	0.75	0.40		0.35	0.42		0.27	0.54		0.41	0.72	
Control Delay	70.2	40.9		47.4	45.4		12.2	3.7		9.0	17.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 PM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	70.2	40.9		47.4	45.4		12.2	3.7		9.0	17.5	
LOS	E	D		D	D		B	A		A	B	
Approach Delay		56.6			46.1			4.0			16.9	
Approach LOS		E			D			A			B	
Queue Length 50th (m)	33.1	23.3		15.7	28.0		0.9	10.1		7.2	111.3	
Queue Length 95th (m)	53.2	39.5		28.7	44.6		5.6	12.8		15.8	154.1	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	253	409		272	423		285	2545		372	2664	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.55	0.30		0.26	0.31		0.20	0.54		0.34	0.72	

Intersection Summary























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 16.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 77.0%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	56	29	50	47	16	29	934	38	96	723	113
Future Volume (vph)	126	56	29	50	47	16	29	934	38	96	723	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.948			0.962			0.994			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1732	0	1787	1801	0	1805	4543	0	1736	4175	0
Flt Permitted	0.713			0.697			0.302			0.234		
Satd. Flow (perm)	1341	1732	0	1311	1801	0	574	4543	0	427	4175	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			7			37	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	5%	2%	1%	1%	3%	0%	14%	1%	4%	25%	1%
Adj. Flow (vph)	137	61	32	54	51	17	32	1015	41	104	786	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	93	0	54	68	0	32	1056	0	104	909	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	18.7	18.7		18.7	18.7		87.8	76.8		89.1	81.1	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.73	0.64		0.74	0.68	
v/c Ratio	0.66	0.33		0.26	0.23		0.06	0.36		0.26	0.32	
Control Delay	61.6	36.4		45.5	35.9		4.7	10.8		6.2	9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2028 Saturday Peak Hour  
Existing Geometric Configuration

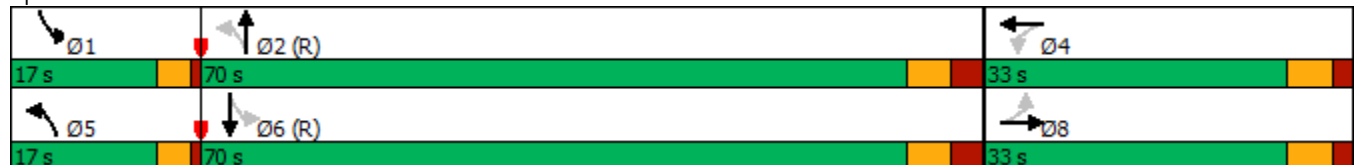


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	61.6	36.4		45.5	35.9		4.7	10.8		6.2	9.4	
LOS	E	D		D	D		A	B		A	A	
Approach Delay		51.4			40.2			10.7			9.1	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	32.4	16.2		12.0	12.1		1.5	41.7		5.5	33.7	
Queue Length 95th (m)	50.3	30.0		22.8	23.8		5.0	64.0		13.5	51.3	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	301	405		294	415		569	2909		466	2834	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.23		0.18	0.16		0.06	0.36		0.22	0.32	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	15.3
Intersection LOS:	B
Intersection Capacity Utilization	52.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario























Total Traffic 2033 AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (vph)	195	108	75	66	36	24	53	1660	27	48	978	72
Future Volume (vph)	195	108	75	66	36	24	53	1660	27	48	978	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.938			0.940			0.998			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1718	0	1770	1724	0	1805	4188	0	1805	4066	0
Flt Permitted	0.715			0.476			0.210			0.083		
Satd. Flow (perm)	1282	1718	0	887	1724	0	399	4188	0	158	4066	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			26			3			14	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	5%	2%	2%	6%	0%	0%	24%	0%	0%	28%	3%
Adj. Flow (vph)	212	117	82	72	39	26	58	1804	29	52	1063	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	199	0	72	65	0	58	1833	0	52	1141	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effect Green (s)	24.0	24.0		24.0	24.0		83.8	74.4		81.9	73.4	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.70	0.62		0.68	0.61	
v/c Ratio	0.83	0.55		0.41	0.18		0.16	0.71		0.26	0.46	
Control Delay	71.6	42.4		48.1	25.9		2.9	14.2		9.1	14.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	



Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2033 PM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	84	36	70	113	19	56	1307	64	119	1676	212
Future Volume (vph)	138	84	36	70	113	19	56	1307	64	119	1676	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.978			0.993			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1765	0	1805	1858	0	1770	4061	0	1752	4113	0
Flt Permitted	0.584			0.620			0.061			0.131		
Satd. Flow (perm)	1077	1765	0	1178	1858	0	114	4061	0	242	4113	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			7			9				28
Link Speed (k/h)		50			50			60				60
Link Distance (m)		191.2			92.7			187.7				163.1
Travel Time (s)		13.8			6.7			11.3				9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	0%	0%	2%	28%	3%	3%	27%	0%
Adj. Flow (vph)	150	91	39	76	123	21	61	1421	70	129	1822	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	130	0	76	144	0	61	1491	0	129	2052	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	21.2	21.2		21.2	21.2		84.7	73.5		86.2	76.1	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.71	0.61		0.72	0.63	
v/c Ratio	0.79	0.40		0.37	0.43		0.32	0.60		0.46	0.78	
Control Delay	74.5	40.3		47.0	44.7		22.7	4.2		10.7	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2033 PM Peak Hour  
Existing Geometric Configuration

