Intersection Control Evaluation for CTH X, CTH XX, and Pine Road
Village of Kronenwetter
Marathon County

Prepared for

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Contents

CTH X, CTH XX, and Pine Road Intersection Control Evaluation

Project Background

The intersection of CTH X, CTH XX, and Pine Road is located in the Village of Kronenwetter, Marathon County. CTH X makes up the south and east legs, CTH XX makes up the north leg, and Pine Road makes up the west leg. It is currently two-way stop controlled on the east and west legs (CTH X and Pine Road, respectively). The intersection is being evaluated for potential safety and operational improvements. A Project Location Map is included as Attachment 1. The evaluation includes the analysis of existing and future intersection operations, as well as crashes and safety. The following details the results of the analyses and an Intersection Control Evaluation (ICE).

Study Area

CTH X is a two-lane roadway with a speed limit of 35 mph on the south leg of the intersection and 45 mph on the east leg of the intersection. The average annual daily traffic (AADT) reported by the Wisconsin Department of Transportation (WisDOT) on CTH X to the east is 5,000 (2023). CTH XX is a two-lane roadway with a speed limit of 35 mph on the north leg of the intersection. The AADT reported by WisDOT on CTH XX is 3,700 (2023). Pine Road is a two-lane roadway with a speed limit of 25 mph on the west leg of the intersection. The AADT reported by WisDOT on Pine Road is 1,200 (2019). The volumes reported by WisDOT are consistent with an intersection turning movement count collected on December 11, 2024. The existing intersection of CTH X, CTH XX, and Pine Road is two-way stop controlled on the east and west legs (CTH X and Pine Road, respectively). There are no turn lanes on any of the four approaches. The roadways intersect at a 90-degree angle.

On CTH X to the south, there is a residential driveway located approximately 90 feet away from the intersection on the west side of the roadway and a business driveway located approximately 195 away on the east side of the roadway. On CTH X to the east, there are business driveways located approximately 185 feet and 350 feet away on the south and north side of the roadway, respectively. On CTH XX to the north, there is a residential driveway located approximately 135 feet away on the west side of the roadway and on Pine Road, there is a residential driveway located approximately 325 feet away on the south side of the roadway.

Truck percentages in the AM peak range from 0% and 1% on the west and east legs to 1% and 5% on the south and north legs. In the PM peak, truck percentages range from 1% and 6% on the east and west legs to 1% and 2% on the south and north legs of the intersection.

Safety Considerations

There were 19 crashes observed at the intersection of CTH X, CTH XX, and Pine Road from January 2019 through December 2024. See Table 1 and the subsequent summary for details. The summary focuses first on the finalized crash data from 2019-2023 with the preliminary 2024 data detailed at the end of the summary. Traffic volumes at the intersection are included as Attachment 2 and a detailed Intersection Crash Diagram is included as Attachment 3.

Table 1: CTH X, CTH XX, and Pine Road Observed Crash History
Years 2019-2024

Crash Type	Fatal	Injury A	Injury B	Injury C		KABC (Fatal + Injury A + Injury B + Injury C)	Property Damage Only (PDO)	Total (KABC + PDO)
Head-on				1		1	1	2
Angle			2	1		3	6	9
Angle*		1	1			2	2	4
Rear End							3	3
No*							1	1
Total	0	1	3	2		6	13	19

* Preliminary 2024 data
** No Collision with Vehicle in Transport / Single Vehicle Crash

Crash Trends: Of the 15 total crashes, nine were there result of an eastbound or westbound driver failing to yield to a northbound or southbound vehicle causing an angle crash – three due to an eastbound driver failing to yield to a northbound vehicle, three due to a westbound driver failing to yield to a southbound vehicle, two due to an eastbound driver failing to yield to a southbound vehicle, and one due to a westbound driver failing to yield to a northbound vehicle. The two head on crashes were caused by drivers that took left turns too short and struck vehicles stopped at the stop signs. The three rear end crashes all occurred westbound on CTH X, two of which were due to icy conditions. There was one single vehicle incident where a southbound driver hit a snowbank after swerving to avoid a westbound vehicle that had slid through the stop sign under icy conditions.

Contributing Geometric Factors: Sight distance from the stop sign on Pine Road is limited in in the northwest quadrant due to visual obstructions near the roadway including large trees and power poles. Visibility is also somewhat limited in the southwest quadrant by a tree south of the private driveway, but this meets current standards.

Eastbound Pine Road looking south


Eastbound Pine Road looking north

Roadway Conditions: Lighting and pavement condition do not appear to be significant factors in the crash trends at this location There is lighting at this intersection located in the northeast quadrant. Of the 15 total crashes, 12 occurred during the day, one occurred at dawn, one at dusk, and one under lighted conditions. Two crashes occurred on wet pavement and three in the snow while ten were on dry pavement.

Driver Characteristics: Of the 15 at-fault drivers, eight were in the range of 16-29 years old. Five of these resulted in angle crashes, two were rear end incidents and the last was the single vehicle incident. These driver errors may be partly due to inexperience or risk-taking, which are both common among young drivers.

One of the at-fault drivers was 44 years old. This driver was unable to stop due to icy conditions.

The remaining six crashes were caused by older drivers in the range of 60-78 years old. Four of these resulted in angle crashes and two were the head on incidents where the drivers took the turns too short.

Fatal and A-Type Injury Crash Summaries: There were no fatal or A-type injury crashes reported.

Preliminary 2024 Data: There were a total of four crashes that occurred at the intersection in 2024. All four were angle crashes. One occurred when a southbound left turning driver (age 20) was distracted and turned in front of a northbound vehicle resulting in an A-type injury crash. Another occurred when a westbound driver (age 28) stopped at the stop sign on CTH X, looked but did not see any cross traffic, pulled out and struck the side of a southbound vehicle resulting in a B-type injury crash. One was the result of a northbound left turning driver (age 86) cutting the corner short due to sun glare and striking an eastbound vehicle stopped at the stop sign resulting in a property damage only crash. The final occurred when a distracted westbound driver (age 16) stopped at the stop sign but then failed to yield right of way to a northbound vehicle resulting in a property damage only crash. All four crashes occurred during the day on dry pavement conditions.

Description of Evaluated Alternatives

The following alternatives were evaluated:

- Existing two-way stop control
- All-way stop control (AWSC)
- Roundabout control
- Traffic Signal control

Traffic Projections

The traffic projections were completed utilizing straight-line growth from existing conditions to year 2046. The growth rate was determined based on WisDOT AADT counts on CTH X, CTH XX, and Pine Road. The AADT counts show varying growth rates ranging from a decrease in traffic to an increase of approximately 1% per year. A growth rate of 0.5% per year was utilized to determine the future traffic volumes for this analysis. See Attachment 2 for existing and future traffic data.

Warrants Analysis

Traffic Signal Control Warrants

Traffic signal warrants were evaluated using existing and forecasted traffic volumes. The evaluation of forecasted traffic data shows that no warrants are expected to be met in the year 2046. For purposes of warrant evaluation only, the year 2046 traffic volumes were recalculated utilizing a growth rate of 1% per year and warrants were re-evaluated to determine if a greater amount of traffic growth would change the outcome of the warrants analysis. The evaluation of forecasted traffic data with 1% growth per year still shows that no traffic signal warrants are expected to be met in the year 2046. Therefore, traffic signal control was not evaluated any further. See Attachment 4 for the Traffic Signal Warrants Analysis Output.

All-Way Stop Control Warrants

The Wisconsin Manual on Uniform Traffic Control Devices (WMUTCD) Section 2B.12 and WisDOT's Traffic Engineering, Operations and Safety (TEOpS) Manual were consulted to determine if AWSC is warranted at the intersection of CTH X, CTH XX, and Pine Road. Multi-way stop control is typically considered when traffic volumes on the intersecting roadways are approximately equal. The WMUTCD lists multiple criteria that should be considered in an engineering study for multi-way stop installation. The criteria include the following:

A. Where traffic signal control is justified, multi-way stop control can be used as an interim measure.
B. If five or more crashes that could be corrected by a multi-way stop were reported in a one-year period.
C. Where an engineering study indicates that sight distance on the minor road approaches controlled by a stop sign is not adequate for a vehicle to turn onto or cross the uncontrolled major road.
D. If minimum volumes for locations where the 85th percentile speed of the major street traffic is 40 mph or less are met as follows:
    i. The total vehicular volume entering the intersection from both major approaches averages at least 300 vehicles per hour for any eight hours of an average day; and
    ii. The combined vehicular, bicycle, and pedestrian volume entering the intersection from both minor approaches averages at least 200 units per hour for the same eight hours.

The TEOpS Manual states that all criteria in the MUTCD shall be considered when evaluating whether AWSC is appropriate control for intersections on the STH system, plus the following supplemental criteria shall also be considered:

1. Functional Highway Classification – for desirable AWSC, the intersecting roadways should have the same or similar functional class on at least three approaches.
2. Average Daily Traffic (ADT) – for AWSC, it is highly desirable that the intersecting roadways have closely balanced ADTs on at least three approaches (at least one of the minor approaches with a volume not less than 70% of the higher volume of the two approaches on the major roadway.
3. Crash History – AWSC should be considered if it is expected to correct a significant number of intersection crashes that have occurred in the past 5 years or reduce the overall severity of future crashes.
4. Alternatives – Improvement alternatives that are less restrictive than AWSC shall be considered and evaluated.
5. Mobility Impact – Will the high-volume of existing through traffic experience significant delays for the benefit of reducing delays for a low-volume side-street?
6. Right turn inclusion – The inclusion of right turns from the minor approaches in the AWSC warrant analysis should be evaluated similar to signal warrant evaluation.

The intersection of CTH X, CTH XX, and Pine Road is currently stop-controlled on the east and west approaches of CTH X and Pine Road, which are the highest and lowest volume approaches, respectively. Traffic volumes on CTH X to the south and CTH XX to the north are roughly even and approximately 20% lower than CTH X to the east.

Based on the WMUTCD AWSC criteria, the following applies at the intersection of CTH X, CTH XX, and Pine Road under existing or forecasted traffic conditions:

A. Traffic signal warrants are not met.
B. There are multiple crashes that could be corrected by a multi-way stop, including five angle crashes that occurred in a one-year period from August of 2023 to August of 2024.

C. The sight distance northbound and southbound from Pine Road is hindered by vegetation and power poles near the roadway.
D. Neither existing nor forecasted traffic volumes meet the minimum criteria. The total forecasted vehicular traffic entering the intersection from both major approaches (north-south) was over 300 vehicles per hour for just 4 of the 13 hours evaluated and the combined vehicular, bicycle, and pedestrian volume from both minor approaches (east-west) exceeded 200 units during only 5 of the 13 hours evaluated.

Based on the TEOPs manual supplemental criteria recommended for consideration, the following applies:

1. The intersecting roadways have the same or similar functional classification on at least three of the approaches.
2. The ADT is relatively balanced on at least three of the approaches.
3. AWSC would correct a significant number of the intersection crashes that have occurred in the past 5 years.
4. Clearing the sight distance is a viable alternative that should be considered. There are no other less restrictive alternatives that would address the safety concerns at this location.
5. The through traffic accounts for only about half of the total traffic on the north and south approaches. Also, the east leg has slightly higher volumes than both the north and the south legs.

The AWSC warrants evaluation shows that AWSC is warranted See Attachment 5 for the AWSC Warrants Output.

Operational Considerations

Intersection operations are defined by Level of Service (LOS), which is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good (LOS A) to very poor (LOS F). For this study, LOS D was used to define acceptable peak hour operating conditions. Descriptions of the various levels of service are as follows:

- LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear to be quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than 10 seconds.
- LOS B represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.
- LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.
- LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.
- LOS E represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.
- LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

Level of Service was analyzed for the following traffic control scenarios: existing two way stop control (TWSC), all-way stop control (AWSC), and roundabout control. Both existing year 2024 and future year 2046 were evaluated. See Attachment 2 for existing and future traffic data.

Evaluation of existing conditions at the intersection of CTH X, CTH XX, and Pine Road shows the westbound approach is currently experiencing LOS D operations during the PM peak with the 95th percentile queue reaching up to 115 feet or roughly four vehicles. The other approaches are operating at LOS C or better during both peak periods. Future operations are expected to remain similar to existing on the eastbound, northbound, and southbound approaches. However, the westbound approach is expected to have an increase in delay resulting in LOS F operations and the 95th percentile queue is expected to reach up to 193 feet or roughly eight vehicles during the PM peak.

Evaluation of AWSC criteria is detailed above. This intersection is unique in that the stop-controlled approaches are the lowest and highest volume legs. Roughly half of the southbound traffic on CTH XX and over half of the northbound traffic on CTH X make a left and a right turn, respectively, to travel east on CTH X causing these vehicles to slow/stop at the intersection under the existing condition to make their intended movement. Through movements are also likely to be impeded by vehicles slowing to turn east onto CTH X under the existing two-way stop control. All-way stop control is expected to reduce delay to under 15 seconds for all approaches during both peaks for both the existing and future analysis years. See Attachment 5 for AWSC analysis output.

The proposed roundabout was analyzed using HCM capacity equations. The HCM capacity equations are dependent on critical and follow-up headways that are based on national headway averages. The analysis utilized WisDOT's recommended critical and follow-up headways, which can be found in Chapter 16-15, Table 20.1 of WisDOT's Traffic Engineering, Operations, and Safety Manual (TEOpS). See Table 2 for details.

Table 2: Recommended Headway Values

	Critical Headway (s)	Follow-up Headway (s)
Single Lane Entering with Single Lane Conflicting	4.7	2.6

The results of the analysis, including delay and corresponding LOS, are consistent with typical unsignalized intersection LOS and delay ranges from the HCM 7th Edition. A single-lane roundabout is expected to reduce delay to under six seconds for all approaches during both peaks for both the existing and future analysis years.

Table 3 below summarizes the intersection delay expected under the three traffic scenarios evaluated. The Synchro Capacity/LOS Analysis Summaries are included as Attachment 6 and the HCS7 Summary Reports are included as Attachment 7.

Table 3: CTH X, CTH XX, and Pine Road Intersection Delay Summary

Intersection Control	Peak Period	Pine Rd EB Approach		CTH X WB Approach		CTH X NB Approach		CTH XX SB Approach		Intersection Average	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
Two-Way Stop	Existing AM Peak	13.2	B	15.5	C	7.3*	A	8*	A	N/A**	
	Existing PM Peak	18.9	C	32.1	D	7.5*	A	7.9*	A	N/A**	
	2046 AM Peak	14.1	B	18	C	7.3*	A	8.1*	A	N/A**	
	2046 PM Peak	23.3	C	59.6	F	7.6*	A	8*	A	N/A**	
All-Way Stop	Existing AM Peak	8.9	A	10.4	B	10.4	B	9.1	A	10.1	B
	Existing PM Peak	10	A	11.5	B	10.2	B	12.7	B	11.4	B
	2046 AM Peak	9.3	A	11.4	B	11.4	B	9.5	A	10.9	B
	2046 PM Peak	10.7	B	12.7	B	11.2	B	14.7	B	12.8	B
Single Lane Roundabout	Existing AM Peak	3.5	A	4.5	A	4.7	A	3.6	A	4.3	A
	Existing PM Peak	4.6	A	4.4	A	4.5	A	5.1	A	4.7	A
	2046 AM Peak	3.6	A	4.8	A	4.9	A	3.8	A	4.6	A
	2046 PM Peak	4.9	A	4.6	A	4.9	A	5.5	A	5.0	A

* Mainline delay on TWSC refers to left-turning vehicles. Through and right-turning vehicles have no delay.
** Average intersection delay is not calculated for TWSC intersections.

Feasibility of Alternatives

To evaluate intersection safety, both the Wisconsin Department of Transportation (WisDOT) and the Federal Highway Administration (FHWA) maintain a directory of study-based Crash Modification Factors (CMFs) related to safety improvements. The FHWA database is maintained at https://cmfclearinghouse.fhwa.dot.gov/ and the WisDOT CMF table can be found in Chapter 12 of the Traffic Engineering, Operations and Safety (TEOpS) Manual. The CMFs are used to estimate future crash rates by multiplying them by the existing crash rates. A CMF of 1 indicates no expected impact to the number of crashes, a CMF less than 1 indicates a reduction in crashes, and a CMF of more than 1 indicates an increase in crashes. These factors are often related to specific crash types.

The AWSC alternative has the potential to reduce crashes and delay for the eastbound and westbound approaches at the intersection of CTH X, CTH XX, and Pine Road with a minimal increase in delay for northbound and southbound vehicles. The roundabout will reduce delay on the eastbound and westbound approaches, maintain similar operations on the northbound and southbound approaches, and have the potential to reduce crashes and crash severity.

All-way Stop Control: The AWSC alternative would provide for a decrease in delay eastbound and westbound on CTH X and Pine Road; however, there will be a slight increase in delay northbound and southbound on CTH X and CTH XX for through vehicles, which amount to only roughly half of the traffic on these approaches. The installation of AWSC relies on drivers recognizing and obeying the traffic signs. If drivers do not obey the stop signs, the risk of severe right-angle crashes will still be present. This will be especially true as drivers re-learn this intersection after not having to stop here in the past. Probable impacts of the AWSC alternative are discussed below.

