



## **TRAFFIC IMPACT STUDY**

### **FRED'S FARM FRESH CONDOS MIXED-USE DEVELOPMENT**

**2144 HURON CHURCH ROAD  
WINDSOR, ONTARIO**

PROJECT NO. 22-072

DATE: MAY 08, 2023

REVISION 1: DEC 19, 2023

REVISION 2: APRIL 17, 2024



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## 1.0 INTRODUCTION

### 1.1 Background

Baird AE has been retained to prepare a Traffic Impact Assessment in support of a proposed mixed-use development at 2144 Huron Church Road, in the City of Windsor. The study was undertaken in support of an Official Plan Amendment Application and Zoning By-law Amendment.

The site is bounded by Huron Church Road to the west, Daytona Avenue to the east, Fred's Farm Fresh to the north, and a commercial plaza to the south.

The development will utilize the existing two access roads of Fred's Farm Fresh. The first access is on Daytona Avenue and the second access is on Huron Church Road. The development is anticipated to be completed in 2027.

The traffic flow from the development is predicted to produce 2555 daily vehicles, 103 morning vehicles and 94 evening peak vehicles.



Exhibit 1 - Location Plan

## 1.2 Proposed Development

As illustrated in the site plan (Appendix A), the overall existing lot is 1.28ha, Fred's Farm Fresh will be retained in an area of 0.71ha and the proposed development will be on a severed parcel of 0.57ha in size. The proposed development will comprise of a six-story combined use building, which will contain 58 dwelling units and 274 square metres of commercial retail space (2 commercial units).

## 1.3 Scope

The proposed development is anticipated to be completed in 2027. Therefore, future horizon periods (conditions) are established as part of this study:

- 2027 Future Condition
- 2037 Future Condition – 10-year horizon

The study considered the impacts of site-generated traffic at the intersection of Huron Church Road and Northwood Street.

## 1.4 Analysis Methodology

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

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

that 95 percent of the sample lies below. The 95th percentile critical queue lengths were identified for movements where the queue surpassed the estimated length of the storage bay.

These measures provide an indication of delay and the number of vehicles that can be accommodated through an intersection.

## 2.0 EXISTING CONDITION

### 2.1 Road Network Characteristics

The existing road lane configuration and existing traffic controls for the study are described below.

**Huron Church Road** is designated as a Class 1 Arterial Road under the jurisdiction of the City of Windsor and maintains a posted speed limit of 60km/h. The road has a six-lane cross-section, running north-south.

**Northwood Street** is designated as a local two-way roadway with a posted speed limit of 50km/h. It is signalized on its approach to the intersection with Huron Church Road.

### 2.2 Key Existing Intersections

The major intersection within the vicinity of the development is Huron Church Road and Northwood Street. The intersection is a 4-leg signalized intersection with exclusive left-turn lanes for northbound, southbound and westbound traffic. Exclusive right-turn lanes are provided for southbound traffic. The intersection of Huron Church Road and Northwood Street is signalized. Intersection layout photos are provided in Appendix D.

### 2.3 Existing Traffic Volumes

A recent traffic count was obtained from the City of Windsor for the intersection of Huron Church Road and Northwood Street. Counts were conducted in 2020.

Traffic counts and other relevant data are in Appendix A.

## 3.0 FUTURE CONDITION

### 3.1 Growth Rate

The growth rate information was obtained from the Windsor Area Long Range Transportation Study (WALTS) traffic growth chart. Based on the chart, 20-year traffic growth (2.17 traffic volume 1997 and 2.22 traffic volume 2017) is approximately 1.1%; hence, a conservative growth rate of 2% per year was assumed to reflect growth in background traffic volumes. The projected traffic volumes are provided in Appendix B.

### 3.2 Future Background Development

The development is generally located in a busy area surrounded by commercial, industrial and residential developments. Based on communications with the City's Transportation Planning Department, the following new development planning applications have been submitted:

- Daytona Residential Development: This 0.18ha future development is within approximately 100 metres of the proposed development and will consist of a four-storey apartment building with 20 dwelling units.
- Westdell Residential and Commercial Development: 1 combined use building and 3 new apartment buildings containing 640 dwelling units and 2 stand-alone commercial buildings.
- 2080 Huron Church Road: A 138-bed retirement home or a 93-unit residential building with a commercial space on the main floor.

The Gordie Howe International Bridge project which is currently under construction will provide direct entry to the USA from Highway 401 without utilizing Huron Church Road. The bridge construction will be completed in 2027, causing a large traffic reduction for this portion of Huron Church Road.

## 4.0 DEVELOPMENT TRAFFIC

This section will describe development accesses, trip generation, trip distribution and ultimate peak hour traffic.

### 4.1 Description of Project

As shown in the site plan (Appendix A), the development area is approximately 0.71ha and consists of a six-storey apartment building including a retail section. The apartment building will contain 58 dwelling units.

### 4.2 Development Access

The development will use the two existing accesses on Huron Church Road and Daytona Avenue. All intersections are T-leg intersections with “Stop” controls on the access roads. Access locations are shown in Exhibit 2.

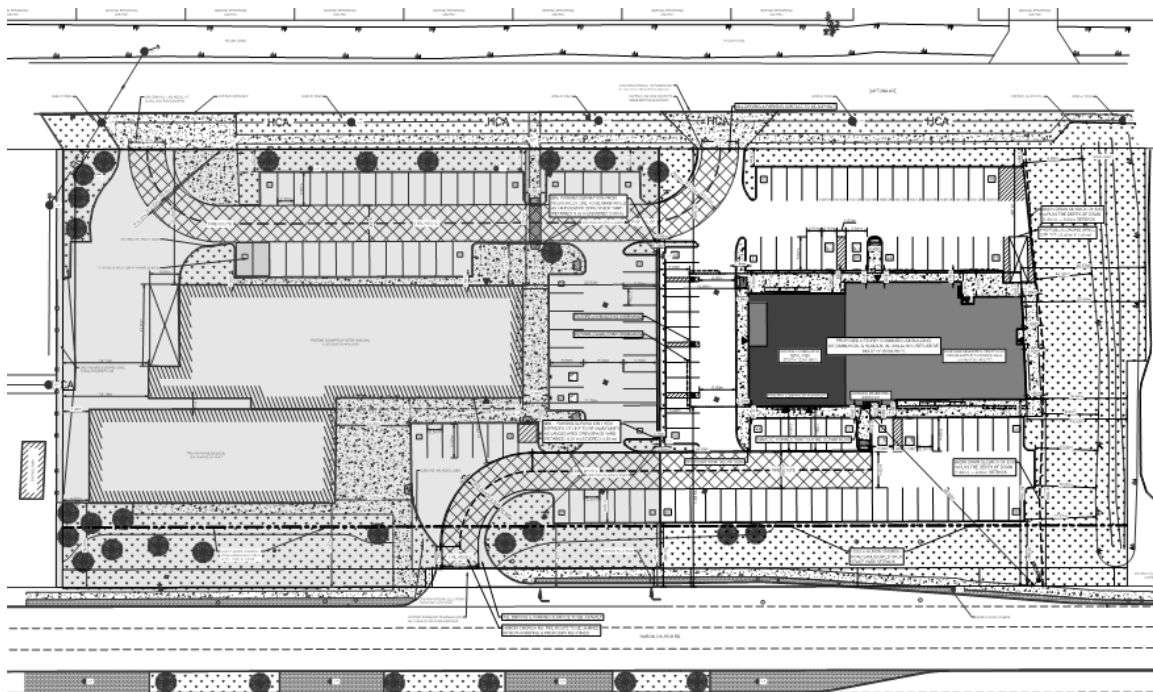


Exhibit 2 – Access Road Locations

All approaches at the intersection will have one left-through-right shared lane for modelling purposes.



### 4.3 Trip Generation

The number of vehicle trips anticipated to be generated by the proposed development was calculated based on trip generation rates published by The Institution of Transportation Engineers (ITE) Trip Generation 9th Edition. For the residential section, ITE Code 221 (Low Rise Apartment) was used for apartment buildings and ITE Code 851 (convenient market) was used for the retail section.

The existing Fred's Farm Fresh traffic was also calculated using the ITE Trip Generation Manual. For the garden section of the existing building, ITE code 817 (Garden Centre) was used, and ITE Code 850 (supermarket) was assumed for the retail section of the building.

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

Table 1: Trip Generation

Use	ITE	Units /Area	AADT	Trip Generated			
				AM Hour		PM Hour	
				In	Out	In	Out
<b>Proposed Mix Use Development</b>							
Apartment Building	221	58 units	382	6	21	22	12
Convenient market	851	2.9k sq.ft	2173	38	38	31	29
Total Residential			2555	44	59	53	41
<b>Existing Fred's Farms</b>							
<u>Section 1</u> Retail Store	850	11.9k sq.ft	1186	16	10	36	34
<u>Section 2</u> Garden Section	817	6.8k sq.ft	790	40%	60%	40%	60%
<u>Pass-by Trips</u>				6	8	16	24
Total Fred's Farms			1976	33	35	84	107

<b>Future Development</b>							
<u>Westdell Residential Development</u>							
Mix - Apartment & Commercial Buildings	-	Note 1		143	331	316	201
<u>2800 Huron Church Road (Retirement Homes or residential plus Commercial)</u>							
Retirement Homes	254	138 beds	378	17	8	20	20
Restaurant	931	2.9k sq.ft	261	1	8	4	10
Total Future Development			639	161	347	340	231

Note1: see traffic impact study prepared by Baird AE dated May 30, 2023

Pass-by traffic was considered in this study. Pass-by trips are made by traffic already using the adjacent roadway, entering the site as an intermediate stop. There are commercial developments within the limits of the traffic study area. It is assumed that pass-by trips are added to the total trips to make it more conservative, as shown in Table 1.

#### ***4.4 Trip Distribution and Assignment***

Given that the site is in an urban location (proximity to a mix of residential, industrial, commercial, and employment uses), the trip distribution is based on the shortest route to reach the City Centre and E.C. Row Expressway. The development's traffic distribution is shown in Figures 1.2 and 2.2 (see Appendix B).

#### ***4.5 Future Conditions***

Development traffic volumes were added to the forecasted (2027 and 2037) background traffic volumes to obtain the corresponding total traffic volumes at intersections. The projected total future volumes are provided in Figure 1.3 and Figure 2.3 (see Appendix B).

## 5.0 INTERSECTION OPERATIONS

The forecasted 2027 and 2037 traffic volumes for the study intersections are evaluated using Synchro/Sim Traffic software version 10, which automates the procedures contained in the Highway Capacity Manual 2010.

The 2027 background conditions and future total conditions analyses results are included in Tables 2 - 3, and the corresponding worksheets are included in Appendix C.

