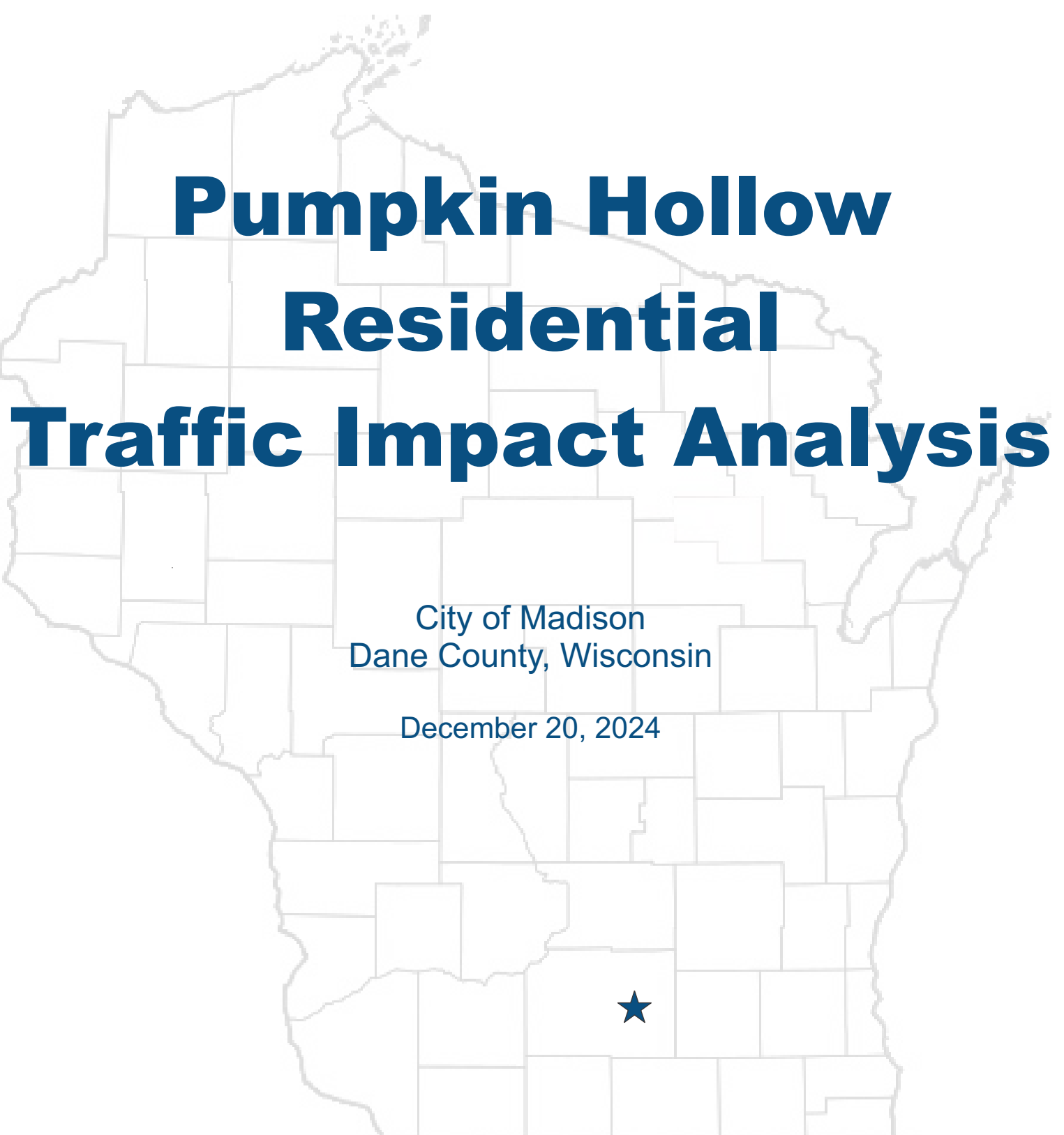




Pumpkin Hollow Residential Traffic Impact Analysis

City of Madison
Dane County, Wisconsin

December 20, 2024



TRAFFIC IMPACT ANALYSIS

DATE: December 20, 2024

TO: Aaron E. Koch, P.E.
Pinnacle Engineering Group

FROM: Don Lee, P.E.
John A Bieberitz, P.E., PTOE
Traffic Analysis & Design, Inc.

SUBJECT: **Pumpkin Hollow Residential Development**
Portage Road at Hoepker Road
City of Madison, Dane County, WI

INTRODUCTION

The Pumpkin Hollow residential development is being proposed to be located on a 27-acre parcel in the southeast corner of the Hoepker Road intersection with Portage Road in the City of Madison, Dane County, Wisconsin (Exhibit 1). Access to the site is proposed via two full access roadway connections: one along Hoepker Road and the other along Portage Road (Exhibit 2). This traffic impact analysis (TIA) report was prepared to address the weekday morning and weekday evening peak hour traffic impacts of the proposed development traffic on the adjacent transportation system.

STUDY AREA

Study Intersections

The study area for this TIA includes the following existing and proposed intersections:

- Hoepker Road with Portage Road (all-way stop control)
- Hoepker Road with proposed north access drive (one-way stop control)
- Portage Road with proposed south access drive (one-way stop control)

Each intersection is shown on the study area map on Exhibit 1. A transportation detail illustrating existing intersection lane configurations and speed limits is shown in Exhibit 3.

Study Area Roadways

Hoepker Road is a two-lane undivided east/west major collector with a posted speed limit of 35 miles per hour (mph) west of Portage Road and 45-mph to the east. There are currently no WisDOT annual average daily traffic (AADT) volumes on Hoepker Road; however, AADT volumes of approximately 8,500 vehicles per day (vpd) to the west of Portage Road and 7,900-vpd east of Portage Road were extrapolated from six hours (6 to 9 am and 3 to 6 pm) of peak

hour turning movements collected as part of this study. Sidewalks and bicycle lanes are not currently provided along either side of Hoepker Road through the project limits.

Portage Road is a two-lane undivided north/south major collector with a posted speed limit of 45-mph. There are currently no WisDOT AADT volumes on Portage Road; however, AADT volumes of approximately 1,400-vpd to the north of Hoepker Road and 2,600-vpd south of Hoepker Road were extrapolated from six hours (6 to 9 am and 3 to 6 pm) of peak hour turning movements collected as part of this study. Sidewalks and bicycle lanes are not currently provided along either side of Portage Road through the project limits.

DATA COLLECTION

Existing Traffic Counts

Weekday morning (6:00 to 9:00 a.m.) and weekday evening (3:00 to 6:00 p.m.) turning movement traffic counts were conducted by TADI in mid-December of 2024 at the Hoepker Road intersection with Portage Road.

Based on the turning movement traffic counts, the peak traffic hours at the study intersections were determined to occur from 7:30-8:30 a.m. (AM peak hour) and from 4:15-5:15 p.m. (PM peak hour). The traffic volume counts were compiled for these peak hours and are shown on Exhibit 4 as the “Existing Traffic Volumes”. The full traffic count data collected for this study, showing calculated peak hour factors and percent heavy trucks, is included in Appendix A.

PROPOSED DEVELOPMENT

Site Description

The proposed residential development is expected to include 200 single family attached units (combination of rental duplexes, townhouses and cottages). A community pool is also proposed near the middle of the site and sidewalks are provided throughout the site. Access to the site is proposed via two full access roadway connections: one along Hoepker Road and the other along Portage Road. The residential development is planned to be constructed and operational in the next several years and is therefore included in the Full Build (with development) traffic volumes.

Trip Generation

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by anticipated development. Traffic volumes expected to be generated are based on the size and type of the proposed uses and on trip rates and fitted curve equations as published in the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual, 11th Edition*. Even though all units are rental units, to provide for a worst-case (highest traffic generation) scenario, ITE land use (LU) 215 was utilized for this study instead of LU220 (multi-family apartments). A trip generation comparison table is provided in Appendix B of this report to show the difference. Due to the nature of the land use type, the proposed development is not expected to include linked trips or pass-by trips. Linked trips occur when a motorist visits one

or more tenants or land use within a development site. Pass-by trips occur when motorists already on the roadway system stop at the site prior to continuing on their intended route.

The trip generation table developed for the proposed residential development is shown on Exhibit 5A. As shown, the proposed development is expected to generate about 1,470 total trips (735 in/735 out) over a typical weekday, with 100 new trips (30 in/70 out) expected during the weekday AM peak hour and 115 trips (65 in/50 out) expected during the weekday PM peak hour.

Pedestrians and bicyclists may use their respective modes to access the proposed residential development; however, to allow for a conservative (highest vehicular volume) analysis, these modes were assumed to make up a relatively small portion of the overall trips to/from the study area. For the purpose of this TIA, all trips to/from the proposed development site were assumed to occur via motor vehicle.

Trip Distribution

The trip distribution for the proposed development, listed below and shown in table format in Exhibit 5A and graphically in Exhibit 5B, was determined based on the existing traffic counts, the type of proposed land uses and the location of existing populations within the immediate study area.

- 5% to/from the north on Portage Road
- 15% to/from the south on Portage Road
- 35% to/from the east on Hoepker Road
- 45% to/from the west on Hoepker Road

Traffic Assignment

Per direction from the City of Madison, two access scenarios were evaluated as part of this study. The two access scenarios are as follows:

- *Scenario 1* – Access to the site is proposed via two full access roadway connections: one along Hoepker Road and the other along Portage Road.
- *Scenario 2* - Access to the site is proposed via only one full access roadway connection along Portage Road.

The proposed residential development new trips for the two respective access scenarios were assigned to the study intersections based on the above trip distributions. The traffic assignment for the two respective access scenarios is shown on Exhibits 6A&B.

The new trips under Scenario 1 (Exhibit 6A) were added to the Existing traffic volumes (Exhibit 4) to generate the “Full Build (Scenario 1)” traffic volumes. The “Full Build (Scenario 1)” traffic volumes are shown on Exhibit 7A.

The new trips under Scenario 2 (Exhibit 6B) were added to the Existing traffic volumes (Exhibit 4) to generate the “Full Build (Scenario 2)” traffic volumes. The “Full Build (Scenario 2)” traffic volumes are shown on Exhibit 7B.

PEAK HOUR TRAFFIC OPERATIONS & QUEUES

The study intersections were analyzed using the Synchro 12 traffic analysis model (outputs based on the Highway Capacity Manual, 7th Edition) and the peak hour turning movement volumes estimated for the study area intersections. Intersection operation is defined by “level of service.” Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A,’ to very poor, represented by LOS ‘F.’ For the purposes of this study, LOS D or better was used to define acceptable peak hour operating conditions. The LOS descriptions for signalized and unsignalized intersections are in Table 1.

Table 1. LOS Descriptions

LOS	Signalized Intersections Control Delay/Vehicle (sec/veh)	Unsignalized Intersections Avg. Control Delay (sec/veh)	Relative Delay
A	≤10	≤10	Short Delays
	Free-flow traffic operations at average travel speeds. Vehicles completely unimpeded in ability to maneuver. Minimal delay at signalized intersections		
B	> 10 - 20	> 10 - 15	
	Reasonably unimpeded traffic operations at average travel speeds. Vehicle maneuverability slightly restricted. Low traffic delays.		
C	> 20 - 35	> 15 - 25	
	Stable traffic operations. Lane changes becoming more restricted. Travel speeds reduced to half of average free flow travel speeds. Longer		
D	> 35 - 55	> 25 - 35	Moderate Delays
	Small increases in traffic flow can cause increased delays. Delays likely attributable to increased traffic, reduced signal progression, and adverse		
E	> 55 - 80	> 35 - 50	
	Significant delays. Travel speeds reduced to one-third of average free flow travel speed.		
F	> 80	> 50	Long Delays
	Extremely low speeds. Intersection congestion. Long delays. Extensive traffic queues at intersections.		

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

The capacity analysis tables in the following sections show the peak hour LOS, delays (in seconds per vehicle), and queues (in feet) for both the Existing traffic condition and for the Full Build traffic condition. The Synchro capacity analysis worksheets for all analysis scenarios are located in Appendix C.

Existing Traffic Operations

Table 2 shows the results of the weekday morning and weekday evening peak hour operational analysis at the existing study area intersection. The existing study intersection

was evaluated using the existing geometrics and traffic control as shown on Exhibit 3, and the Existing traffic volumes shown in Exhibit 4.

Table 2. Existing Traffic Peak Hour Operations

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 100: Portage Road & Hoepker Road <i>All-Way Stop Control</i>	Lanes->		1			1			1	1		1		1
	AM	LOS	B			B			B	A		A		B
		Delay	10.9			12.4			10.0	9.2		9.6		10.0
		Queue	45'			70'			25'	25'		25'		25'
	PM	LOS	C			B			B	B		B		B
		Delay	23.9			14.3			11.7	11.0		10.7		10.3
		Queue	185'			75'			25'	25'		25'		25'

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

As shown in Table 2, all turning movements at the existing study area intersection are currently operating acceptably at LOS C or better during the weekday morning and weekday evening peak hours under the Existing traffic volume conditions.

Full Build Traffic Operations

The proposed site access driveways were evaluated with stop control on the development site approaches. Tables 3 and 4 show the results of the weekday morning and weekday evening peak hour operational analysis at the study area intersections with the proposed development fully built out under the two respective access scenarios. The study intersections were evaluated using the Full Build traffic volumes under the two respective access scenarios as shown in Exhibits 7A&B.

Table 3. Full Build (Scenario 1) Traffic Peak Hour Operations

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 100: Portage Road & Hoepker Road <i>All-Way Stop Control</i>		Lanes->	1			1			1	1		1		1
	AM	LOS	B			B			B	A		A		B
		Delay	11.7			13.9			10.3	9.5		9.8		10.3
		Queue	55'			85'			25'	25'		25'		25'
	PM	LOS	D			C			B	B		B		B
		Delay	29.7			15.7			12.1	11.4		11.0		10.6
Queue		230'			85'			25'	25'		25'		25'	
Node 200: Portage Road & South Drive <i>One-Way Stop Control</i>		Lanes->	-			1			-	1		1		-
	AM	LOS	-			A			-	*		A		-
		Delay	-			9.7			-	*		7.4		-
		Queue	-			25'			-	*		25'		-
	PM	LOS	-			B			-	*		A		-
		Delay	-			10.1			-	*		7.7		-
Queue		-			25'			-	*		25'		-	
Node 300: Hoepker Road & North Drive <i>One-Way Stop Control</i>		Lanes->	-	1		1		-	1			-		
	AM	LOS	-	*		A		-	B			-		
		Delay	-	*		7.8		-	12.5			-		
		Queue	-	*		25'		-	25'			-		
	PM	LOS	-	*		A		-	C			-		
		Delay	-	*		8.7		-	16.2			-		
Queue		-	*		25'		-	25'			-			

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Table 4. Full Build (Scenario 2) Traffic Peak Hour Operations

With Existing Geometrics and Traffic Control

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Node 100: Portage Road & Hoepker Road <i>All-Way Stop Control</i>	AM	Lanes->	1			1			1	1		1		1
		LOS	B			B			B	A		A		B
		Delay	12.2			14.2			10.8	9.9		9.9		10.5
		Queue	60'			85'			25'	25'		25'		25'
	PM	LOS	D			C			B	B		B		B
		Delay	32.1			16.5			12.8	11.7		11.1		10.9
Node 200: Portage Road & South Drive <i>One-Way Stop Control</i>	AM	Queue	245'			90'			25'	30'		25'		25'
		Lanes->	-			1			-	1		1		-
		LOS	-			A			-	*		A		-
		Delay	-			9.3			-	*		7.4		-
	PM	Queue	-			25'			-	*		25'		-
		LOS	-			B			-	*		A		-
	PM	Delay	-			10.1			-	*		7.8		-
		Queue	-			25'			-	*		25'		-

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

As shown in Tables 3 and 4, with the additional traffic from the proposed development, regardless of the access scenario, all turning movements at the study intersections are expected to continue to operate acceptably at LOS D or better during the weekday morning and weekday evening peak hours under the full build traffic volume conditions. Delays for any specific movement at the Portage Road intersection with Hoepker Road are expected to increase by 6 seconds or less under access Scenario 1 and by 9 seconds or less under access Scenario 2. In

addition, queues for any movement at the Portage Road intersection with Hoepker Road are expected to increase by 2 vehicles or less under access Scenario 1 and by 3 vehicles or less under access Scenario 2. Therefore, to provide for emergency vehicle access as well as allowing the intersections to operate with slightly less delay and queueing due to the dispersion of traffic between two access points, providing both access drives to the proposed development under access Scenario 1 is recommended.