- WisDOT's CMF table includes CMFs for converting a two-way stop-controlled intersection to all-way stop control at rural, urban, and all location types. This change can be expected to reduce all

crash types and severities (fatal, injury, and property damage only) by between 48% and 68% (CMF of 0.52 for rural locations and 0.32 for all location types) and fatal/injury crashes by 77% (CMF of 0.23 for all location types).

- We anticipate the AWSC alternative to cost approximately $28,600. The estimate includes LED flashing stop signs and double Stop Ahead signs with permanent sign flags for the northbound and southbound directions, stop bars for all directions, and additional minor signing changes at the intersection. To assist with the conversion to all-way stop, temporary measures will include portable changeable message boards to be in place for two weeks and three sets of temporary rumble strips in both the northbound and southbound directions. See attachment 8 for Cost Estimates.

Single-lane Roundabout: The roundabout alternative is expected to provide the least amount of overall delay and maintain acceptable levels of service for all approaches well beyond the year 2046. Furthermore, the geometric elements of the roundabout will force drivers to slow upon entering the intersection, unlike with the AWSC alternative. Probable impacts of a single lane roundabout are discussed below. See Attachment 9 for the Preliminary Roundabout Alternative Layouts.

- The roundabout is expected to decrease the severity of crashes by decreasing speeds at the intersection. FHWA research on safety countermeasures shows that converting a two-way stop-controlled intersection to a roundabout reduces fatal and injury crashes by 82%. See Attachment 10 for the FHWA Proven Safety Countermeasures document relating to roundabouts.
- The FHWA Clearinghouse includes a CMF for converting a two-way stop-controlled intersection to a single lane roundabout. This change can be expected to reduce all crash types and severities (fatal, injury, and property damage only) by between 58% and 72% (CMF of 0.42 for rural locations and 0.28 for urban locations).
- Sidepaths will be considered per FDM 11-46-1.3.1.4 which states that in suburban or rural areas, there may be locations with on-road bicycle accommodations but without sidewalks (existing or proposed) in which case, 6-foot wide roundabout sidepaths are appropriate. Estimates were completed with and without the sidepaths to further the discussion on their inclusion if a roundabout is chosen.
- The roundabout alignment will not vary greatly from the existing roadway. There will be some widening to accommodate medians. Minor real estate impacts are expected.
- Based on conceptual estimates, we anticipate the construction of a roundabout at this location would cost approximately $1,260,000 without sidepaths and $1,300,000 with sidepaths. See Attachment 8 for details.

Providing Vision Triangles: Vision triangles allow drivers approaching the intersection to see other approaching drivers. For example, this would allow time for northbound and southbound drivers to react if an eastbound driver was not able to stop in time. From the west, the vision triangle is measured from a point 90 feet down Pine Road and 120 feet to the north and south. From the east, the vision triangle is measured from a point 150 feet down CTH X and 120 feet to the north and south. All measurements are relative to where the center of the lanes cross and distances are determined using the posted speed. See Attachment 11 for the Vision Triangles Diagram.

The vision triangle is clear in the northeast and southeast quadrants, and trees in the southwest quadrant are currently trimmed high enough so that the branches do not conflict with the vision triangle. However, the bushes and trees in the northwest quadrant are thick and would need to be removed or heavily trimmed in order to provide the vision triangle.

Clearing the portion of the vision triangle in the northwest quadrant would be beneficial for the existing condition without any other changes and would also be an enhancement to a conversion to

AWSC. In the case of conversion to AWSC, an improvement in safety will already be gained by requiring all drivers to stop, but clearing the vision triangle will provide drivers with an additional factor of safety since vehicles in both directions have the potential to run the stop signs.

The intersection currently meets standards for intersection sight distance. The standards ensure that drivers stopped at the stop signs have enough time to see approaching traffic. Intersection sight distance is met when a driver positioned 14.5 feet from the edgeline can see approaching vehicles at least 670 feet away. On the eastbound approach looking north, this distance becomes clear for a driver about 23 feet from the edgeline, meaning that drivers can only see approaching traffic at 670 feet away if they pull far enough forward. Continual trimming of the trees and bushes in the northwest quadrant will be necessary to maintain this intersection sight distance. On the eastbound approach looking south, sight distance is clearer. However, a tree located just south of the driveway on CTH X is the limiting point for visibility and the intersection sight distance should be monitored to ensure that the trees and bushes continue to be trimmed as they are now.

Conclusions

The number of angle crashes at the intersection of CTH X, CTH XX, and Pine Road is a concern. It is recommended to utilize an incremental approach at the intersection to increase safety. The first step would be to increase the sight distance by providing a clear vision triangle for the eastbound approach on Pine Road. Increasing sight distance at an intersection has the potential to decrease fatal and injury crashes by 56% (WisDOT CMF of 0.44). The cost to clear the northwest quadrant within the eastbound vision triangle would be approximately $6,800. If it is not possible to completely clear the line of sight or if the crashes are not adequately reduced, the next step would be to implement AWSC. While the roundabout alternative would maintain acceptable operations through the 2046 design year and decrease the number and severity of crashes, the construction costs are much higher than the AWSC alternative, resulting in a benefit to cost ratio 2.6 for a roundabout versus 106.9 for AWSC. See Attachment 12 for the benefit/cost analysis worksheet.

The AWSC alternative does not reduce the likelihood of severe right-angle crashes to the same degree as the roundabout. To aid in drivers obeying the new stop control, solar flashing stop signs or electric flashing beacons could be used to draw attention to the new stop control which would be placed on both sides of the roadway. WisDOT's CMF list includes a CMF for installing flashing beacons at stop-controlled intersections. While this CMF would not be applicable to the existing crashes at this intersection due to the change in the stop condition, it shows that the addition of flashing beacons draws attention to the traffic control, reducing the number of violators in comparison to stop control without flashing beacons. This improvement can be expected to reduce all crash types by 5% (CMF of 0.95) at existing stop control locations. The installation of rumble strips may also aid in reducing violations.

Future Considerations

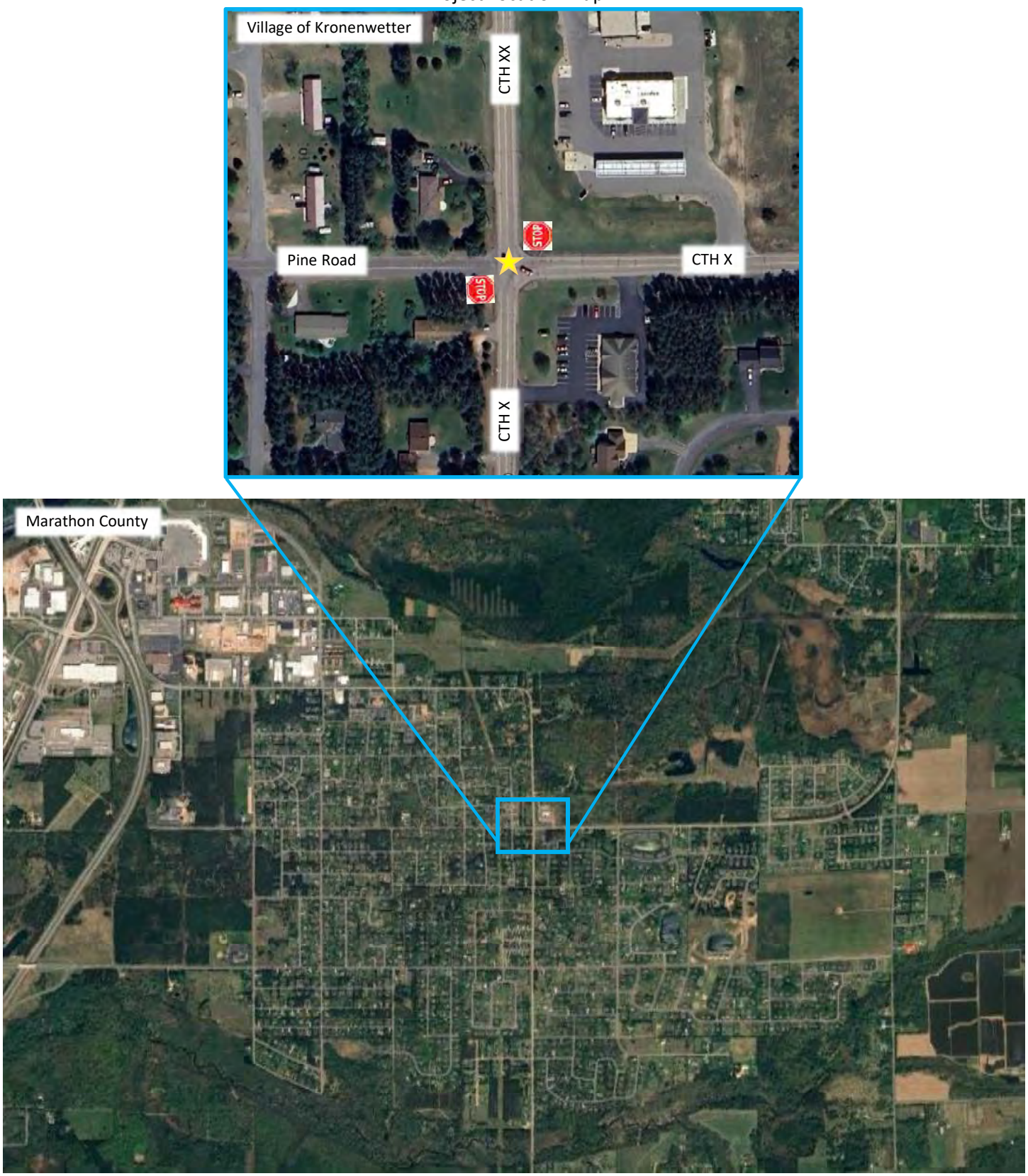
The Village of Kronenwetter has been pursuing adding an interchange at IH 39 and Kowalski Road since the late 1990s. If constructed, this interchange would modify the existing traffic patterns in the area. It would also likely spur development in the area and possibly increase traffic traveling through the intersection of CTH X, CTH XX, and Pine Road. Should this occur, the option to construct a roundabout at this location could be further investigated when the impacts to traffic volumes and patterns have been established.

Attachments

1. Project Location Map
2. Traffic Data
3. Intersection Crash Diagram
4. Traffic Signal Warrants
5. All-way Stop Control Criteria
6. Synchro Capacity/LOS Analysis Summaries
7. HCS7 Summary Reports
8. Cost Estimates
9. Preliminary Roundabout Alternative Layouts
10. FHWA Proven Safety Countermeasures: Roundabouts
11. Vision Triangles Diagram
12. WisDOT Safety Benefit Cost Analysis Tool

ATTACHMENT 1 – PROJECT LOCATION MAP

Project Location Map



Legend

Study intersection with two-way stop control

ATTACHMENT 2 – TRAFFIC DATA

Intersection Traffic Volume Report

Count Basics	Version 2023.10		Page 1 of 13
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Base Information, Observed (13) Hour and Estimated (24) Hour Volume Summaries

Major St: **Select Major St**
Minor St: **Select Minor St**
Intersection of: ***Select Major St & Select Minor St*** **IX_ID:**

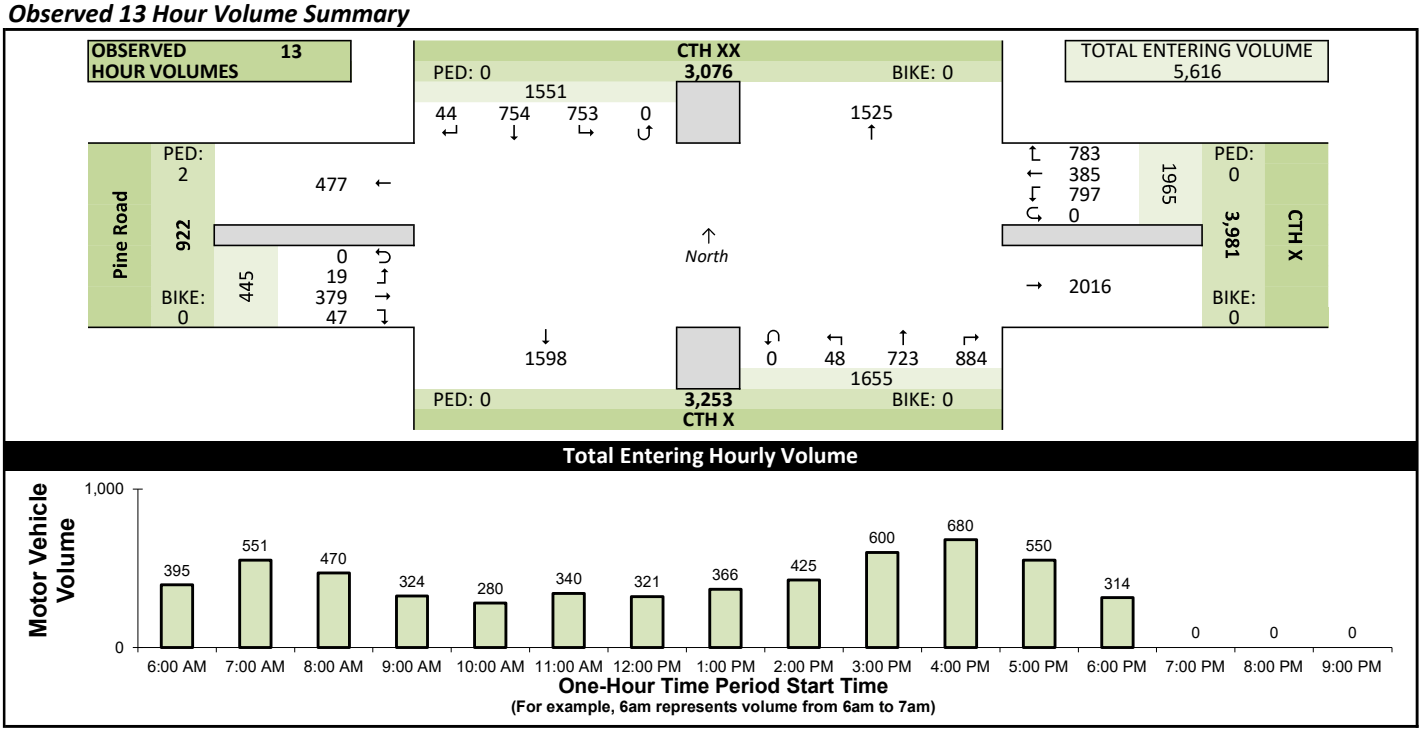
Site Information

Municipality	Village of Kronenwetter		
County	37 - Marathon	WisDOT Region	NC-W
Traffic Control	Partial Stop Control		
Roadway Names		North Direction	↑
North Leg	CTH XX		
East Leg	CTH X		
South Leg	CTH X		
West Leg	Pine 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		

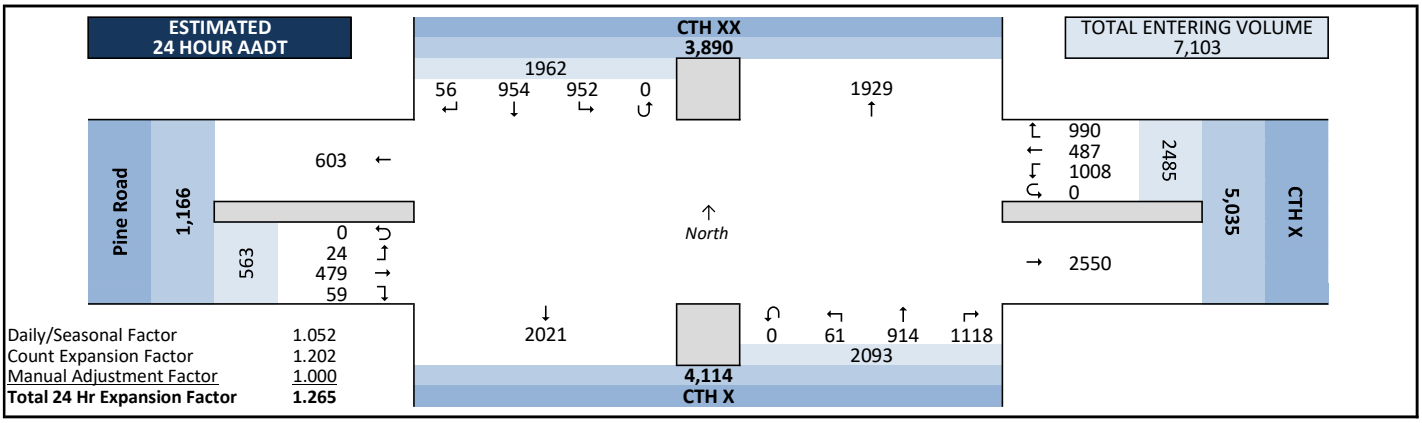
Count Information

Hrs Counted:	06:00 AM-07:00 PM				
1st Day of Count	Wednesday, December 11, 2024			Weather	
AM Peak Period	Wednesday, December 11, 2024			Clear & Dry	
Midday Peak Period	Wednesday, December 11, 2024			Clear & Dry	
PM Peak Period	Wednesday, December 11, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:45-7:45am	MD	1:00-2:00pm	PM	3:45-4:45pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD	1:00-2:00pm	PM	3:45-4:45pm
Daily/Seasonal Adjustment Group	(4) Rural Arterials & Collectors				
Count Expansion Group	(4) Rural Arterials & Collectors				
Daily/Seasonal Adjustment Factor	1.052	Count Expansion Factor	1.202		
Company Name	JT Engineering			Manual Adj.	1.000
Observers: AM Peak Period	Miovision				
Observers: Midday Peak Period	Miovision				
Observers: PM Peak Period	Miovision				
Comments	2021 DOT Daily & Seasonal Factors				