Table 2: 2027 Background Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
<b>Huron Church Road and Northwood Street</b>						
EB LT	C	0.12	33.8	C	0.16	34.4
EB R	A	0.23	6.1	A	0.56	9.2
WB L	D	0.54	40.9	D	0.36	35.9
WB TR	D	0.40	44.0	D	0.38	50.0
NB L	C	0.72	32.4	D	0.56	38.6
NB TR	<b>E</b>	<b>1.02</b>	<b>68.1</b>	D	0.81	40.9
SB L	B	0.11	16.2	B	0.18	17.8
SB T	D	0.74	48.0	<b>F</b>	<b>1.29</b>	<b>177.6</b>
SB R	A	0.11	0.4	A	0.07	0.3
<b>Overall LOS</b>	<b>D</b>			<b>F</b>		

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

Table 3: 2027 Total Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
<b>Huron Church Road and Northwood Street</b>						
EB LT	C	0.12	33.8	C	0.15	34.3
EB R	A	0.22	6.1	A	0.55	9.2
WB L	D	0.64	45.0	D	0.43	37.6
WB TR	D	0.42	44.1	D	0.38	49.3
NB L	C	0.73	32.4	D	0.59	41.1
NB TR	<b>E</b>	<b>1.03</b>	<b>69.3</b>	D	0.87	44.2
SB L	B	0.17	17.3	C	0.32	21.1
SB T	D	0.81	48.0	<b>F</b>	<b>1.32</b>	<b>186.6</b>
SB R	A	0.10	0.4	A	0.07	0.3
<b>Overall LOS</b>	<b>E</b>			<b>F</b>		

<b>Daytona Avenue and Northwood Street</b>						
EB LTR	A	0.03	1.6	A	0.05	2.3
WB LTR	A	0.0	0.0	A	0.0	0.0
NB LTR	C	0.18	19.4	C	0.22	18.9
WB LTR	B	0.15	11.6	B	0.22	11.2
<b>Overall LOS</b>	<b>A</b>			<b>A</b>		

The results of the analyses from Tables 2 and 3 indicate the following:

- **Huron Church Road and Northwood Street Intersection**
  - During background conditions, all turning movements are expected to operate at an unacceptable level of service especially northbound and southbound traffic. The new bridge, Gordie Howe Bridge, is expected to be completed in 2025, which will take the heavy traffic load off of Huron Church Road. Heavy traffic accounts for 27 percent of overall northbound traffic. Intersection improvements, such as extended phase timing, are required. The current signal operates at a 150-second cycle length.
  - With the development traffic, all turning movements are expected to operate at an acceptable level of service, except for northbound and southbound traffic. Intersection improvements are required such as extended phase timing. The current signal operates at a 150-second cycle length. It is noted that the proposed development is expected to have minimal impact on the conditions at the intersections.
- **Daytona Avenue and Northwood Street Intersection**
  - The Intersection of Daytona Avenue and Northwood Street will perform at an acceptable level of service in post development conditions.

The 2037 background conditions and future total conditions' analyses results are included in Tables 4 and 5 and the corresponding worksheets are included in Appendix C.

Table 4: 2037 Background Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
<b>Huron Church Road and Northwood Street</b>						
EB LT	C	0.14	34.1	C	0.19	34.8
EB R	A	0.27	9.4	A	0.61	9.4
WB L	D	0.64	44.7	D	0.43	37.4
WB TR	D	0.47	47.4	D	0.44	52.3
NB L	E	0.92	64.2	D	0.72	51.3
NB TR	<b>F</b>	<b>1.20</b>	<b>134.4</b>	D	0.95	53.1
SB L	B	0.13	16.5	C	0.26	21.4
SB T	D	0.87	54.8	<b>F</b>	<b>1.52</b>	<b>272.9</b>
SB R	A	0.13	1.7	A	0.09	0.4
<b>Overall LOS</b>	<b>D</b>			<b>F</b>		

Table 5: 2037 Total Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
<b>Huron Church Road and Northwood Street</b>						
EB LT	C	0.14	34.1	C	0.19	34.8
EB R	A	0.27	9.4	A	0.61	9.4
WB L	D	0.75	51.2	D	0.52	39.8
WB TR	D	0.50	47.5	D	0.45	52.2
NB L	<b>F</b>	<b>0.98</b>	<b>84.7</b>	D	0.72	51.3
NB TR	<b>F</b>	<b>1.24</b>	<b>151.2</b>	<b>F</b>	<b>1.08</b>	<b>85.0</b>
SB L	B	0.19	17.7	C	0.36	27.8
SB T	<b>F</b>	<b>1.04</b>	<b>83.4</b>	<b>F</b>	<b>1.59</b>	<b>301.3</b>
SB R	A	0.13	1.7	A	0.09	0.4
<b>Overall LOS</b>	<b>F</b>			<b>F</b>		
<b>Daytona Avenue and Northwood Street</b>						
EB LTR	A	0.04	1.5	A	0.03	1.3
WB LTR	A	0.0	0.0	A	0.0	0.0
NB LTR	C	0.22	23.7	C	0.21	19.0
WB LTR	B	0.17	12.6	B	0.22	11.7
<b>Overall LOS</b>	<b>A</b>			<b>A</b>		

The results of the analyses from Tables 4 and 5 indicate the following:

- Huron Church Road and Northwood Street Intersection

- During background conditions, all turning movements are expected to operate at an unacceptable level of service especially northbound and southbound traffic. The Gordie Howe Bridge is expected to be completed in 2025, which will take heavy traffic load off of Huron Church Road. Heavy traffic accounts for 27 percent of overall northbound traffic. Intersection improvements are required such as extended phase timing. The current signal operates at a 150-second cycle length.
- With the development traffic, all turning movements are expected to operate at an acceptable level of service except northbound and southbound traffic. Intersection improvements are required such as extended phase timing. The current signal operates at 150 second cycle length. It should be noted that the proposed development is expected to have minimal impact on the conditions at the intersections.
- The analysis of mitigated signal timing to 165 sec at intersection including the advanced EB green phase are conducted. The analysis results are provided in table below.

Table 6: 2037 Mitigated Total Conditions – Level of Service

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	v/c	Delay (sec)	LOS	v/c	Delay (sec)
<b>Huron Church Road and Northwood Street</b>						
EB LT	D	0.24	45.5	D	0.23	46.1
EB R	B	0.15	12.7	D	0.88	52.7
WB L	E	0.29	70.5	E	0.63	55.9
WB TR	E	0.17	65.8	E	0.55	66.3
NB L	<b>F</b>	<b>0.62</b>	<b>275.6</b>	<b>F</b>	<b>1.27</b>	199.8
NB TR	<b>F</b>	<b>0.48</b>	<b>136.1</b>	D	0.93	<b>46.9</b>
SB L	B	0.62	16.4	C	0.36	28.7
SB T	D	0.48	<b>35.3</b>	<b>E</b>	<b>1.06</b>	<b>75.5</b>
SB R	A	0.48	4.7	A	0.06	0.2
<b>Overall LOS</b>	<b>F</b>			<b>E</b>		

The above results indicates that the longer signal timing will improve delay and void to capacity (V/S) at the intersection for all turning lanes except northbound left turn.

- Daytona Avenue and Northwood Street Intersection

- Intersection of Daytona Avenue with Northwood Street perform at an acceptable level of service during post development condition.

## 6.0 CONCLUSION AND RECOMMENDATION

Operating conditions were evaluated for 2027 and 2037 traffic conditions using morning and evening traffic data. The findings from these evaluations are summarized below.

- The proposed development site is approximately 0.57ha and consists of a six-story combined use building, which will contain 58 dwelling units and 273 square meters of commercial retail space over 2 commercial units.
- The development will generate 2555 daily vehicles, 103 morning vehicles and 94 evening peak vehicles.
- It is assumed that the development will be completed by 2027.
- The background growth rate of 2 percent is considered in the analysis and represents the worst-case scenario.
- The existing two access roads will accommodate the proposed development's traffic. These intersections are "T" intersections with a "Stop" control on access roads.
- Under future background conditions;
  - The intersection of Huron Church Road and Northwood Street operates at an unacceptable level of service (i.e., 2027 and 2037), especially for northbound traffic. The intersection requires improvements in background forecasted conditions, such as extended signal timings. Signal timing can be adjusted after the completion of the new international bridge crossing in 2025, which will significantly reduce heavy vehicles from Huron Church Road.
- Under future total conditions;
  - During future conditions, all turning movements are expected to operate at an unacceptable level of service, especially northbound and southbound traffic. The Gordie Howe Bridge is expected to be completed in 2025, which

will take heavy traffic load off from Huron Church Road. Heavy traffic accounts for 27 percent of overall northbound traffic. Signal timing can be adjusted after the completion of the new international bridge crossing in 2025, which will significantly reduce heavy vehicle numbers on Huron Church Road.

- An adequate sight line distance is provided for safe departure from the development.

Based on the evaluation and findings contained within this report, the proposed development is expected to have a minimal impact on the conditions at the intersections of Northwood Street with Huron Church Road and Daytona Avenue. It should be noted that the existing intersection of Huron Church Road and Northwood Street is not performing well under background traffic volumes. This condition is not the result of, nor will it be made any worse by the proposed development.

## 7.0 CLOSURE

The information in this report is prepared for “Fred’s Farm Fresh Condo Development” regarding potential traffic impact on Huron Church Road and Daytona Avenue.

We trust that the above meets your purpose. Should you have any questions, please do not hesitate to contact the undersigned.

All of which is respectfully submitted.

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**BAIRD AE INC.**  
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## Appendix A

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### BACKGROUND TRAFFIC DATA AND OTHER RELATED INFORMATION









# 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	<b>0</b>
0	5	0	12	<b>17</b>
0	2	1	33	<b>36</b>
0	18	7	50	<b>75</b>

Peds: 0



### Northwood St

Totals		MT	HT	
<b>0</b>	0	0	0	0
<b>59</b>	59	0	0	0
<b>60</b>	56	1	3	0
<b>211</b>	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				
<b>281</b>	<b>1468</b>	<b>132</b>	<b>0</b>	
	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>

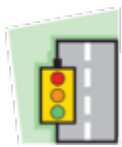
- Cars

MT - Medium Trucks

HT - Heavy Trucks

- Bicycles

## Comments



# 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



### 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
886	8	12	0	0
100	25	274	0	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>

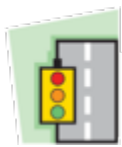
🚗 - Cars

MT - Medium Trucks

HT - Heavy Trucks

🚲 - Bicycles

## Comments



# 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

👉 👆 👇 👈

**Peds: 2**

**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	👉	👆	👈	👇
🚗	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**