TURN LANE AND BYPASS LANE ANALYSIS

The need for dedicated left- and right-turn lanes along the main transportation corridors at the two proposed access drives was evaluated as part of this study.

Left-turn Lane Analysis - Facilities Development Manual

FDM Section 11-25-5, Table 5.2, provides guidance on warranting left-turn lanes at intersections on two-lane highways. Based on the volume criteria provided and using a design speed of 5-mph over the posted speed, or 50-mph, a dedicated westbound left-turn lane is not expected to be warranted along Hoepker Road, and a dedicated southbound left-turn lane is not expected to be warranted along Portage Road under full build traffic volume conditions. Advancing (eastbound through) volumes along Hoepker Road would need to increase by over 25 vehicles during the peak hours for the warrant to be met. Advancing (northbound through) volumes along Portage Road would need to increase by over 290 vehicles during the peak hours for the warrant to be met. Therefore, dedicated left-turn lanes are not needed for westbound traffic along Hoepker Road nor for southbound traffic along Portage Road.

Right-turn Lane Analysis - NCHRP Report 457

As referenced in the *FDM, NCHRP Report 457* provides guidance for inclusion of a right-turn lane on a high-speed roadway based on the expected peak hour right-turn volume in relation to the major road peak hour through volume as well as the 85th percentile speed limit. Since the posted speed limit at both proposed access roadways is 45-mph, a 50-mph speed was assumed for the 85th percentile speed. As shown in the graph in Appendix D, the right-turn warrant along Hoepker Road is expected to be met and the right-turn warrant along Portage Road is not expected to be met. For the hourly advancing volumes along Hoepker Road of 535 vehicles and a maximum of about 30 right-turn movements expected during the highest peak hour, a dedicated right-turn lane along Hoepker Road is warranted at the proposed access roadway connection. For the hourly advancing volumes along Portage Road of 205 vehicles and a maximum of about 10 right-turn movements expected during the highest peak hour, a dedicated right-turn lane along Portage Road is not warranted at the proposed access roadway connection. Therefore, a dedicated right-turn lane should be constructed for eastbound traffic along Hoepker Road, but a dedicated right-turn lane is not needed for northbound traffic along Portage Road.

RECOMMENDATION MODIFICATIONS

Recommended modifications are expected to be necessary at the study area intersections to allow for acceptable and safe operations under the Full Build traffic volume conditions.

Modifications are for jurisdictional consideration and are not legally binding. The City of Madison reserves the right to determine alternative solutions.

Node 100: Hoepker Road with Portage Road

- *Existing Traffic:* No modifications
- *Full Build Traffic:* No modifications

Node 200: Portage Road with Proposed South Access Drive

- *Existing Traffic:* No modifications
- *Full Build Traffic:*
 - Provide a full access roadway connection onto Portage Road as shown on the conceptual site plan.
 - Provide stop sign control on the driveway approach.

Node 300: Hoepker Road with Proposed North Access Drive

- *Existing Traffic:* No modifications
- *Full Build Traffic:*
 - Provide a full access roadway connection onto Hoepker Road as shown on the conceptual site plan.
 - Provide a dedicated eastbound right-turn deceleration lane and a corresponding acceleration taper at the new access drive.
- Provide stop sign control on the driveway approach.

CONCLUSION

Based on the projected traffic volumes and with the recommended modifications as shown on Exhibit 8, the two access drive connections are expected to operate acceptably with stop control on the development site approaches under full build conditions with both access drives provided and the recommended modifications recommended in this study. All movements at the study area intersections are expected to operate safely and efficiently with the planned geometric and traffic control conditions depicted in this TIA through the opening year and with full buildout and full occupancy of the proposed development.

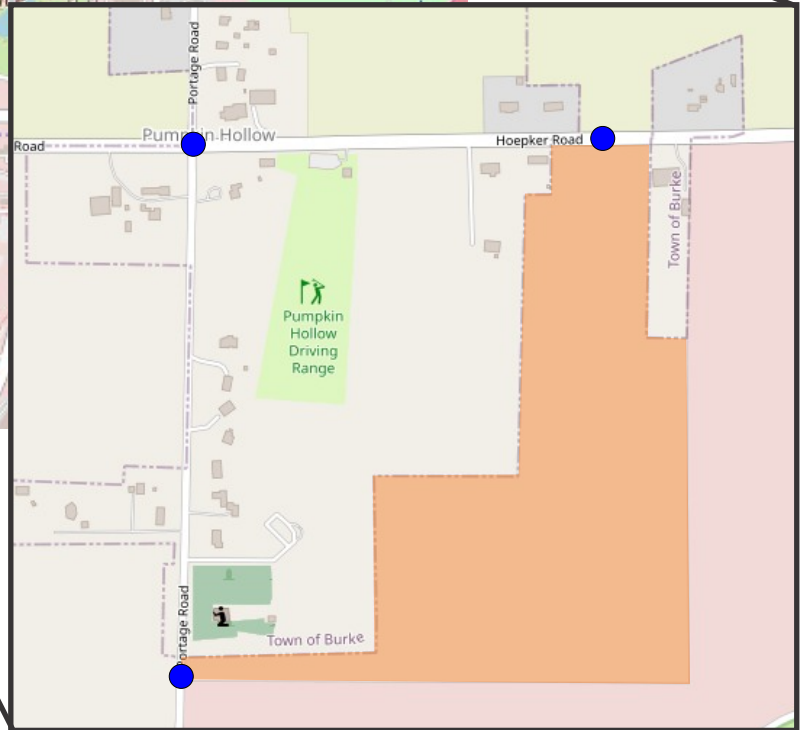
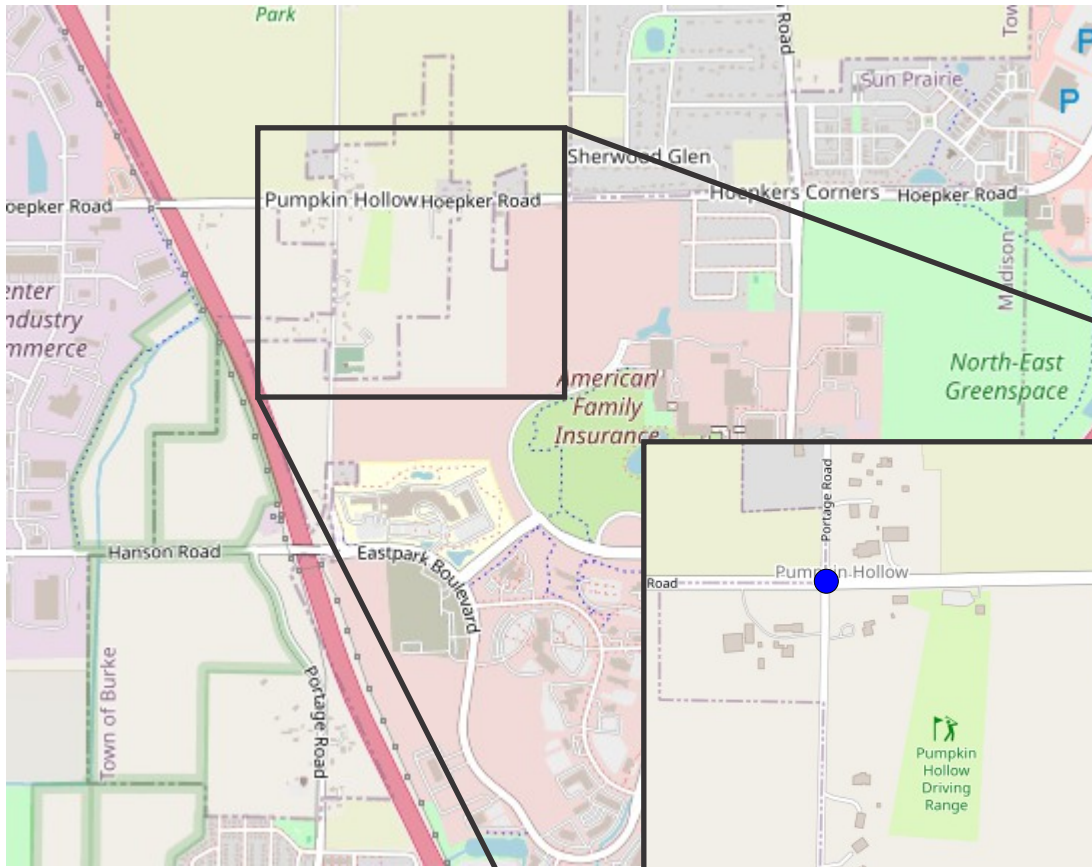
Appendices

Appendix A - Traffic Counts

Appendix B – Trip Generation Comparison Table

Appendix C – Existing & Full Build Traffic Synchro Analysis

Appendix D – Turn Lane Warrant Calculations & Graphs



LEGEND

- Study Area Intersection
- Proposed Site Location





LEO AT PUMPKIN HOLLOW, WI

SITE PLAN 12/04/24
SCALE 1" = 100'



LEGEND

-  Stop Sign Control
-  Existing Lane Configuration
- XX' Existing Turn Bay Length (in Feet)



LEGEND

- XX AM Weekday Peak Hour (7:30 - 8:30 AM)
- (XX) PM Weekday Peak Hour (4:15 - 5:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)

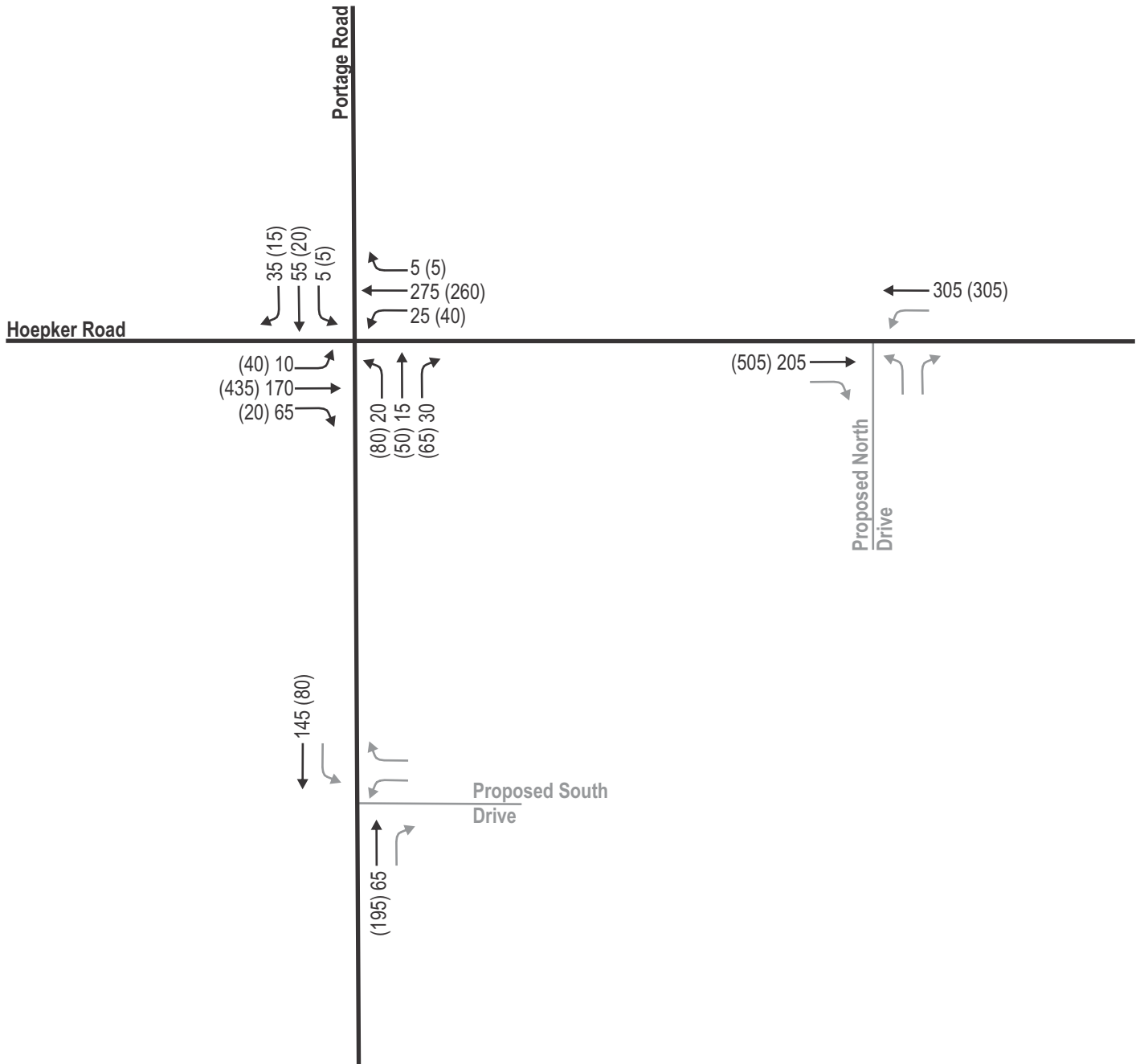


Exhibit 5A
On-Site Trip Generation Table¹

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Single-Family Attached Housing	215	200 Units	1,470 FCE	30 (31%)	70 (69%)	100 FCE	65 (57%)	50 (43%)	115 FCE
Total New Trips			1,470	30	70	100	65	50	115

¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.