Observed 13 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

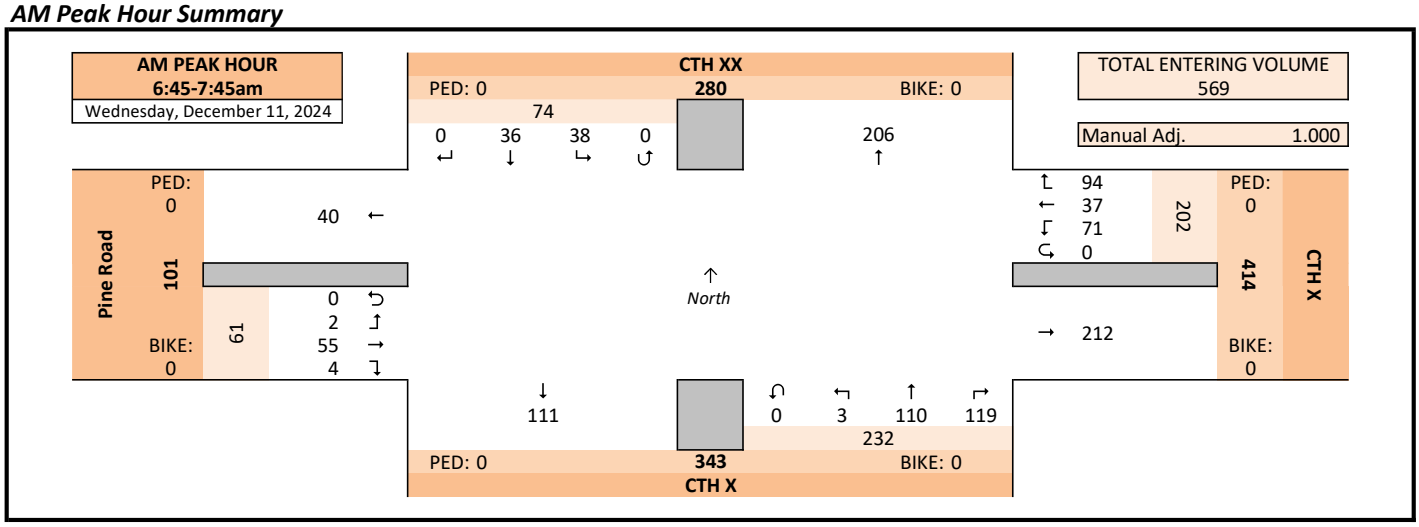
Peak Hour Volume Graphical Summary

Count Basics			*Page 2 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

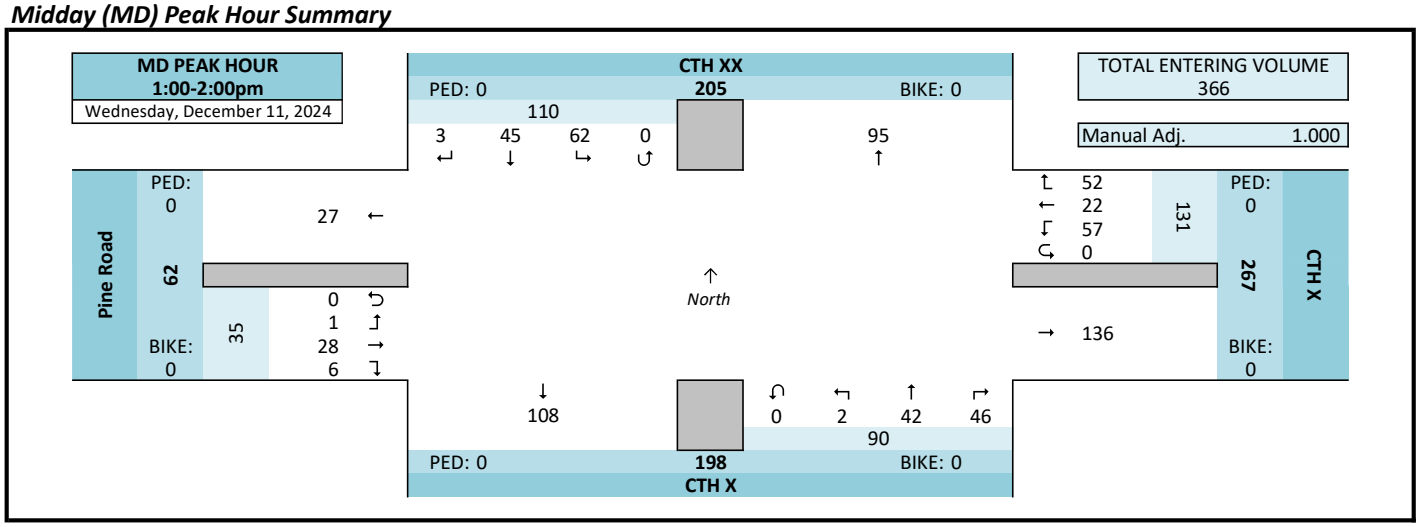
Select Major St & Select Minor St

All Motor Vehicles

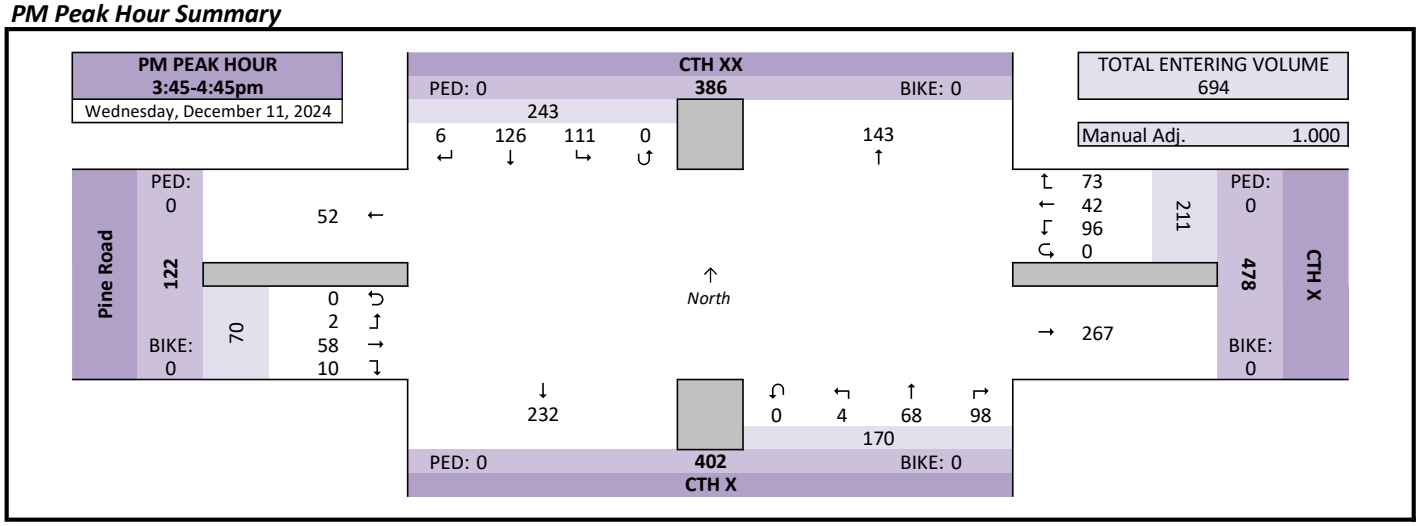
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

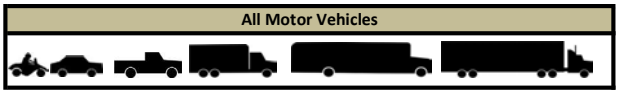


Intersection Traffic Volume Report

Peak Hour Volume Summary

Count Basics			*Page 3 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Select Major St & Select Minor St



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 11, 2024		From North					From East					From South					From West					
	AM Peak Hour	CTH XX					CTH X					CTH X					Pine 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	Totals
AM Peak Hour	6:45 AM	0	9	11	0	20	20	6	13	0	39	33	39	2	0	74	0	18	0	0	18	151
	7:00 AM	0	7	11	0	18	21	3	18	0	42	26	22	0	0	48	2	17	1	0	20	128
	7:15 AM	0	7	14	0	21	23	12	19	0	54	22	22	1	0	45	2	9	1	0	12	132
	7:30 AM	0	13	2	0	15	30	16	21	0	67	38	27	0	0	65	0	11	0	0	11	158
	Peak Hour Volume	0	36	38	0	74	94	37	71	0	202	119	110	3	0	232	4	55	2	0	61	569
	Rounded Hourly Volume	0	35	40	0	75	95	35	70	0	200	120	110	5	0	235	5	55	0	0	60	570
	% Single Unit Trucks	0.0	2.8	7.9	0.0	5.4	1.1	0.0	1.4	0.0	1.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.2
	% 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	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	2.8	7.9	0.0	5.4	1.1	0.0	1.4	0.0	1.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.2
	Peak Hour Factor (PHF)	0.00	0.69	0.68	0.00	0.88	0.78	0.58	0.85	0.00	0.75	0.78	0.71	0.37	0.00	0.78	0.50	0.76	0.50	0.00	0.76	0.90

Wednesday, December 11, 2024		From North					From East					From South					From West					
	MD Peak Hour	CTH XX					CTH X					CTH X					Pine 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	Totals
Midday (MD) Peak Hour	1:00 PM	1	8	13	0	22	18	4	17	0	39	8	15	0	0	23	1	9	1	0	11	95
	1:15 PM	1	16	10	0	27	10	8	12	0	30	10	7	2	0	19	4	5	0	0	9	85
	1:30 PM	0	9	18	0	27	14	6	12	0	32	14	10	0	0	24	0	9	0	0	9	92
	1:45 PM	1	12	21	0	34	10	4	16	0	30	14	10	0	0	24	1	5	0	0	6	94
	Peak Hour Volume	3	45	62	0	110	52	22	57	0	131	46	42	2	0	90	6	28	1	0	35	366
	Rounded Hourly Volume	5	45	60	0	110	50	20	55	0	125	45	40	0	0	85	5	30	0	0	35	355
	% Single Unit Trucks	0.0	0.0	3.2	0.0	1.8	0.0	0.0	0.0	0.0	0.0	4.3	2.4	0.0	0.0	3.3	16.7	0.0	100.0	0.0	5.7	1.9
	% Heavy Trucks	0.0	0.0	1.6	0.0	0.9	1.9	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
	% Trucks (Total)	0.0	0.0	4.8	0.0	2.7	1.9	0.0	0.0	0.0	0.8	4.3	2.4	0.0	0.0	3.3	16.7	0.0	100.0	0.0	5.7	2.5
	Peak Hour Factor (PHF)	0.75	0.70	0.74	0.00	0.81	0.72	0.69	0.84	0.00	0.84	0.82	0.70	0.25	0.00	0.94	0.37	0.78	0.25	0.00	0.80	0.96

Wednesday, December 11, 2024		From North					From East					From South					From West					
	PM Peak Hour	CTH XX					CTH X					CTH X					Pine 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	Totals
PM Peak Hour	3:45 PM	1	30	18	0	49	13	11	27	0	51	18	13	0	0	31	5	24	0	0	29	160
	4:00 PM	2	36	24	0	62	18	13	19	0	50	21	13	1	0	35	3	14	1	0	18	165
	4:15 PM	3	30	23	0	56	23	15	23	0	61	26	27	0	0	53	1	14	1	0	16	186
	4:30 PM	0	30	46	0	76	19	3	27	0	49	33	15	3	0	51	1	6	0	0	7	183
	Peak Hour Volume	6	126	111	0	243	73	42	96	0	211	98	68	4	0	170	10	58	2	0	70	694
	Rounded Hourly Volume	5	125	110	0	240	75	40	95	0	210	100	70	5	0	175	10	60	0	0	70	695
	% Single Unit Trucks	0.0	0.0	2.7	0.0	1.2	4.1	0.0	0.0	0.0	1.4	2.0	0.0	0.0	0.0	1.2	10.0	5.2	0.0	0.0	5.7	1.7
	% Heavy Trucks	0.0	0.0	0.9	0.0	0.4	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	0.1
	% Trucks (Total)	0.0	0.0	3.6	0.0	1.6	4.1	0.0	0.0	0.0	1.4	2.0	0.0	0.0	0.0	1.2	10.0	5.2	0.0	0.0	5.7	1.9
	Peak Hour Factor (PHF)	0.50	0.87	0.60	0.00	0.80	0.79	0.70	0.89	0.00	0.86	0.74	0.63	0.33	0.00	0.80	0.50	0.60	0.50	0.00	0.60	0.93

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		CTH XX			CTH X			CTH X			Pine Road			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Count Basics			*Page 4 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

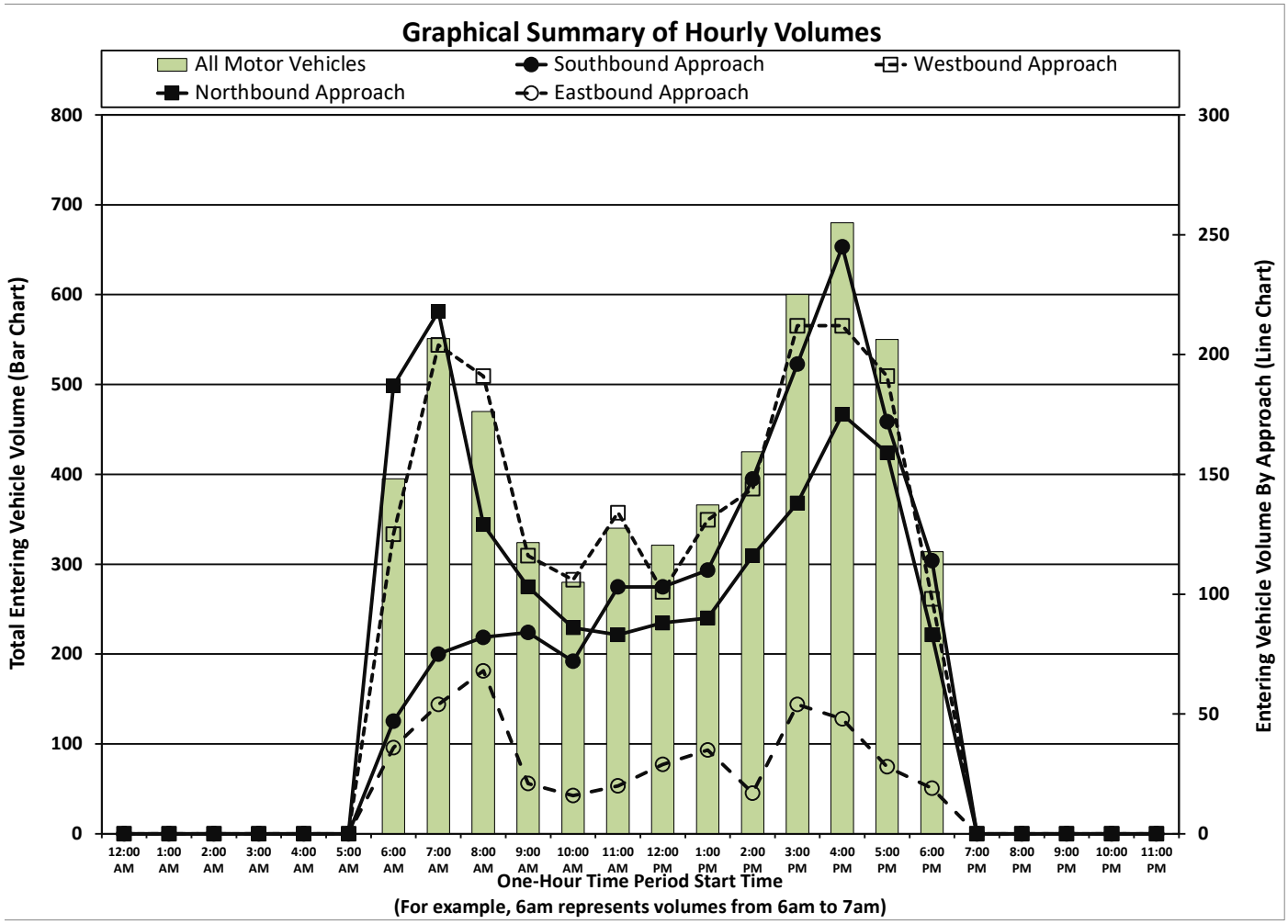
Select Major St & Select Minor St

All Motor Vehicles

One-Hour Motor Vehicle Data

One-Hour Time Period Start Time		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total Vehicle Volume	Directional Volume Totals	
		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
Pre-AM	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	6:00 AM	3	16	28	0	47	69	12	44	0	125	98	85	4	0	187	1	35	0	0	36	395	161	234
	7:00 AM	1	37	37	0	75	88	37	79	0	204	114	102	2	0	218	6	44	4	0	54	551	258	293
	8:00 AM	3	30	49	0	82	79	53	59	0	191	55	62	12	0	129	2	62	4	0	68	470	259	211
	9:00 AM	1	40	43	0	84	57	23	36	0	116	56	45	2	0	103	3	18	0	0	21	324	137	187
MD	10:00 AM	1	38	33	0	72	55	15	36	0	106	44	40	2	0	86	2	13	1	0	16	280	122	158
	11:00 AM	4	44	55	0	103	57	19	58	0	134	36	45	2	0	83	3	15	2	0	20	340	154	186
	12:00 PM	3	49	51	0	103	52	21	28	0	101	49	39	0	0	88	2	24	3	0	29	321	130	191
	1:00 PM	3	45	62	0	110	52	22	57	0	131	46	42	2	0	90	6	28	1	0	35	366	166	200
PM	2:00 PM	3	65	80	0	148	51	40	53	0	144	66	44	6	0	116	3	14	0	0	17	425	161	264
	3:00 PM	11	97	88	0	196	59	56	97	0	212	90	43	5	0	138	8	46	0	0	54	600	266	334
	4:00 PM	6	128	111	0	245	73	39	100	0	212	101	68	6	0	175	5	41	2	0	48	680	260	420
	5:00 PM	4	100	68	0	172	58	32	101	0	191	83	72	4	0	159	4	23	1	0	28	550	219	331
	6:00 PM	1	65	48	0	114	33	16	49	0	98	46	36	1	0	83	2	16	1	0	19	314	117	197
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 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		44	754	753	0	1551	783	385	797	0	1965	884	723	48	0	1655	47	379	19	0	445	5616	2410	3206