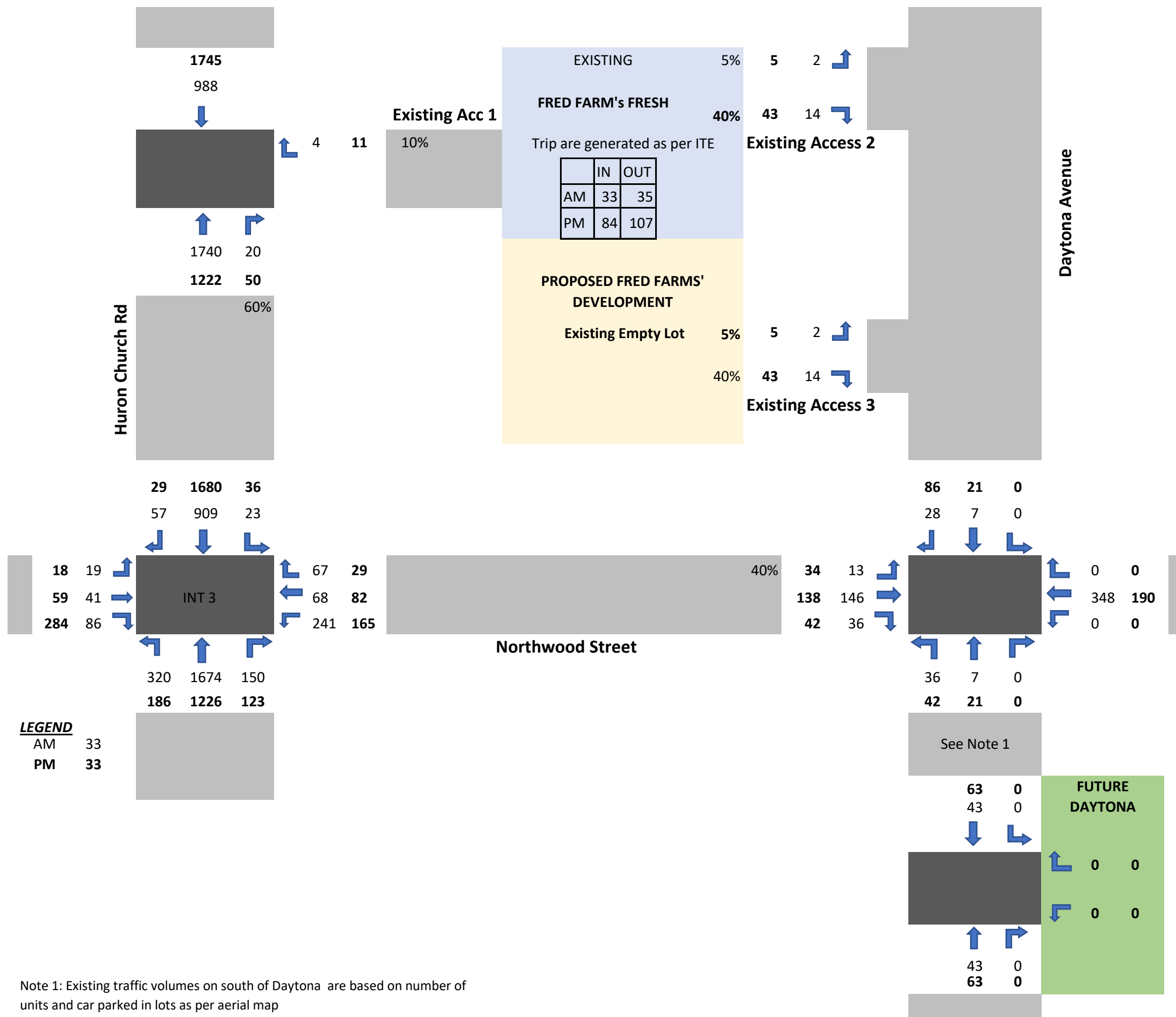
## Appendix B

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### FUTURE TRAFFIC, DEVELOPMENT TRAFFIC AND TOTAL TRAFFIC VOLUMES



# FRED'S FARM MIX USE DEVELOPMENT

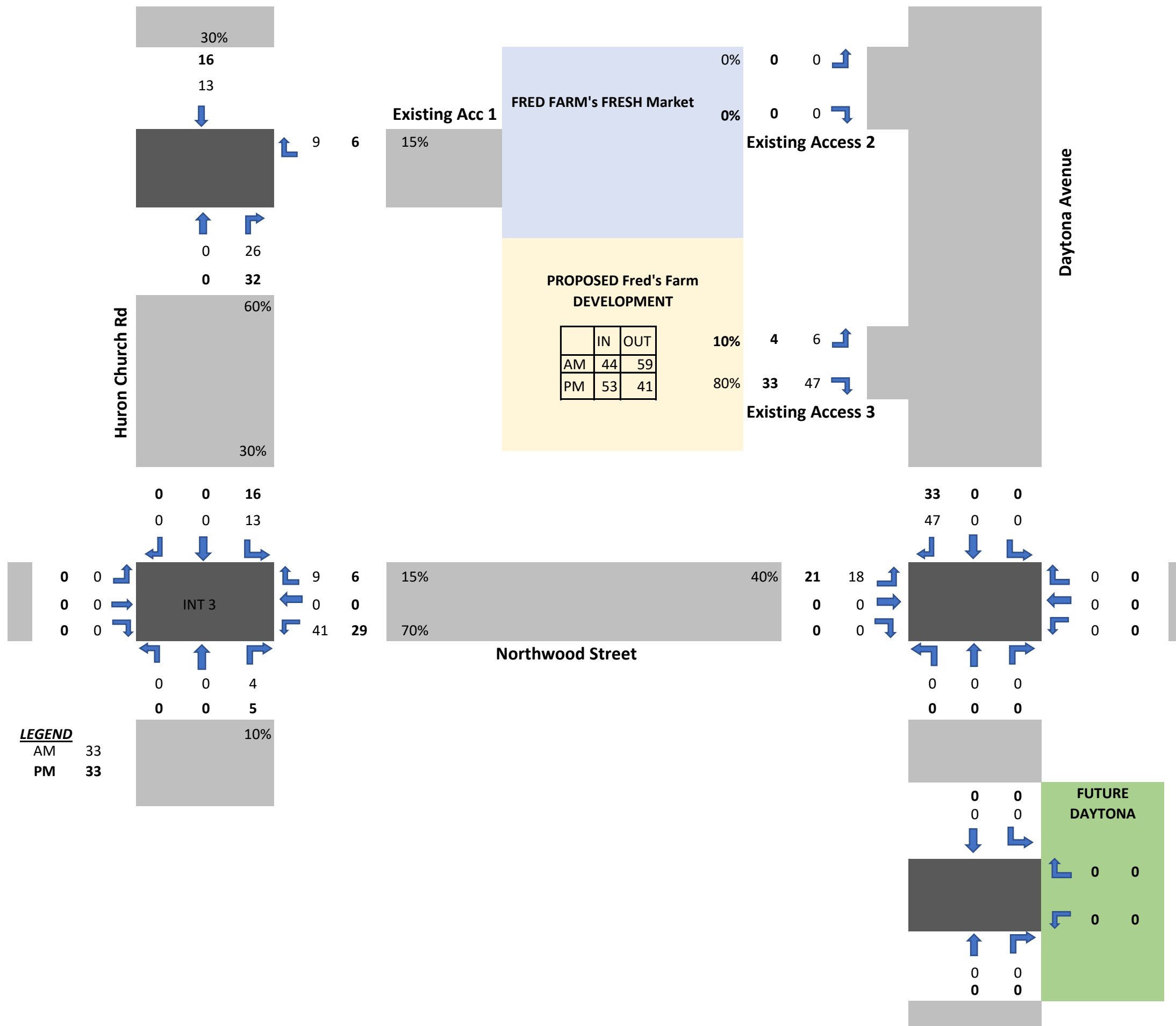


**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** 2027 BACKGROUND TRAFFIC



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 1.1

# FRED'S FARM MIX USE DEVELOPMENT

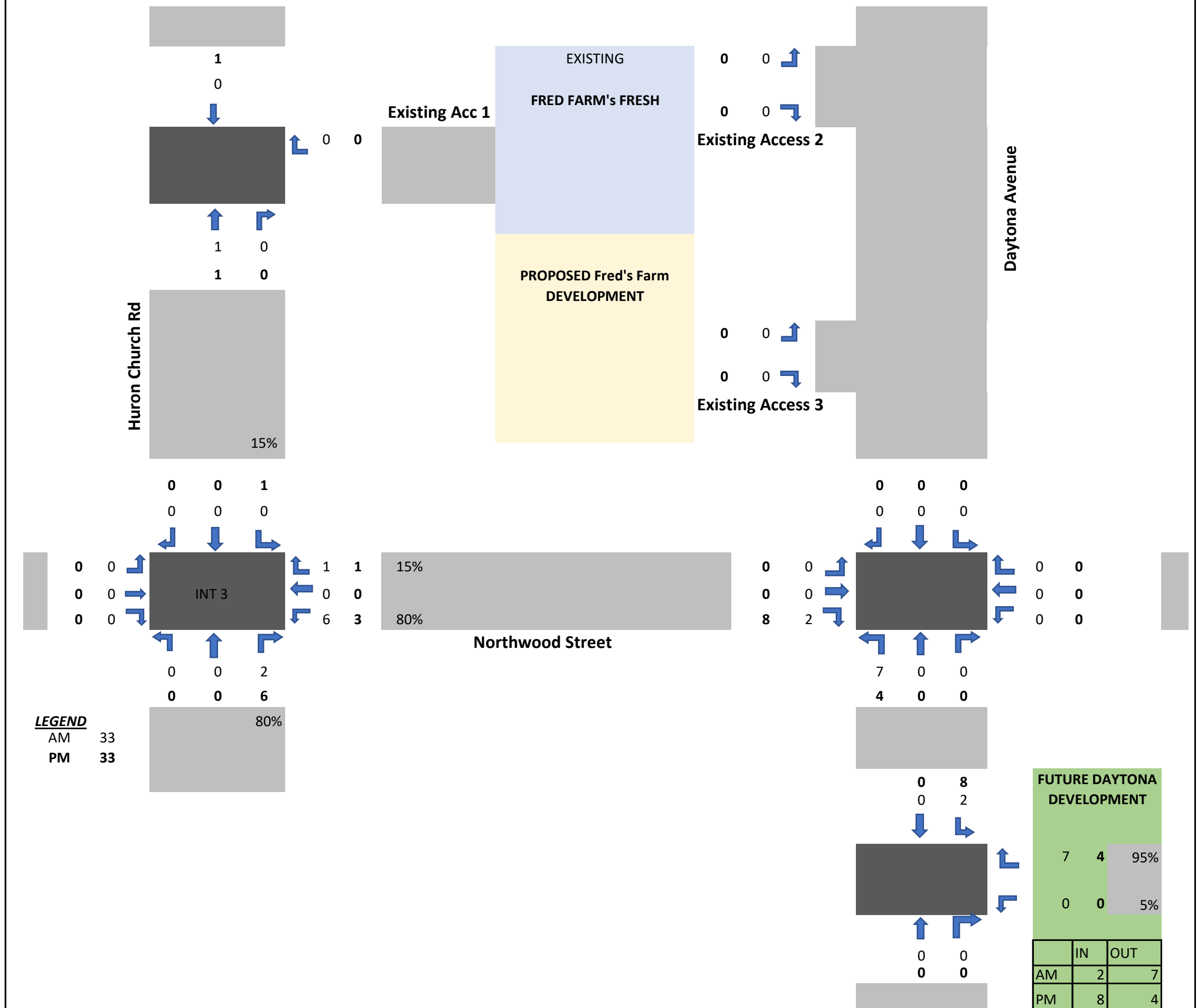


**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** PROPOSED DEVELOPMENT



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 1.2

# FRED'S FARM MIX USE DEVELOPMENT



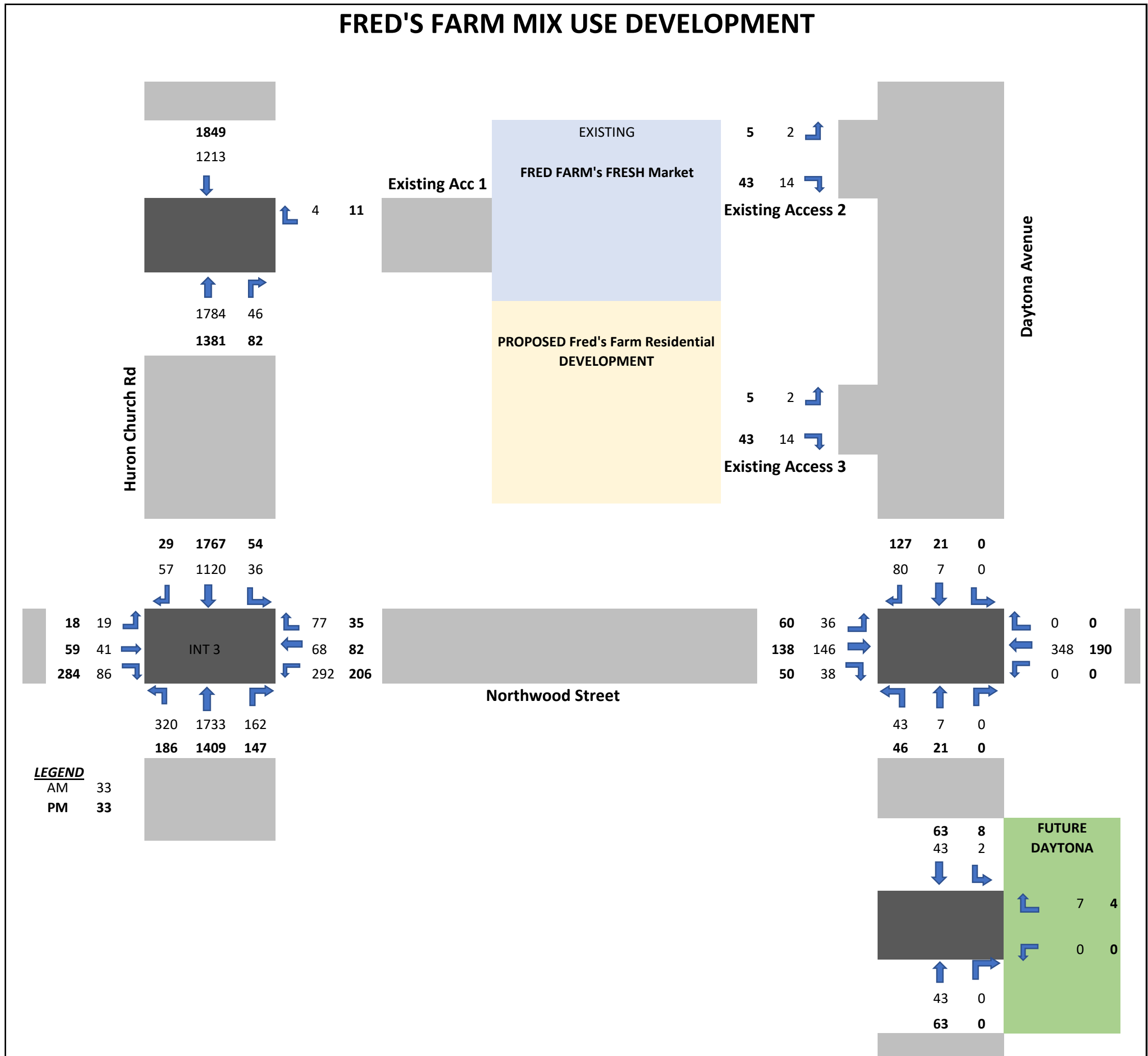
**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** 2027 FUTURE TRAFFIC - 1