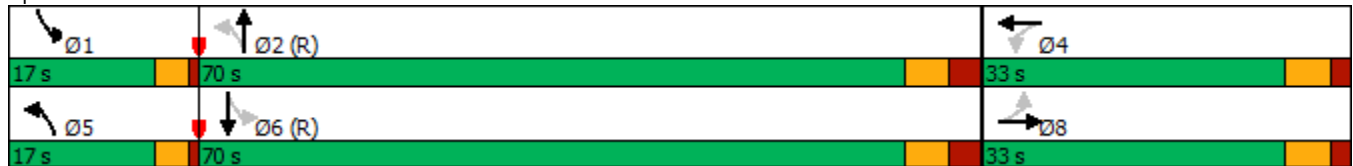


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	74.5	40.3		47.0	44.7		22.7	4.2		10.7	20.4	
LOS	E	D		D	D		C	A		B	C	
Approach Delay		58.6			45.5			4.9				19.8
Approach LOS		E			D			A				B
Queue Length 50th (m)	35.7	24.7		16.6	30.3		2.0	11.1		8.0	134.3	
Queue Length 95th (m)	57.9	42.1		30.7	48.4		19.4	13.8		16.3	179.6	
Internal Link Dist (m)		167.2			68.7			163.7				139.1
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	242	410		265	423		263	2491		342	2618	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.32		0.29	0.34		0.23	0.60		0.38	0.78	

Intersection Summary






















Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	18.3
Intersection LOS:	B
Intersection Capacity Utilization	79.6%
ICU Level of Service	D
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2033 Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	60	31	53	51	17	31	1000	39	98	779	122
Future Volume (vph)	136	60	31	53	51	17	31	1000	39	98	779	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	23.0		0.0	60.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			29.0			40.0			44.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.948			0.963			0.994			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1732	0	1787	1803	0	1805	4542	0	1736	4175	0
Flt Permitted	0.709			0.693			0.278			0.213		
Satd. Flow (perm)	1334	1732	0	1304	1803	0	528	4542	0	389	4175	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			13			7			37	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		191.2			92.7			187.7			163.1	
Travel Time (s)		13.8			6.7			11.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	5%	2%	1%	1%	3%	0%	14%	1%	4%	25%	1%
Adj. Flow (vph)	148	65	34	58	55	18	34	1087	42	107	847	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	99	0	58	73	0	34	1129	0	107	980	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	10.0		6.0	10.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		12.0	65.0		12.0	65.0	
Total Split (s)	33.0	33.0		33.0	33.0		17.0	70.0		17.0	70.0	
Total Split (%)	27.5%	27.5%		27.5%	27.5%		14.2%	58.3%		14.2%	58.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		13.0	63.0		13.0	63.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0			9.0			9.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0			12.0			12.0	
Pedestrian Calls (#/hr)	10	10		10	10			10			10	
Act Effct Green (s)	19.5	19.5		19.5	19.5		86.9	75.9		88.4	80.3	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.63		0.74	0.67	
v/c Ratio	0.69	0.33		0.27	0.24		0.07	0.39		0.29	0.35	
Control Delay	62.6	36.7		45.3	35.8		2.0	7.4		6.7	10.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Malden Road at Huron Church Road  
Windsor, Ontario

Total Traffic 2033 Saturday Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	62.6	36.7		45.3	35.8		2.0	7.4		6.7	10.0	
LOS	E	D		D	D		A	A		A	B	
Approach Delay		52.2			40.0			7.3			9.7	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	35.0	17.4		12.8	13.1		0.4	61.4		6.0	38.3	
Queue Length 95th (m)	54.3	31.9		24.2	25.3		m1.4	74.7		13.8	56.3	
Internal Link Dist (m)		167.2			68.7			163.7			139.1	
Turn Bay Length (m)	60.0			23.0			60.0			50.0		
Base Capacity (vph)	300	405		293	415		536	2876		439	2807	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.24		0.20	0.18		0.06	0.39		0.24	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 54.0%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Huron Church Rd. & Malden Rd.



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	25	1440	0	0	965
Future Vol, veh/h	0	25	1440	0	0	965
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	24	2	0	25
Mvmt Flow	0	27	1565	0	0	1049

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	783	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	289	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	289	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 289	-
HCM Lane V/C Ratio	- 0.094	-
HCM Control Delay (s)	- 18.7	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	27	1178	0	0	1535
Future Vol, veh/h	0	27	1178	0	0	1535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	29	1280	0	0	1668

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	640	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	358	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	358	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 358	-
HCM Lane V/C Ratio	- 0.082	-
HCM Control Delay (s)	- 16	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	37	835	0	0	744
Future Vol, veh/h	0	37	835	0	0	744
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	40	908	0	0	809

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	454	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	473	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	473	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 473	-
HCM Lane V/C Ratio	- 0.085	-
HCM Control Delay (s)	- 13.3	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	25	1551	0	0	1040
Future Vol, veh/h	0	25	1551	0	0	1040
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	24	2	0	25
Mvmt Flow	0	27	1686	0	0	1130