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

Count Basics			*Page 5 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Select Major St & Select Minor St

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					15-Min	Hourly	
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	Totals	Sum	PHF
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM Peak Period	6:00 AM	0	3	9	0	12	10	0	11	0	21	18	14	0	0	32	0	2	0	0	2	67	395	0.65
	6:15 AM	3	1	5	0	9	15	2	7	0	24	19	9	2	0	30	1	2	0	0	3	66	456	0.75
	6:30 AM	0	3	3	0	6	24	4	13	0	41	28	23	0	0	51	0	13	0	0	13	111	522	0.86
	6:45 AM	0	9	11	0	20	20	6	13	0	39	33	39	2	0	74	0	18	0	0	18	151	569	0.90
	7:00 AM	0	7	11	0	18	21	3	18	0	42	26	22	0	0	48	2	17	1	0	20	128	551	0.87
	7:15 AM	0	7	14	0	21	23	12	19	0	54	22	22	1	0	45	2	9	1	0	12	132	533	0.84
	7:30 AM	0	13	2	0	15	30	16	21	0	67	38	27	0	0	65	0	11	0	0	11	158	536	0.85
	7:45 AM	1	10	10	0	21	14	6	21	0	41	28	31	1	0	60	2	7	2	0	11	133	506	0.94
	8:00 AM	1	5	6	0	12	19	16	21	0	56	15	17	1	0	33	0	9	0	0	9	110	470	0.87
	8:15 AM	1	11	16	0	28	18	18	15	0	51	16	15	8	0	39	0	14	3	0	17	135	438	0.81
	8:30 AM	1	6	10	0	17	23	11	13	0	47	9	20	2	0	31	2	30	1	0	33	128	386	0.75
	8:45 AM	0	8	17	0	25	19	8	10	0	37	15	10	1	0	26	0	9	0	0	9	97	349	0.90
	9:00 AM	1	10	10	0	21	9	8	6	0	23	17	10	0	0	27	2	5	0	0	7	78	324	0.89
	9:15 AM	0	8	11	0	19	17	4	10	0	31	15	11	1	0	27	1	5	0	0	6	83	319	0.88
	9:30 AM	0	13	11	0	24	14	6	12	0	32	15	15	1	0	31	0	4	0	0	4	91	304	0.84
	9:45 AM	0	9	11	0	20	17	5	8	0	30	9	9	0	0	18	0	4	0	0	4	72	284	0.97
Midday Peak Period	10:00 AM	0	10	9	0	19	14	2	10	0	26	13	6	1	0	20	1	6	1	0	8	73	280	0.96
	10:15 AM	0	9	8	0	17	14	6	11	0	31	11	8	0	0	19	0	1	0	0	1	68	283	0.93
	10:30 AM	0	11	8	0	19	11	5	8	0	24	11	12	1	0	24	1	3	0	0	4	71	304	0.85
	10:45 AM	1	8	8	0	17	16	2	7	0	25	9	14	0	0	23	0	3	0	0	3	68	304	0.85
	11:00 AM	1	10	12	0	23	17	4	5	0	26	13	10	1	0	24	0	3	0	0	3	76	340	0.82
	11:15 AM	1	9	21	0	31	12	5	19	0	36	7	11	0	0	18	1	3	0	0	4	89	364	0.88
	11:30 AM	2	8	9	0	19	18	2	16	0	36	8	5	0	0	13	0	2	1	0	3	71	346	0.83
	11:45 AM	0	17	13	0	30	10	8	18	0	36	8	19	1	0	28	2	7	1	0	10	104	336	0.81
	12:00 PM	3	16	14	0	33	17	7	8	0	32	17	12	0	0	29	2	4	0	0	6	100	321	0.80
	12:15 PM	0	13	14	0	27	10	4	10	0	24	4	8	0	0	12	0	7	1	0	8	71	316	0.83
	12:30 PM	0	7	7	0	14	12	4	5	0	21	13	7	0	0	20	0	4	2	0	6	61	330	0.87
	12:45 PM	0	13	16	0	29	13	6	5	0	24	15	12	0	0	27	0	9	0	0	9	89	361	0.95
	1:00 PM	1	8	13	0	22	18	4	17	0	39	8	15	0	0	23	1	9	1	0	11	95	366	0.96
	1:15 PM	1	16	10	0	27	10	8	12	0	30	10	7	2	0	19	4	5	0	0	9	85	349	0.93
	1:30 PM	0	9	18	0	27	14	6	12	0	32	14	10	0	0	24	0	9	0	0	9	92	370	0.87
	1:45 PM	1	12	21	0	34	10	4	16	0	30	14	10	0	0	24	1	5	0	0	6	94	391	0.87
PM Peak Period	2:00 PM	0	13	20	0	33	6	5	8	0	19	13	10	1	0	24	0	2	0	0	2	78	425	0.83
	2:15 PM	2	21	20	0	43	11	9	12	0	32	13	13	0	0	26	1	4	0	0	5	106	494	0.84
	2:30 PM	0	13	19	0	32	22	9	12	0	43	20	12	2	0	34	0	4	0	0	4	113	541	0.88
	2:45 PM	1	18	21	0	40	12	17	21	0	50	20	9	3	0	32	2	4	0	0	6	128	568	0.93
	3:00 PM	3	26	24	0	53	15	18	18	0	51	22	11	2	0	35	2	6	0	0	8	147	600	0.94
	3:15 PM	2	20	28	0	50	14	16	25	0	55	27	10	2	0	39	0	9	0	0	9	153	618	0.94
	3:30 PM	5	21	18	0	44	17	11	27	0	55	23	9	1	0	33	1	7	0	0	8	140	651	0.88
	3:45 PM	1	30	18	0	49	13	11	27	0	51	18	13	0	0	31	5	24	0	0	29	160	694	0.93
	4:00 PM	2	36	24	0	62	18	13	19	0	50	21	13	1	0	35	3	14	1	0	18	165	680	0.91
	4:15 PM	3	30	23	0	56	23	15	23	0	61	26	27	0	0	53	1	14	1	0	16	186	658	0.88
	4:30 PM	0	30	46	0	76	19	3	27	0	49	33	15	3	0	51	1	6	0	0	7	183	629	0.86
	4:45 PM	1	32	18	0	51	13	8	31	0	52	21	13	2	0	36	0	7	0	0	7	146	565	0.90
	5:00 PM	1	26	17	0	44	12	8	24	0	44	21	27	2	0	50	1	4	0	0	5	143	550	0.88
	5:15 PM	1	29	20	0	50	10	10	36	0	56	27	14	0	0	41	2	8	0	0	10	157	496	0.79
	5:30 PM	0	27	12	0	39	15	8	14	0	37	19	18	1	0	38	0	5	0	0	5	119	432	0.82
	5:45 PM	2	18	19	0	39	21	6	27	0	54	16	13	1	0	30	1	6	1	0	8	131	376	0.72
	6:00 PM	0	21	12	0	33	10	3	8	0	21	12	14	0	0	26	1	7	1	0	9	89	314	0.84
	6:15 PM	0	19	14	0	33	9	4	22	0	35	16	6	0	0	22	0	3	0	0	3	93		
	6:30 PM	1	11	9	0	21	6	3	13	0	22	10	8	0	0	18	0	2	0	0	2	63		
	6:45 PM	0	14	13	0	27	8	6	6	0	20	8	8	1	0	17	1	4	0	0	5	69		
	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		
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		44	754	753	0	1551	783	385	797	0	1965	884	723	48	0	1655	47	379	19	0	445	5616		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total Hourly	
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	Volume	PHF
AM	6:45 AM	0	36	38	0	74	94	37	71	0	202	119	110	3	0	232	4	55	2	0	61	569	0.90
MD	1:00 PM	3	45	62	0	110	52	22	57	0	131	46	42	2	0	90	6	28	1	0	35	366	0.96
PM	3:45 PM	6	126	111	0	243	73	42	96	0	211	98	68	4	0	170	10	58	2	0	70	694	0.93

Intersection Traffic Volume Report

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

15-Minute Automobile Data

Select Major St & Select Minor St

Automobiles (Cars, Light Trucks, & Motorcycles)

15-Minute Automobile Data

	15-Minute Time Period	From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					15-Min	Hourly
	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	Totals	Sum
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AM Peak Period	6:00 AM	0	2	9	0	11	9	0	9	0	18	18	14	0	0	32	0	2	0	0	2	63	379
	6:15 AM	0	1	5	0	6	15	1	7	0	23	16	9	2	0	27	0	2	0	0	2	58	442
	6:30 AM	0	3	3	0	6	24	4	13	0	41	25	23	0	0	48	0	12	0	0	12	107	512
	6:45 AM	0	9	11	0	20	20	6	13	0	39	33	39	2	0	74	0	18	0	0	18	151	562
	7:00 AM	0	7	11	0	18	21	3	17	0	41	26	21	0	0	47	2	17	1	0	20	126	540
	7:15 AM	0	7	11	0	18	22	12	19	0	53	22	22	1	0	45	2	9	1	0	12	128	520
	7:30 AM	0	12	2	0	14	30	16	21	0	67	38	27	0	0	65	0	11	0	0	11	157	513
	7:45 AM	1	10	7	0	18	14	6	20	0	40	28	31	1	0	60	2	7	2	0	11	129	478
	8:00 AM	1	4	5	0	10	19	15	21	0	55	15	16	1	0	32	0	9	0	0	9	106	440
	8:15 AM	0	11	15	0	26	15	17	14	0	46	16	14	5	0	35	0	11	3	0	14	121	403
	8:30 AM	0	6	10	0	16	21	11	13	0	45	9	20	2	0	31	2	27	1	0	30	122	357
	8:45 AM	0	8	13	0	21	19	8	10	0	37	15	9	0	0	24	0	9	0	0	9	91	320
	9:00 AM	1	9	8	0	18	7	8	5	0	20	17	9	0	0	26	1	4	0	0	5	69	298
	9:15 AM	0	7	9	0	16	17	3	10	0	30	12	11	1	0	24	0	5	0	0	5	75	298
	9:30 AM	0	13	10	0	23	14	5	12	0	31	12	14	1	0	27	0	4	0	0	4	85	290
	9:45 AM	0	9	9	0	18	17	5	8	0	30	8	9	0	0	17	0	4	0	0	4	69	273
Midday Peak Period	10:00 AM	0	10	9	0	19	13	2	9	0	24	13	6	0	0	19	1	6	0	0	7	69	269
	10:15 AM	0	9	8	0	17	13	6	11	0	30	11	8	0	0	19	0	1	0	0	1	67	270
	10:30 AM	0	10	8	0	18	11	5	8	0	24	9	12	1	0	22	1	3	0	0	4	68	290
	10:45 AM	1	8	8	0	17	15	2	7	0	24	8	13	0	0	21	0	3	0	0	3	65	289
	11:00 AM	1	8	10	0	19	16	4	5	0	25	13	9	1	0	23	0	3	0	0	3	70	324
	11:15 AM	1	9	21	0	31	11	5	18	0	34	7	11	0	0	18	1	3	0	0	4	87	352
	11:30 AM	2	8	8	0	18	15	2	16	0	33	8	5	0	0	13	0	2	1	0	3	67	334
	11:45 AM	0	16	13	0	29	9	8	16	0	33	8	19	1	0	28	2	7	1	0	10	100	327
	12:00 PM	3	15	14	0	32	17	7	8	0	32	17	11	0	0	28	2	4	0	0	6	98	313
	12:15 PM	0	13	14	0	27	10	4	10	0	24	3	8	0	0	11	0	6	1	0	7	69	309
	12:30 PM	0	7	6	0	13	12	4	5	0	21	13	7	0	0	20	0	4	2	0	6	60	323
	12:45 PM	0	13	15	0	28	13	4	5	0	22	15	12	0	0	27	0	9	0	0	9	86	353
	1:00 PM	1	8	13	0	22	18	4	17	0	39	8	15	0	0	23	1	9	0	0	10	94	357
	1:15 PM	1	16	10	0	27	10	8	12	0	30	9	7	2	0	18	3	5	0	0	8	83	337
	1:30 PM	0	9	17	0	26	13	6	12	0	31	14	10	0	0	24	0	9	0	0	9	90	359
	1:45 PM	1	12	19	0	32	10	4	16	0	30	13	9	0	0	22	1	5	0	0	6	90	378
PM Peak Period	2:00 PM	0	13	17	0	30	5	5	8	0	18	13	10	1	0	24	0	2	0	0	2	74	415
	2:15 PM	2	21	19	0	42	11	9	12	0	32	13	13	0	0	26	1	4	0	0	5	105	483
	2:30 PM	0	13	19	0	32	20	9	11	0	40	19	12	2	0	33	0	4	0	0	4	109	524
	2:45 PM	1	17	21	0	39	12	17	21	0	50	20	9	3	0	32	2	4	0	0	6	127	551
	3:00 PM	3	25	24	0	52	13	18	17	0	48	22	11	2	0	35	1	6	0	0	7	142	581
	3:15 PM	2	19	27	0	48	14	16	24	0	54	27	8	2	0	37	0	7	0	0	7	146	602
	3:30 PM	4	21	18	0	43	17	10	26	0	53	22	9	1	0	32	1	7	0	0	8	136	636
	3:45 PM	1	30	18	0	49	13	11	27	0	51	18	13	0	0	31	4	22	0	0	26	157	681
	4:00 PM	2	36	22	0	60	18	13	19	0	50	21	13	1	0	35	3	14	1	0	18	163	666
	4:15 PM	3	30	21	0	54	21	15	23	0	59	25	27	0	0	52	1	13	1	0	15	180	644
	4:30 PM	0	30	46	0	76	18	3	27	0	48	32	15	3	0	50	1	6	0	0	7	181	619
	4:45 PM	1	32	17	0	50	13	8	31	0	52	20	13	1	0	34	0	6	0	0	6	142	557
	5:00 PM	1	26	17	0	44	12	8	23	0	43	21	26	2	0	49	1	4	0	0	5	141	542
	5:15 PM	1	29	20	0	50	10	10	35	0	55	26	14	0	0	40	2	8	0	0	10	155	490
	5:30 PM	0	27	12	0	39	15	8	14	0	37	19	18	1	0	38	0	5	0	0	5	119	427
	5:45 PM	2	18	18	0	38	20	6	26	0	52	16	12	1	0	29	1	6	1	0	8	127	371
	6:00 PM	0	21	12	0	33	10	3	8	0	21	12	14	0	0	26	1	7	1	0	9	89	313
	6:15 PM	0	19	14	0	33	9	4	21	0	34	16	6	0	0	22	0	3	0	0	3	92	
	6:30 PM	1	11	9	0	21	6	3	13	0	22	10	8	0	0	18	0	2	0	0	2	63	
	6:45 PM	0	14	13	0	27	8	6	6	0	20	8	8	1	0	17	1	4	0	0	5	69	
	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	
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		38	741	715	0	1494	755	377	779	0	1911	859	709	42	0	1610	41	364	17	0	422	5437	

Peak Hour Automobile Volume Summary

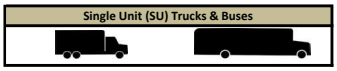
	Hourly Time Period	From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	6:45 AM	0	35	35	0	70	93	37	70	0	200	119	109	3	0	231	4	55	2	0	61	562
MD	1:00 PM	3	45	59	0	107	51	22	57	0	130	44	41	2	0	87	5	28	0	0	33	357
PM	3:45 PM	6	126	107	0	239	70	42	96	0	208	96	68	4	0	168	9	55	2	0	66	681

Intersection Traffic Volume Report

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

Count Basics			*Page 7 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Select Major St & Select Minor St