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 1.3



# FRED'S FARM MIX USE DEVELOPMENT



**PROJECT NAME** Fred's Farm Mix-Use Development

**SHEET TITLE** 2027 TOTAL TRAFFIC

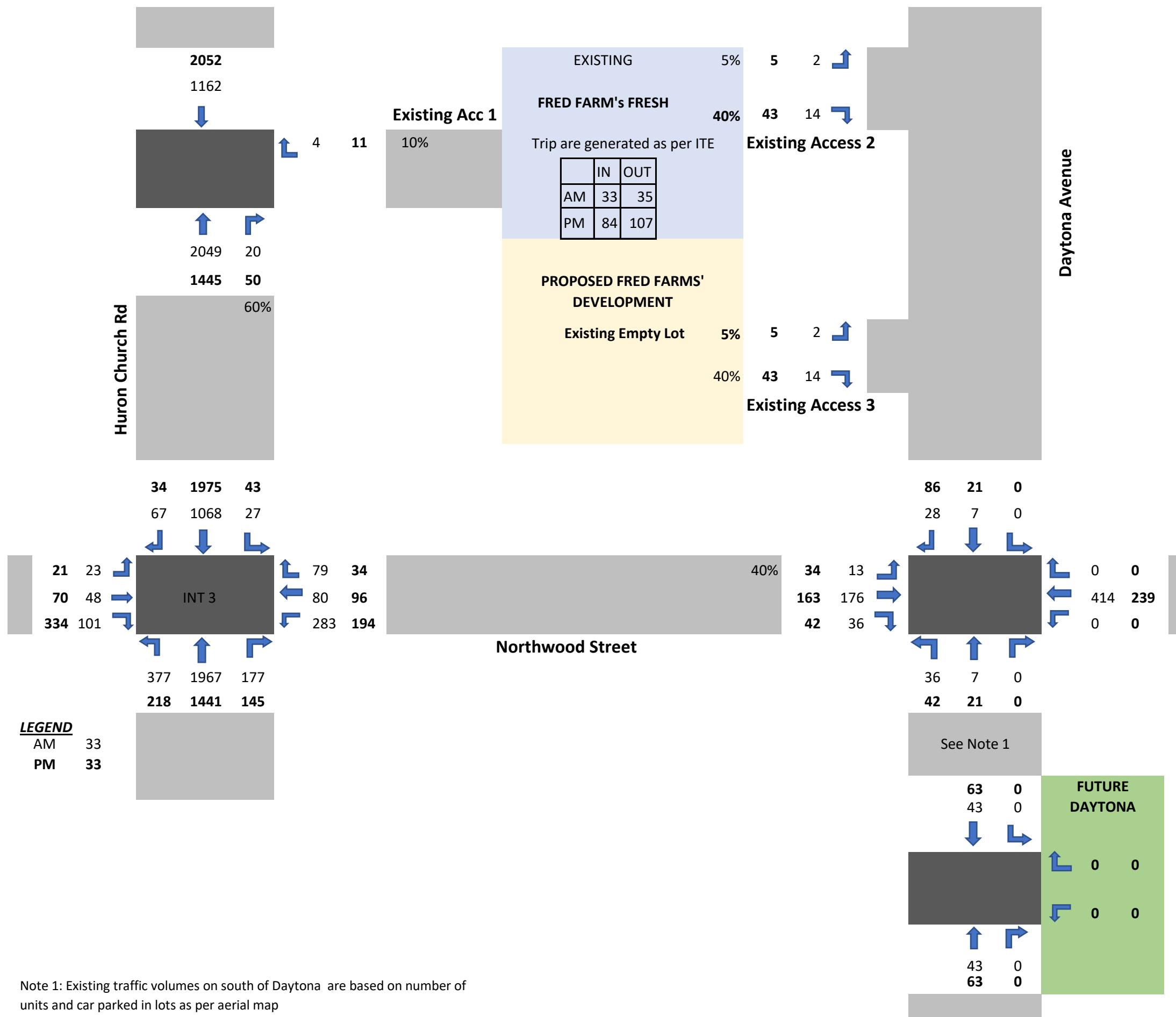


**DATE:** 19-Dec-23

**PROJECT NO:** 22-048

**FIGURE NO:** Figure 1.5

# FRED'S FARM MIX USE DEVELOPMENT

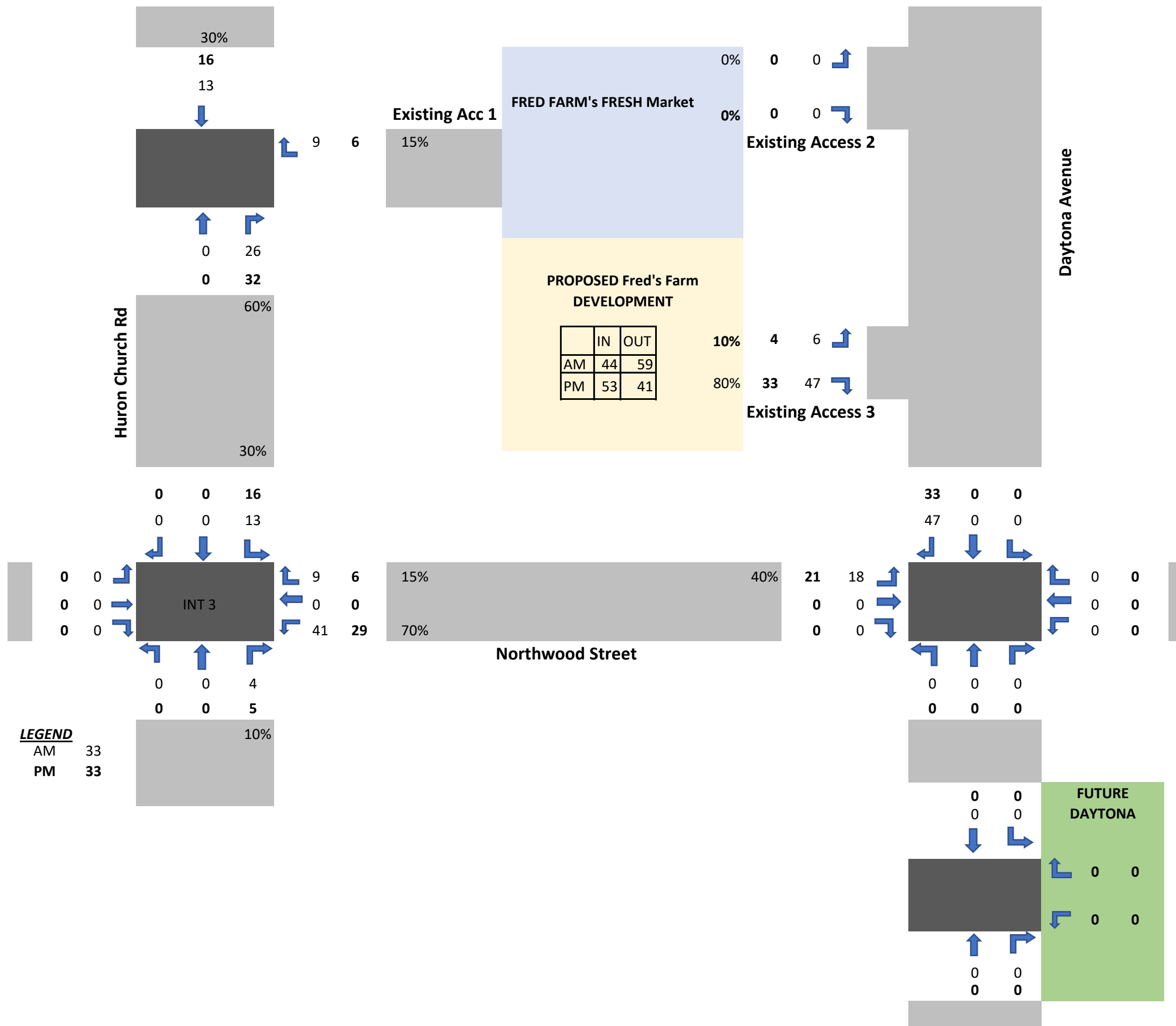


**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** 2037 BACKGROUND TRAFFIC



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 2.1

# FRED'S FARM MIX USE DEVELOPMENT

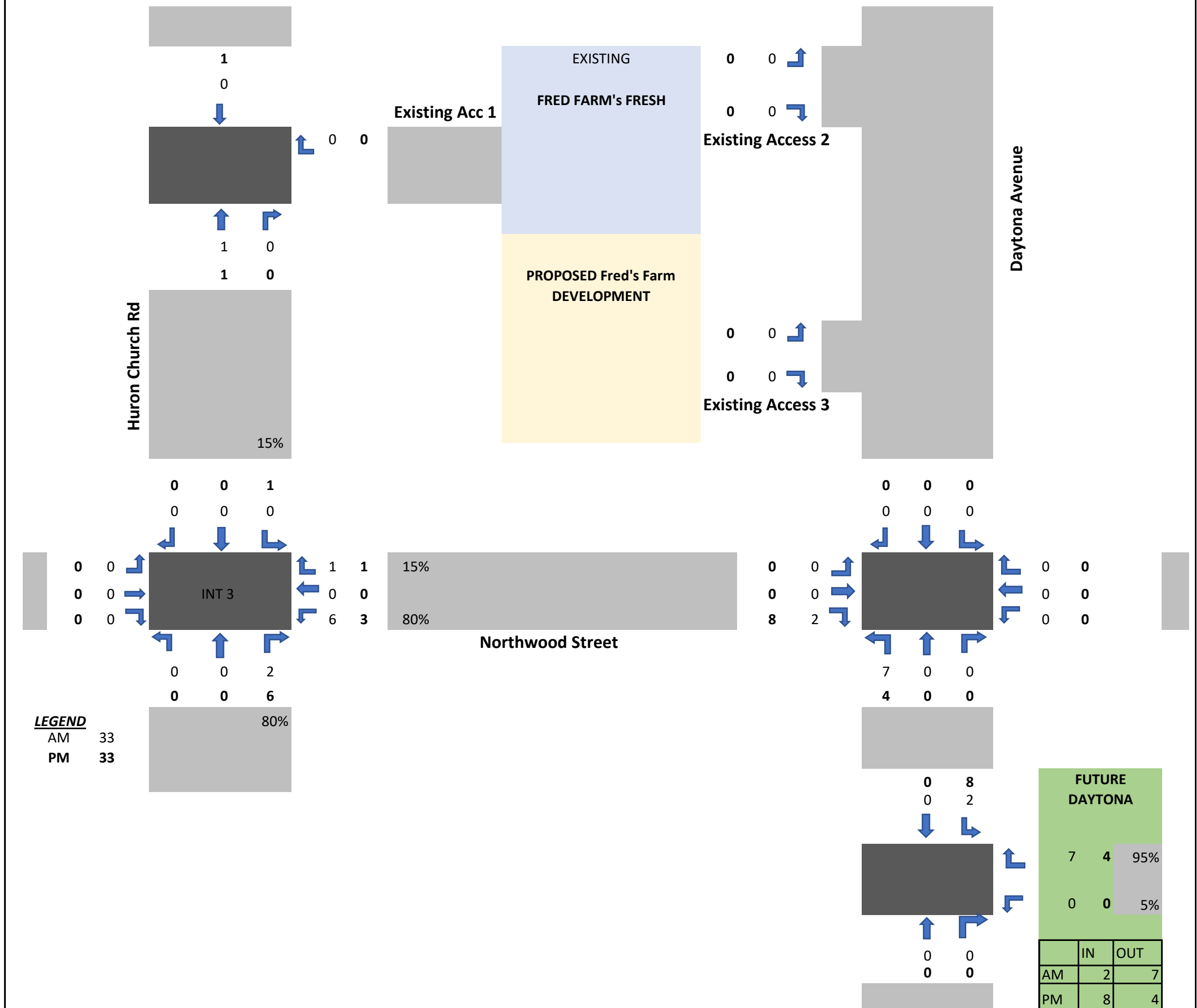


**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** PROPOSED DEVELOPMENT



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 2.2

# FRED'S FARM MIX USE DEVELOPMENT



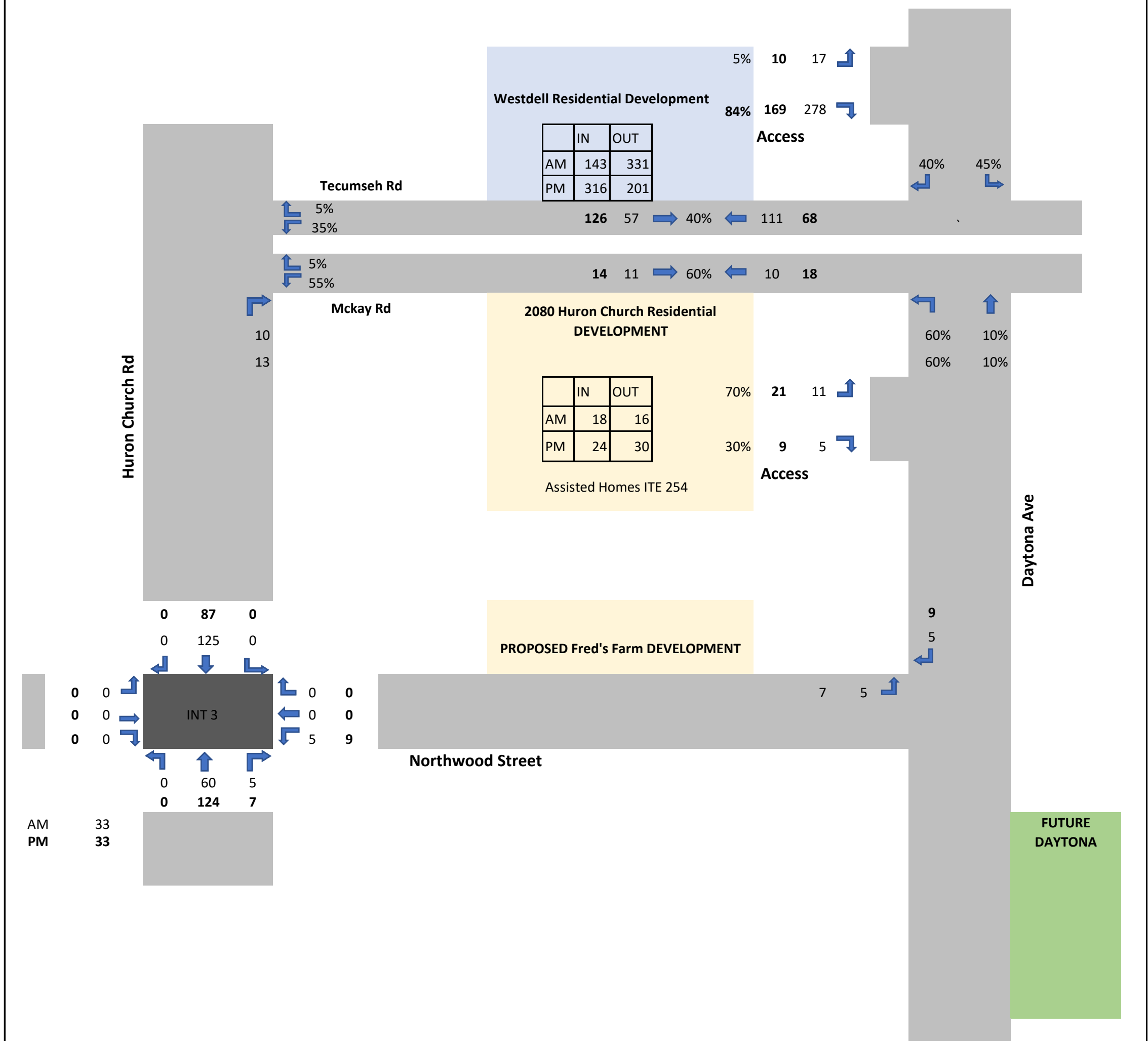
**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** 2037 FUTURE TRAFFIC - 1



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 2.3



# FRED'S FARM MIX USE DEVELOPMENT

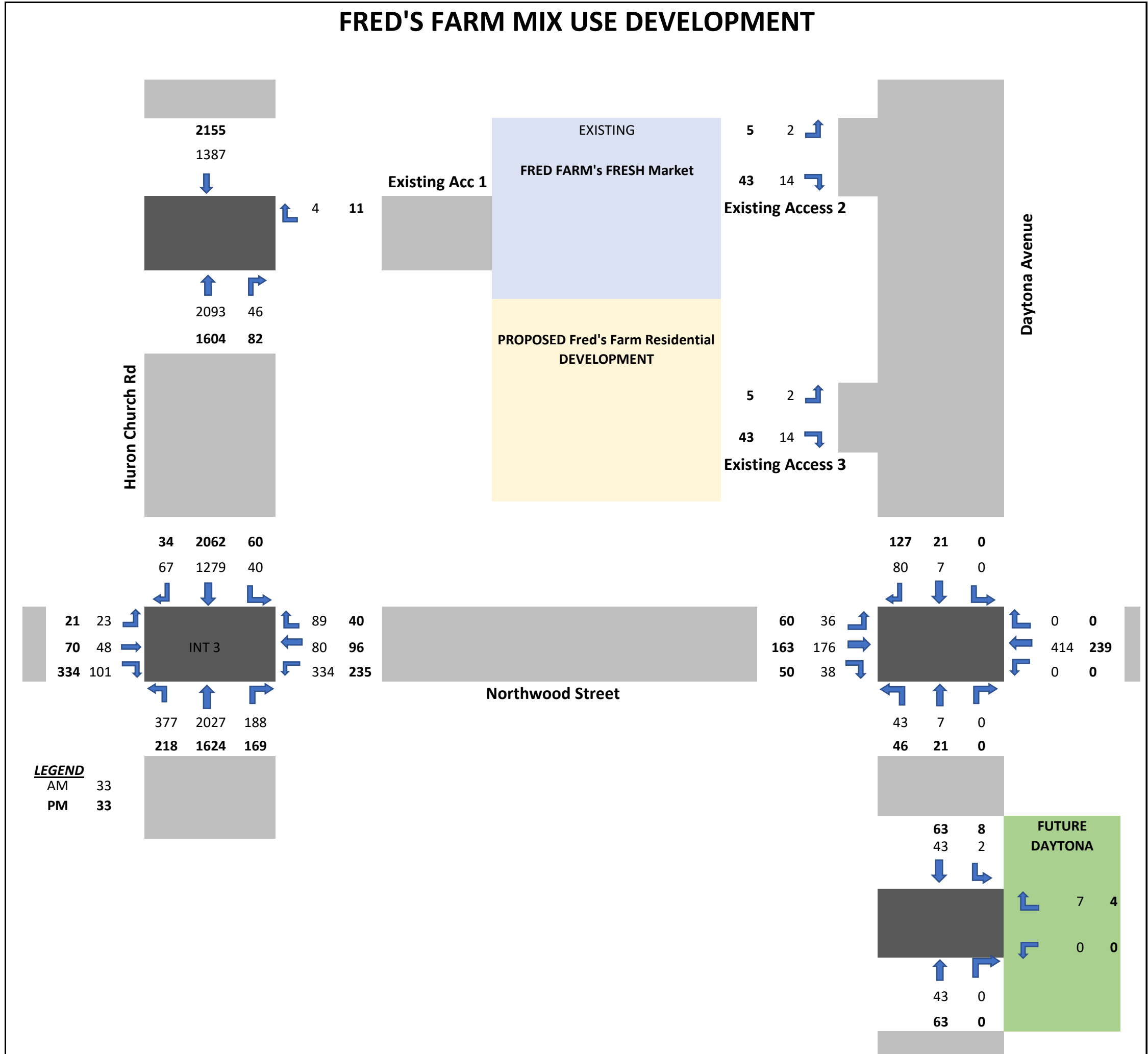


**PROJECT NAME** Fred's Farm Mix-Use Development  
**SHEET TITLE** 2037 FUTURE TRAFFIC - 2



**DATE:** 19-Dec-23  
**PROJECT NO:** 22-048  
**FIGURE NO:** Figure 2.4

# FRED'S FARM MIX USE DEVELOPMENT



**PROJECT NAME** Fred's Farm Mix-Use Development

**SHEET TITLE** 2037 TOTAL TRAFFIC



**DATE:** 19-Dec-23

**PROJECT NO:** 22-048

**FIGURE NO:** Figure 2.5

















## Appendix C

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### CAPACITY ANALYSIS

HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave























2027 BKGD AM TRAFFIC VOLUME  
 11-17-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	146	36	0	348	0	36	7	0	0	7	28
Future Volume (Veh/h)	13	146	36	0	348	0	36	7	0	0	7	28