TRIP DISTRIBUTION (New Trips)

North on Portage Road	5%	75	0	5	5	0
South on Portage Road	15%	220	5	10	10	10
East on Hoepker Road	35%	515	10	25	20	15
West on Hoepker Road	45%	660	15	30	30	25
	100%	1470	30	70	65	50

LEGEND



Proposed Trip Distribution

Portage Road



Hoepker Road



Proposed North
Drive

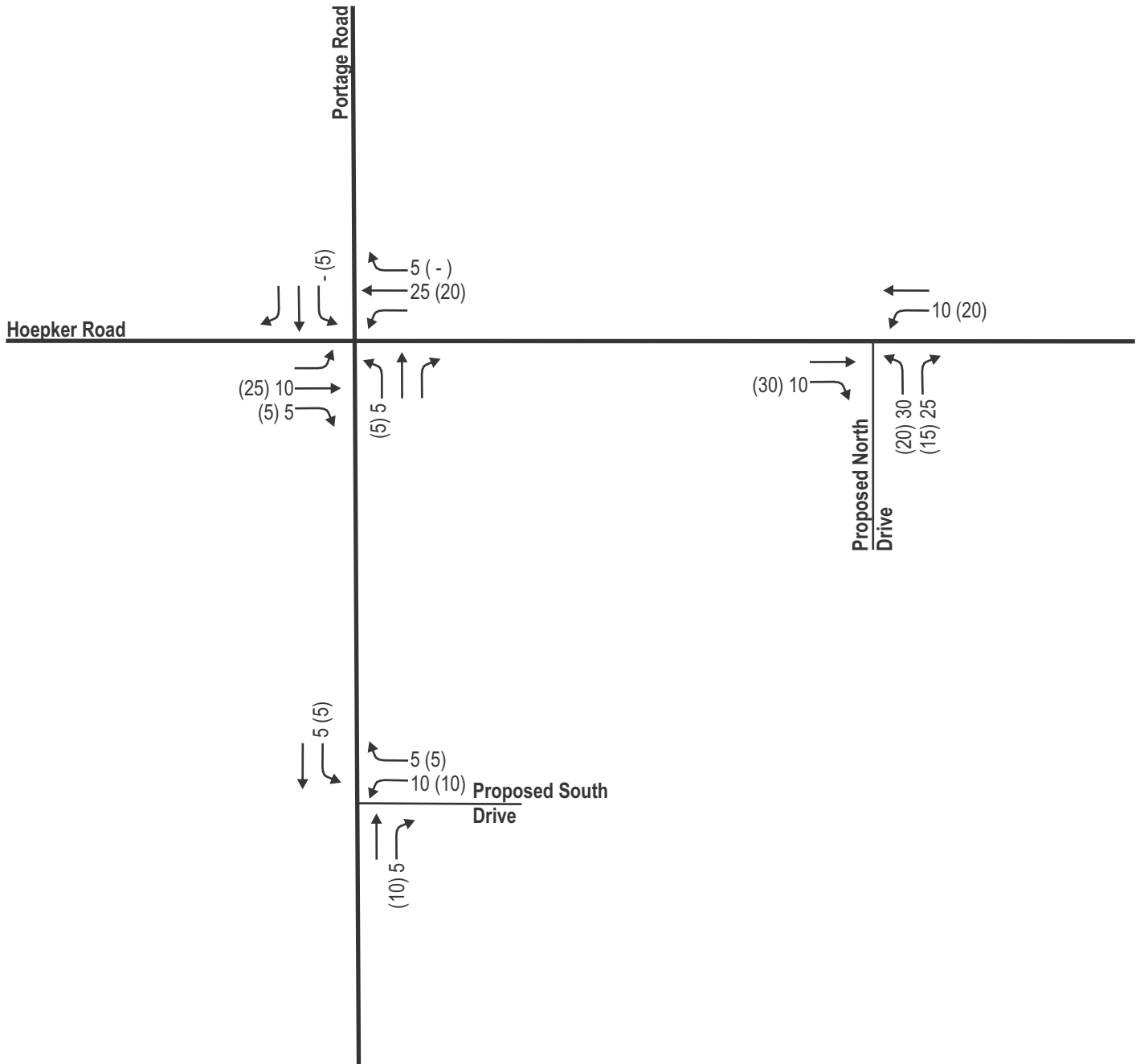


Proposed South
Drive



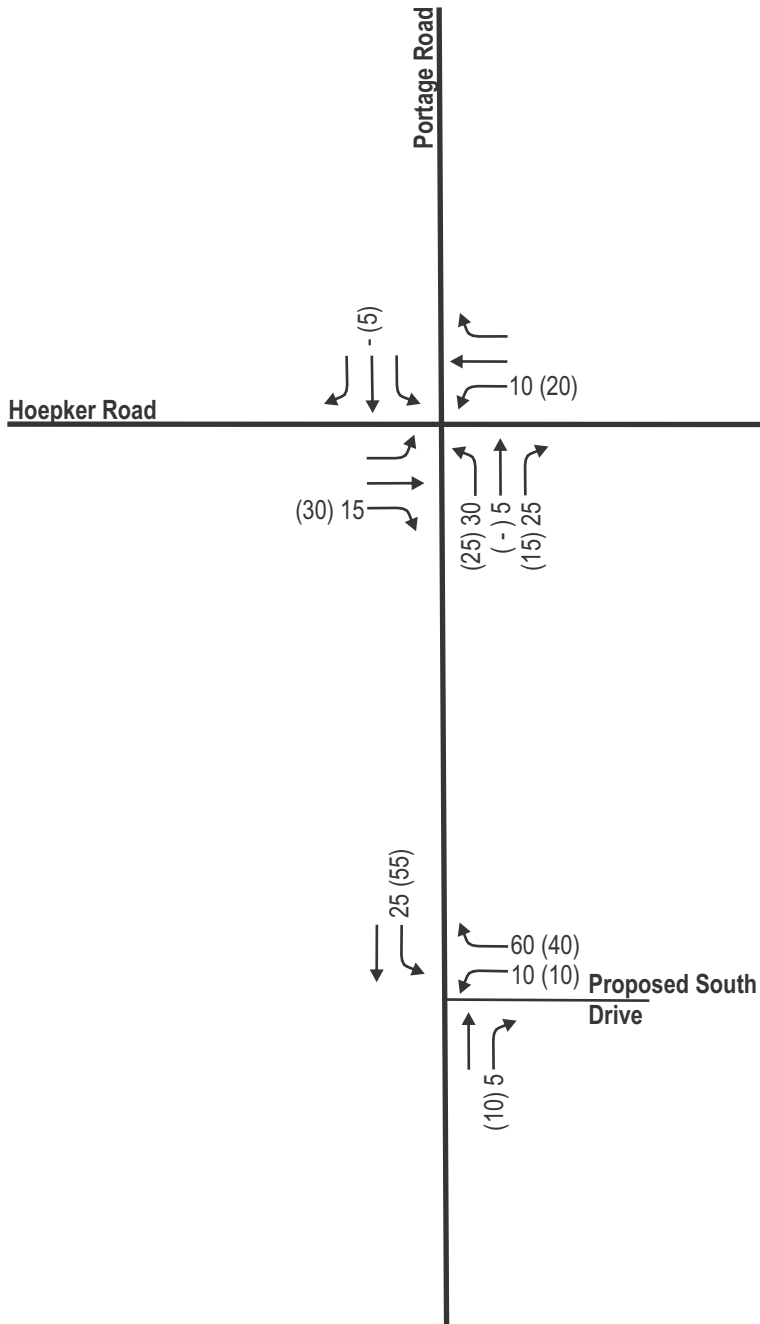
LEGEND

- XX AM Weekday Peak Hour (7:30 - 8:30 AM)
- (XX) PM Weekday Peak Hour (4:15 - 5:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



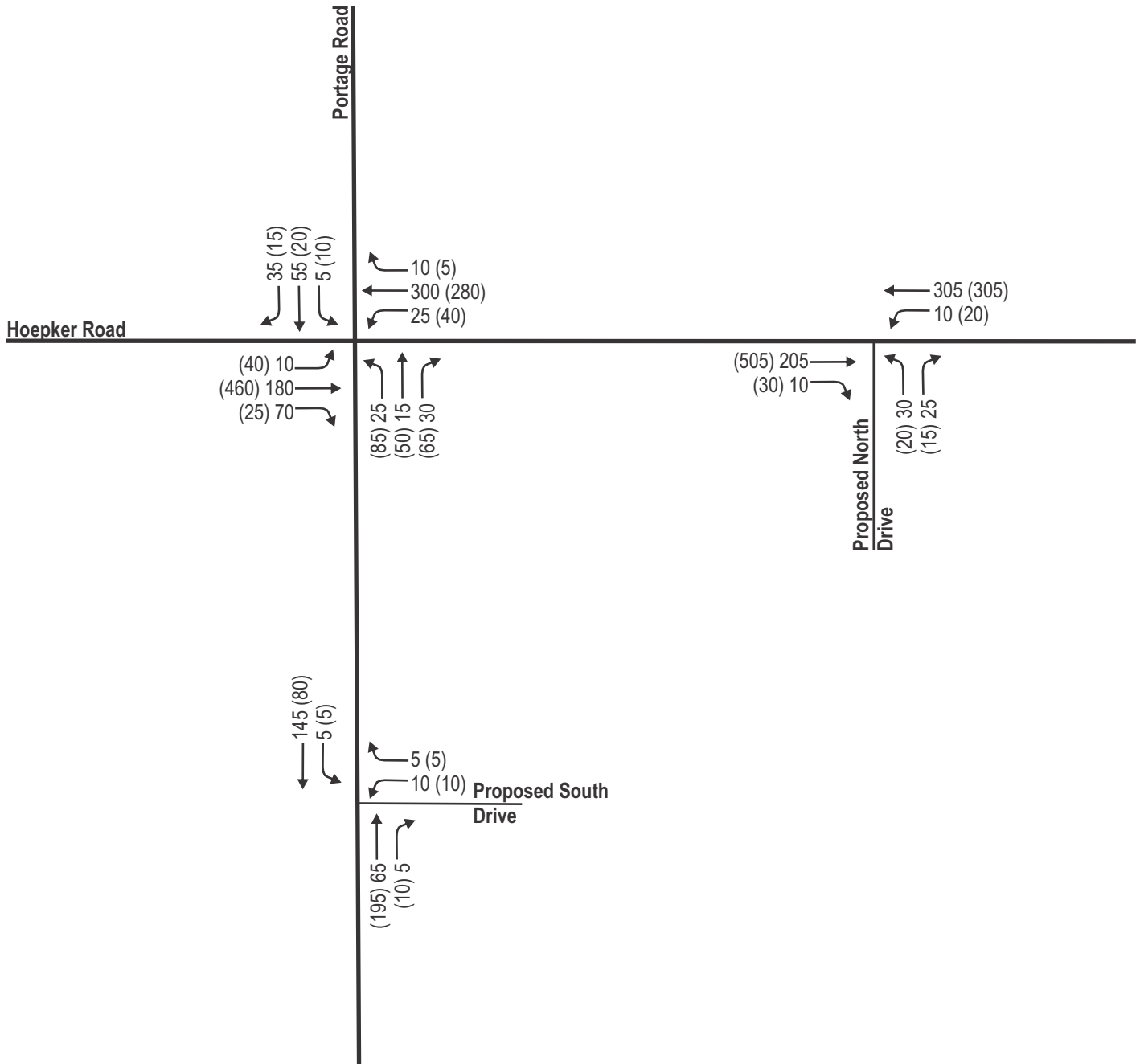
LEGEND

- XX AM Weekday Peak Hour (7:30 - 8:30 AM)
- (XX) PM Weekday Peak Hour (4:15 - 5:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



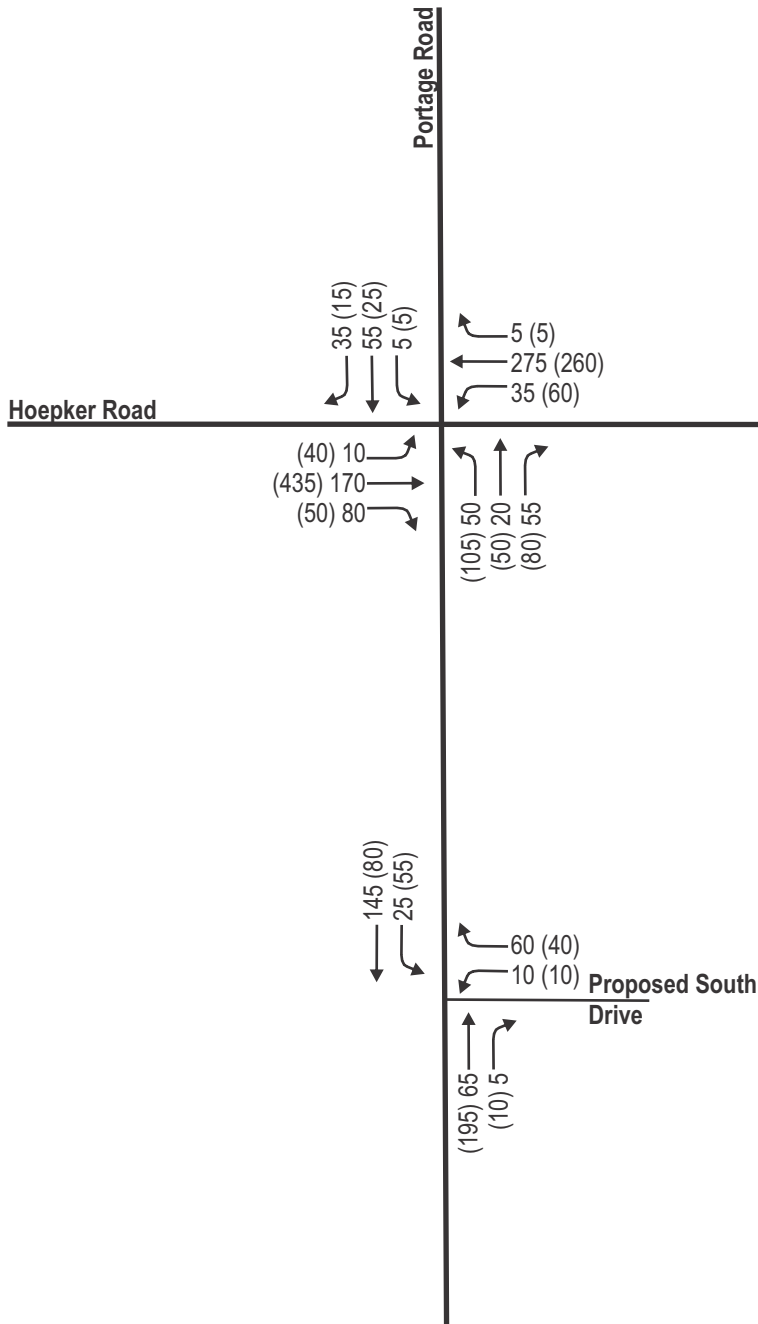
LEGEND

- XX AM Weekday Peak Hour (7:30 - 8:30 AM)
- (XX) PM Weekday Peak Hour (4:15 - 5:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