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

	15-Minute	From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					15-Min	Hourly
	Time Period 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	Totals	Sum
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AM Peak Period	6:00 AM	0	1	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4	16
	6:15 AM	3	0	0	0	3	0	1	0	0	1	3	0	0	0	3	1	0	0	0	1	8	14
	6:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	1	0	0	1	4	10
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	7:00 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2	11
	7:15 AM	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	13
	7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22
	7:45 AM	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	27
	8:00 AM	0	1	1	0	2	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	4	29
	8:15 AM	1	0	1	0	2	3	1	0	0	4	0	1	3	0	4	0	3	0	0	3	13	34
	8:30 AM	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	6	27
	8:45 AM	0	0	4	0	4	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	6	27
	9:00 AM	0	1	2	0	3	2	0	1	0	3	0	1	0	0	1	1	1	0	0	2	9	23
	9:15 AM	0	1	0	0	1	0	1	0	0	1	3	0	0	0	3	1	0	0	0	1	6	18
	9:30 AM	0	0	1	0	1	0	1	0	0	1	3	1	0	0	4	0	0	0	0	0	6	13
	9:45 AM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	10
Midday Peak Period	10:00 AM	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	0	0	1	0	1	4	11
	10:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	12
	10:30 AM	0	1	0	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3	12
	10:45 AM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	3	13
	11:00 AM	0	2	1	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5	14
	11:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	11
	11:30 AM	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	12
	11:45 AM	0	1	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4	8
	12:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	7
	12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2	6
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	12:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	6
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	7
	1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2	9
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	1:45 PM	0	0	2	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4	11
PM Peak Period	2:00 PM	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	8
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	2:30 PM	0	0	0	0	0	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	4	15
	2:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14
	3:00 PM	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	1	0	0	0	1	4	16
	3:15 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	6	14
	3:30 PM	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	3	13
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3	12
	4:00 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13
	4:15 PM	0	0	1	0	1	2	0	0	0	2	1	0	0	0	1	0	1	0	0	1	5	13
	4:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2	10
	4:45 PM	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	4	8
	5:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2	7
	5:15 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2	5
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	5:45 PM	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3	4
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	6:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	
	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	
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		6	12	29	0	47	26	8	16	0	50	24	13	6	0	43	6	15	2	0	23	163	

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

	Hourly	From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total
	Time Period 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	Hourly Volume
AM	6:45 AM	0	1	3	0	4	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	7
MD	1:00 PM	0	0	2	0	2	0	0	0	0	0	2	1	0	0	3	1	0	1	0	2	7
PM	3:45 PM	0	0	3	0	3	3	0	0	0	3	2	0	0	0	2	1	3	0	0	4	12

Intersection Traffic Volume Report

Count Basics			*Page 8 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

15-Minute Semi-Truck Data

Select Major St & Select Minor St

Semi-Trucks

15-Minute Semi-Truck Data

15-Minute		From North (↓)					From East (←)					From South (↑)					From West (→)						
Time Period		CTH XX					CTH X					CTH X					Pine Road					15-Min	Hourly
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	Totals	Sum
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	0
	6:15 AM	0	0	0	0	0	0	0	0	0	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	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	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	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	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	0	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	8:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	9:15 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	9:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
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	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	1
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	11:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	11:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
	11:30 AM	0	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	1
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	12:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	1:30 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	4
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
PM Peak Period	2:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	2:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	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
	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
	3:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
	3:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	2
	3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	2
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	4:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	4:30 PM	0	0	0	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
	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
	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	
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		0	1	9	0	10	2	0	2	0	4	1	1	0	0	2	0	0	0	0	0	16	

Peak Hour Semi-Truck Volume Summary

Hourly		From North (↓)					From East (←)					From South (↑)					From West (→)					Total
Time Period		CTH XX					CTH X					CTH X					Pine Road					Hourly
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	Volume
AM	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	1:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
PM	3:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Intersection Traffic Volume Report

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

15-Minute Heavy Vehicle Data

Select Major St & Select Minor St

15-Minute Heavy Vehicle Data

15-Minute Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					15-Min	Hourly
	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	Totals	Sum
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AM Peak Period	6:00 AM	0	1	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4	16
	6:15 AM	3	0	0	0	3	0	1	0	0	1	3	0	0	0	3	1	0	0	0	1	8	14
	6:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	1	0	0	1	4	10
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	7:00 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2	11
	7:15 AM	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	13
	7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23
	7:45 AM	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	28
	8:00 AM	0	1	1	0	2	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	4	30
	8:15 AM	1	0	1	0	2	3	1	1	0	5	0	1	3	0	4	0	3	0	0	3	14	35
	8:30 AM	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	6	29
	8:45 AM	0	0	4	0	4	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	6	29
	9:00 AM	0	1	2	0	3	2	0	1	0	3	0	1	0	0	1	1	1	0	0	2	9	26
	9:15 AM	0	1	2	0	3	0	1	0	0	1	3	0	0	0	3	1	0	0	0	1	8	21
	9:30 AM	0	0	1	0	1	0	1	0	0	1	3	1	0	0	4	0	0	0	0	0	6	14
	9:45 AM	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	11
Midday Peak Period	10:00 AM	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	0	0	1	0	1	4	11
	10:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	13
	10:30 AM	0	1	0	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3	14
	10:45 AM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	3	15
	11:00 AM	0	2	2	0	4	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	6	16
	11:15 AM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2	12
	11:30 AM	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	12
	11:45 AM	0	1	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4	9
	12:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	8
	12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2	7
	12:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
	12:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	8
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	9
	1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2	12
	1:30 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	11
	1:45 PM	0	0	2	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4	13
PM Peak Period	2:00 PM	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	10
	2:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11
	2:30 PM	0	0	0	0	0	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	4	17
	2:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17
	3:00 PM	0	1	0	0	1	2	0	1	0	3	0	0	0	0	0	1	0	0	0	1	5	19
	3:15 PM	0	1	1	0	2	0	0	1	0	1	0	2	0	0	2	0	2	0	0	2	7	16
	3:30 PM	1	0	0	0	1	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0	4	15
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	3	13
	4:00 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14
	4:15 PM	0	0	2	0	2	2	0	0	0	2	1	0	0	0	1	0	1	0	0	1	6	14
	4:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2	10
	4:45 PM	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	4	8
	5:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2	8
	5:15 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2	6
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	5:45 PM	0	0	1	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4	5
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	6:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	
	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	
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		6	13	38	0	57	28	8	18	0	54	25	14	6	0	45	6	15	2	0	23	179	

Peak Hour Heavy Vehicle Volume Summary

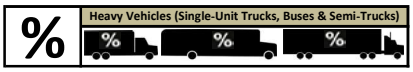
Hourly Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	6:45 AM	0	1	3	0	4	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	7
MD	1:00 PM	0	0	3	0	3	1	0	0	0	1	2	1	0	0	3	1	0	1	0	2	9
PM	3:45 PM	0	0	4	0	4	3	0	0	0	3	2	0	0	0	2	1	3	0	0	4	13

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Percentages

Count Basics			*Page 10 of 13*
Start Date:	Wednesday, December 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Select Major St & Select Minor St



15-Minute Heavy Vehicle Percentages

15-Minute Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Total Heavy Vehicle	Hourly Heavy Vehicle
	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	Percent	Percent
Pre-AM Peak Period	12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12:15 AM	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	
	12:30 AM	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	
	12:45 AM	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	
	1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	1:15 AM	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	
	1:30 AM	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	
	1:45 AM	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	
	2:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2:15 AM	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	
	2:30 AM	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	
	2:45 AM	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	
	3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	3:15 AM	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	
	3:30 AM	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	
	3:45 AM	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	
	4:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	4:15 AM	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	
	4:30 AM	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	
	4:45 AM	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	
	5:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	5:15 AM	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	
	5:30 AM	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	
	5:45 AM	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	
AM Peak Period	6:00 AM	0.0	33.3	0.0	0.0	8.3	10.0	0.0	18.2	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	4.1
	6:15 AM	100.0	0.0	0.0	0.0	33.3	0.0	50.0	0.0	0.0	4.2	15.8	0.0	0.0	0.0	10.0	100.0	0.0	0.0	0.0	33.3	12.1	3.1
	6:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0	0.0	0.0	5.9	0.0	7.7	0.0	0.0	7.7	3.6	1.9
	6:45 AM	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	1.2
	7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	2.4	0.0	4.5	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	1.6	2.0
	7:15 AM	0.0	0.0	21.4	0.0	14.3	4.3	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.4
	7:30 AM	0.0	7.7	0.0	0.0	6.7	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	0.6	4.3
	7:45 AM	0.0	0.0	30.0	0.0	14.3	0.0	0.0	4.8	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	5.5
	8:00 AM	0.0	20.0	16.7	0.0	16.7	0.0	6.3	0.0	0.0	1.8	0.0	5.9	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.6	6.4
	8:15 AM	100.0	0.0	6.3	0.0	7.1	16.7	5.6	6.7	0.0	9.8	0.0	6.7	37.5	0.0	10.3	0.0	21.4	0.0	0.0	17.6	10.4	8.0
	8:30 AM	100.0	0.0	0.0	0.0	5.9	8.7	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	9.1	4.7	7.5
	8:45 AM	0.0	0.0	23.5	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	100.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	6.2	8.3
	9:00 AM	0.0	10.0	20.0	0.0	14.3	22.2	0.0	16.7	0.0	13.0	0.0	10.0	0.0	0.0	3.7	50.0	20.0	0.0	0.0	28.6	11.5	8.0
	9:15 AM	0.0	12.5	18.2	0.0	15.8	0.0	25.0	0.0	0.0	3.2	20.0	0.0	0.0	0.0	11.1	100.0	0.0	0.0	0.0	16.7	9.6	6.6
	9:30 AM	0.0	0.0	9.1	0.0	4.2	0.0	16.7	0.0	0.0	3.1	20.0	6.7	0.0	0.0	12.9	0.0	0.0	0.0	0.0	0.0	6.6	4.6
	9:45 AM	0.0	0.0	18.2	0.0	10.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	4.2	3.9
Midday Peak Period	10:00 AM	0.0	0.0	0.0	0.0	0.0	7.1	0.0	10.0	0.0	7.7	0.0	0.0	100.0	0.0	5.0	0.0	0.0	100.0	0.0	12.5	5.5	3.9
	10:15 AM	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.6
	10:30 AM	0.0	9.1	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	4.2	4.6
	10:45 AM	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	4.0	11.1	7.1	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	4.4	4.9
	11:00 AM	0.0	20.0	16.7	0.0	17.4	5.9	0.0	0.0	0.0	3.8	0.0	10.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	7.9	4.7
	11:15 AM	0.0	0.0	0.0	0.0	0.0	8.3	0.0	5.3	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	3.3
	11:30 AM	0.0	0.0	11.1	0.0	5.3	16.7	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	3.5
	11:45 AM	0.0	5.9	0.0	0.0	3.3	10.0	0.0	11.1	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	2.7
	12:00 PM	0.0	6.3	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	2.0	2.5
	12:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	8.3	0.0	14.3	0.0	0.0	12.5	2.8	2.2
	12:30 PM	0.0	0.0	14.3	0.0	7.1	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	1.6	2.1
	12:45 PM	0.0	0.0	6.3	0.0	3.4	0.0	33.3	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	2.2
	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	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	9.1	1.1	2.5
	1:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	5.3	25.0	0.0	0.0	0.0	11.1	2.4	3.4
	1:30 PM	0.0	0.0	5.6	0.0	3.7	7.1	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	3.0
	1:45 PM	0.0	0.0	9.5	0.0	5.9	0.0	0.0	0.0	0.0	0.0	7.1	10.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	4.3	3.3
PM Peak Period	2:00 PM	0.0	0.0	15.0	0.0	9.1	16.7	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	2.4
	2:15 PM	0.0	0.0	5.0	0.0	2.3	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	0.9	2.2
	2:30 PM	0.0	0.0	0.0	0.0	0.0	9.1	0.0	8.3	0.0	7.0	5.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	3.5	3.1
	2:45 PM	0.0	5.6	0.0	0.0	2.5	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	0.8	3.0
	3:00 PM	0.0	3.8	0.0	0.0	1.9	13.3	0.0	5.6	0.0	5.9	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	12.5	3.4	3.2
	3:15 PM	0.0	5.0	3.6	0.0	4.0	0.0	0.0	4.0	0.0	1.8	0.0	20.0	0.0	0.0	5.1	0.0	22.2	0.0	0.0	22.2	4.6	2.6
	3:30 PM	20.0	0.0	0.0	0.0	2.3	0.0	9.1	3.7	0.0	3.6	4.3	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	2.9	2.3
	3:45 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	20.0	8.3	0.0	0.0	10.3	1.9	1.9
	4:00 PM	0.0	0.0	8.3	0.0	3.2	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	1.2	2.1
	4:15 PM	0.0	0.0	8.7	0.0	3.6	8.7	0.0	0.0	0.0	3.3	3.8	0.0	0.0	0.0	1.9	0.0	7.1	0.0	0.0	6.3	3.2	2.1
	4:30 PM	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	2.0	3.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.1	1.6
	4:45 PM	0.0	0.0	5.6	0.0	2.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	50.0	0.0	5.6	0.0	14.3	0.0	0.0	14.3	2.7	1.4
	5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	2.3	0.0	3.7	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.4	1.5
	5:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	1.8	3.7	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	1.3	1.2
	5:30 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	1.2
	5:45 PM	0.0	0.0	5.3	0.0	2.6	4.8	0.0	3.7	0.0	3.7	0.0	7.7	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	3.1	1.3
	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	6:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	
	6:30 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	
	6:45 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	
	7:00 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	
	7:15 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	
	7:30 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	
	7:45 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	
	8:00 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	
	8:15 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	
	8:30 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	
	8:45 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	
	9:00 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	
	9:15 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	
	9:30 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	
	9:45 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	
Post PM Peak Period	10:00 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	
	10:15 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	
	10:30 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	
	10:45 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	
	11:00 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	
	11:15 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	
	11:30 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	
	11:45 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	
Totals		13.6	1.7	5.0	0.0	3.7	3.6	2.1	2.3	0.0	2.7	2.8	1.9	12.5	0.0	2.7	12.8	4.0	10.5	0.0	5.2	3.2	

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period		From North (↓) CTH XX					From East (←) CTH X					From South (↑) CTH X					From West (→) Pine Road					Hourly Heavy Vehicle
	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	Percent
AM	6:45 AM	0.0	2.8	7.9	0.0	5.4	1.1	0.0	1.4	0.0	1.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.2
MD	1:00 PM	0.0	0.0	4.8	0.0	2.7	1.9	0.0	0.0	0.0	0.8	4.3	2.4	0.0	0.0	3.3	16.7	0.0	100.0	0.0	5.7	2.5
PM	3:45 PM	0.0	0.0	3.6	0.0	1.6	4.1	0.0	0.0	0.0	1.4	2.0	0.0	0.0	0.0	1.2	10.0	5.2	0.0	0.0	5.7	1.9

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

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

Select Major St & Select Minor St

Pedestrians and Bicyclists

15-Minute Pedestrian and Bicyclist Data

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

Special Pedestrians

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

LEGEND

XX (XX) = AM PEAK (PM PEAK)

COUNTS PERFORMED IN DECEMBER OF 2024

CTH X & CTH XX/PINE ROAD	COUNTY: MARATHON	EXISTING TRAFFIC COUNTS

FILE NAME : X:\PROJECTS\MARATHON\240130 CTH X & CTH XX, ICE ANALYSIS, MARATHON CTY\TRAFFIC\VOLUME EXHIBITS\VOLUME EXHIBITS.DWG
LAYOUT NAME - Existing
PLOTTED: 1/5/2025 2:48 PM
PLOT NAME :
PLOT BY : STEFANY KATZNER
PLOT SCALE : NOT TO SCALE

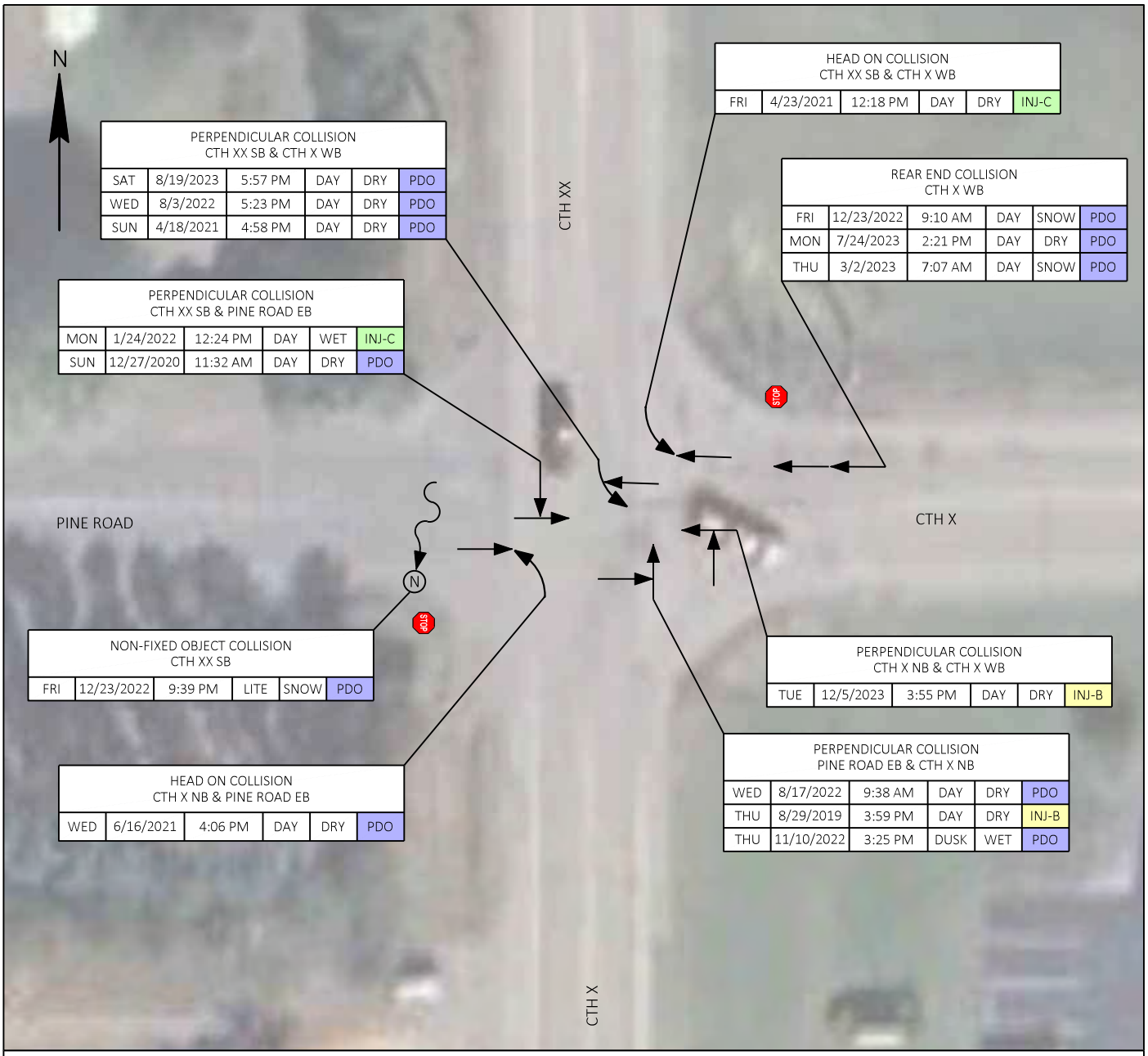
LEGEND

XX (XX) = AM PEAK (PM PEAK)