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	843	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	264	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	264	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 264	-
HCM Lane V/C Ratio	- 0.103	-
HCM Control Delay (s)	- 20.2	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	27	1269	0	0	1654
Future Vol, veh/h	0	27	1269	0	0	1654
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	29	1379	0	0	1798

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	690	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	332	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	332	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 332	-
HCM Lane V/C Ratio	- 0.088	-
HCM Control Delay (s)	- 16.9	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	37	900	0	0	801
Future Vol, veh/h	0	37	900	0	0	801
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	40	978	0	0	871

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	489	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	449	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	449	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 449	-
HCM Lane V/C Ratio	- 0.09	-
HCM Control Delay (s)	- 13.8	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	25	1671	0	0	1120
Future Vol, veh/h	0	25	1671	0	0	1120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	24	2	0	25
Mvmt Flow	0	27	1816	0	0	1217

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	908	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	239	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	239	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 239	-
HCM Lane V/C Ratio	- 0.114	-
HCM Control Delay (s)	- 22	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.4	-

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	27	1367	0	0	1781
Future Vol, veh/h	0	27	1367	0	0	1781
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	29	1486	0	0	1936

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	743	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	307	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	307	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 307	-
HCM Lane V/C Ratio	- 0.096	-
HCM Control Delay (s)	- 18	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	37	969	0	0	863
Future Vol, veh/h	0	37	969	0	0	863
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	40	1053	0	0	938

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	527	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	424	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	424	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 424	-
HCM Lane V/C Ratio	- 0.095	-
HCM Control Delay (s)	- 14.4	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.3	-

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	45	1440	62	0	965
Future Vol, veh/h	0	45	1440	62	0	965
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	23	2	0	25
Mvmt Flow	0	49	1565	67	0	1049

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	816	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	275	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	275	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	275
HCM Lane V/C Ratio	-	-	0.178
HCM Control Delay (s)	-	-	20.9
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.6

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	32	1178	43	0	1535
Future Vol, veh/h	0	32	1178	43	0	1535
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	35	1280	47	0	1668

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	664	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	346	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	346	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	346
HCM Lane V/C Ratio	-	-	0.101
HCM Control Delay (s)	-	-	16.6
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.3

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	64	835	84	0	744
Future Vol, veh/h	0	64	835	84	0	744
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	70	908	91	0	809

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	500	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	442	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	442	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	442
HCM Lane V/C Ratio	-	-	0.157
HCM Control Delay (s)	-	-	14.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.6

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	45	1551	62	0	1040
Future Vol, veh/h	0	45	1551	62	0	1040
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	23	2	0	25
Mvmt Flow	0	49	1686	67	0	1130

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	877	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	250	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	250	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	250
HCM Lane V/C Ratio	-	-	0.196
HCM Control Delay (s)	-	-	22.9
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	32	1269	43	0	1654
Future Vol, veh/h	0	32	1269	43	0	1654
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	35	1379	47	0	1798

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	713	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	321	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %					
Mov Cap-1 Maneuver	-	321	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	321
HCM Lane V/C Ratio	-	-	0.108
HCM Control Delay (s)	-	-	17.6
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	64	900	84	0	801
Future Vol, veh/h	0	64	900	84	0	801
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	70	978	91	0	871

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	535	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	419	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	419	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	419
HCM Lane V/C Ratio	-	-	0.166
HCM Control Delay (s)	-	-	15.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.6

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	45	1671	62	0	1120
Future Vol, veh/h	0	45	1671	62	0	1120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	23	2	0	25
Mvmt Flow	0	49	1816	67	0	1217

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	942	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	227	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	227	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	227
HCM Lane V/C Ratio	-	-	0.215
HCM Control Delay (s)	-	-	25.2
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	0.8

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↑↑↑			↑↑↑
Traffic Vol, veh/h	0	32	1367	43	0	1781
Future Vol, veh/h	0	32	1367	43	0	1781
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	25	2	0	26
Mvmt Flow	0	35	1486	47	0	1936

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	767	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	296	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	296	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	296
HCM Lane V/C Ratio	-	-	0.118
HCM Control Delay (s)	-	-	18.8
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑			↑↑↑
Traffic Vol, veh/h	0	64	969	84	0	863
Future Vol, veh/h	0	64	969	84	0	863
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	0	2	14	2	0	22
Mvmt Flow	0	70	1053	91	0	938























Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	572	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-
Pot Cap-1 Maneuver	0	397	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	397	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

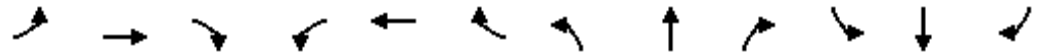
Approach	WB	NB	SB
HCM Control Delay, s	16	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	397
HCM Lane V/C Ratio	-	-	0.175
HCM Control Delay (s)	-	-	16
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.6

Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing Traffic AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	36	75	211	60	59	281	1468	132	20	797	50
Future Volume (vph)	17	36	75	211	60	59	281	1468	132	20	797	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.926			0.988				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1631	1214	1805	1699	0	1703	4252	0	1805	4183	1495
Flt Permitted		0.894		0.720			0.272			0.108		
Satd. Flow (perm)	0	1482	1214	1368	1699	0	488	4252	0	205	4183	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		44			16				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	29%	8%	33%	0%	7%	0%	6%	22%	4%	0%	24%	8%
Adj. Flow (vph)	18	39	82	229	65	64	305	1596	143	22	866	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	82	229	129	0	305	1739	0	22	866	54
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effct Green (s)		26.7	26.7	26.7	26.7		83.3	75.5		73.9	62.9	62.9
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.69	0.63		0.62	0.52	0.52
v/c Ratio		0.17	0.25	0.75	0.31		0.64	0.65		0.09	0.39	0.07
Control Delay		36.0	8.7	58.2	25.4		15.1	17.8		9.1	19.2	3.9
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		36.0	8.7	58.2	25.4		15.1	17.8		9.1	19.2	3.9
LOS		D	A	E	C		B	B		A	B	A
Approach Delay		19.9			46.4			17.4			18.1	
Approach LOS		B			D			B			B	
Queue Length 50th (m)		11.5	0.0	53.6	17.4		25.1	79.2		1.5	46.0	0.0
Queue Length 95th (m)		21.0	12.0	74.4	31.5		49.9	155.0		5.4	66.8	6.2
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		481	449	444	581		476	2679		278	2193	814
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.12	0.18	0.52	0.22		0.64	0.65		0.08	0.39	0.07

**Intersection Summary**























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 97 (81%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 20.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 70.5%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



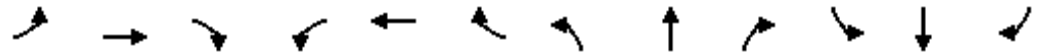
Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing Traffic PM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	52	249	145	72	25	163	1075	108	32	1474	25
Future Volume (vph)	16	52	249	145	72	25	163	1075	108	32	1474	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.961			0.986				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	1538	1787	1486	0	1410	4101	0	1378	4150	1091
Flt Permitted		0.919		0.709			0.100			0.204		
Satd. Flow (perm)	0	1647	1538	1334	1486	0	148	4101	0	296	4150	1091
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			264		14			18				64
Link Speed (k/h)		50		50			60			60		60
Link Distance (m)		147.8		113.8			340.1			668.4		
Travel Time (s)		10.6		8.2			20.4			40.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	5%	1%	28%	8%	28%	27%	2%	31%	25%	48%
Adj. Flow (vph)	17	57	271	158	78	27	177	1168	117	35	1602	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	271	158	105	0	177	1285	0	35	1602	27
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		16.0	57.0		16.0	57.0	57.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0		21.0	62.0		21.0	62.0	62.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%		17.5%	51.7%		17.5%	51.7%	51.7%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		17.0	55.0		17.0	55.0	55.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		21.3	21.3	21.3	21.3		88.7	78.5		78.2	67.2	67.2
Actuated g/C Ratio		0.18	0.18	0.18	0.18		0.74	0.65		0.65	0.56	0.56
v/c Ratio		0.25	0.55	0.67	0.38		0.68	0.48		0.13	0.69	0.04
Control Delay		42.3	9.6	58.7	39.7		29.7	12.9		7.6	22.9	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0

Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing Traffic PM Peak Hour  
Existing Geometric Configuration

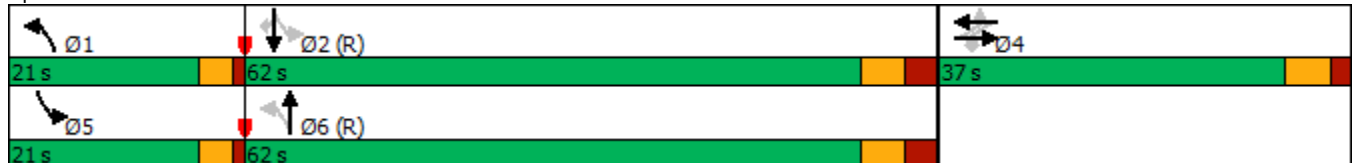


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		42.3	9.6	58.7	39.7		29.7	12.9		7.6	22.9	0.1
LOS		D	A	E	D		C	B		A	C	A
Approach Delay		16.6			51.1			14.9			22.2	
Approach LOS		B			D			B			C	
Queue Length 50th (m)		16.0	1.5	36.9	20.0		16.8	60.4		2.0	101.5	0.0
Queue Length 95th (m)		27.8	23.3	55.6	34.2		45.3	88.5		6.4	147.8	0.4
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		425	593	344	394		293	2688		365	2325	639
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.17	0.46	0.46	0.27		0.60	0.48		0.10	0.69	0.04

Intersection Summary























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	20.8
Intersection LOS:	C
Intersection Capacity Utilization	68.1%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing Traffic Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	137	52	108	200	24	69	736	48	44	543	24
Future Volume (vph)	13	137	52	108	200	24	69	736	48	44	543	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.984			0.991				0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1892	1568	1805	1827	0	1752	4574	0	1736	4117	1553
Flt Permitted		0.884		0.548			0.417			0.309		
Satd. Flow (perm)	0	1680	1568	1041	1827	0	769	4574	0	565	4117	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		5			11				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	3%	0%	2%	5%	3%	13%	3%	4%	26%	4%
Adj. Flow (vph)	14	149	57	117	217	26	75	800	52	48	590	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	57	117	243	0	75	852	0	48	590	26
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		22.8	22.8	22.8	22.8		84.2	74.6		83.8	74.4	74.4
Actuated g/C Ratio		0.19	0.19	0.19	0.19		0.70	0.62		0.70	0.62	0.62
v/c Ratio		0.51	0.16	0.59	0.69		0.12	0.30		0.10	0.23	0.03
Control Delay		48.1	6.1	55.7	54.2		6.3	12.0		6.5	11.8	0.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0