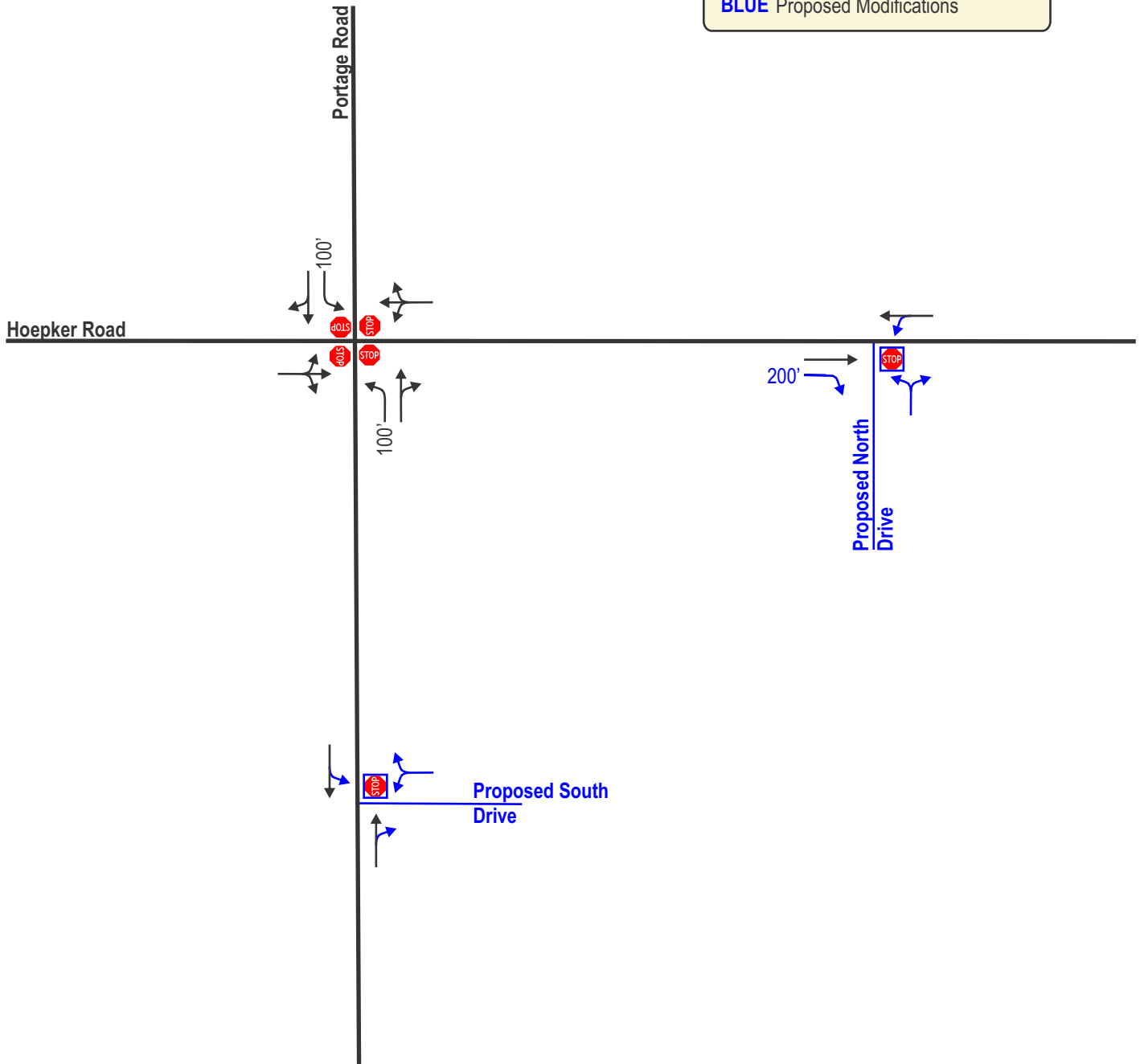
LEGEND

- XX AM Weekday Peak Hour (7:30 - 8:30 AM)
- (XX) PM Weekday Peak Hour (4:15 - 5:15 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



LEGEND

-  Stop Sign Control
- XX' Storage Length (In Feet)
-  Existing Lane Configuration
- BLUE** Proposed Modifications



Appendix A

Traffic

Existing Turning Movement Counts

Intersection Traffic Volume Report

Count Basics		Version 2024.10	Page 1 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: Hoepker Road
Minor St: Portage Road
Intersection of: Hoepker Road & Portage Road

IX_ID: 0

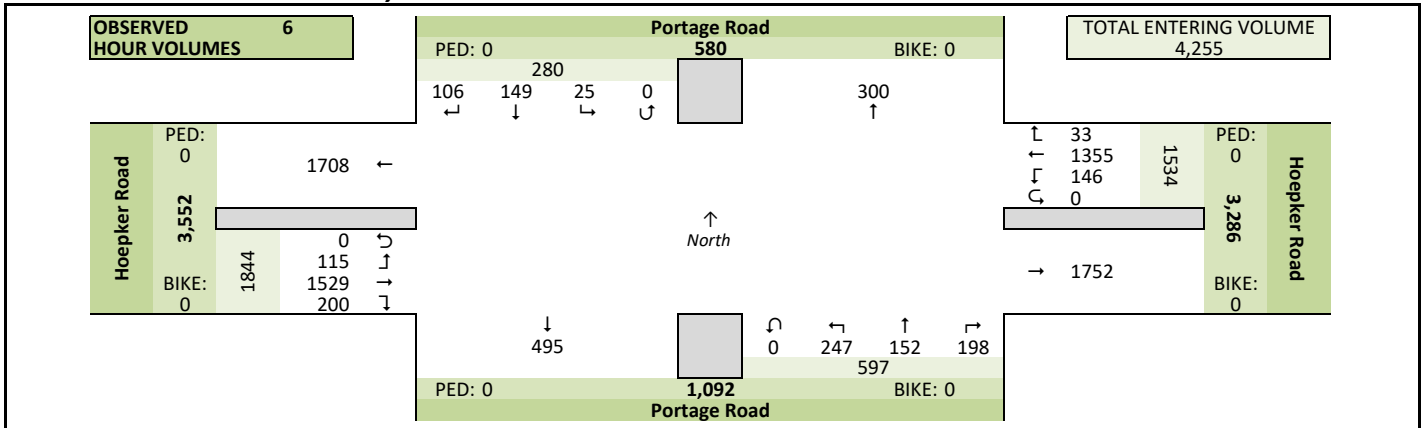
Site Information

Municipality	City of Madison		
County	13 - Dane	WisDOT Region	SW-M
Traffic Control	All-Way Stop		
Roadway Names	North Direction	↑	
North Leg	Portage Road		
East Leg	Hoepker Road		
South Leg	Portage Road		
West Leg	Hoepker Road		
Special Considerations			
Schools	In Session		
Holidays	None		
Special Events	None		
Special Pedestrians Observed			
	Pre-school children	None	
	Elementry school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe)	None	None

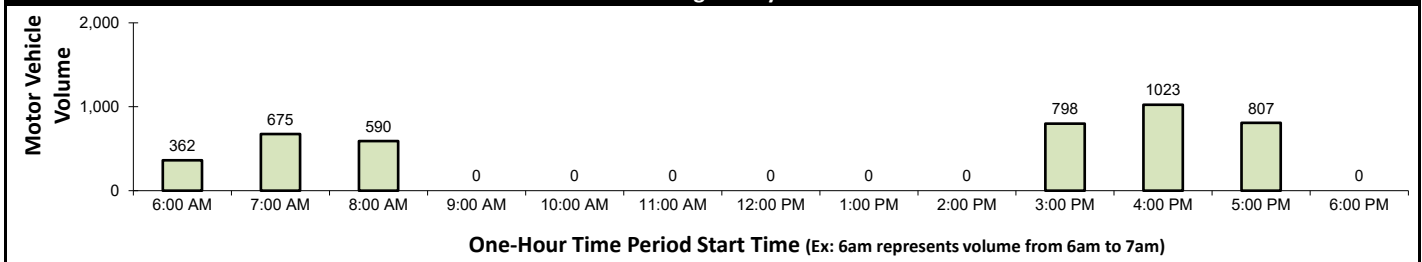
Count Information

Hrs Counted: 06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count		Monday, December 9, 2024		Weather
AM Peak Period		Wednesday, December 11, 2024		Clear and Dry
Midday Peak Period		Wednesday, December 11, 2024		Clear and Dry
PM Peak Period		Monday, December 9, 2024		Clear and Dry
Calculated Peak Hours				
	AM	7:30-8:30am	MD	PM 4:15-5:15pm
Peak Hours Selected for Analysis				
	AM	7:30-8:30am	MD	PM 4:15-5:15pm
Daily/Seasonal Adjustment Group		(1) Non-Interstate Low Truck %		
Count Expansion Group		(1) Non-Interstate Low Truck %		
Daily/Seasonal Adjustment Factor		1.031	Count Expansion Factor	2.329
Company Name			TADI	Manual Adj. 1.000
Observers	AM Peak Period	Amy Scheuerlein		
	Midday Peak Period	None		
	PM Peak Period	Amy Scheuerlein		
Comments	Wis DOT Daily & Seasonal Factors are final for 2012 through 2023, and 2024 uses 2023 final factors.			

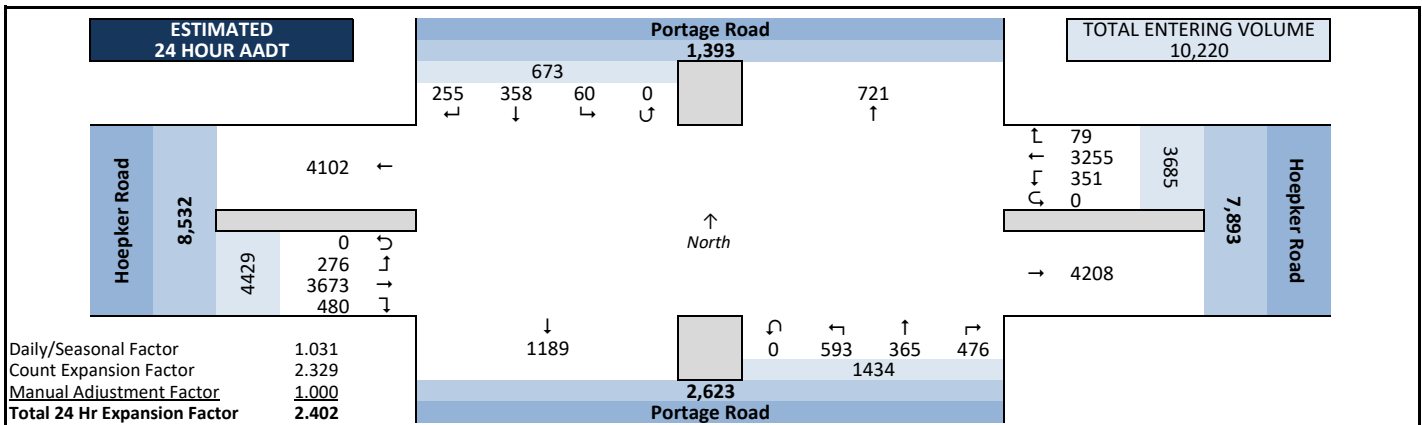
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT

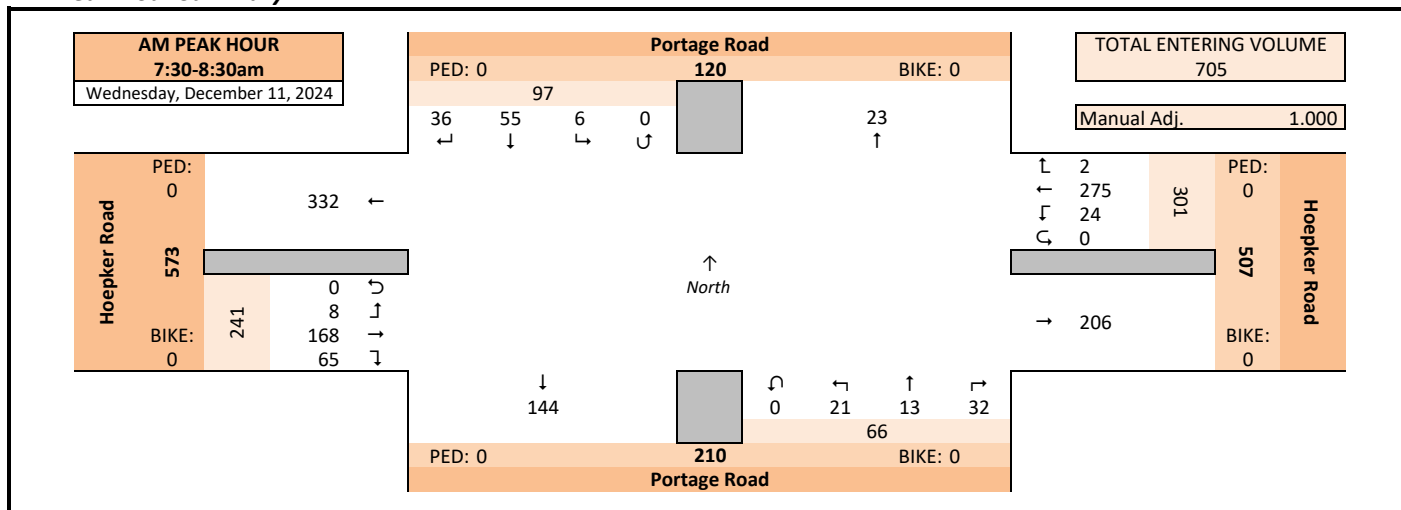


Peak Hour Volume Graphical Summary

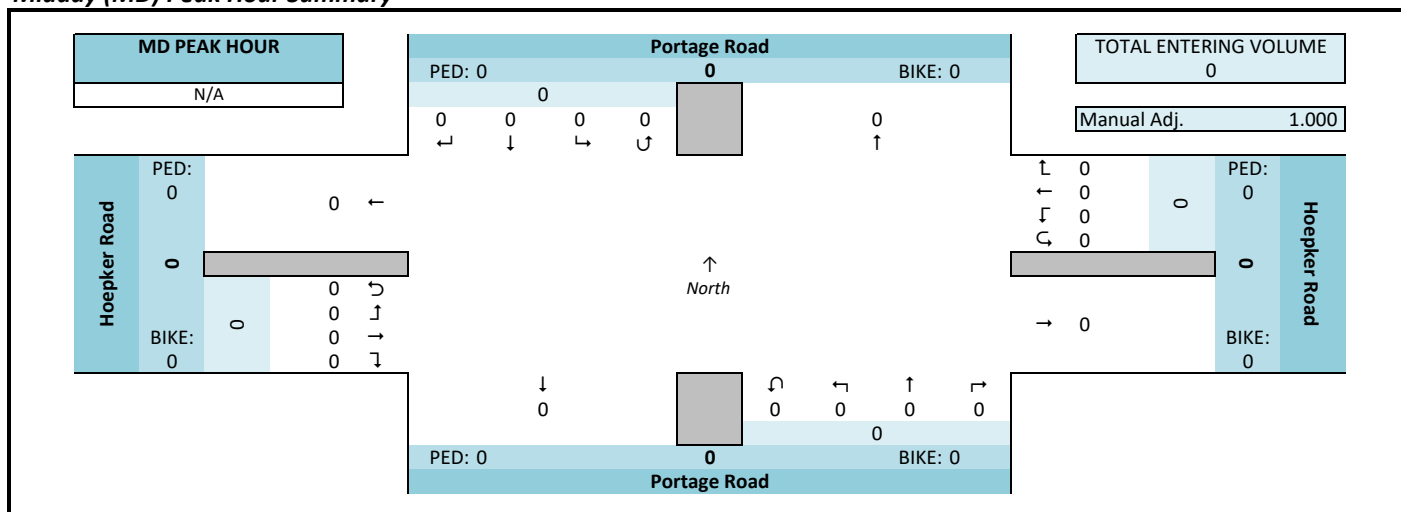
Hoepker Road & Portage Road

AM Peak Hour Summary

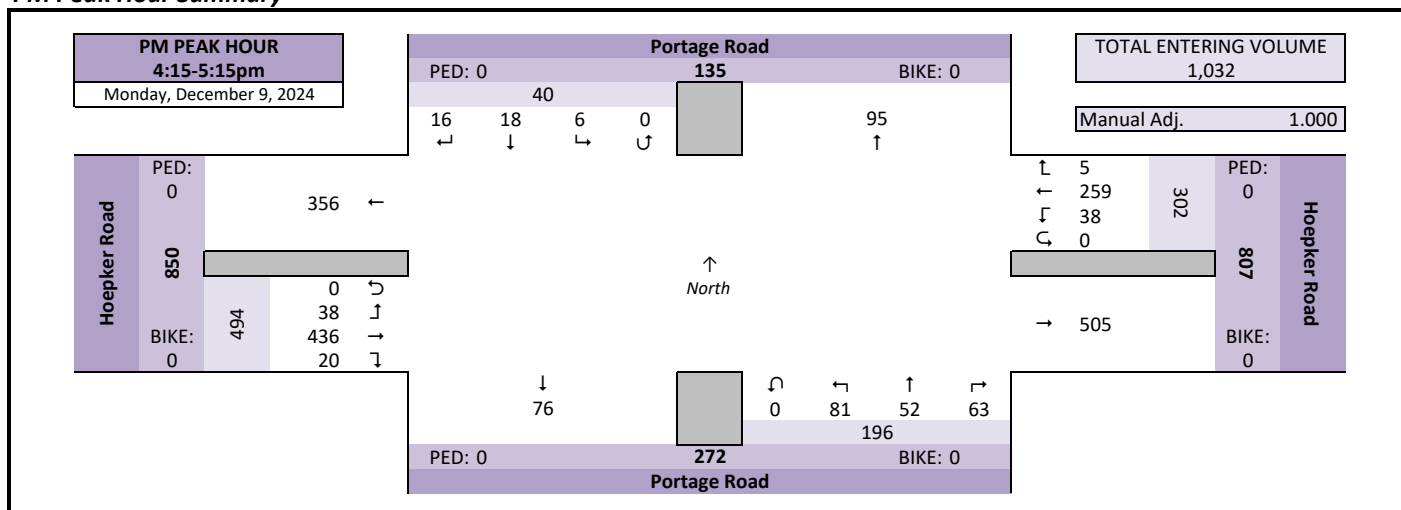
Count Basics			Page 2 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Peak Hour Volume Summary