CTH X & CTH XX/PINE ROAD	COUNTY: MARATHON	FUTURE YEAR 2046 TRAFFIC VOLUMES

FILE NAME : X:\PROJECTS\MARATHON\240130 CTH X & CTH XX, ICE ANALYSIS, MARATHON CTY\TRAFFIC\VOLUME EXHIBITS\VOLUME EXHIBITS.DWG
LAYOUT NAME - 2046
PLOTTED: 7/25/2025 2:48 PM
PLOT NAME :
PLOT BY : STEFANY KATZNER
PLOT SCALE : NOT TO SCALE

ATTACHMENT 3 – INTERSECTION CRASH DIAGRAM



PERPENDICULAR COLLISION CTH XX SB & CTH X WB					
SAT	8/19/2023	5:57 PM	DAY	DRY	PDO
WED	8/3/2022	5:23 PM	DAY	DRY	PDO
SUN	4/18/2021	4:58 PM	DAY	DRY	PDO

HEAD ON COLLISION CTH XX SB & CTH X WB					
FRI	4/23/2021	12:18 PM	DAY	DRY	INJ-C

REAR END COLLISION CTH X WB					
FRI	12/23/2022	9:10 AM	DAY	SNOW	PDO
MON	7/24/2023	2:21 PM	DAY	DRY	PDO
THU	3/2/2023	7:07 AM	DAY	SNOW	PDO

PERPENDICULAR COLLISION CTH XX SB & PINE ROAD EB					
MON	1/24/2022	12:24 PM	DAY	WET	INJ-C
SUN	12/27/2020	11:32 AM	DAY	DRY	PDO

NON-FIXED OBJECT COLLISION CTH XX SB					
FRI	12/23/2022	9:39 PM	LITE	SNOW	PDO

PERPENDICULAR COLLISION CTH X NB & CTH X WB					
TUE	12/5/2023	3:55 PM	DAY	DRY	INJ-B

HEAD ON COLLISION CTH X NB & PINE ROAD EB					
WED	6/16/2021	4:06 PM	DAY	DRY	PDO

PERPENDICULAR COLLISION PINE ROAD EB & CTH X NB					
WED	8/17/2022	9:38 AM	DAY	DRY	PDO
THU	8/29/2019	3:59 PM	DAY	DRY	INJ-B
THU	11/10/2022	3:25 PM	DUSK	WET	PDO

LEGEND

→	VEHICLE MOVING FORWARDS	→←	HEAD-ON COLLISION	(F)	FIXED OBJECT
←→	VEHICLE MOVING BACKWARDS	→→	REAR-END COLLISION	(N)	NON-FIXED OBJECT
	PEDESTRIAN		SIDESWIPE (OPPOSITE DIRECTION)	P	PARKED VEHICLE
	BICYCLIST		SIDESWIPE (SAME DIRECTION)		OVERTAKE
STOP	STOP SIGN		PERPENDICULAR COLLISION		OVERTURN
					OUT OF CONTROL
YIELD	YIELD SIGN		LEFT TURN COLLISION	FATAL	FATAL COLLISION
				INJ-A	SUSPECTED SEVERE INJURY COLLISION
				INJ-B	SUSPECTED MINOR INJURY COLLISION
	TRAFFIC SIGNAL		RIGHT TURN COLLISION	INJ-C	POSSIBLE INJURY COLLISION
				PDO	PROPERTY DAMAGE ONLY COLLISION

CTH X & CTH XX/PINE ROAD	2019-2023 CRASHES	COUNTY: MARATHON	CRASH DIAGRAM

FILE NAME : X:\PROJECTS\MARATHON\240130 CTH X & CTH XX, ICE ANALYSIS, MARATHON CTY\TRAFFIC\SAFETY\CRASH DIAGRAM - CTH X & CTH XX.DWG
LAYOUT NAME - Crash Diagram

PLOT BY : STEFANY KATZNER
PLOT DATE : 1/15/2025 10:45 AM
PLOT SCALE : NOT TO SCALE

ATTACHMENT 4 – TRAFFIC SIGNAL WARRANTS

Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: CTH X & CTH XX/Pine Road
County: Marathon
Town: Kronenwetter

Major Street: CTH X/CTH XX
Critical Approach Speed: 35 mph
Lanes: 1 lane

Minor Street: Pine Road/CTH X
Critical Approach Speed: 45 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 100%
From South (NB) 100%
From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 4 or more
If it is a "T" intersection, inflate minor threshold to 150%? No
Manually set volume level? No

Analysis based on EXISTING volume data.

Date	Day of the Week	Time (HH:MM)			
		From	AM / PM	To	AM / PM
12/11/2024	Wednesday	6:00	AM	18:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	**No**
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	**No**
Warrant 3: Peak Hour Volume	**N/A**
Warrant 4: Pedestrian Volume	**N/A**
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	**N/A**
Warrant 6: Coordinated Signal System	**N/A**
Warrant 7: Crash Experience	**No**
Warrant 8: Roadway Network	**N/A**
Warrant 9: Intersection Near a Grade Crossing	**N/A**

Warrant Analysis Conducted By:

Name: SLK
Agency: JT Engineering
Date: 1/13/2025

Warrant 1: Eight - Hour Vehicular Volume 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

Condition A : Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	500	400
Minor Rd. Req	150	120
Number of Hours	0	1

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	750	600
Minor Rd. Req	75	60
Number of Hours	0	0

Satisfied? No

Condition C: Combination of A & B at 80%

Satisfied? No

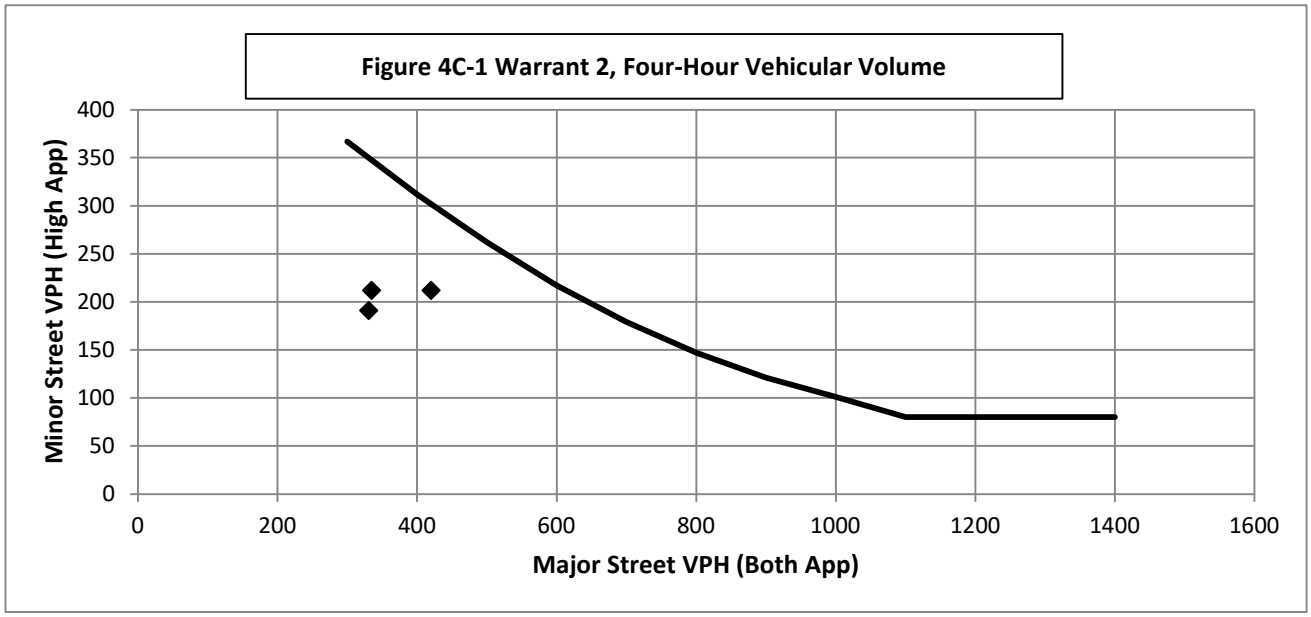
6:00 AM Enter Start Time (Military Time) (HH:MM)

Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	Total
1	6:00	7:00	234	125	359
2	7:00	8:00	293	204	497
3	8:00	9:00	211	191	402
4	9:00	10:00	187	116	303
5	10:00	11:00	158	106	264
6	11:00	12:00	186	134	320
7	12:00	13:00	191	101	292
8	13:00	14:00	200	131	331
9	14:00	15:00	264	144	408
10	15:00	16:00	335	212	547
11	16:00	17:00	420	212	632
12	17:00	18:00	331	191	522
13	18:00	19:00	197	98	295
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume 100%

Warrant Evaluated? Yes
Warrant Satisfied? No
Manually Set To:

Hour Start	16:00	15:00	17:00	#N/A
Major Road Vol.	420	335	331	#N/A
Minor Road Vol.	212	212	191	#N/A



Warrant 3: Peak Hour Volume 100%

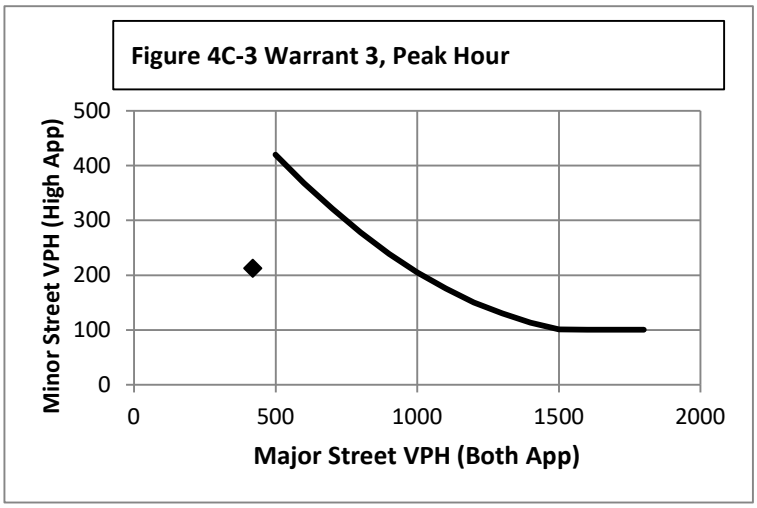
Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	No
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
16:00	420	212



Warrant 4: Pedestrian Volume 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

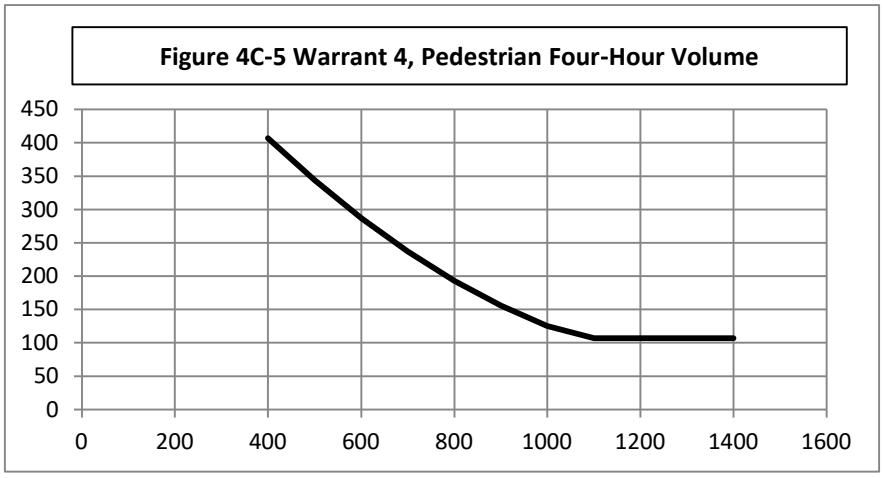
Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol?

Avg. walk speed less than 3.5 ft/s?

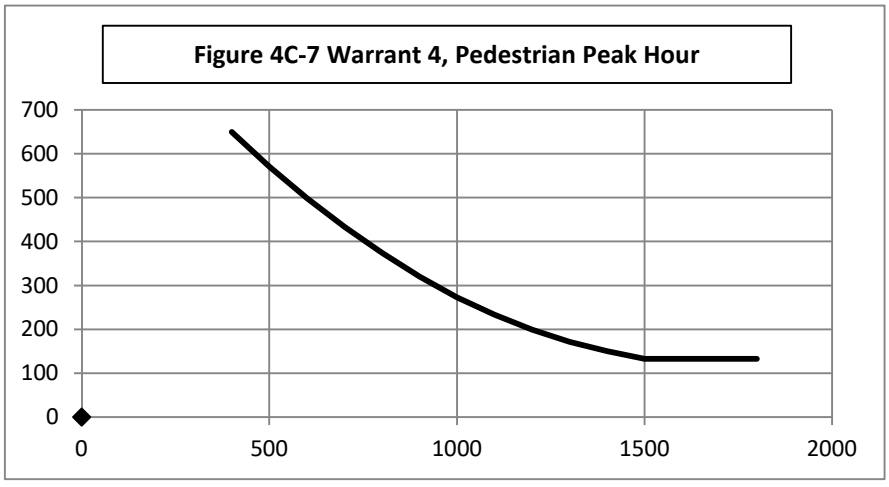
Criterion A Satisfied?



Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
0:00	0	0

Criterion B Satisfied?