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	159	39	0	378	0	39	8	0	0	8	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	378			198			618	584	178	588	604	378
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	378			198			618	584	178	588	604	378
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			90	98	100	100	98	96
cM capacity (veh/h)	1180			1375			374	418	864	410	408	669
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	212	378	47	38								
Volume Left	14	0	39	0								
Volume Right	39	0	0	30								
cSH	1180	1375	381	589								
Volume to Capacity	0.01	0.00	0.12	0.06								
Queue Length 95th (m)	0.3	0.0	3.3	1.6								
Control Delay (s)	0.6	0.0	15.8	11.5								
Lane LOS	A		C	B								
Approach Delay (s)	0.6	0.0	15.8	11.5								
Approach LOS			C	B								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			36.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 BKGD AM TRAFFIC VOLUME

11-17-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	41	86	241	68	67	320	1674	150	23	909	57
Future Volume (vph)	19	41	86	241	68	67	320	1674	150	23	909	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.98		0.99	1.00				0.96
Fr <sub>t</sub>			0.850		0.926			0.988				0.850
Fl <sub>t</sub> Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1853	1601	1722	1648	0	1825	4418	0	1772	3973	1555
Fl <sub>t</sub> Permitted		0.920		0.714			0.163			0.079		
Satd. Flow (perm)	0	1727	1561	1265	1648	0	311	4418	0	147	3973	1496
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		30			12				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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 (%)	2%	2%	2%	6%	6%	6%	0%	18%	3%	3%	32%	5%
Adj. Flow (vph)	21	45	93	262	74	73	348	1820	163	25	988	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	93	262	147	0	348	1983	0	25	988	62
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