Hoepker Road & Portage Road

Monday, December 9, 2024		↓ From North					← From East					↑ From South					→ From West					Totals
PM Peak Hour	PM Peak Hour	Portage Road					Hoepker Road					Portage Road					Hoepker Road					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:15 PM	6	7	0	0	13	2	60	9	0	71	12	10	16	0	38	6	122	9	0	137	
	4:30 PM	6	4	4	0	14	1	66	11	0	78	15	15	33	0	63	5	106	10	0	121	276
	4:45 PM	3	3	1	0	7	0	64	6	0	70	17	14	17	0	48	5	104	9	0	118	243
	5:00 PM	1	4	1	0	6	2	69	12	0	83	19	13	15	0	47	4	104	10	0	118	254
	Peak Hour Volume	16	18	6	0	40	5	259	38	0	302	63	52	81	0	196	20	436	38	0	494	1032
	Rounded Hourly Volume	15	20	5	0	40	5	260	40	0	305	65	50	80	0	195	20	435	40	0	495	1035
% Single Unit Trucks	6.2	0.0	0.0	0.0	2.5	0.0	3.1	2.6	0.0	3.0	0.0	0.0	2.5	0.0	1.0	0.0	0.2	0.0	0.0	0.2	1.3	
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.1	
% Trucks (Total)	6.2	0.0	0.0	0.0	2.5	0.0	3.1	2.6	0.0	3.0	0.0	0.0	2.5	0.0	1.0	0.0	0.5	0.0	0.0	0.4	1.4	
Peak Hour Factor (PHF)	0.67	0.64	0.37	0.00	0.71	0.62	0.94	0.79	0.00	0.91	0.83	0.87	0.61	0.00	0.78	0.83	0.89	0.95	0.00	0.90	0.93	

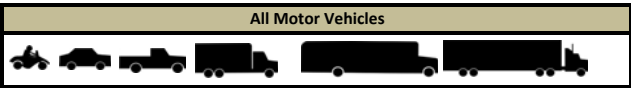
[illegible]

Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Hoepker Road & Portage Road

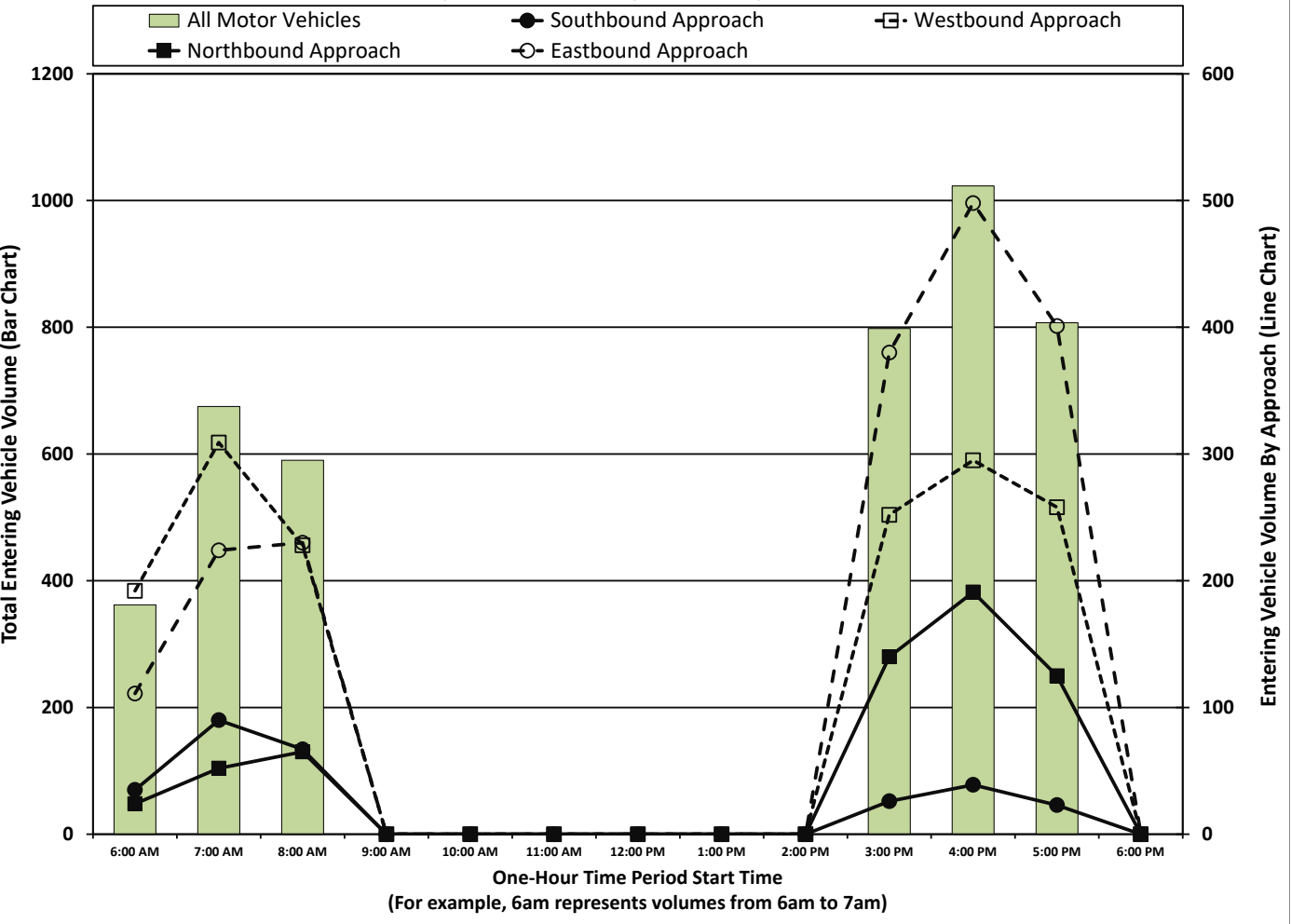
Count Basics			Page 4 of 13	
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	



One-Hour Motor Vehicle Data

One-Hour Time Period Start Time		From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals	
		Portage Road					Hoepker Road					Portage Road					Hoepker Road							
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S
AM	6:00 AM	16	18	1	0	35	2	177	13	0	192	8	7	9	0	24	24	83	4	0	111	362	303	59
	7:00 AM	35	51	4	0	90	4	282	23	0	309	21	13	18	0	52	74	142	8	0	224	675	533	142
	8:00 AM	21	41	5	0	67	6	198	24	0	228	30	11	24	0	65	47	176	7	0	230	590	458	132
MD	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	11	11	4	0	26	9	216	27	0	252	36	37	67	0	140	24	326	30	0	380	798	632	166
	4:00 PM	17	15	7	0	39	6	257	32	0	295	55	50	86	0	191	19	442	37	0	498	1023	793	230
	5:00 PM	6	13	4	0	23	6	225	27	0	258	48	34	43	0	125	12	360	29	0	401	807	659	148
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		106	149	25	0	280	33	1355	146	0	1534	198	152	247	0	597	200	1529	115	0	1844	4255	3378	877

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

Hoepker Road & Portage Road

Count Basics			Page 5 of 13	
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	

All Motor Vehicles						

15-Minute Motor Vehicle Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF	
	Portage Road					Hoepker Road					Portage Road					Hoepker Road								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	2	4	0	0	6	0	27	0	0	27	1	0	4	0	5	4	14	3	0	21	59	362	0.65
	6:15 AM	3	3	0	0	6	1	37	3	0	41	1	1	1	0	3	3	16	0	0	19	69	437	0.78
	6:30 AM	1	3	0	0	4	1	49	4	0	54	3	2	2	0	7	4	25	0	0	29	94	504	0.90
	6:45 AM	10	8	1	0	19	0	64	6	0	70	3	4	2	0	9	13	28	1	0	42	140	604	0.78
	7:00 AM	7	10	1	0	18	0	55	3	0	58	5	5	4	0	14	13	27	4	0	44	134	675	0.80
	7:15 AM	6	8	0	0	14	2	59	3	0	64	1	2	4	0	7	18	32	1	0	51	136	700	0.83
	7:30 AM	11	16	2	0	29	0	81	6	0	87	10	0	6	0	16	21	41	0	0	62	194	705	0.84
	7:45 AM	11	17	1	0	29	2	87	11	0	100	5	6	4	0	15	22	42	3	0	67	211	645	0.76
	8:00 AM	7	17	1	0	25	0	57	3	0	60	7	1	5	0	13	14	44	3	0	61	159	590	0.93
	8:15 AM	7	5	2	0	14	0	50	4	0	54	10	6	6	0	22	8	41	2	0	51	141		
	8:30 AM	3	9	1	0	13	4	43	12	0	59	6	0	8	0	14	10	36	2	0	48	134		
	8:45 AM	4	10	1	0	15	2	48	5	0	55	7	4	5	0	16	15	55	0	0	70	156		
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:00 PM	1	4	1	0	6	0	54	10	0	64	6	6	20	0	32	7	64	5	0	76	178	798	0.94
	3:15 PM	4	2	1	0	7	2	58	4	0	64	3	11	15	0	29	4	87	10	0	101	201	865	0.88
	3:30 PM	2	1	2	0	5	4	43	7	0	54	16	15	20	0	51	6	86	11	0	103	213	923	0.89
	3:45 PM	4	4	0	0	8	3	61	6	0	70	11	5	12	0	28	7	89	4	0	100	206	986	0.89
	4:00 PM	2	1	2	0	5	3	67	6	0	76	11	11	20	0	42	3	110	9	0	122	245	1023	0.93
	4:15 PM	6	7	0	0	13	2	60	9	0	71	12	10	16	0	38	6	122	9	0	137	259	1032	0.93
	4:30 PM	6	4	4	0	14	1	66	11	0	78	15	15	33	0	63	5	106	10	0	121	276	997	0.90
	4:45 PM	3	3	1	0	7	0	64	6	0	70	17	14	17	0	48	5	104	9	0	118	243	902	0.89
	5:00 PM	1	4	1	0	6	2	69	12	0	83	19	13	15	0	47	4	104	10	0	118	254	807	0.79
	5:15 PM	3	3	2	0	8	3	61	8	0	72	10	9	15	0	34	5	91	14	0	110	224		
	5:30 PM	0	1	1	0	2	1	52	3	0	56	11	4	9	0	24	3	92	4	0	99	181		
	5:45 PM	2	5	0	0	7	0	43	4	0	47	8	8	4	0	20	0	73	1	0	74	148		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Totals	106	149	25	0	280	33	1355	146	0	1534	198	152	247	0	597	200	1529	115	0	1844	4255			

Peak Hour All Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume	PHF
	Portage Road					Hoepker Road					Portage Road					Hoepker Road						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:30 AM	36	55	6	0	97	2	275	24	0	301	32	13	21	0	66	65	168	8	0	241	705	0.84
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	16	18	6	0	40	5	259	38	0	302	63	52	81	0	196	20	436	38	0	494	1032	0.93

Intersection Traffic Volume Report

15-Minute Automobile Data

Hoepker Road & Portage Road

Count Basics			Page 6 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Automobiles (Cars, Light Trucks, & Motorcycles)



15-Minute Automobile Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	Portage Road					Hoepker Road					Portage Road					Hoepker Road							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	2	4	0	0	6	0	27	0	0	27	1	0	4	0	5	4	14	3	0	21	59	358
	6:15 AM	3	3	0	0	6	1	37	3	0	41	1	1	1	0	3	3	15	0	0	18	68	429
	6:30 AM	1	3	0	0	4	1	49	4	0	54	3	2	2	0	7	4	25	0	0	29	94	495
	6:45 AM	10	8	1	0	19	0	63	6	0	69	2	4	2	0	8	12	28	1	0	41	137	594
	7:00 AM	7	10	1	0	18	0	52	3	0	55	5	5	4	0	14	13	27	3	0	43	130	664
	7:15 AM	6	8	0	0	14	2	58	3	0	63	1	1	4	0	6	18	32	1	0	51	134	688
	7:30 AM	11	16	2	0	29	0	80	6	0	86	10	0	6	0	16	21	41	0	0	62	193	692
	7:45 AM	11	17	1	0	29	2	87	10	0	99	5	5	4	0	14	22	41	2	0	65	207	629
	8:00 AM	7	15	1	0	23	0	57	3	0	60	7	1	5	0	13	14	41	3	0	58	154	571
	8:15 AM	7	5	2	0	14	0	50	4	0	54	9	6	5	0	20	8	40	2	0	50	138	
8:30 AM	3	9	1	0	13	4	42	11	0	57	6	0	8	0	14	10	34	2	0	46	130		
8:45 AM	4	10	1	0	15	2	46	5	0	53	7	4	5	0	16	15	50	0	0	65	149		
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	1	4	1	0	6	0	53	10	0	63	6	6	20	0	32	7	64	5	0	76	177	788
	3:15 PM	3	2	1	0	6	2	57	4	0	63	3	11	14	0	28	4	87	10	0	101	198	852
	3:30 PM	2	1	1	0	4	4	41	7	0	52	16	15	20	0	51	6	86	11	0	103	210	912
	3:45 PM	4	4	0	0	8	3	59	5	0	67	11	5	12	0	28	7	89	4	0	100	203	973
	4:00 PM	2	1	2	0	5	3	64	6	0	73	11	11	19	0	41	3	110	9	0	122	241	1008
	4:15 PM	6	7	0	0	13	2	60	9	0	71	12	10	16	0	38	6	121	9	0	136	258	1018
	4:30 PM	5	4	4	0	13	1	64	11	0	76	15	15	31	0	61	5	106	10	0	121	271	976
	4:45 PM	3	3	1	0	7	0	60	6	0	66	17	14	17	0	48	5	103	9	0	117	238	884
	5:00 PM	1	4	1	0	6	2	67	11	0	80	19	13	15	0	47	4	104	10	0	118	251	794
	5:15 PM	3	2	2	0	7	3	55	8	0	66	10	9	15	0	34	5	90	14	0	109	216	
	5:30 PM	0	1	1	0	2	1	51	3	0	55	11	4	9	0	24	3	91	4	0	98	179	
	5:45 PM	2	5	0	0	7	0	43	4	0	47	8	8	4	0	20	0	73	1	0	74	148	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		104	146	24	0	274	33	1322	142	0	1497	196	150	242	0	588	199	1512	113	0	1824	4183	