Warrant 5: School Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

Warrant 6: Coordinated Signal System 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	Signal spacing > 1000 ft	No
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

Warrant 7: Crash Experience 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

	Criteria		Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.			No
	Measures Tried:			
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months		No
		4		
3	Warrant 1, Condition A (80%)		No	Yes
	Warrant 1, Condition B (80%)		No	
	Warrant 4, Criterion A (80%)		No	
	Warrant 4, Criterion B (80%)		Yes	

Warrant 8: Roadway Network 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

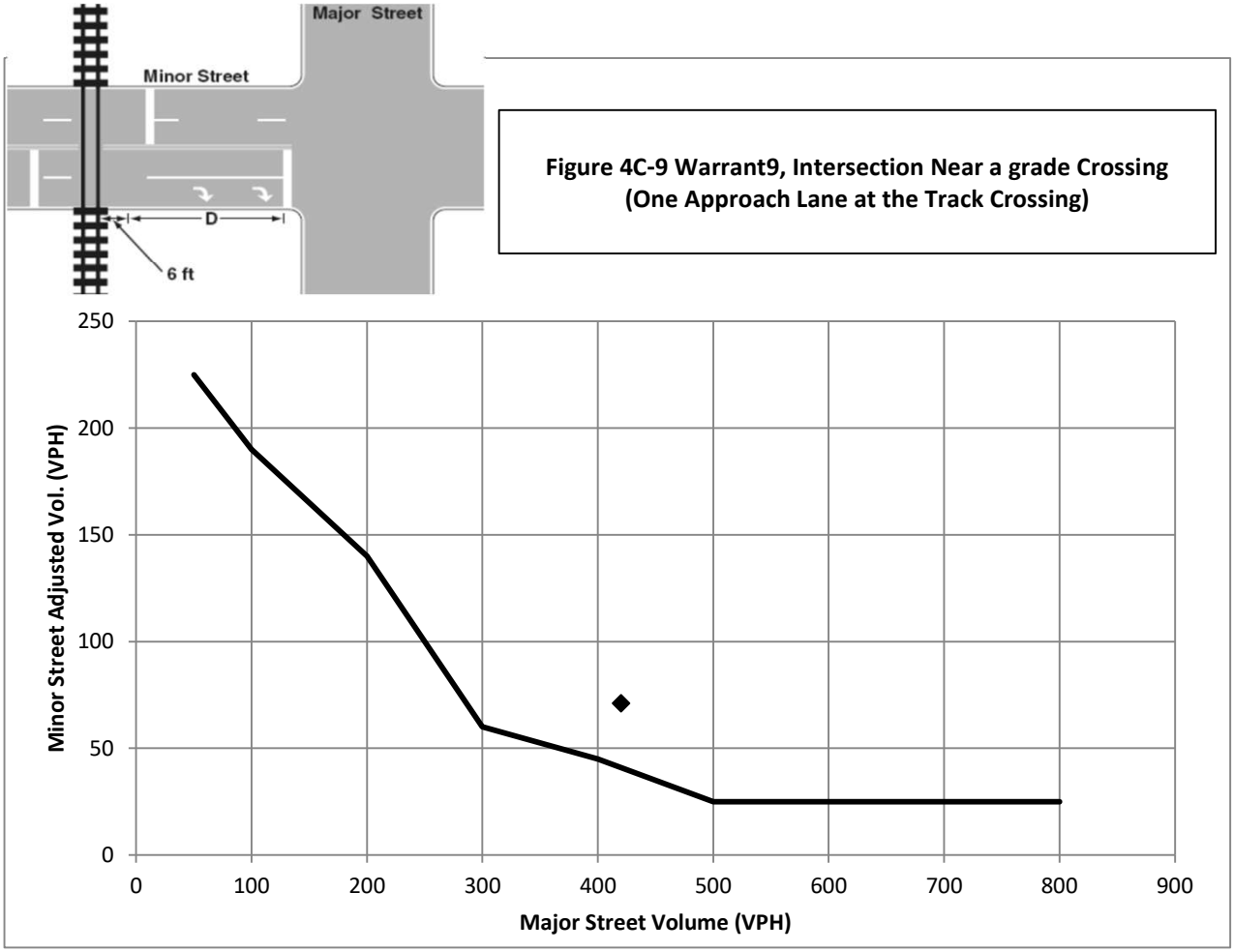
	Criteria					Met?	Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour				632	No	No
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.					No	
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)						
	Hour						
	Volume						

	Characteristics of Major Routes - Select yes if all intersecting routes have characteristic	Fulfilled?
1	Part of the road or highway system that serves as the principal roadway network for through traffic flow	
2	Rural or suburban highway outside of, entering, or traversing a city	
3	Appears as a major route on an official plan	

Warrant 9: Intersection Near a Grade Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
1	0	0% to 2.5%	660	16:00	420	212	71.02



Conclusions/Comments:

Updated: 2/18/2016

Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: CTH X & CTH XX/Pine Road
County: Marathon
Town: Kronenwetter

Major Street: CTH X/CTH XX
Critical Approach Speed: 35 mph
Lanes: 1 lane

Minor Street: Pine Road/CTH X
Critical Approach Speed: 45 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 100%
From South (NB) 100%
From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 4 or more
If it is a "T" intersection, inflate minor threshold to 150%? No
Manually set volume level? No

Analysis based on PROJECTED volume data. 0.5% per year

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM
12/11/2024	Wednesday	6:00	AM	18:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	**No**
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	**No**
Warrant 3: Peak Hour Volume	**N/A**
Warrant 4: Pedestrian Volume	**N/A**
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	**N/A**
Warrant 6: Coordinated Signal System	**N/A**
Warrant 7: Crash Experience	**No**
Warrant 8: Roadway Network	**N/A**
Warrant 9: Intersection Near a Grade Crossing	**N/A**

Warrant Analysis Conducted By:

Name: SLK
Agency: JT Engineering
Date: 1/13/2025

Warrant 1: Eight - Hour Vehicular Volume 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

Condition A : Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	500	400
Minor Rd. Req	150	120
Number of Hours	0	1

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	750	600
Minor Rd. Req	75	60
Number of Hours	0	0

Satisfied? No

Condition C: Combination of A & B at 80%

Satisfied? No

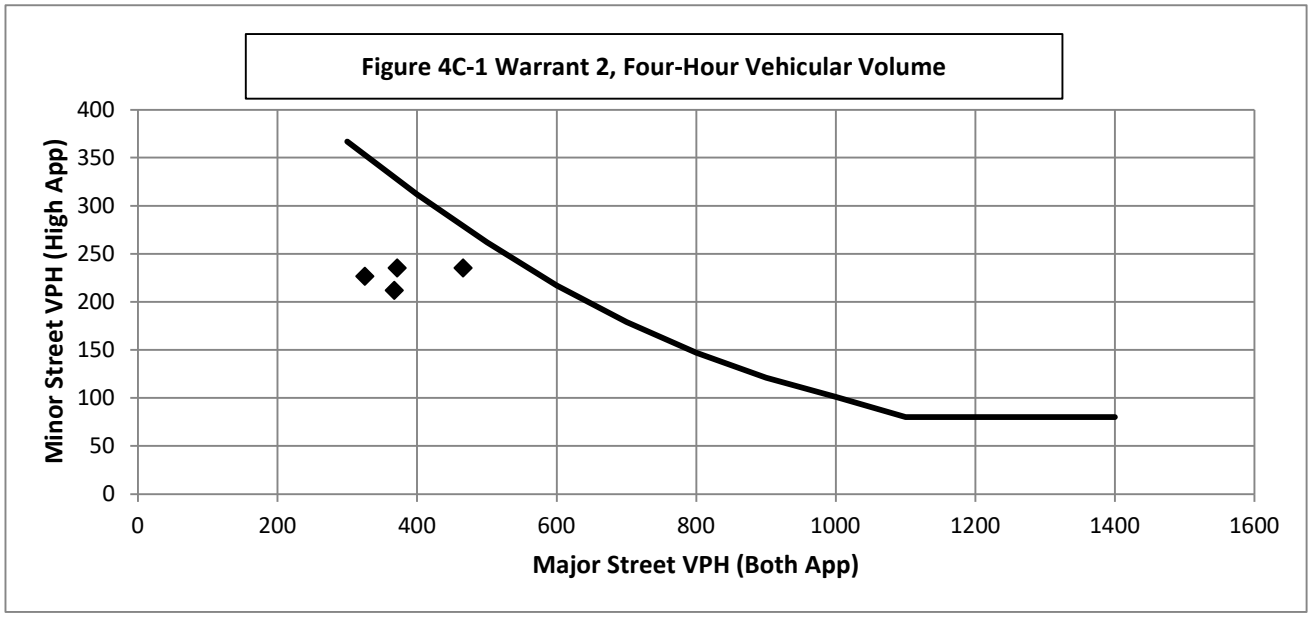
6:00 AM Enter Start Time (Military Time) (HH:MM)

Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	Total
1	6:00	7:00	260	139	398.49
2	7:00	8:00	325	226	551.67
3	8:00	9:00	234	212	446.22
4	9:00	10:00	208	129	336.33
5	10:00	11:00	175	118	293.04
6	11:00	12:00	206	149	355.2
7	12:00	13:00	212	112	324.12
8	13:00	14:00	222	145	367.41
9	14:00	15:00	293	160	452.88
10	15:00	16:00	372	235	607.06
11	16:00	17:00	466	235	701.52
12	17:00	18:00	367	212	579.42
13	18:00	19:00	219	109	327.45
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume 100%

Warrant Evaluated? Yes
Warrant Satisfied? No
Manually Set To:

Hour Start	16:00	15:00	7:00	17:00
Major Road Vol.	466.2	371.74	325.23	367.41
Minor Road Vol.	235.32	235.32	226.44	212.01



Warrant 3: Peak Hour Volume 100%

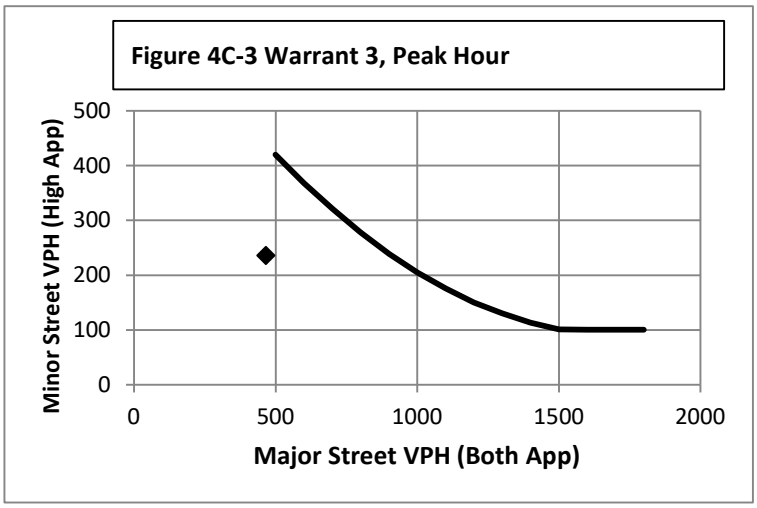
Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	No
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
16:00	466.2	235.32



Warrant 4: Pedestrian Volume 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

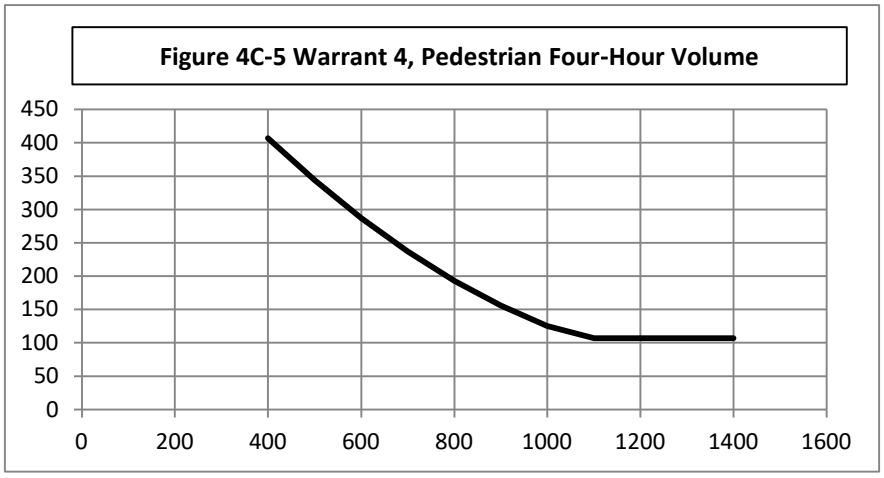
Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol?

Avg. walk speed less than 3.5 ft/s?

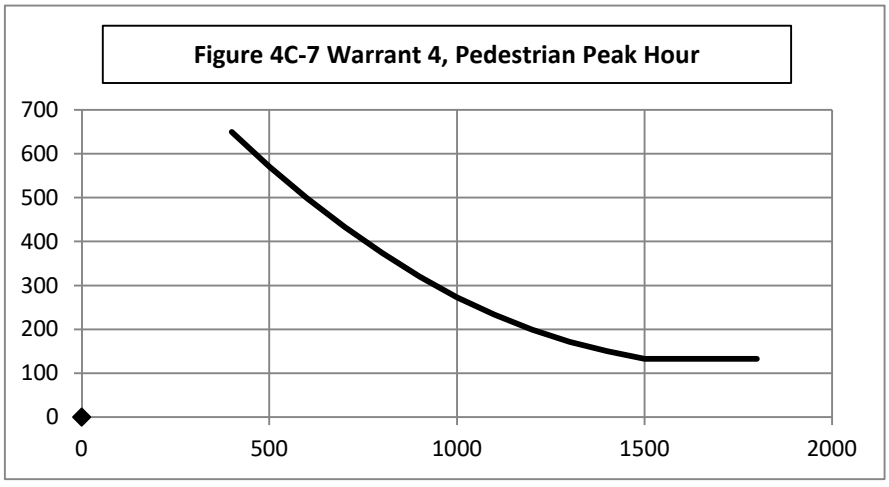
Criterion A Satisfied?



Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
0:00	0	0

Criterion B Satisfied?



Warrant 5: School Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

Warrant 6: Coordinated Signal System 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	Signal spacing > 1000 ft	No
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

Warrant 7: Crash Experience 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

	Criteria		Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.			No
	Measures Tried:			
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months		No
		4		
3	Warrant 1, Condition A (80%)		No	Yes
	Warrant 1, Condition B (80%)		No	
	Warrant 4, Criterion A (80%)		No	
	Warrant 4, Criterion B (80%)		Yes	

Warrant 8: Roadway Network 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria					Met?	Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour				701.52	No	No
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.					No	
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)						
	Hour						
	Volume						

	Characteristics of Major Routes - Select yes if all intersecting routes have characteristic	Fulfilled?
1	Part of the road or highway system that serves as the principal roadway network for through traffic flow	
2	Rural or suburban highway outside of, entering, or traversing a city	
3	Appears as a major route on an official plan	

Warrant 9: Intersection Near a Grade Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
1	0	0% to 2.5%	660	16:00	466.2	235.32	78.8322

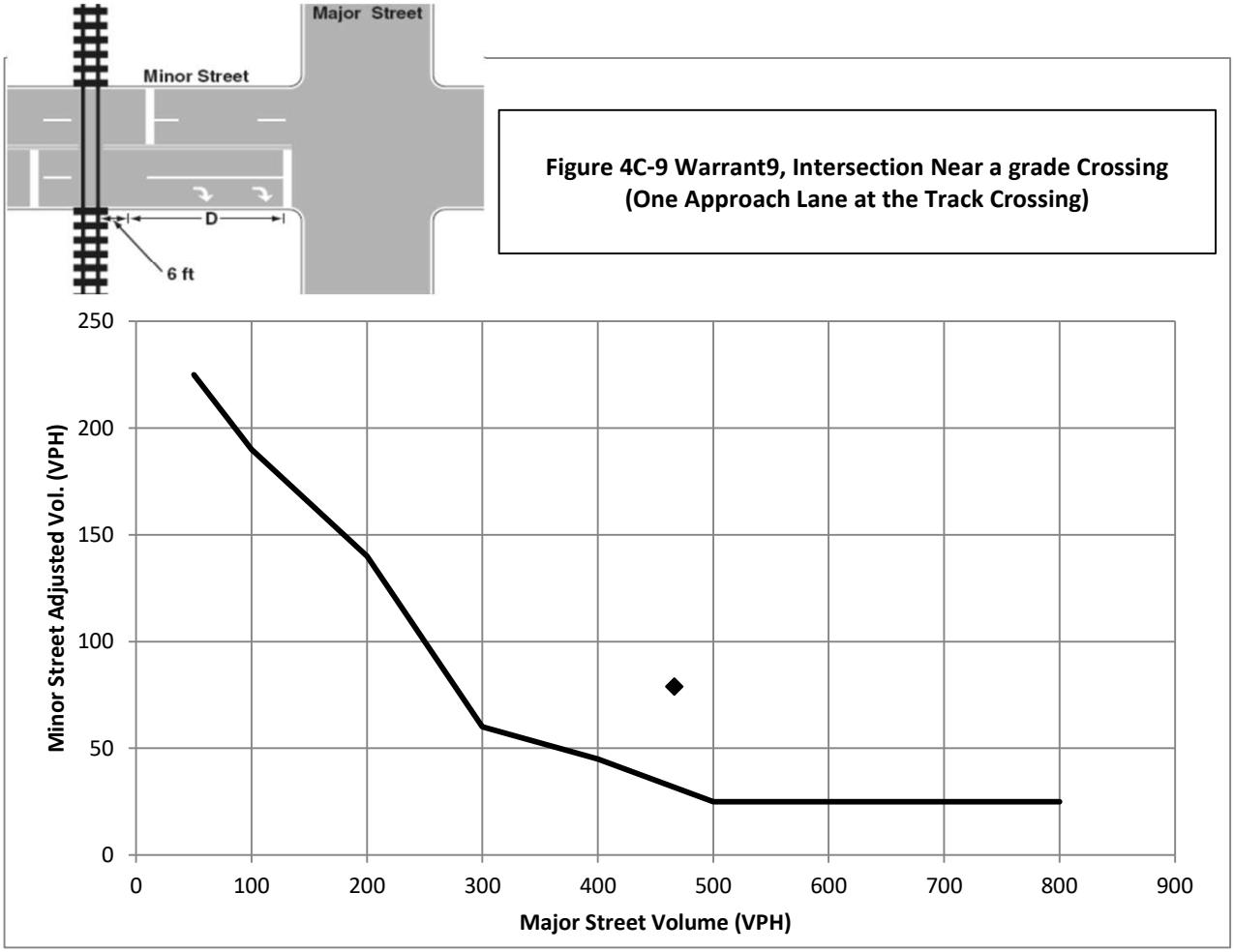


Figure 4C-9 Warrant9, Intersection Near a grade Crossing (One Approach Lane at the Track Crossing)

Conclusions/Comments:

Updated: 2/18/2016

Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: CTH X & CTH XX/Pine Road
County: Marathon
Town: Kronenwetter

Major Street: CTH X/CTH XX
Critical Approach Speed: 35 mph
Lanes: 1 lane

Minor Street: Pine Road/CTH X
Critical Approach Speed: 45 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 100%
From South (NB) 100%
From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 4 or more
If it is a "T" intersection, inflate minor threshold to 150%? No
Manually set volume level? No