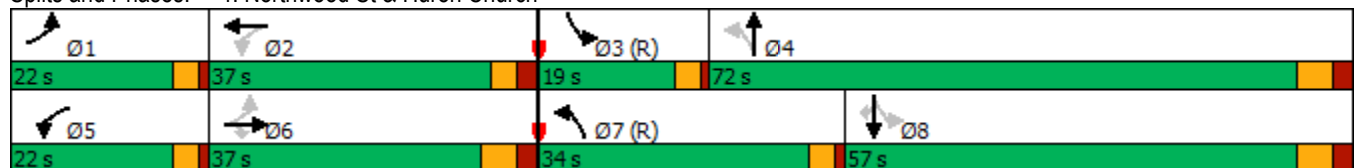
2027 BKGD AM TRAFFIC VOLUME  
11-17-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.12	0.23	0.54	0.40		0.72	1.02		0.11	0.74	0.11
Control Delay		33.8	6.1	40.9	44.0		32.4	68.1		16.2	48.0	0.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		33.8	6.1	40.9	44.0		32.4	68.1		16.2	48.0	0.4
LOS		C	A	D	D		C	E		B	D	A
Approach Delay		17.6			42.0			62.8			44.5	
Approach LOS		B			D			E			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green  
 Natural Cycle: 150  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.02  
 Intersection Signal Delay: 53.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 92.1%  
 ICU Level of Service F  
 Analysis Period (min) 15























Splits and Phases: 4: Northwood St & Huron Church



Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL AM TRAFFIC VOLUME

12-12-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	40	83	284	66	75	309	1675	157	36	1001	55
Future Volume (vph)	19	40	83	284	66	75	309	1675	157	36	1001	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.98		1.00	1.00				0.96
Frt			0.850		0.920			0.987				0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1853	1601	1722	1635	0	1825	4414	0	1772	3973	1555
Flt Permitted		0.917		0.715			0.132			0.079		
Satd. Flow (perm)	0	1722	1561	1266	1635	0	252	4414	0	147	3973	1496
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		35			13				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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 (%)	2%	2%	2%	6%	6%	6%	0%	18%	3%	3%	32%	5%
Adj. Flow (vph)	21	43	90	309	72	82	336	1821	171	39	1088	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	90	309	154	0	336	1992	0	39	1088	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL AM TRAFFIC VOLUME

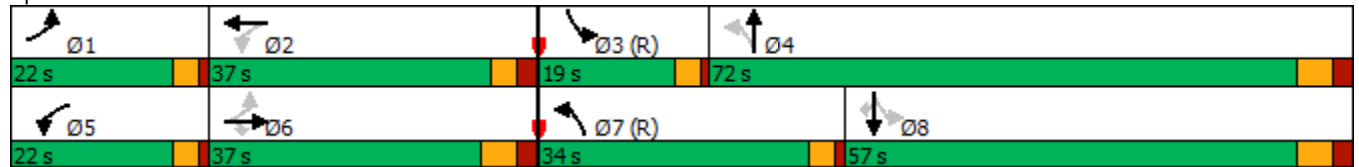
12-12-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.12	0.22	0.64	0.42		0.73	1.03		0.17	0.81	0.10
Control Delay		33.7	5.4	44.6	43.1		37.7	69.5		17.3	51.4	0.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		33.7	5.4	44.6	43.1		37.7	69.5		17.3	51.4	0.4
LOS		C	A	D	D		D	E		B	D	A
Approach Delay		17.2			44.1			65.0			47.7	
Approach LOS		B			D			E			D	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	55.9
Intersection LOS:	E
Intersection Capacity Utilization	92.1%
ICU Level of Service	F
Analysis Period (min)	15

















Splits and Phases: 4: Northwood St & Huron Church





















HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave

2027 TOTAL AM TRAFFIC VOLUME  
 12-12-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	140	38	0	335	0	43	7	0	0	7	80
Future Volume (Veh/h)	36	140	38	0	335	0	43	7	0	0	7	80
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	152	41	0	364	0	47	8	0	0	8	87
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	364			193			706	614	172	618	635	364
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	364			193			706	614	172	618	635	364
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			84	98	100	100	98	87
cM capacity (veh/h)	1195			1380			294	394	871	385	383	681
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	232	364	55	95								
Volume Left	39	0	47	0								
Volume Right	41	0	0	87								
cSH	1195	1380	305	639								
Volume to Capacity	0.03	0.00	0.18	0.15								
Queue Length 95th (m)	0.8	0.0	5.2	4.2								
Control Delay (s)	1.6	0.0	19.4	11.6								
Lane LOS	A		C	B								
Approach Delay (s)	1.6	0.0	19.4	11.6								
Approach LOS			C	B								
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			48.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave























2027 BKGD PM TRAFFIC VOLUME  
 11-17-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	138	42	0	190	0	42	21	0	0	21	86
Future Volume (Veh/h)	34	138	42	0	190	0	42	21	0	0	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	150	46	0	207	0	46	23	0	0	23	93
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	207			196			558	454	173	466	477	207
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207			196			558	454	173	466	477	207
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			88	95	100	100	95	89
cM capacity (veh/h)	1364			1377			369	488	871	479	474	833
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	233	207	69	116								
Volume Left	37	0	46	0								
Volume Right	46	0	0	93								
cSH	1364	1377	401	724								
Volume to Capacity	0.03	0.00	0.17	0.16								
Queue Length 95th (m)	0.7	0.0	4.9	4.5								
Control Delay (s)	1.4	0.0	15.8	10.9								
Lane LOS	A		C	B								
Approach Delay (s)	1.4	0.0	15.8	10.9								
Approach LOS			C	B								
Intersection Summary												
Average Delay			4.3									
Intersection Capacity Utilization			41.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 BKGD PM TRAFFIC VOLUME

11-17-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	59	284	165	82	29	168	1226	123	36	1680	29
Future Volume (vph)	18	59	284	165	82	29	168	1226	123	36	1680	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.99			1.00		1.00		0.96
Frt			0.850		0.960			0.986				0.850
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1791	1555	1789	1497	0	1437	4126	0	1393	4196	1103
Flt Permitted		0.944		0.702			0.073			0.120		
Satd. Flow (perm)	0	1707	1516	1293	1497	0	110	4126	0	176	4196	1061
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			309		11			14				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	20	64	309	179	89	32	183	1333	134	39	1826	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	309	179	121	0	183	1467	0	39	1826	32
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3		8
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 BKGD PM TRAFFIC VOLUME

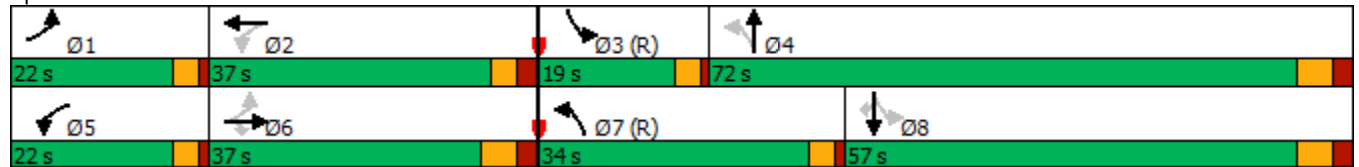
11-17-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.16	0.56	0.36	0.37		0.56	0.81		0.19	1.29	0.07
Control Delay		34.4	9.2	35.9	50.0		38.6	40.9		17.8	177.6	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.4	9.2	35.9	50.0		38.6	40.9		17.8	177.6	0.3
LOS		C	A	D	D		D	D		B	F	A
Approach Delay		14.6				41.6		40.7			171.3	
Approach LOS		B				D		D			F	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.29
Intersection Signal Delay:	96.8
Intersection LOS:	F
Intersection Capacity Utilization	97.9%
ICU Level of Service	F
Analysis Period (min)	15























Splits and Phases: 4: Northwood St & Huron Church



Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL PM TRAFFIC VOLUME

12-12-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	57	274	200	79	34	179	1306	138	52	1708	28
Future Volume (vph)	18	57	274	200	79	34	179	1306	138	52	1708	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.99			0.99		1.00		0.96
Frt			0.850		0.955			0.986				0.850
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1791	1555	1789	1496	0	1437	4128	0	1393	4196	1103
Flt Permitted		0.942		0.704			0.073			0.096		
Satd. Flow (perm)	0	1703	1516	1296	1496	0	110	4128	0	141	4196	1061
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			298		13			15				113
Link Speed (k/h)		50		50			50			50		50
Link Distance (m)		186.9		279.6			226.1			251.1		
Travel Time (s)		13.5		20.1			16.3			18.1		
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	20	62	298	217	86	37	195	1420	150	57	1857	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	82	298	217	123	0	195	1570	0	57	1857	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7		3.7			3.7			3.7		3.7
Link Offset(m)		0.0		0.0			0.0			0.0		0.0
Crosswalk Width(m)		3.0		3.0			3.0			3.0		3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL PM TRAFFIC VOLUME

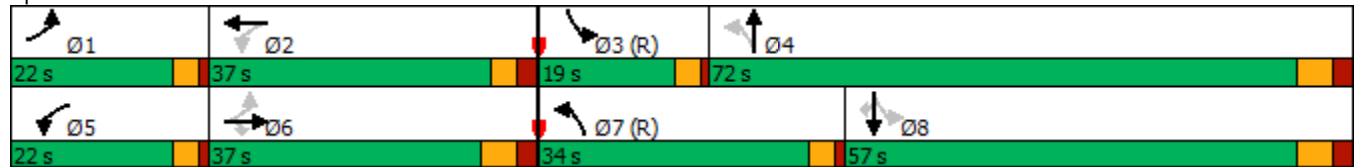
12-12-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.15	0.55	0.43	0.38		0.59	0.87		0.30	1.32	0.07
Control Delay		34.3	9.2	37.6	49.3		41.1	44.2		21.1	186.6	0.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.3	9.2	37.6	49.3		41.1	44.2		21.1	186.6	0.3
LOS		C	A	D	D		D	D		C	F	A
Approach Delay		14.6				41.8		43.9			178.9	
Approach LOS		B				D		D			F	

Intersection Summary

















Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.32
Intersection Signal Delay:	100.5
Intersection LOS:	F
Intersection Capacity Utilization	98.4%
ICU Level of Service	F
Analysis Period (min)	15

Splits and Phases: 4: Northwood St & Huron Church



















HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave

2027 TOTAL PM TRAFFIC VOLUME  
 12-12-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	132	50	0	181	0	46	21	0	0	21	127
Future Volume (Veh/h)	62	132	50	0	181	0	46	21	0	0	21	127
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	143	54	0	197	0	50	23	0	0	23	138
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	197			197			650	501	170	512	528	197
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	197			197			650	501	170	512	528	197
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			83	95	100	100	95	84
cM capacity (veh/h)	1376			1376			295	449	874	437	434	844
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	264	197	73	161								
Volume Left	67	0	50	0								
Volume Right	54	0	0	138								
cSH	1376	1376	331	744								
Volume to Capacity	0.05	0.00	0.22	0.22								
Queue Length 95th (m)	1.2	0.0	6.6	6.6								
Control Delay (s)	2.3	0.0	18.9	11.2								
Lane LOS	A		C	B								
Approach Delay (s)	2.3	0.0	18.9	11.2								
Approach LOS			C	B								
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			48.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave

2037 BKGD AM TRAFFIC VOLUME  
 11-17-2023























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	176	38	0	414	0	43	7	0	0	7	75
Future Volume (Veh/h)	31	176	38	0	414	0	43	7	0	0	7	75
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	191	41	0	450	0	47	8	0	0	8	82
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	450			232			816	730	212	734	750	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450			232			816	730	212	734	750	450
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			81	98	100	100	98	87
cM capacity (veh/h)	1110			1336			245	339	829	322	330	609
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	266	450	55	90								
Volume Left	34	0	47	0								
Volume Right	41	0	0	82								
cSH	1110	1336	256	566								
Volume to Capacity	0.03	0.00	0.22	0.16								
Queue Length 95th (m)	0.8	0.0	6.4	4.5								
Control Delay (s)	1.3	0.0	22.9	12.6								
Lane LOS	A		C	B								
Approach Delay (s)	1.3	0.0	22.9	12.6								
Approach LOS			C	B								
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			54.4%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 BKGD AM TRAFFIC VOLUME