Peak Hour Automobile Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Portage Road					Hoepker Road					Portage Road					Hoepker Road					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	36	53	6	0	95	2	274	23	0	299	31	12	20	0	63	65	163	7	0	235	692
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	15	18	6	0	39	5	251	37	0	293	63	52	79	0	194	20	434	38	0	492	1018

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

Hoepker Road & Portage Road

Count Basics			Page 7 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period	Start Time	From North Portage Road					From East Hoepker Road					From South Portage Road					From West Hoepker Road					15-Min Totals	Hourly Sum
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	8
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	6:45 AM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	1	1	0	0	0	0	1	10
	7:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	0	1	11
	7:15 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	11
	7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	11
	7:45 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	1	1	0	0	2	14
	8:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	15
	8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	
	8:30 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	0	0	0	2	
	8:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	0	4	5
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	10
	3:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	13
	3:30 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	10
	3:45 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3	12
	4:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	4	14
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
	4:30 PM	1	0	0	0	1	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	5	19
	4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5	16
	5:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3	11
	5:15 PM	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	6	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		2	3	1	0	6	0	30	4	0	34	2	2	4	0	8	1	14	2	0	17	65	

SU Truck %age: 1.89 2.013 4 0.0 2.1429 0 2.214 2.74 0.0 2.2164 1.01 1.316 1.62 0.0 1.34 0.5 0.916 1.74 0.0 0.9219 1.5276

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Portage Road					Hoepker Road					Portage Road					Hoepker Road					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	2	0	0	2	0	1	1	0	2	1	1	0	0	2	0	4	1	0	5	11
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 4:15 PM	1	0	0	0	1	0	8	1	0	9	0	0	2	0	2	0	1	0	0	1	11

15-Minute Semi-Truck Data

Hoepker Road & Portage Road

[illegible]

Peak Hour Semi-Truck Volume Summary

Peak Hour Same Week Volume Summary																					
Hourly Time Period Start Time	↙					←					↑					→					Total Hourly Volume
	From North					From East					From South					From West					
	Portage Road					Hoepker Road					Portage Road					Hoepker Road					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Data

Hoepker Road & Portage Road

Count Basics			Page 9 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)



15-Minute Heavy Vehicle Data

15-Minute Time Period Start Time	From North Portage Road					From East Hoepker Road					From South Portage Road					From West Hoepker Road					15-Min Totals	Hourly Sum	
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	8
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
	6:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	3	10
	7:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	4	11
	7:15 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2	12
	7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	13
	7:45 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	1	1	0	2	4	16
	8:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	5	19
	8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3	
	8:30 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	4	
	8:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	10
	3:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	3	13
	3:30 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	11
	3:45 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3	13
	4:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	4	15
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	14
	4:30 PM	1	0	0	0	1	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	5	21
	4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5	18
	5:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3	13
	5:15 PM	0	1	0	0	1	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	8	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	2	3	1	0	6	0	33	4	0	37	2	2	5	0	9	1	17	2	0	20	72		

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Portage Road					Hoepker Road					Portage Road					Hoepker Road					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	2	0	0	2	0	1	1	0	2	1	1	1	0	3	0	5	1	0	0	6
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:15 PM	1	0	0	0	1	0	8	1	0	9	0	0	2	0	2	0	2	0	0	0	2

15-Minute Heavy Vehicle Percentages

15-Minute Heavy Vehicle Percentages

Semi Truck Percentage:	0.1645
------------------------	--------

Hourly Time Period Start Time	↙					←					↑					→					Hourly
	From North					From East					From South					From West					Heavy
	Portage Road					Hoepker Road					Portage Road					Hoepker Road					Vehicle
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Percent
AM 7:30 AM	0.0	3.6	0.0	0.0	2.1	0.0	0.4	4.2	0.0	0.7	3.1	7.7	4.8	0.0	4.5	0.0	3.0	12.5	0.0	2.5	1.8
MD 12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM 4:15 PM	6.3	0.0	0.0	0.0	2.5	0.0	3.1	2.6	0.0	3.0	0.0	0.0	2.5	0.0	1.0	0.0	0.5	0.0	0.0	0.4	1.4

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

Hoepker Road & Portage Road

Count Basics			Page 11 of 13
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time	Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
	North Approach			East Approach			South Approach			West Approach				
	Portage Road			Hoepker Road			Portage Road			Hoepker Road				
	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/help)	x					
Elderly/Disabled (except wheelchair)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

15-Minute Adult & Children Count (Manual Entry)

Adults & Children	
	

15-Minute Adult & Children Pedestrian Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Adults	Children	Total	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total		
AM Peak Period	6:00 AM	0		0	0		0	0		0	0		0	0	0
	6:15 AM	0		0	0		0	0		0	0		0	0	0
	6:30 AM	0		0	0		0	0		0	0		0	0	0
	6:45 AM	0		0	0		0	0		0	0		0	0	0
	7:00 AM	0		0	0		0	0		0	0		0	0	0
	7:15 AM	0		0	0		0	0		0	0		0	0	0
	7:30 AM	0		0	0		0	0		0	0		0	0	0
	7:45 AM	0		0	0		0	0		0	0		0	0	0
	8:00 AM	0		0	0		0	0		0	0		0	0	0
	8:15 AM	0		0	0		0	0		0	0		0	0	0
	8:30 AM	0		0	0		0	0		0	0		0	0	0
	8:45 AM	0		0	0		0	0		0	0		0	0	0
	9:00 AM	0		0	0		0	0		0	0		0	0	0
	9:15 AM	0		0	0		0	0		0	0		0	0	0
9:30 AM	0		0	0		0	0		0	0		0	0	0	
9:45 AM	0		0	0		0	0		0	0		0	0	0	
Midday Peak Period	10:00 AM	0		0	0		0	0		0	0		0	0	0
	10:15 AM	0		0	0		0	0		0	0		0	0	0
	10:30 AM	0		0	0		0	0		0	0		0	0	0
	10:45 AM	0		0	0		0	0		0	0		0	0	0
	11:00 AM	0		0	0		0	0		0	0		0	0	0
	11:15 AM	0		0	0		0	0		0	0		0	0	0
	11:30 AM	0		0	0		0	0		0	0		0	0	0
	11:45 AM	0		0	0		0	0		0	0		0	0	0
	12:00 PM	0		0	0		0	0		0	0		0	0	0
	12:15 PM	0		0	0		0	0		0	0		0	0	0
	12:30 PM	0		0	0		0	0		0	0		0	0	0
	12:45 PM	0		0	0		0	0		0	0		0	0	0
	1:00 PM	0		0	0		0	0		0	0		0	0	0
	1:15 PM	0		0	0		0	0		0	0		0	0	0
1:30 PM	0		0	0		0	0		0	0		0	0	0	
1:45 PM	0		0	0		0	0		0	0		0	0	0	
PM Peak Period	2:00 PM	0		0	0		0	0		0	0		0	0	0
	2:15 PM	0		0	0		0	0		0	0		0	0	0
	2:30 PM	0		0	0		0	0		0	0		0	0	0
	2:45 PM	0		0	0		0	0		0	0		0	0	0
	3:00 PM	0		0	0		0	0		0	0		0	0	0
	3:15 PM	0		0	0		0	0		0	0		0	0	0
	3:30 PM	0		0	0		0	0		0	0		0	0	0
	3:45 PM	0		0	0		0	0		0	0		0	0	0
	4:00 PM	0		0	0		0	0		0	0		0	0	0
	4:15 PM	0		0	0		0	0		0	0		0	0	0
	4:30 PM	0		0	0		0	0		0	0		0	0	0
	4:45 PM	0		0	0		0	0		0	0		0	0	0
	5:00 PM	0		0	0		0	0		0	0		0	0	0
	5:15 PM	0		0	0		0	0		0	0		0	0	0
	5:30 PM	0		0	0		0	0		0	0		0	0	0
	5:45 PM	0		0	0		0	0		0	0		0	0	0
	6:00 PM	0		0	0		0	0		0	0		0	0	0
	6:15 PM	0		0	0		0	0		0	0		0	0	0
	6:30 PM	0		0	0		0	0		0	0		0	0	0
	6:45 PM	0		0	0		0	0		0	0		0	0	0
	7:00 PM	0		0	0		0	0		0	0		0	0	0
	7:15 PM	0		0	0		0	0		0	0		0	0	0
	7:30 PM	0		0	0		0	0		0	0		0	0	0
	7:45 PM	0		0	0		0	0		0	0		0	0	0
	8:00 PM	0		0	0		0	0		0	0		0	0	0
	8:15 PM	0		0	0		0	0		0	0		0	0	0
	8:30 PM	0		0	0		0	0		0	0		0	0	0
	8:45 PM	0		0	0		0	0		0	0		0	0	0
	9:00 PM	0		0	0		0	0		0	0		0	0	0
	9:15 PM	0		0	0		0	0		0	0		0	0	0
9:30 PM	0		0	0		0	0		0	0		0	0	0	
9:45 PM	0		0	0		0	0		0	0		0	0	0	
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	

15-Minute Bicycle Turning Movement Count (Manual Entry)

Count Basics		Page 13 of 13	
Start Date:	Monday, December 9, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Bicyclists


15-Minute Time Period Start Time		From North Portage Road					From East Hoepker Road					From South Portage Road					From West Hoepker Road					15-Min Totals	Hourly Sum
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM					0					0					0					0	0	0
	6:15 AM					0					0					0					0	0	0
	6:30 AM					0					0					0					0	0	0
	6:45 AM					0					0					0					0	0	0
	7:00 AM					0					0					0					0	0	0
	7:15 AM					0					0					0					0	0	0
	7:30 AM					0					0					0					0	0	0
	7:45 AM					0					0					0					0	0	0
	8:00 AM					0					0					0					0	0	0
	8:15 AM					0					0					0					0	0	0
	8:30 AM					0					0					0					0	0	0
	8:45 AM					0					0					0					0	0	0
	9:00 AM					0					0					0					0	0	0
	9:15 AM					0					0					0					0	0	0
	9:30 AM					0					0					0					0	0	0
9:45 AM					0					0					0					0	0	0	
Midday Peak Period	10:00 AM					0					0					0					0	0	0
	10:15 AM					0					0					0					0	0	0
	10:30 AM					0					0					0					0	0	0
	10:45 AM					0					0					0					0	0	0
	11:00 AM					0					0					0					0	0	0
	11:15 AM					0					0					0					0	0	0
	11:30 AM					0					0					0					0	0	0
	11:45 AM					0					0					0					0	0	0
	12:00 PM					0					0					0					0	0	0
	12:15 PM					0					0					0					0	0	0
	12:30 PM					0					0					0					0	0	0
	12:45 PM					0					0					0					0	0	0
	1:00 PM					0					0					0					0	0	0
	1:15 PM					0					0					0					0	0	0
	1:30 PM					0					0					0					0	0	0
1:45 PM					0					0					0					0	0	0	
PM Peak Period	2:00 PM					0					0					0					0	0	0

[illegible]

Appendix B

Trip Generation Comparison

Appendix
Trip Generation Comparison Table¹

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Single-Family Attached Housing	215	200 Units	1,470 FCE	30 (31%)	70 (69%)	100 FCE	65 (57%)	50 (43%)	115 FCE
Multifamily Housing (Low-Rise) (Not Close to Rail Transit)	220	200 Units	1,360 FCE	20 (24%)	65 (76%)	85 FCE	65 (63%)	40 (37%)	105 FCE
Total New Trips			110	10	5	15	0	10	10

¹ ITE Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.

Appendix C

Peak Hour Analysis Outputs

Existing Traffic

Full Build (Scenario 1) Traffic

Full Build (Scenario 2) Traffic

Full Build (Scenario 1) Traffic with modifications

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

AM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	170	65	25	275	5	20	15	30	5	55	35
Future Volume (vph)	10	170	65	25	275	5	20	15	30	5	55	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.964			0.998			0.900			0.941	
Flt Protected		0.998			0.996		0.950			0.950		
Satd. Flow (prot)	0	1775	0	0	1870	0	1719	1629	0	1770	1753	0
Flt Permitted		0.998			0.996		0.950			0.950		
Satd. Flow (perm)	0	1775	0	0	1870	0	1719	1629	0	1770	1753	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	12	202	77	30	327	6	24	18	36	6	65	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	291	0	0	363	0	24	54	0	6	107	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	39.2%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	170	65	25	275	5	20	15	30	5	55	35
Future Vol, veh/h	10	170	65	25	275	5	20	15	30	5	55	35
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	1	1	1	5	5	5	2	2	2
Mvmt Flow	12	202	77	30	327	6	24	18	36	6	65	42
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	10.9	12.4	9.4	10
HCM LOS	B	B	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	4%	8%	100%	0%
Vol Thru, %	0%	33%	69%	90%	0%	61%
Vol Right, %	0%	67%	27%	2%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	45	245	305	5	90
LT Vol	20	0	10	25	5	0
Through Vol	0	15	170	275	0	55
RT Vol	0	30	65	5	0	35
Lane Flow Rate	24	54	292	363	6	107
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.046	0.088	0.387	0.485	0.011	0.179
Departure Headway (Hd)	6.92	5.935	4.781	4.812	6.8	6.013
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	520	607	741	741	529	600
Service Time	4.625	3.64	2.879	2.905	4.503	3.717
HCM Lane V/C Ratio	0.046	0.089	0.394	0.49	0.011	0.178
HCM Control Delay, s/veh	10	9.2	10.9	12.4	9.6	10
HCM Lane LOS	A	A	B	B	A	A
HCM 95th-tile Q	0.1	0.3	1.8	2.7	0	0.6

Lanes, Volumes, Timings
200: Portage Road & South Drive

AM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	65	0	0	145
Future Volume (vph)	0	0	65	0	0	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1881	0	1810	0	0	1863
Flt Permitted						
Satd. Flow (perm)	1881	0	1810	0	0	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	5%	5%	2%	2%
Adj. Flow (vph)	0	0	77	0	0	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	77	0	0	173
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
200: Portage Road & South Drive

AM Peak
12/20/2024

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	65	0	0	145
Future Vol, veh/h	0	0	65	0	0	145
Conflicting Peds, #/hr	1	1	0	1	1	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	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	0	0	77	0	0	173

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	252	79	0	0	78
Stage 1	78	-	-	-	-
Stage 2	174	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218
Pot Cap-1 Maneuver	739	984	-	-	1520
Stage 1	947	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	737	982	-	-	1518
Mov Cap-2 Maneuver	737	-	-	-	-
Stage 1	946	-	-	-	-
Stage 2	858	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1518
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

AM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	205	0	0	305	0	0
Future Volume (vph)	205	0	0	305	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1845	0	0	1881	1881	0
Flt Permitted						
Satd. Flow (perm)	1845	0	0	1881	1881	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	1%	1%	1%	1%
Adj. Flow (vph)	244	0	0	363	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	0	0	363	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	0	0	305	0	0
Future Vol, veh/h	205	0	0	305	0	0
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	1	1	1	1
Mvmt Flow	244	0	0	363	0	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	245	0	609
Stage 1	-	-	-	-	245
Stage 2	-	-	-	-	364
Critical Hdwy	-	-	4.11	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.209	-	3.509
Pot Cap-1 Maneuver	-	-	1327	-	460
Stage 1	-	-	-	-	798
Stage 2	-	-	-	-	705
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1326	-	459
Mov Cap-2 Maneuver	-	-	-	-	459
Stage 1	-	-	-	-	797
Stage 2	-	-	-	-	704