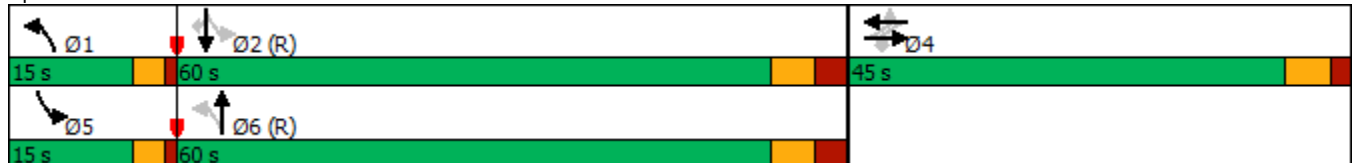


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		48.1	6.1	55.7	54.2		6.3	12.0		6.5	11.8	0.0
LOS		D	A	E	D		A	B		A	B	A
Approach Delay		37.2			54.7			11.5			10.9	
Approach LOS		D			D			B			B	
Queue Length 50th (m)		36.6	0.0	26.7	55.5		4.7	35.2		3.0	23.5	0.0
Queue Length 95th (m)		53.9	7.5	43.5	76.9		11.8	52.0		8.3	36.9	0.1
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		546	558	338	597		643	2848		513	2554	987
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.30	0.10	0.35	0.41		0.12	0.30		0.09	0.23	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	96 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	21.1
Intersection LOS:	C
Intersection Capacity Utilization	61.4%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



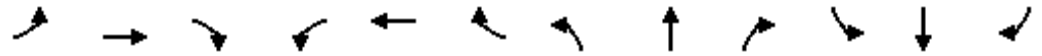
Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing + Site Gen. Traffic AM Peak Hour  
Existing Geometric Configuration

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	36	75	252	60	59	281	1530	135	20	797	50
Future Volume (vph)	17	36	75	252	60	59	281	1530	135	20	797	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.926			0.988				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1631	1214	1805	1699	0	1703	4252	0	1805	4183	1495
Flt Permitted		0.898		0.720			0.267			0.092		
Satd. Flow (perm)	0	1488	1214	1368	1699	0	479	4252	0	175	4183	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		44			15				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	29%	8%	33%	0%	7%	0%	6%	22%	4%	0%	24%	8%
Adj. Flow (vph)	18	39	82	274	65	64	305	1663	147	22	866	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	82	274	129	0	305	1810	0	22	866	54
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		30.2	30.2	30.2	30.2		79.6	72.0		70.9	59.9	59.9
Actuated g/C Ratio		0.25	0.25	0.25	0.25		0.66	0.60		0.59	0.50	0.50
v/c Ratio		0.15	0.22	0.80	0.28		0.68	0.71		0.10	0.41	0.07
Control Delay		33.1	7.9	58.3	23.2		19.4	21.1		7.2	13.6	0.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0

Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing + Site Gen. Traffic AM Peak Hour  
Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		33.1	7.9	58.3	23.2		19.4	21.1		7.2	13.6	0.7
LOS		C	A	E	C		B	C		A	B	A
Approach Delay		18.2			47.0			20.9			12.7	
Approach LOS		B			D			C			B	
Queue Length 50th (m)		10.9	0.0	63.2	16.5		28.9	96.6		1.1	44.6	0.0
Queue Length 95th (m)		20.4	11.7	88.0	30.5		#60.2	172.5		m2.9	49.0	0.6
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		483	449	444	581		450	2555		257	2088	778
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.12	0.18	0.62	0.22		0.68	0.71		0.09	0.41	0.07

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 97 (81%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 21.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.0%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

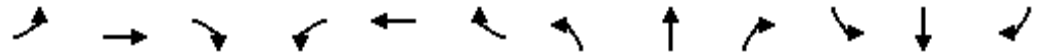
Existing + Site Gen. Traffic PM Peak Hour  
Proposed Geometric Configuration

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	52	249	210	72	25	163	1118	110	32	1474	25
Future Volume (vph)	16	52	249	210	72	25	163	1118	110	32	1474	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.961			0.987				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	1538	1787	1486	0	1410	4104	0	1378	4150	1091
Flt Permitted		0.925		0.709			0.092			0.188		
Satd. Flow (perm)	0	1658	1538	1334	1486	0	137	4104	0	273	4150	1091
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			264		14			18				64
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		147.8			113.8			340.1			668.4	
Travel Time (s)		10.6			8.2			20.4			40.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	5%	1%	28%	8%	28%	27%	2%	31%	25%	48%
Adj. Flow (vph)	17	57	271	228	78	27	177	1215	120	35	1602	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	271	228	105	0	177	1335	0	35	1602	27
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		16.0	57.0		16.0	57.0	57.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0		21.0	62.0		21.0	62.0	62.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%		17.5%	51.7%		17.5%	51.7%	51.7%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		17.0	55.0		17.0	55.0	55.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		26.0	26.0	26.0	26.0		84.0	73.8		74.0	63.0	63.0
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.70	0.62		0.62	0.52	0.52
v/c Ratio		0.21	0.50	0.79	0.32		0.73	0.53		0.15	0.74	0.04
Control Delay		38.1	8.2	63.2	35.2		36.7	15.6		5.2	18.9	1.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0

Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Existing + Site Gen. Traffic PM Peak Hour

Existing Geometric Configuration

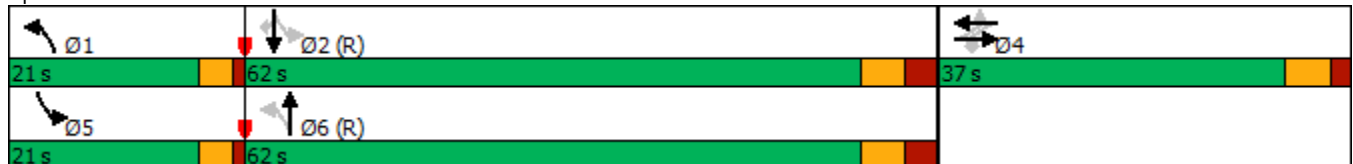


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		38.1	8.2	63.2	35.2		36.7	15.6		5.2	18.9	1.0
LOS		D	A	E	D		D	B		A	B	A
Approach Delay		14.6			54.4			18.1			18.3	
Approach LOS		B			D			B			B	
Queue Length 50th (m)		14.9	1.4	53.0	18.7		20.9	73.4		1.0	127.1	0.0
Queue Length 95th (m)		27.6	23.0	80.3	33.9		47.7	94.8		m1.7	160.8	m0.5
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		428	593	344	394		276	2530		342	2178	603
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.17	0.46	0.66	0.27		0.64	0.53		0.10	0.74	0.04

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 21.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 71.4%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



Industrial Dr./Northwood St. at Huron Church Rd. Existing + Site Gen. Traffic Sat. Peak Hour  
 Windsor, Ontario Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↕↕↕		↖	↕↕↕	↗
Traffic Volume (vph)	13	137	52	172	200	24	69	820	53	44	543	24
Future Volume (vph)	13	137	52	172	200	24	69	820	53	44	543	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.984			0.991				0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1892	1568	1805	1827	0	1752	4574	0	1736	4117	1553
Flt Permitted		0.960		0.570			0.417			0.270		
Satd. Flow (perm)	0	1824	1568	1083	1827	0	769	4574	0	493	4117	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		5			11				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	3%	0%	2%	5%	3%	13%	3%	4%	26%	4%
Adj. Flow (vph)	14	149	57	187	217	26	75	891	58	48	590	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	57	187	243	0	75	949	0	48	590	26
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		26.2	26.2	26.2	26.2		80.8	71.2		80.4	70.9	70.9
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.67	0.59		0.67	0.59	0.59
v/c Ratio		0.41	0.14	0.79	0.60		0.13	0.35		0.12	0.24	0.03
Control Delay		41.6	5.3	66.3	46.5		7.9	14.5		5.5	8.3	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0

Industrial Dr./Northwood St. at Huron Church Rd. Existing + Site Gen. Traffic Sat. Peak Hour  
 Windsor, Ontario Existing Geometric Configuration



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		41.6	5.3	66.3	46.5		7.9	14.5		5.5	8.3	0.1
LOS		D	A	E	D		A	B		A	A	A
Approach Delay		32.2			55.1			14.0			7.8	
Approach LOS		C			E			B			A	
Queue Length 50th (m)		35.0	0.0	44.1	53.5		5.3	43.5		2.2	11.8	0.0
Queue Length 95th (m)		49.6	7.0	64.5	71.7		13.6	65.7		4.7	14.8	0.3
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		592	558	351	597		621	2716		453	2433	944
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.28	0.10	0.53	0.41		0.12	0.35		0.11	0.24	0.03

Intersection Summary























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 96 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 21.5 Intersection LOS: C  
 Intersection Capacity Utilization 63.2% ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario























Total Traffic 2028 AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	39	81	268	65	64	303	1643	145	22	859	54
Future Volume (vph)	18	39	81	268	65	64	303	1643	145	22	859	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.926			0.988				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1629	1214	1805	1699	0	1703	4252	0	1805	4183	1495
Flt Permitted		0.891		0.717			0.238			0.070		
Satd. Flow (perm)	0	1475	1214	1362	1699	0	427	4252	0	133	4183	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		44			15				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	29%	8%	33%	0%	7%	0%	6%	22%	4%	0%	24%	8%
Adj. Flow (vph)	20	42	88	291	71	70	329	1786	158	24	934	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	62	88	291	141	0	329	1944	0	24	934	59
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		31.4	31.4	31.4	31.4		78.4	68.4		68.3	57.3	57.3
Actuated g/C Ratio		0.26	0.26	0.26	0.26		0.65	0.57		0.57	0.48	0.48
v/c Ratio		0.16	0.23	0.82	0.30		0.77	0.80		0.13	0.47	0.08
Control Delay		32.7	7.6	59.3	24.0		25.1	26.0		8.9	15.1	0.8
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario























Total Traffic 2028 PM Peak Hour  
Existing Geometric Configuration

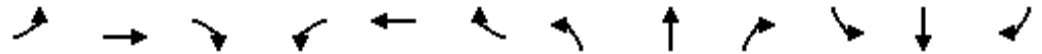
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	56	268	221	78	27	176	1201	118	34	1588	27
Future Volume (vph)	17	56	268	221	78	27	176	1201	118	34	1588	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.962			0.987				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	1538	1787	1487	0	1410	4103	0	1378	4150	1091
Flt Permitted		0.923		0.706			0.071			0.166		
Satd. Flow (perm)	0	1654	1538	1328	1487	0	105	4103	0	241	4150	1091
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			262		14			18				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	5%	1%	28%	8%	28%	27%	2%	31%	25%	48%
Adj. Flow (vph)	18	61	291	240	85	29	191	1305	128	37	1726	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	291	240	114	0	191	1433	0	37	1726	29
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		16.0	57.0		16.0	57.0	57.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0		21.0	62.0		21.0	62.0	62.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%		17.5%	51.7%		17.5%	51.7%	51.7%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		17.0	55.0		17.0	55.0	55.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		26.8	26.8	26.8	26.8		83.2	73.0		72.0	61.0	61.0
Actuated g/C Ratio		0.22	0.22	0.22	0.22		0.69	0.61		0.60	0.51	0.51
v/c Ratio		0.21	0.53	0.81	0.33		0.81	0.57		0.17	0.82	0.05
Control Delay		37.9	10.1	64.5	35.6		52.2	16.8		5.3	16.9	0.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Total Traffic 2028 Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	148	56	180	215	26	74	877	57	47	585	26
Future Volume (vph)	14	148	56	180	215	26	74	877	57	47	585	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.984			0.991				0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1892	1568	1805	1827	0	1752	4574	0	1736	4117	1553
Flt Permitted		0.959		0.554			0.394			0.246		
Satd. Flow (perm)	0	1822	1568	1053	1827	0	727	4574	0	449	4117	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		5			11				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	3%	0%	2%	5%	3%	13%	3%	4%	26%	4%
Adj. Flow (vph)	15	161	61	196	234	28	80	953	62	51	636	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	61	196	262	0	80	1015	0	51	636	28
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		27.9	27.9	27.9	27.9		79.2	69.4		78.6	69.1	69.1
Actuated g/C Ratio		0.23	0.23	0.23	0.23		0.66	0.58		0.66	0.58	0.58
v/c Ratio		0.42	0.15	0.80	0.61		0.15	0.38		0.13	0.27	0.03
Control Delay		40.4	5.8	65.7	45.4		8.6	15.9		6.0	9.1	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		40.4	5.8	65.7	45.4		8.6	15.9		6.0	9.1	0.1
LOS		D	A	E	D		A	B		A	A	A
Approach Delay		31.5			54.1			15.4			8.6	
Approach LOS		C			D			B			A	
Queue Length 50th (m)		37.4	0.0	46.2	57.5		5.9	48.9		2.4	12.8	0.0
Queue Length 95th (m)		51.9	7.7	66.7	75.4		15.1	74.2		5.0	15.9	0.3
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		592	558	342	597		586	2650		420	2371	921
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.30	0.11	0.57	0.44		0.14	0.38		0.12	0.27	0.03

Intersection Summary























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	96 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	22.0
Intersection LOS:	C
Intersection Capacity Utilization:	65.5%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



Industrial Dr./Northwood St. at Huron Church Road  
Windsor, Ontario























Total Traffic 2033 AM Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	42	87	286	70	68	326	1766	156	23	925	58
Future Volume (vph)	20	42	87	286	70	68	326	1766	156	23	925	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.926			0.988				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1629	1214	1805	1699	0	1703	4252	0	1805	4183	1495
Flt Permitted		0.886		0.713			0.205			0.075		
Satd. Flow (perm)	0	1466	1214	1355	1699	0	367	4252	0	142	4183	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		43			15				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	29%	8%	33%	0%	7%	0%	6%	22%	4%	0%	24%	8%
Adj. Flow (vph)	22	46	95	311	76	74	354	1920	170	25	1005	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	95	311	150	0	354	2090	0	25	1005	63
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effct Green (s)		32.9	32.9	32.9	32.9		76.7	66.9		64.2	53.2	53.2
Actuated g/C Ratio		0.27	0.27	0.27	0.27		0.64	0.56		0.54	0.44	0.44
v/c Ratio		0.17	0.24	0.84	0.30		0.84	0.88		0.13	0.54	0.09
Control Delay		32.0	7.2	60.3	24.4		34.5	30.6		8.6	17.5	0.9
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Industrial Dr./Northwood St. at Huron Church Road  
Windsor, Ontario