11-17-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	48	101	283	80	79	377	1967	177	27	1068	67
Future Volume (vph)	23	48	101	283	80	79	377	1967	177	27	1068	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.98		1.00	1.00				0.96
Fr <sub>t</sub>			0.850		0.925			0.988				0.850
Fl <sub>t</sub> Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1853	1601	1722	1646	0	1825	4418	0	1772	3973	1555
Fl <sub>t</sub> Permitted		0.903		0.707			0.112			0.079		
Satd. Flow (perm)	0	1696	1561	1253	1646	0	214	4418	0	147	3973	1496
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		30			12				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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 (%)	2%	2%	2%	6%	6%	6%	0%	18%	3%	3%	32%	5%
Adj. Flow (vph)	25	52	110	308	87	86	410	2138	192	29	1161	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	110	308	173	0	410	2330	0	29	1161	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 BKGD AM TRAFFIC VOLUME

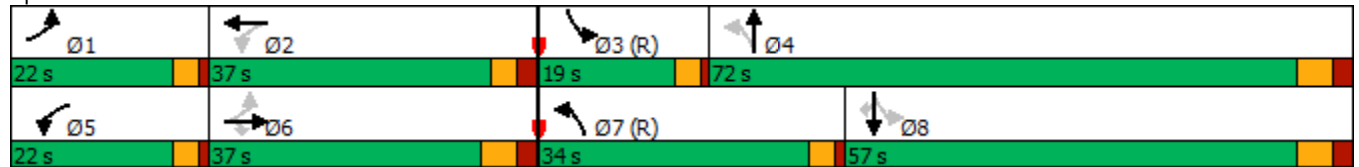
11-17-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.14	0.27	0.64	0.47		0.92	1.20		0.13	0.87	0.13
Control Delay		34.1	9.4	44.7	47.4		64.2	134.4		16.5	54.8	1.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.1	9.4	44.7	47.4		64.2	134.4		16.5	54.8	1.7
LOS		C	A	D	D		E	F		B	D	A
Approach Delay		19.6			45.7			123.9			50.8	
Approach LOS		B			D			F			D	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.20
Intersection Signal Delay:	91.9
Intersection LOS:	F
Intersection Capacity Utilization	92.1%
ICU Level of Service	F
Analysis Period (min)	15























Splits and Phases: 4: Northwood St & Huron Church



Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 TOTAL AM TRAFFIC VOLUME

12-12-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	48	101	334	80	89	377	2027	188	40	1279	67
Future Volume (vph)	23	48	101	334	80	89	377	2027	188	40	1279	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.98			1.00				0.96
Fr <sub>t</sub>			0.850		0.921			0.987				0.850
Fl <sub>t</sub> Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1853	1601	1722	1637	0	1825	4414	0	1772	3973	1555
Fl <sub>t</sub> Permitted		0.901		0.707			0.073			0.079		
Satd. Flow (perm)	0	1692	1561	1253	1637	0	140	4414	0	147	3973	1496
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		34			13				113
Link Speed (k/h)		50		50			50			50		50
Link Distance (m)		186.9		279.6			226.1			251.1		
Travel Time (s)		13.5		20.1			16.3			18.1		
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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 (%)	2%	2%	2%	6%	6%	6%	0%	18%	3%	3%	32%	5%
Adj. Flow (vph)	25	52	110	363	87	97	410	2203	204	43	1390	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	110	363	184	0	410	2407	0	43	1390	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7		3.7			3.7			3.7		3.7
Link Offset(m)		0.0		0.0			0.0			0.0		0.0
Crosswalk Width(m)		3.0		3.0			3.0			3.0		3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 TOTAL AM TRAFFIC VOLUME

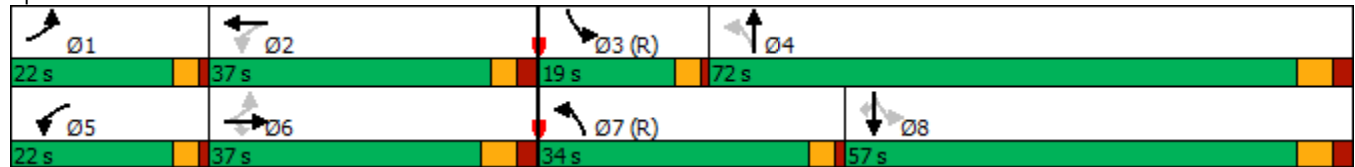
12-12-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.14	0.27	0.75	0.50		0.98	1.24		0.19	1.04	0.13
Control Delay		34.1	9.4	51.2	47.5		84.7	151.2		17.7	83.4	1.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.1	9.4	51.2	47.5		84.7	151.2		17.7	83.4	1.7
LOS		C	A	D	D		F	F		B	F	A
Approach Delay		19.6			50.0		141.5			77.6		
Approach LOS		B			D		F			E		

Intersection Summary

















Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.24
Intersection Signal Delay:	108.0
Intersection LOS:	F
Intersection Capacity Utilization	92.6%
ICU Level of Service	F
Analysis Period (min)	15

Splits and Phases: 4: Northwood St & Huron Church



















HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave

2037 TOTAL AM TRAFFIC VOLUME  
 12-12-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	176	38	0	414	0	43	7	0	0	7	80
Future Volume (Veh/h)	36	176	38	0	414	0	43	7	0	0	7	80
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	191	41	0	450	0	47	8	0	0	8	87
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	450			232			830	740	212	744	760	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450			232			830	740	212	744	760	450
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			80	98	100	100	98	86
cM capacity (veh/h)	1110			1336			237	333	829	316	324	609
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	271	450	55	95								
Volume Left	39	0	47	0								
Volume Right	41	0	0	87								
cSH	1110	1336	247	567								
Volume to Capacity	0.04	0.00	0.22	0.17								
Queue Length 95th (m)	0.9	0.0	6.6	4.8								
Control Delay (s)	1.5	0.0	23.7	12.6								
Lane LOS	A		C	B								
Approach Delay (s)	1.5	0.0	23.7	12.6								
Approach LOS			C	B								
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			54.8%		ICU Level of Service				A			
Analysis Period (min)			15									























HCM Unsignalized Intersection Capacity Analysis  
 18: Northwood St & Daytona Ave

2037 BKGD PM TRAFFIC VOLUME  
 11-17-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	163	42	0	239	0	42	21	0	0	21	86
Future Volume (Veh/h)	34	163	42	0	239	0	42	21	0	0	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	177	46	0	260	0	46	23	0	0	23	93
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		280										
pX, platoon unblocked												
vC, conflicting volume	260			223			638	534	200	546	557	260
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260			223			638	534	200	546	557	260
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			86	95	100	100	95	88
cM capacity (veh/h)	1304			1346			321	439	841	422	426	779
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	260	260	69	116								
Volume Left	37	0	46	0								
Volume Right	46	0	0	93								
cSH	1304	1346	353	669								
Volume to Capacity	0.03	0.00	0.20	0.17								
Queue Length 95th (m)	0.7	0.0	5.7	5.0								
Control Delay (s)	1.3	0.0	17.7	11.5								
Lane LOS	A		C	B								
Approach Delay (s)	1.3	0.0	17.7	11.5								
Approach LOS			C	B								
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			45.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 BKGD PM TRAFFIC VOLUME  
11-17-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	70	334	194	96	34	218	1441	145	43	1975	34
Future Volume (vph)	21	70	334	194	96	34	218	1441	145	43	1975	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.99			1.00		1.00		0.96
Frt			0.850		0.961			0.986				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1555	1789	1499	0	1437	4126	0	1393	4196	1103
Flt Permitted		0.936		0.693			0.073			0.079		
Satd. Flow (perm)	0	1692	1516	1277	1499	0	110	4126	0	116	4196	1061
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			363		11			14				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	23	76	363	211	104	37	237	1566	158	47	2147	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	363	211	141	0	237	1724	0	47	2147	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL PM TRAFFIC VOLUME

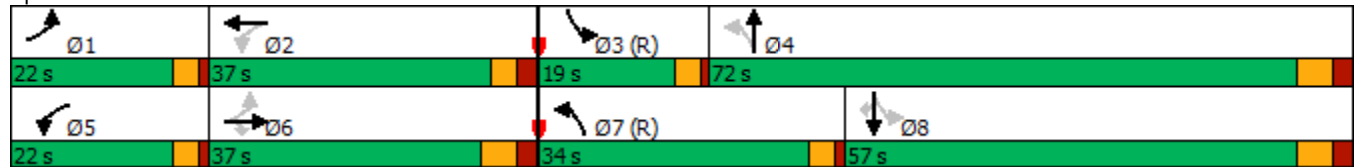
11-17-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.19	0.61	0.43	0.44		0.72	0.95		0.26	1.52	0.09
Control Delay		34.8	9.4	37.4	52.3		51.3	53.1		21.4	272.9	0.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.8	9.4	37.4	52.3		51.3	53.1		21.4	272.9	0.4
LOS		C	A	D	D		D	D		C	F	A
Approach Delay		14.9				43.3		52.9			263.1	
Approach LOS		B				D		D			F	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.52
Intersection Signal Delay:	142.4
Intersection LOS:	F
Intersection Capacity Utilization	103.6%
ICU Level of Service	G
Analysis Period (min)	15

Splits and Phases: 4: Northwood St & Huron Church



























Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 TOTAL PM TRAFFIC VOLUME

12-12-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	70	334	235	96	40	218	1624	169	60	2062	34
Future Volume (vph)	21	70	334	235	96	40	218	1624	169	60	2062	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.98	0.99			0.99				0.96
Fr <sub>t</sub>			0.850		0.956			0.986				0.850
Fl <sub>t</sub> Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1555	1789	1496	0	1437	4128	0	1393	4196	1103
Fl <sub>t</sub> Permitted		0.935		0.693			0.073			0.079		
Satd. Flow (perm)	0	1691	1516	1277	1496	0	110	4128	0	116	4196	1061
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			363		13			15				113
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	23	76	363	255	104	43	237	1765	184	65	2241	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	363	255	147	0	237	1949	0	65	2241	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	22.0	37.0	37.0	22.0	37.0		19.0	38.5		19.0	38.5	38.5
Total Split (s)	22.0	37.0	37.0	22.0	37.0		34.0	72.0		19.0	57.0	57.0
Total Split (%)	14.7%	24.7%	24.7%	14.7%	24.7%		22.7%	48.0%		12.7%	38.0%	38.0%
Maximum Green (s)	18.0	30.5	30.5	18.0	31.5		30.0	65.5		15.0	50.5	50.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		17.0	17.0		17.0			18.0			18.0	18.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2037 TOTAL PM TRAFFIC VOLUME

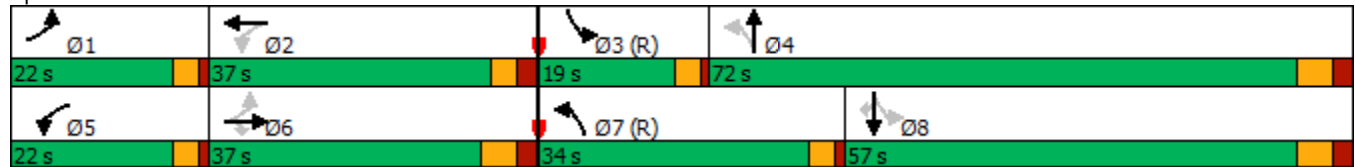
12-12-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		46.0	30.5	51.0	31.5		87.0	65.5		68.0	50.5	50.5
Actuated g/C Ratio		0.31	0.20	0.34	0.21		0.58	0.44		0.45	0.34	0.34
v/c Ratio		0.19	0.61	0.52	0.45		0.72	1.08		0.36	1.59	0.09
Control Delay		34.8	9.4	39.8	52.2		51.3	85.0		27.8	301.3	0.4
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.8	9.4	39.8	52.2		51.3	85.0		27.8	301.3	0.4
LOS		C	A	D	D		D	F		C	F	A
Approach Delay		14.9			44.3			81.3			289.0	
Approach LOS		B			D			F			F	