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1326	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

PM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	435	20	40	260	5	80	50	65	5	20	15
Future Volume (vph)	40	435	20	40	260	5	80	50	65	5	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.994			0.998			0.915			0.937	
Flt Protected		0.996			0.993		0.950			0.950		
Satd. Flow (prot)	0	1862	0	0	1828	0	1787	1721	0	1752	1728	0
Flt Permitted		0.996			0.993		0.950			0.950		
Satd. Flow (perm)	0	1862	0	0	1828	0	1787	1721	0	1752	1728	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	43	468	22	43	280	5	86	54	70	5	22	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	533	0	0	328	0	86	124	0	5	38	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	49.2%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	435	20	40	260	5	80	50	65	5	20	15
Future Vol, veh/h	40	435	20	40	260	5	80	50	65	5	20	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	3	3	3	1	1	1	3	3	3
Mvmt Flow	43	468	22	43	280	5	86	54	70	5	22	16
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	23.9	14.3	11.3	10.4
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	13%	100%	0%
Vol Thru, %	0%	43%	88%	85%	0%	57%
Vol Right, %	0%	57%	4%	2%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	115	495	305	5	35
LT Vol	80	0	40	40	5	0
Through Vol	0	50	435	260	0	20
RT Vol	0	65	20	5	0	15
Lane Flow Rate	86	124	532	328	5	38
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.176	0.221	0.774	0.507	0.012	0.073
Departure Headway (Hd)	7.364	6.446	5.232	5.568	7.82	6.996
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	555	692	646	456	509
Service Time	5.129	4.211	3.277	3.621	5.602	4.778
HCM Lane V/C Ratio	0.177	0.223	0.769	0.508	0.011	0.075
HCM Control Delay, s/veh	11.7	11	23.9	14.3	10.7	10.3
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	0.6	0.8	7.4	2.9	0	0.2

Lanes, Volumes, Timings
200: Portage Road & South Drive

PM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	195	0	0	80
Future Volume (vph)	0	0	195	0	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1881	0	1881	0	0	1845
Flt Permitted						
Satd. Flow (perm)	1881	0	1881	0	0	1845
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%
Adj. Flow (vph)	0	0	210	0	0	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	210	0	0	86
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	20.7%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	195	0	0	80
Future Vol, veh/h	0	0	195	0	0	80
Conflicting Peds, #/hr	1	1	0	1	1	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	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	0	0	210	0	0	86

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	298	212	0
Stage 1	211	-	-
Stage 2	87	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	696	831	-
Stage 1	827	-	-
Stage 2	939	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	694	829	-
Mov Cap-2 Maneuver	694	-	-
Stage 1	826	-	-
Stage 2	938	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1353
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

PM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	505	0	0	305	0	0
Future Volume (vph)	505	0	0	305	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1881	0	0	1845	1881	0
Flt Permitted						
Satd. Flow (perm)	1881	0	0	1845	1881	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Adj. Flow (vph)	543	0	0	328	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	543	0	0	328	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	505	0	0	305	0	0
Future Vol, veh/h	505	0	0	305	0	0
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	543	0	0	328	0	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	544	0	873
Stage 1	-	-	-	-	544
Stage 2	-	-	-	-	329
Critical Hdwy	-	-	4.13	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.227	-	3.509
Pot Cap-1 Maneuver	-	-	1020	-	322
Stage 1	-	-	-	-	584
Stage 2	-	-	-	-	731
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1019	-	321
Mov Cap-2 Maneuver	-	-	-	-	321
Stage 1	-	-	-	-	583
Stage 2	-	-	-	-	731

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1019	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

AM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	180	70	25	300	10	25	15	30	5	55	35
Future Volume (vph)	10	180	70	25	300	10	25	15	30	5	55	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.964			0.996			0.900			0.941	
Flt Protected		0.998			0.996		0.950			0.950		
Satd. Flow (prot)	0	1775	0	0	1866	0	1719	1629	0	1770	1753	0
Flt Permitted		0.998			0.996		0.950			0.950		
Satd. Flow (perm)	0	1775	0	0	1866	0	1719	1629	0	1770	1753	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	12	214	83	30	357	12	30	18	36	6	65	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	399	0	30	54	0	6	107	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	41.3%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	180	70	25	300	10	25	15	30	5	55	35
Future Vol, veh/h	10	180	70	25	300	10	25	15	30	5	55	35
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	1	1	1	5	5	5	2	2	2
Mvmt Flow	12	214	83	30	357	12	30	18	36	6	65	42
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	11.7	13.9	9.8	10.3
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	4%	7%	100%	0%
Vol Thru, %	0%	33%	69%	90%	0%	61%
Vol Right, %	0%	67%	27%	3%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	45	260	335	5	90
LT Vol	25	0	10	25	5	0
Through Vol	0	15	180	300	0	55
RT Vol	0	30	70	10	0	35
Lane Flow Rate	30	54	310	399	6	107
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.059	0.091	0.428	0.55	0.012	0.184
Departure Headway (Hd)	7.078	6.091	4.973	4.968	6.965	6.177
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	587	727	730	514	580
Service Time	4.827	3.84	2.985	2.979	4.712	3.924
HCM Lane V/C Ratio	0.059	0.092	0.426	0.547	0.012	0.184
HCM Control Delay, s/veh	10.3	9.5	11.7	13.9	9.8	10.3
HCM Lane LOS	B	A	B	B	A	B
HCM 95th-tile Q	0.2	0.3	2.2	3.4	0	0.7

Lanes, Volumes, Timings
200: Portage Road & South Drive

AM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	5	65	5	5	145
Future Volume (vph)	10	5	65	5	5	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.990			
Flt Protected	0.968					0.998
Satd. Flow (prot)	1739	0	1791	0	0	1859
Flt Permitted	0.968					0.998
Satd. Flow (perm)	1739	0	1791	0	0	1859
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	5%	5%	2%	2%
Adj. Flow (vph)	12	6	77	6	6	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	83	0	0	179
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
200: Portage Road & South Drive

AM Peak
12/20/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	65	5	5	145
Future Vol, veh/h	10	5	65	5	5	145
Conflicting Peds, #/hr	1	1	0	1	1	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	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	12	6	77	6	6	173

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	267	82	0	0	84
Stage 1	81	-	-	-	-
Stage 2	186	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218
Pot Cap-1 Maneuver	724	980	-	-	1512
Stage 1	944	-	-	-	-
Stage 2	849	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	720	978	-	-	1511
Mov Cap-2 Maneuver	720	-	-	-	-
Stage 1	943	-	-	-	-
Stage 2	844	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.67	0	0.25
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	789	60
HCM Lane V/C Ratio	-	-	0.023	0.004
HCM Control Delay (s/veh)	-	-	9.7	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

AM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↗	
Traffic Volume (vph)	205	10	10	305	30	25
Future Volume (vph)	205	10	10	305	30	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.939	
Flt Protected				0.998	0.973	
Satd. Flow (prot)	1834	0	0	1877	1719	0
Flt Permitted				0.998	0.973	
Satd. Flow (perm)	1834	0	0	1877	1719	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	1%	1%	1%	1%
Adj. Flow (vph)	244	12	12	363	36	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	256	0	0	375	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.5%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	10	10	305	30	25
Future Vol, veh/h	205	10	10	305	30	25
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	1	1	1	1
Mvmt Flow	244	12	12	363	36	30
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	257	0	639	252
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	388	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1314	-	442	789
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1312	-	436	788
Mov Cap-2 Maneuver	-	-	-	-	436	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	679	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	0.25		12.47		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	547	-	-	57	-	
HCM Lane V/C Ratio	0.12	-	-	0.009	-	
HCM Control Delay (s/veh)	12.5	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

PM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	460	25	40	280	5	85	50	65	10	20	15
Future Volume (vph)	40	460	25	40	280	5	85	50	65	10	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.994			0.998			0.915			0.937	
Flt Protected		0.996			0.994		0.950			0.950		
Satd. Flow (prot)	0	1862	0	0	1830	0	1787	1721	0	1752	1728	0
Flt Permitted		0.996			0.994		0.950			0.950		
Satd. Flow (perm)	0	1862	0	0	1830	0	1787	1721	0	1752	1728	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	43	495	27	43	301	5	91	54	70	11	22	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	349	0	91	124	0	11	38	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	51.4%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	21.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	460	25	40	280	5	85	50	65	10	20	15
Future Vol, veh/h	40	460	25	40	280	5	85	50	65	10	20	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	3	3	3	1	1	1	3	3	3
Mvmt Flow	43	495	27	43	301	5	91	54	70	11	22	16
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	29.7	15.7	11.7	10.7
HCM LOS	D	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	12%	100%	0%
Vol Thru, %	0%	43%	88%	86%	0%	57%
Vol Right, %	0%	57%	5%	2%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	115	525	325	10	35
LT Vol	85	0	40	40	10	0
Through Vol	0	50	460	280	0	20
RT Vol	0	65	25	5	0	15
Lane Flow Rate	91	124	565	349	11	38
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.192	0.228	0.836	0.553	0.024	0.076
Departure Headway (Hd)	7.546	6.626	5.332	5.693	8.13	7.304
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	539	677	629	443	493
Service Time	5.327	4.406	3.39	3.762	5.83	5.004
HCM Lane V/C Ratio	0.192	0.23	0.835	0.555	0.025	0.077
HCM Control Delay, s/veh	12.1	11.4	29.7	15.7	11	10.6
HCM Lane LOS	B	B	D	C	B	B
HCM 95th-tile Q	0.7	0.9	9.2	3.4	0.1	0.2

Lanes, Volumes, Timings
200: Portage Road & South Drive

PM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	5	195	10	5	80
Future Volume (vph)	10	5	195	10	5	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.958	0.993				
Flt Protected	0.967				0.997	
Satd. Flow (prot)	1743	0	1868	0	0	1839
Flt Permitted	0.967				0.997	
Satd. Flow (perm)	1743	0	1868	0	0	1839
Link Speed (mph)	25	45		45		
Link Distance (ft)	1136	963		2012		
Travel Time (s)	31.0	14.6		30.5		
Confl. Peds. (#/hr)	1	1	1		1	
Confl. Bikes (#/hr)	1		1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%
Adj. Flow (vph)	11	5	210	11	5	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	221	0	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12	12		12		
Link Offset(ft)	0	0		0		
Crosswalk Width(ft)	16	16		16		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	9		15	
Sign Control	Stop	Free		Free		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.3%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	195	10	5	80
Future Vol, veh/h	10	5	195	10	5	80
Conflicting Peds, #/hr	1	1	0	1	1	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	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	11	5	210	11	5	86

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	314	217	0	0	221
Stage 1	216	-	-	-	-
Stage 2	98	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227
Pot Cap-1 Maneuver	681	825	-	-	1342
Stage 1	822	-	-	-	-
Stage 2	929	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	677	824	-	-	1340
Mov Cap-2 Maneuver	677	-	-	-	-
Stage 1	822	-	-	-	-
Stage 2	924	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v10.12		0	0.45
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	720	106
HCM Lane V/C Ratio	-	-	0.022	0.004
HCM Control Delay (s/veh)	-	-	10.1	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

PM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	505	30	20	305	20	15
Future Volume (vph)	505	30	20	305	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.943	
Flt Protected				0.997	0.972	
Satd. Flow (prot)	1866	0	0	1839	1724	0
Flt Permitted				0.997	0.972	
Satd. Flow (perm)	1866	0	0	1839	1724	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Adj. Flow (vph)	543	32	22	328	22	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	575	0	0	350	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	505	30	20	305	20	15
Future Vol, veh/h	505	30	20	305	20	15
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	543	32	22	328	22	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	576	0	932
Stage 1	-	-	-	-	560
Stage 2	-	-	-	-	372
Critical Hdwy	-	-	4.13	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.227	-	3.509
Pot Cap-1 Maneuver	-	-	992	-	297
Stage 1	-	-	-	-	574
Stage 2	-	-	-	-	699
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	991	-	289
Mov Cap-2 Maneuver	-	-	-	-	289
Stage 1	-	-	-	-	573
Stage 2	-	-	-	-	680

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.54	16.23
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	358	-	-	111	-
HCM Lane V/C Ratio	0.105	-	-	0.022	-
HCM Control Delay (s/veh)	16.2	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

AM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	170	80	35	275	5	50	20	55	5	55	35
Future Volume (vph)	10	170	80	35	275	5	50	20	55	5	55	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.958			0.998			0.890			0.941	
Flt Protected		0.998			0.994		0.950			0.950		
Satd. Flow (prot)	0	1764	0	0	1866	0	1719	1610	0	1770	1753	0
Flt Permitted		0.998			0.994		0.950			0.950		
Satd. Flow (perm)	0	1764	0	0	1866	0	1719	1610	0	1770	1753	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	12	202	95	42	327	6	60	24	65	6	65	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	375	0	60	89	0	6	107	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	45.5%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	170	80	35	275	5	50	20	55	5	55	35
Future Vol, veh/h	10	170	80	35	275	5	50	20	55	5	55	35
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	1	1	1	5	5	5	2	2	2
Mvmt Flow	12	202	95	42	327	6	60	24	65	6	65	42
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	12.2	14.2	10.3	10.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	4%	11%	100%	0%
Vol Thru, %	0%	27%	65%	87%	0%	61%
Vol Right, %	0%	73%	31%	2%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	75	260	315	5	90
LT Vol	50	0	10	35	5	0
Through Vol	0	20	170	275	0	55
RT Vol	0	55	80	5	0	35
Lane Flow Rate	60	89	310	375	6	107
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.117	0.15	0.442	0.541	0.012	0.188
Departure Headway (Hd)	7.088	6.053	5.144	5.197	7.11	6.321
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	505	591	700	694	503	567
Service Time	4.841	3.805	3.185	3.235	4.863	4.073
HCM Lane V/C Ratio	0.119	0.151	0.443	0.54	0.012	0.189
HCM Control Delay, s/veh	10.8	9.9	12.2	14.2	9.9	10.5
HCM Lane LOS	B	A	B	B	A	B
HCM 95th-tile Q	0.4	0.5	2.3	3.3	0	0.7

Lanes, Volumes, Timings
200: Portage Road & South Drive

AM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	60	65	5	25	145
Future Volume (vph)	10	60	65	5	25	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.885		0.990			
Flt Protected	0.993					0.993
Satd. Flow (prot)	1653	0	1791	0	0	1850
Flt Permitted	0.993					0.993
Satd. Flow (perm)	1653	0	1791	0	0	1850
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	5%	5%	2%	2%
Adj. Flow (vph)	12	71	77	6	30	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	83	0	83	0	0	203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
200: Portage Road & South Drive

AM Peak
12/20/2024

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	60	65	5	25	145
Future Vol, veh/h	10	60	65	5	25	145
Conflicting Peds, #/hr	1	1	0	1	1	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	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	12	71	77	6	30	173

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	315	82	0
Stage 1	81	-	-
Stage 2	233	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	680	980	-
Stage 1	944	-	-
Stage 2	808	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	664	978	-
Mov Cap-2 Maneuver	664	-	-
Stage 1	943	-	-
Stage 2	790	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.32	0	1.09
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	265
HCM Lane V/C Ratio	-	-	0.091	0.02
HCM Control Delay (s/veh)	-	-	9.3	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