Total Traffic 2033 PM Peak Hour  
Existing Geometric Configuration

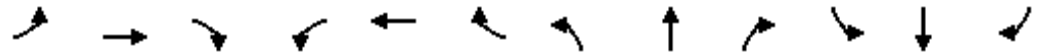
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	60	289	233	84	29	189	1291	127	37	1711	29
Future Volume (vph)	19	60	289	233	84	29	189	1291	127	37	1711	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.961			0.987				0.850
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1771	1538	1787	1487	0	1410	4103	0	1378	4150	1091
Flt Permitted		0.913		0.701			0.063			0.143		
Satd. Flow (perm)	0	1637	1538	1319	1487	0	94	4103	0	207	4150	1091
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261		14			18				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	5%	1%	28%	8%	28%	27%	2%	31%	25%	48%
Adj. Flow (vph)	21	65	314	253	91	32	205	1403	138	40	1860	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	314	253	123	0	205	1541	0	40	1860	32
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	32.0	32.0	32.0	32.0	32.0		16.0	57.0		16.0	57.0	57.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0		21.0	62.0		21.0	62.0	62.0
Total Split (%)	30.8%	30.8%	30.8%	30.8%	30.8%		17.5%	51.7%		17.5%	51.7%	51.7%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0		17.0	55.0		17.0	55.0	55.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effct Green (s)		27.7	27.7	27.7	27.7		82.3	72.0		70.6	59.6	59.6
Actuated g/C Ratio		0.23	0.23	0.23	0.23		0.69	0.60		0.59	0.50	0.50
v/c Ratio		0.23	0.57	0.83	0.35		0.87	0.62		0.20	0.90	0.06
Control Delay		37.7	12.0	66.3	35.9		64.2	18.2		6.2	24.5	0.8
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Industrial Dr./Northwood St. at Huron Church Rd.  
Windsor, Ontario

Total Traffic 2033 Saturday Peak Hour  
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	159	60	189	232	28	80	938	61	51	630	28
Future Volume (vph)	15	159	60	189	232	28	80	938	61	51	630	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	25.0		0.0	300.0		0.0	42.0		88.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	7.5			23.0			38.0			36.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850		0.984			0.991				0.850
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1892	1568	1805	1827	0	1752	4574	0	1736	4117	1553
Flt Permitted		0.943		0.537			0.368			0.222		
Satd. Flow (perm)	0	1792	1568	1020	1827	0	679	4574	0	406	4117	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		5			11				64
Link Speed (k/h)		50			50			60				60
Link Distance (m)		147.8			113.8			340.1				668.4
Travel Time (s)		10.6			8.2			20.4				40.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	3%	0%	2%	5%	3%	13%	3%	4%	26%	4%
Adj. Flow (vph)	16	173	65	205	252	30	87	1020	66	55	685	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	65	205	282	0	87	1086	0	55	685	30
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4		4	4			6			2		2
Detector Phase	4	4	4	4	4		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		8.0	10.0		8.0	10.0	10.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0		12.0	55.0		12.0	55.0	55.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0		15.0	60.0		15.0	60.0	60.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%		12.5%	50.0%		12.5%	50.0%	50.0%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		11.0	53.0		11.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	3.0		1.0	3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	7.0		4.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0		3.0	4.0	4.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0			10.0			10.0	10.0
Flash Dont Walk (s)	13.0	13.0	13.0	13.0	13.0			10.0			10.0	10.0
Pedestrian Calls (#/hr)	10	10	10	10	10			10			10	10
Act Effect Green (s)		29.3	29.3	29.3	29.3		77.9	67.9		77.1	67.5	67.5
Actuated g/C Ratio		0.24	0.24	0.24	0.24		0.65	0.57		0.64	0.56	0.56
v/c Ratio		0.43	0.15	0.82	0.63		0.17	0.42		0.16	0.30	0.03
Control Delay		39.8	6.4	67.3	44.8		9.2	17.1		6.4	9.7	0.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		39.8	6.4	67.3	44.8		9.2	17.1		6.4	9.7	0.1
LOS		D	A	E	D		A	B		A	A	A
Approach Delay		31.2			54.3			16.5			9.1	
Approach LOS		C			D			B			A	
Queue Length 50th (m)		39.4	0.0	47.9	61.0		6.9	56.3		2.6	13.7	0.0
Queue Length 95th (m)		55.8	8.8	71.2	81.6		16.2	80.9		5.3	16.8	0.3
Internal Link Dist (m)		123.8			89.8			316.1			644.4	
Turn Bay Length (m)			30.0	25.0			300.0			42.0		88.0
Base Capacity (vph)		582	558	331	597		549	2593		390	2316	901
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0
Reduced v/c Ratio		0.32	0.12	0.62	0.47		0.16	0.42		0.14	0.30	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	96 (80%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	22.6
Intersection LOS:	C
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 6: Huron Church Rd. & Industrial Dr./Northwood St.



## **Appendix E**

# **SIGHT LINE ANALYSIS**

**RI/RO Access at Huron Church Road**  
**Northerly Site Access at Daytona Avenue**  
**Southerly Site Access at Daytona Avenue**

**23-1384 1878 Huron Church Road, Windsor, ON TIS - Sight Line Analysis**

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

**Design Speed: 80km/h (Posted Speed Limit = 60 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**) =  $0.278 V_{\text{major}} t_g$

Where:

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

$ISD_{\text{passenger car}}$  (left turn from stop) =  $0.278 \times 80 \times 7.5 = 167 \text{ m}$

**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

$ISD_{\text{passenger car}}$  (right turn from stop) =  $0.278 \times 80 \times 6.5 = 145 \text{ m}$

**23-1384 1878 Huron Church Road, Windsor, ON TIS - Sight Line Analysis**

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

**Design Speed: 60km/h (Posted Speed Limit = 50 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**) =  $0.278 V_{\text{major}} t_g$

Where:

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

$ISD_{\text{passenger car}}$  (left turn from stop) =  $0.278 \times 60 \times 7.5 = \mathbf{125 \text{ m}}$

**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

$ISD_{\text{passenger car}}$  (right turn from stop) =  $0.278 \times 60 \times 6.5 = \mathbf{108 \text{ m}}$