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	150
Control Type:	Pretimed
Maximum v/c Ratio:	1.59
Intersection Signal Delay:	163.1
Intersection LOS:	F
Intersection Capacity Utilization	105.3%
ICU Level of Service	G
Analysis Period (min)	15

















Splits and Phases: 4: Northwood St & Huron Church



Lanes, Volumes, Timings  
18: Northwood St & Daytona Ave

2037 TOTAL PM TRAFFIC VOLUME

12-12-2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	163	50	0	239	0	46	21	0	0	21	127
Future Volume (vph)	60	163	50	0	239	0	46	21	0	0	21	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975										0.884
Flt Protected		0.989						0.967				
Satd. Flow (prot)	0	1816	0	0	1883	0	0	1821	0	0	1665	0
Flt Permitted		0.989						0.967				
Satd. Flow (perm)	0	1816	0	0	1883	0	0	1821	0	0	1665	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		279.6			194.7			55.0			102.2	
Travel Time (s)		20.1			14.0			4.0			7.4	
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
Adj. Flow (vph)	65	177	54	0	260	0	50	23	0	0	23	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	0	0	260	0	0	73	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	























Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.4%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL AM TRAFFIC VOLUME - MITIGATED

04-22-2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	48	101	334	80	89	377	2027	188	40	1279	67
Future Volume (vph)	23	48	101	334	80	89	377	2027	188	40	1279	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.97	0.98		1.00	0.99				0.96
Fr <sub>t</sub>			0.850		0.921			0.987				0.850
Fl <sub>t</sub> Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1783	1555	1789	1479	0	1437	4123	0	1393	4196	1103
Fl <sub>t</sub> Permitted		0.890		0.707			0.120			0.050		
Satd. Flow (perm)	0	1607	1511	1295	1479	0	181	4123	0	73	4196	1056
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110		29			13				76
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			795.0				251.1
Travel Time (s)		13.5			20.1			57.2				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	25	52	110	363	87	97	410	2203	204	43	1390	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	110	363	184	0	410	2407	0	43	1390	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3		8
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	20.0	32.0	32.0	22.0	32.0		18.0	38.5		19.0	38.5	38.5
Total Split (s)	20.0	32.0	32.0	22.0	34.0		25.0	86.0		25.0	86.0	86.0
Total Split (%)	12.1%	19.4%	19.4%	13.3%	20.6%		15.2%	52.1%		15.2%	52.1%	52.1%
Maximum Green (s)	16.0	25.5	25.5	18.0	28.5		21.0	79.5		21.0	79.5	79.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		14.0	14.0		14.0			14.0			14.0	14.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL AM TRAFFIC VOLUME - MITIGATED

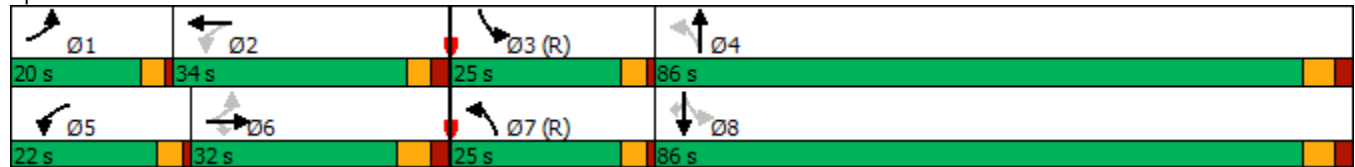
04-22-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		39.0	25.5	48.0	28.5		103.0	79.5		103.0	79.5	79.5
Actuated g/C Ratio		0.24	0.15	0.29	0.17		0.62	0.48		0.62	0.48	0.48
v/c Ratio		0.20	0.34	0.84	0.66		1.51	1.21		0.20	0.69	0.13
Control Delay		45.5	12.7	70.5	65.8		275.6	136.1		16.4	35.3	4.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		45.5	12.7	70.5	65.8		275.6	136.1		16.4	35.3	4.7
LOS		D	B	E	E		F	F		B	D	A
Approach Delay		26.2			68.9			156.4			33.3	
Approach LOS		C			E			F			C	

Intersection Summary

Area Type:	Other
Cycle Length:	165
Actuated Cycle Length:	165
Offset:	54 (33%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	165
Control Type:	Pretimed
Maximum v/c Ratio:	1.51
Intersection Signal Delay:	105.5
Intersection LOS:	F
Intersection Capacity Utilization	92.0%
ICU Level of Service	F
Analysis Period (min)	15























Splits and Phases: 4: Northwood St & Huron Church



Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL PM TRAFFIC VOLUME - MITIGATED

04-22-2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	70	334	235	96	40	218	1624	169	60	2062	34
Future Volume (vph)	21	70	334	235	96	40	218	1624	169	60	2062	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	34.0		0.0	70.0		0.0	80.0		0.0	105.0		135.0
Storage Lanes	0		1	1		0	1		0	1		1
Taper Length (m)	10.0			15.0			15.0			20.0		
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
Ped Bike Factor		1.00	0.97	0.97	0.99			0.99				0.96
Frt			0.850		0.956			0.986				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1792	1555	1789	1494	0	1437	4124	0	1393	4196	1103
Flt Permitted		0.928		0.693			0.048			0.048		
Satd. Flow (perm)	0	1677	1511	1270	1494	0	73	4124	0	70	4196	1056
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195		11			15				76
Link Speed (k/h)		50			50			50				50
Link Distance (m)		186.9			279.6			226.1				251.1
Travel Time (s)		13.5			20.1			16.3				18.1
Confl. Peds. (#/hr)	8		8	15		15	15		15	8		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%	6%	5%	2%	27%	8%	27%	27%	2%	31%	25%	48%
Adj. Flow (vph)	23	76	363	255	104	43	237	1765	184	65	2241	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	363	255	147	0	237	1949	0	65	2241	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7				3.7
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												Yes
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2			4			8		8
Minimum Split (s)	20.0	32.0	32.0	20.0	32.0		18.0	38.5		19.0	38.5	38.5
Total Split (s)	20.0	34.0	34.0	20.0	34.0		21.0	90.0		21.0	90.0	90.0
Total Split (%)	12.1%	20.6%	20.6%	12.1%	20.6%		12.7%	54.5%		12.7%	54.5%	54.5%
Maximum Green (s)	16.0	27.5	27.5	16.0	28.5		17.0	83.5		17.0	83.5	83.5
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0		3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		1.0	2.5		1.0	2.5	2.5
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)		6.5	6.5	4.0	5.5		4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Walk Time (s)		10.0	10.0		10.0			14.0			14.0	14.0
Flash Dont Walk (s)		14.0	14.0		14.0			14.0			14.0	14.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0

Lanes, Volumes, Timings  
4: Northwood St & Huron Church

2027 TOTAL PM TRAFFIC VOLUME - MITIGATED

04-22-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		41.0	27.5	46.0	28.5		103.0	83.5		103.0	83.5	83.5
Actuated g/C Ratio		0.25	0.17	0.28	0.17		0.62	0.51		0.62	0.51	0.51
v/c Ratio		0.23	0.88	0.63	0.55		1.27	0.93		0.36	1.06	0.06
Control Delay		46.1	52.7	55.9	66.3		199.8	46.9		28.7	75.5	0.2
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		46.1	52.7	55.9	66.3		199.8	46.9		28.7	75.5	0.2
LOS		D	D	E	E		F	D		C	E	A
Approach Delay		51.3			59.7			63.5			73.0	
Approach LOS		D			E			E			E	

Intersection Summary

Area Type:	Other
Cycle Length:	165
Actuated Cycle Length:	165
Offset:	0 (0%), Referenced to phase 3:SBL and 7:NBL, Start of Green
Natural Cycle:	170
Control Type:	Pretimed
Maximum v/c Ratio:	1.27
Intersection Signal Delay:	66.3
Intersection LOS:	E
Intersection Capacity Utilization	97.2%
ICU Level of Service	F
Analysis Period (min)	15

Splits and Phases: 4: Northwood St & Huron Church

20 s	34 s	21 s	90 s
20 s	34 s	21 s	90 s

## Appendix D

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### PHOTOS





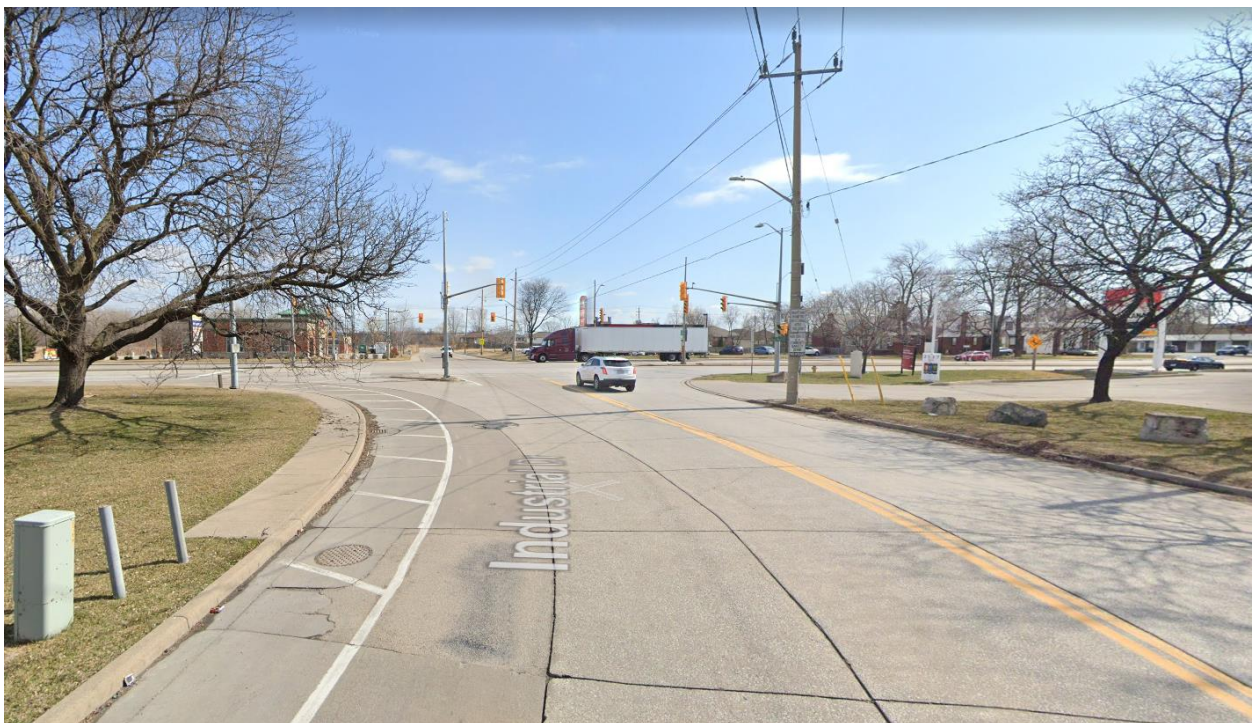
**Exhibit 3:** Looking north on Huron Church Road Toward Northwood Street



**Exhibit 4:** Looking south on Huron Church Road Toward Northwood Street



**Exhibit 5:** Looking west on Northwood Street toward on Huron Church Road



**Exhibit 6:** Looking east on Northwood Street toward on Huron Church Road



**Exhibit 7:** Looking north on Huron Church Road toward Existing Access Road



**Exhibit 8:** Looking north on Daytona Road toward Existing Access Road