PM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	435	50	60	260	5	105	50	80	5	25	15
Future Volume (vph)	40	435	50	60	260	5	105	50	80	5	25	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.987			0.998			0.908			0.944	
Flt Protected		0.996			0.991		0.950			0.950		
Satd. Flow (prot)	0	1849	0	0	1824	0	1787	1708	0	1752	1741	0
Flt Permitted		0.996			0.991		0.950			0.950		
Satd. Flow (perm)	0	1849	0	0	1824	0	1787	1708	0	1752	1741	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	43	468	54	65	280	5	113	54	86	5	27	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	350	0	113	140	0	5	43	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 50.9%	ICU Level of Service A											
Analysis Period (min) 15												

Intersection	
Intersection Delay, s/veh	22.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	435	50	60	260	5	105	50	80	5	25	15
Future Vol, veh/h	40	435	50	60	260	5	105	50	80	5	25	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	3	3	3	1	1	1	3	3	3
Mvmt Flow	43	468	54	65	280	5	113	54	86	5	27	16
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	32.1	16.5	12.2	10.9
HCM LOS	D	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	18%	100%	0%
Vol Thru, %	0%	38%	83%	80%	0%	63%
Vol Right, %	0%	62%	10%	2%	0%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	130	525	325	5	40
LT Vol	105	0	40	60	5	0
Through Vol	0	50	435	260	0	25
RT Vol	0	80	50	5	0	15
Lane Flow Rate	113	140	565	349	5	43
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.238	0.258	0.853	0.568	0.012	0.09
Departure Headway (Hd)	7.591	6.634	5.44	5.854	8.29	7.501
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	471	537	660	612	434	480
Service Time	5.382	4.425	3.51	3.936	5.99	5.201
HCM Lane V/C Ratio	0.24	0.261	0.856	0.57	0.012	0.09
HCM Control Delay, s/veh	12.8	11.7	32.1	16.5	11.1	10.9
HCM Lane LOS	B	B	D	C	B	B
HCM 95th-tile Q	0.9	1	9.7	3.6	0	0.3

Lanes, Volumes, Timings
200: Portage Road & South Drive

PM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	40	195	10	55	80
Future Volume (vph)	10	40	195	10	55	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.892		0.993			
Flt Protected	0.990					0.980
Satd. Flow (prot)	1661	0	1868	0	0	1808
Flt Permitted	0.990					0.980
Satd. Flow (perm)	1661	0	1868	0	0	1808
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%
Adj. Flow (vph)	11	43	210	11	59	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	221	0	0	145
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.9%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	40	195	10	55	80
Future Vol, veh/h	10	40	195	10	55	80
Conflicting Peds, #/hr	1	1	0	1	1	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	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	11	43	210	11	59	86

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	421	217	0	0	221
Stage 1	216	-	-	-	-
Stage 2	205	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227
Pot Cap-1 Maneuver	591	825	-	-	1342
Stage 1	822	-	-	-	-
Stage 2	831	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	562	824	-	-	1340
Mov Cap-2 Maneuver	562	-	-	-	-
Stage 1	822	-	-	-	-
Stage 2	792	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v10.14		0	3.18
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	754	733
HCM Lane V/C Ratio	-	-	0.071	0.044
HCM Control Delay (s/veh)	-	-	10.1	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

AM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	180	70	25	300	10	25	15	30	5	55	35
Future Volume (vph)	10	180	70	25	300	10	25	15	30	5	55	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.964			0.996			0.900			0.941	
Flt Protected		0.998			0.996		0.950			0.950		
Satd. Flow (prot)	0	1775	0	0	1866	0	1719	1629	0	1770	1753	0
Flt Permitted		0.998			0.996		0.950			0.950		
Satd. Flow (perm)	0	1775	0	0	1866	0	1719	1629	0	1770	1753	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	12	214	83	30	357	12	30	18	36	6	65	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	399	0	30	54	0	6	107	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	41.3%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	180	70	25	300	10	25	15	30	5	55	35
Future Vol, veh/h	10	180	70	25	300	10	25	15	30	5	55	35
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	1	1	1	5	5	5	2	2	2
Mvmt Flow	12	214	83	30	357	12	30	18	36	6	65	42
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	11.7	13.9	9.8	10.3
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	4%	7%	100%	0%
Vol Thru, %	0%	33%	69%	90%	0%	61%
Vol Right, %	0%	67%	27%	3%	0%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	45	260	335	5	90
LT Vol	25	0	10	25	5	0
Through Vol	0	15	180	300	0	55
RT Vol	0	30	70	10	0	35
Lane Flow Rate	30	54	310	399	6	107
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.059	0.091	0.428	0.55	0.012	0.184
Departure Headway (Hd)	7.078	6.091	4.973	4.968	6.965	6.177
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	587	727	730	514	580
Service Time	4.827	3.84	2.985	2.979	4.712	3.924
HCM Lane V/C Ratio	0.059	0.092	0.426	0.547	0.012	0.184
HCM Control Delay, s/veh	10.3	9.5	11.7	13.9	9.8	10.3
HCM Lane LOS	B	A	B	B	A	B
HCM 95th-tile Q	0.2	0.3	2.2	3.4	0	0.7

Lanes, Volumes, Timings
200: Portage Road & South Drive

AM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	5	65	5	5	145
Future Volume (vph)	10	5	65	5	5	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.955		0.990			
Flt Protected	0.968					0.998
Satd. Flow (prot)	1739	0	1791	0	0	1859
Flt Permitted	0.968					0.998
Satd. Flow (perm)	1739	0	1791	0	0	1859
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	5%	5%	2%	2%
Adj. Flow (vph)	12	6	77	6	6	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	83	0	0	179
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
200: Portage Road & South Drive

AM Peak
12/20/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	65	5	5	145
Future Vol, veh/h	10	5	65	5	5	145
Conflicting Peds, #/hr	1	1	0	1	1	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	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	12	6	77	6	6	173

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	267	82	0
Stage 1	81	-	-
Stage 2	186	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	724	980	-
Stage 1	944	-	-
Stage 2	849	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	720	978	-
Mov Cap-2 Maneuver	720	-	-
Stage 1	943	-	-
Stage 2	844	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.67	0	0.25
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	789	60
HCM Lane V/C Ratio	-	-	0.023	0.004
HCM Control Delay (s/veh)	-	-	9.7	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

AM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘↗	
Traffic Volume (vph)	205	10	10	305	30	25
Future Volume (vph)	205	10	10	305	30	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	0		0	0
Storage Lanes		1	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.939	
Flt Protected				0.998	0.973	
Satd. Flow (prot)	1845	1568	0	1877	1719	0
Flt Permitted				0.998	0.973	
Satd. Flow (perm)	1845	1568	0	1877	1719	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	1%	1%	1%	1%
Adj. Flow (vph)	244	12	12	363	36	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	12	0	375	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.5%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	205	10	10	305	30	25
Future Vol, veh/h	205	10	10	305	30	25
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	1	1	1	1
Mvmt Flow	244	12	12	363	36	30
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	257	0	633	246
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	388	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1314	-	445	795
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1312	-	440	794
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	679	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0.25		12.41	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	551	-	-	57	-	
HCM Lane V/C Ratio	0.119	-	-	0.009	-	
HCM Control Delay (s/veh)	12.4	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

Lanes, Volumes, Timings
100: Portage Road & Hoepker Road

PM Peak
12/20/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	460	25	40	280	5	85	50	65	10	20	15
Future Volume (vph)	40	460	25	40	280	5	85	50	65	10	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
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
Ped Bike Factor												
Frt		0.994			0.998			0.915			0.937	
Flt Protected		0.996			0.994		0.950			0.950		
Satd. Flow (prot)	0	1862	0	0	1830	0	1787	1721	0	1752	1728	0
Flt Permitted		0.996			0.994		0.950			0.950		
Satd. Flow (perm)	0	1862	0	0	1830	0	1787	1721	0	1752	1728	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		997			1612			2012			1125	
Travel Time (s)		19.4			24.4			30.5			17.0	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	43	495	27	43	301	5	91	54	70	11	22	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	349	0	91	124	0	11	38	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(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	51.4%											
Analysis Period (min)	15											
ICU Level of Service A												

Intersection	
Intersection Delay, s/veh	21.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	460	25	40	280	5	85	50	65	10	20	15
Future Vol, veh/h	40	460	25	40	280	5	85	50	65	10	20	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	3	3	3	1	1	1	3	3	3
Mvmt Flow	43	495	27	43	301	5	91	54	70	11	22	16
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay, s/veh	29.7	15.7	11.7	10.7
HCM LOS	D	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	8%	12%	100%	0%
Vol Thru, %	0%	43%	88%	86%	0%	57%
Vol Right, %	0%	57%	5%	2%	0%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	115	525	325	10	35
LT Vol	85	0	40	40	10	0
Through Vol	0	50	460	280	0	20
RT Vol	0	65	25	5	0	15
Lane Flow Rate	91	124	565	349	11	38
Geometry Grp	5	5	2	2	5	5
Degree of Util (X)	0.192	0.228	0.836	0.553	0.024	0.076
Departure Headway (Hd)	7.546	6.626	5.332	5.693	8.13	7.304
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	539	677	629	443	493
Service Time	5.327	4.406	3.39	3.762	5.83	5.004
HCM Lane V/C Ratio	0.192	0.23	0.835	0.555	0.025	0.077
HCM Control Delay, s/veh	12.1	11.4	29.7	15.7	11	10.6
HCM Lane LOS	B	B	D	C	B	B
HCM 95th-tile Q	0.7	0.9	9.2	3.4	0.1	0.2

Lanes, Volumes, Timings
200: Portage Road & South Drive

PM Peak
12/20/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	5	195	10	5	80
Future Volume (vph)	10	5	195	10	5	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.958		0.993			
Flt Protected	0.967					0.997
Satd. Flow (prot)	1743	0	1868	0	0	1839
Flt Permitted	0.967					0.997
Satd. Flow (perm)	1743	0	1868	0	0	1839
Link Speed (mph)	25		45			45
Link Distance (ft)	1136		963			2012
Travel Time (s)	31.0		14.6			30.5
Confl. Peds. (#/hr)	1	1		1	1	
Confl. Bikes (#/hr)		1		1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	3%	3%
Adj. Flow (vph)	11	5	210	11	5	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	221	0	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.3%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	195	10	5	80
Future Vol, veh/h	10	5	195	10	5	80
Conflicting Peds, #/hr	1	1	0	1	1	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	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	3	3
Mvmt Flow	11	5	210	11	5	86

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	314	217	0
Stage 1	216	-	-
Stage 2	98	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	681	825	-
Stage 1	822	-	-
Stage 2	929	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	677	824	-
Mov Cap-2 Maneuver	677	-	-
Stage 1	822	-	-
Stage 2	924	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v10.12		0	0.45
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	720	106
HCM Lane V/C Ratio	-	-	0.022	0.004
HCM Control Delay (s/veh)	-	-	10.1	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings
300: North Drive & Hoepker Road

PM Peak
12/20/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘↗	
Traffic Volume (vph)	505	30	20	305	20	15
Future Volume (vph)	505	30	20	305	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	0		0	0
Storage Lanes		1	0		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.943	
Flt Protected				0.997	0.972	
Satd. Flow (prot)	1881	1599	0	1839	1724	0
Flt Permitted				0.997	0.972	
Satd. Flow (perm)	1881	1599	0	1839	1724	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1612			1161	904	
Travel Time (s)	24.4			17.6	24.7	
Confl. Peds. (#/hr)		1	1		1	1
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Adj. Flow (vph)	543	32	22	328	22	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	543	32	0	350	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	505	30	20	305	20	15
Future Vol, veh/h	505	30	20	305	20	15
Conflicting Peds, #/hr	0	1	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	3	3	1	1
Mvmt Flow	543	32	22	328	22	16

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	576	0	916	545
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	-	-	4.13	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.227	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	992	-	304	540
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	991	-	295	539
Mov Cap-2 Maneuver	-	-	-	-	295	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.54	15.96
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	366	-	-	111	-
HCM Lane V/C Ratio	0.103	-	-	0.022	-
HCM Control Delay (s/veh)	16	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Appendix D

Turn Lane Warrant Calculations & Graphs

Left-turn Lane Analysis

Right-turn Lane Analysis

OPERATIONAL WARRANTS FOR LEFT-TURN LANES AT INTERSECTIONS ON TWO-LANE HIGHWAYS

Project: Pumpkin Hollow Residential
 Scenario: Full Build - Scenario 1 (two access drives)
 Analyst: DJL
 Date: 12/16/2024

Location	Operating Speed (mph)	Opposing Volume (veh/hr)	Advancing Volume (veh/hr)	Left-Turn Volume (veh/hr)	Calculated Left-Turn Percentage**	Advancing Volume Threshold* (veh/hr)	Is Advancing Volume Threshold Met?	By How Much?
Hoepker @ Prop Road - AM Peak ¹	50	215	315	20	6.3%	500	NO	short 185 veh/hr
Hoepker @ Prop Road - PM Peak	50	535	325	20	6.2%	354	NO	short 29 veh/hr
Portage @ Prop Road - AM Peak ²	50	70	150	10	6.7%	576	NO	short 426 veh/hr
Portage @ Prop Road - PM Peak	50	205	85	10	11.8%	379	NO	short 294 veh/hr

* Advanced volume threshold based on exponential trendlines fit to the data in WisDOT FDM 11-25 Table 5.1. As a result, thresholds may differ slightly from data provided in Table 5.1.

** Calculated left-turn percentage must be between 5 and 40 percent to provide threshold.

Notes

Operating speed is posted speed limit plus 5-mph.
 Opposing volume = Opposing Through and Right
 Advancing Volume = Advancing Left, Through, and Right

¹ For AM Peak volumes, 20 left-turning vehicles were shown (actual is 10) in order for threshold to be shown. Left-turn warrant at 10 is not met.

² For AM Peak volumes, 10 left-turning vehicles were shown (actual is 5) in order for threshold to be shown. Left-turn warrant at 5 is not met.

figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	535
Right-turn volume, veh/h:	30

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	22
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	

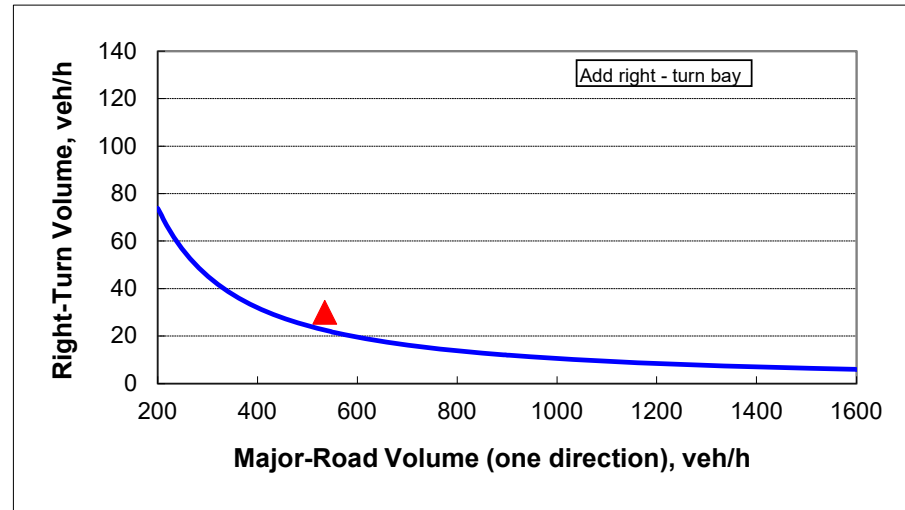


figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	205
Right-turn volume, veh/h:	10

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	72
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