Analysis based on PROJECTED volume data. 1% per year

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM
12/11/2024	Wednesday	6:00	AM	18:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	**No**
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	**No**
Warrant 3: Peak Hour Volume	**N/A**
Warrant 4: Pedestrian Volume	**N/A**
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	**N/A**
Warrant 6: Coordinated Signal System	**N/A**
Warrant 7: Crash Experience	**No**
Warrant 8: Roadway Network	**N/A**
Warrant 9: Intersection Near a Grade Crossing	**N/A**

Warrant Analysis Conducted By:

Name: SLK
Agency: JT Engineering
Date: 1/13/2025

Warrant 1: Eight - Hour Vehicular Volume 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

Condition A : Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	500	400
Minor Rd. Req	150	120
Number of Hours	1	3

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	750	600
Minor Rd. Req	75	60
Number of Hours	0	0

Satisfied? No

Condition C: Combination of A & B at 80%

Satisfied? No

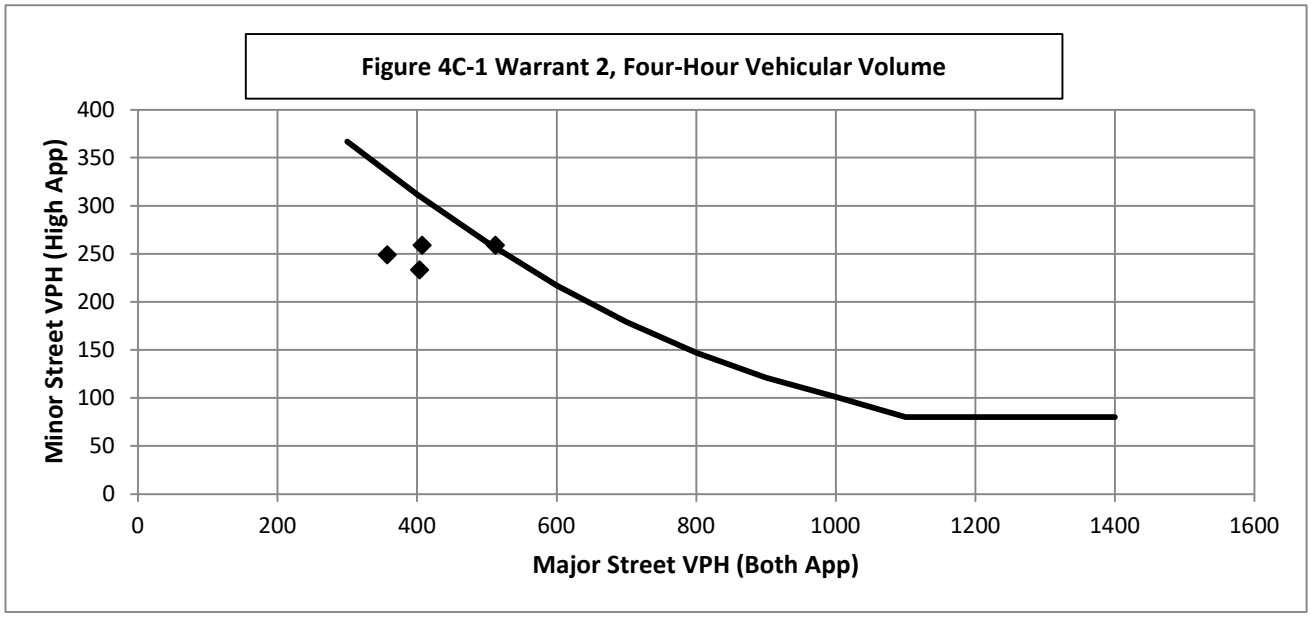
6:00 AM Enter Start Time (Military Time) (HH:MM)

Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	Total
1	6:00	7:00	285	153	437.98
2	7:00	8:00	357	249	606.34
3	8:00	9:00	257	233	490.44
4	9:00	10:00	228	142	369.66
5	10:00	11:00	193	129	322.08
6	11:00	12:00	227	163	390.4
7	12:00	13:00	233	123	356.24
8	13:00	14:00	244	160	403.82
9	14:00	15:00	322	176	497.76
10	15:00	16:00	407	259	666.12
11	16:00	17:00	512	259	771.04
12	17:00	18:00	404	233	636.84
13	18:00	19:00	240	120	359.9
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume 100%

Warrant Evaluated? Yes
Warrant Satisfied? No
Manually Set To:

Hour Start	16:00	15:00	17:00	7:00
Major Road Vol.	512.4	407.48	403.82	357.46
Minor Road Vol.	258.64	258.64	233.02	248.88



Warrant 3: Peak Hour Volume 100%

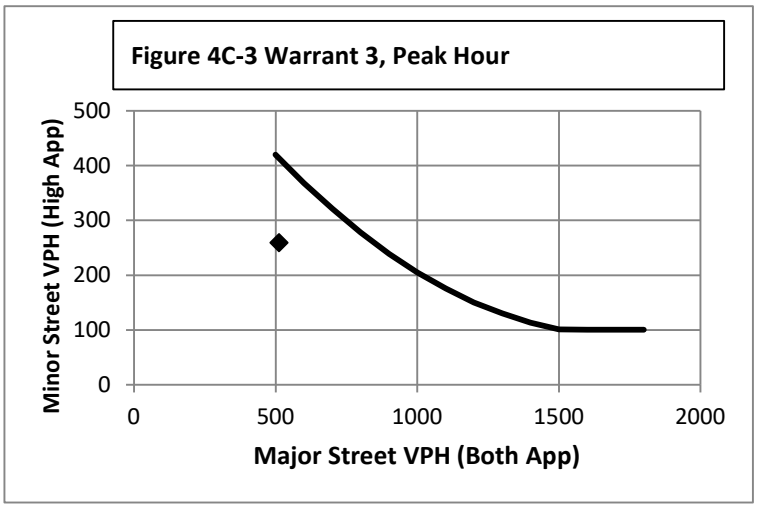
Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	No
Volume on Minor Approach	100	
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
16:00	512.4	258.64



Warrant 4: Pedestrian Volume 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

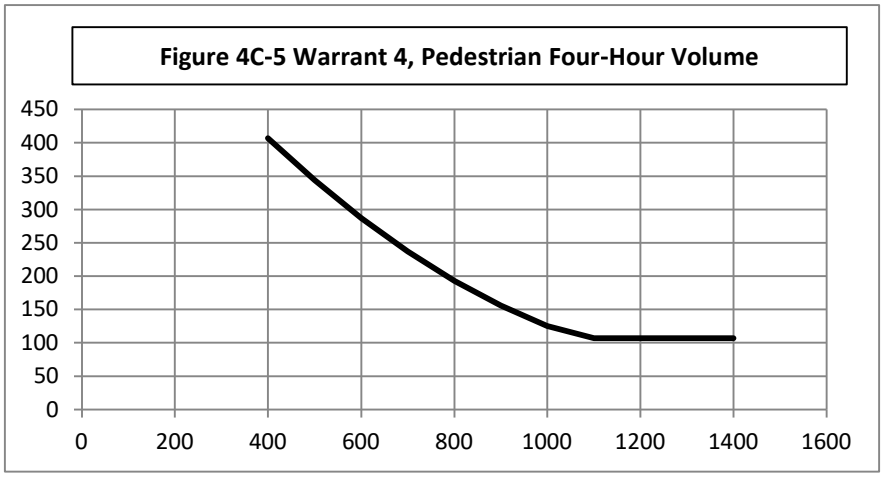
Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol?

Avg. walk speed less than 3.5 ft/s?

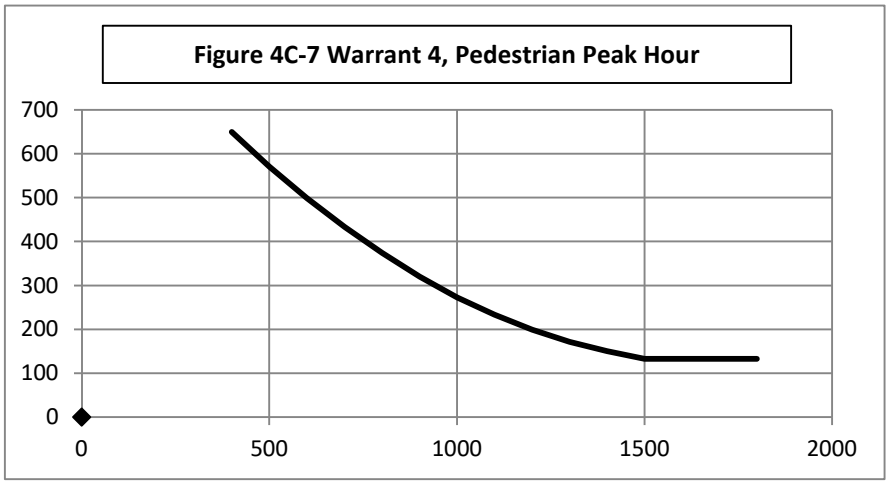
Criterion A Satisfied?



Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
0:00	0	0

Criterion B Satisfied?



Warrant 5: School Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

Warrant 6: Coordinated Signal System 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria	Fulfilled?
1	Signal spacing > 1000 ft	No
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

Warrant 7: Crash Experience 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

	Criteria		Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.			No
	Measures Tried:			
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months		No
		4		
3	Warrant 1, Condition A (80%)		No	Yes
	Warrant 1, Condition B (80%)		No	
	Warrant 4, Criterion A (80%)		No	
	Warrant 4, Criterion B (80%)		Yes	

Warrant 8: Roadway Network 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

	Criteria					Met?	Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour				771.04	No	No
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.					No	
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)						
	Hour						
	Volume						

	Characteristics of Major Routes - Select yes if all intersecting routes have characteristic	Fulfilled?
1	Part of the road or highway system that serves as the principal roadway network for through traffic flow	
2	Rural or suburban highway outside of, entering, or traversing a city	
3	Appears as a major route on an official plan	

Warrant 9: Intersection Near a Grade Crossing 100%

Warrant Evaluated? No **Warrant Satisfied? N/A** **Manually Set To:**

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
1	0	0% to 2.5%	660	16:00	512.4	258.64	86.6444

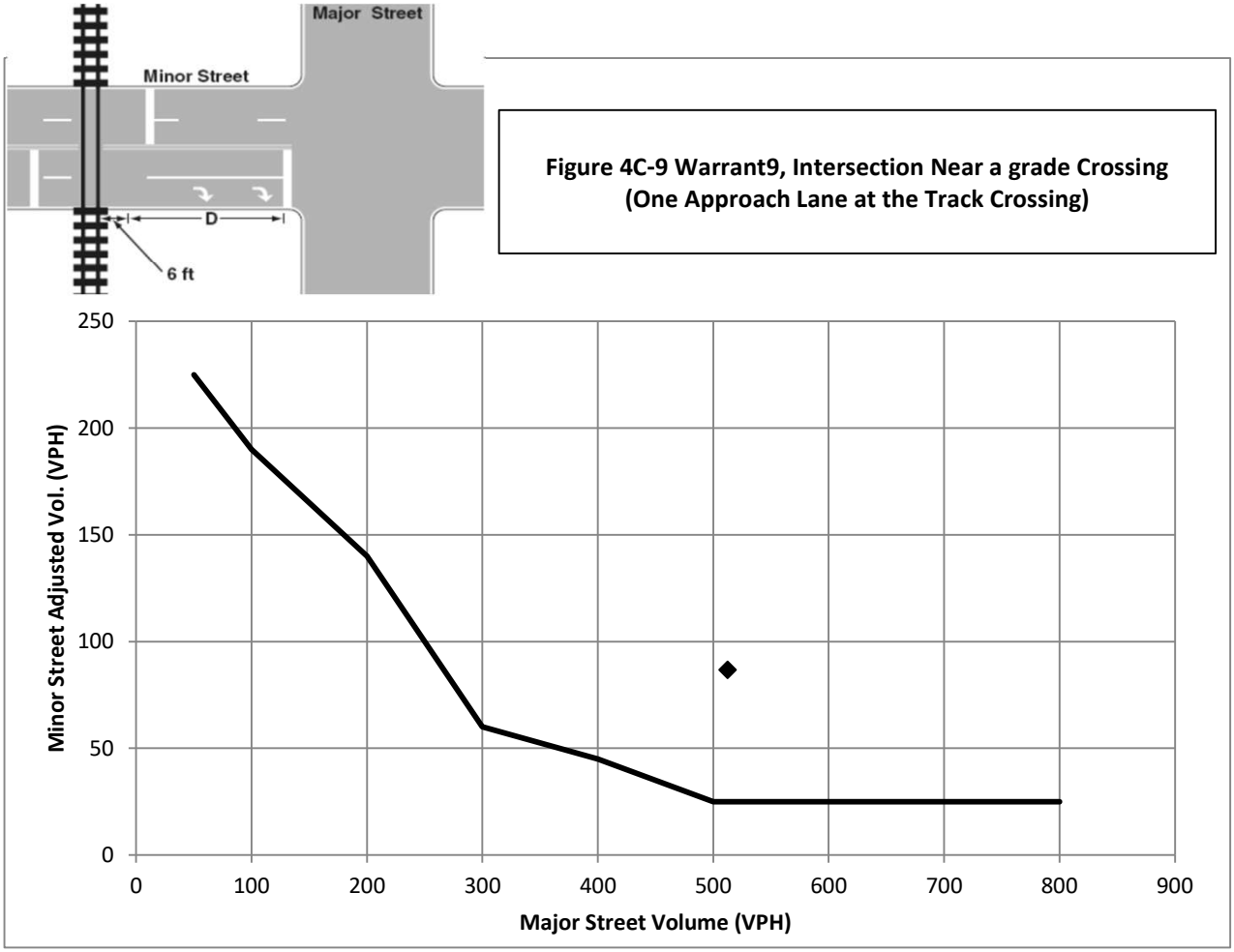


Figure 4C-9 Warrant9, Intersection Near a grade Crossing (One Approach Lane at the Track Crossing)

Conclusions/Comments:

Updated: 2/18/2016

ATTACHMENT 5 – ALL-WAY STOP CONTROL CRITERIA

ASWC Warrant Criteria

MUTCD Yes WisDOT Yes

MUTCD B, 1, 2, 3, 5

Met? Criteria

No A. Is a signal justified? No

Yes B. # of crashes in a 12 month period that can be corrected by multi-way stop control: 5

No C. Minimum Volumes

1. Major road approach volume (total of both) at least 300 vph for min 8 hours?
2. Combined ped, bike, and veh volume on minor approach (total of both) at least 200 units per hour for the same 8 hours as criteria C-1?
3. If the 85th percentile speed on the major road exceeds 40 mph, may use 70% of the values in C-1 and C-2

Major Street 85th percentile mph: 40

Time Period	From	To	Major Road: Both App.	Minor Road: Both App. (VPH)	C-1	C-2	Both Met?	D (80%)		Both Met?
1	6:00	7:00	234	161	No	No	No	No	No	No
2	7:00	8:00	293	258	No	Yes	No	No	No	No
3	8:00	9:00	211	259	No	Yes	No	No	No	No
4	9:00	10:00	187	137	No	No	No	No	No	No
5	10:00	11:00	158	122	No	No	No	No	No	No
6	11:00	12:00	186	154	No	No	No	No	No	No
7	12:00	13:00	191	130	No	No	No	No	No	No
8	13:00	14:00	200	166	No	No	No	No	No	No
9	14:00	15:00	264	161	No	No	No	No	No	No
10	15:00	16:00	334	266	Yes	Yes	Yes	No	No	No
11	16:00	17:00	420	260	Yes	Yes	Yes	No	No	No
12	17:00	18:00	331	219	Yes	Yes	Yes	No	No	No
13	18:00	19:00	197	117	No	No	No	No	No	No
14	19:00	20:00								
15	20:00	21:00								
16	21:00	22:00								

No D. Use when previous criteria have not been met:

If 80% minimum values of Criteria B, C-1, and C-2 (C-3 excluded) are satisfied, warrant is met.

WisDOT

Met? Criteria

Yes 1 **Functional Highway Classification**

Approach	Classification
1: (SB)	Minor Arterial
2: (WB)	Minor Arterial
3: (NB)	Minor Arterial
4: (EB)	Major Collector

Yes 2 **Average Daily Traffic**

Approach	AADT
Minor 1	3757
Minor 2	2795
Major 1	3165
Major 2	4082

Yes 3 **Crash History**

# of crashes in a 12 month period that can be corrected by multi-way stop control: 5

Expected to significantly reduce the overall severity of future crashes? Yes

4 **Alternatives**

Refer to TGM 13-26-5 Section D.

Yes 5 **Mobility Impact**

Will the high-volume "through" street experience significant delays for the benefit of reducing delays for a low-volume side street? No

6 **Right Turn Inclusion**

Refer to WisDOT TSDM 2-3-2

Forecasted Traffic
0.5% growth per year

ASWC Warrant Criteria

MUTCD Yes WisDOT Yes

MUTCD B, 1, 2, 3, 5

Met? Criteria

No A. Is a signal justified? No

Yes B. # of crashes in a 12 month period that can be corrected by multi-way stop control: 5

No C. Minimum Volumes

1. Major road approach volume (total of both) at least 300 vph for min 8 hours?
2. Combined ped, bike, and veh volume on minor approach (total of both) at least 200 units per hour for the same 8 hours as criteria C-1?
3. If the 85th percentile speed on the major road exceeds 40 mph, may use 70% of the values in C-1 and C-2

Major Street 85th percentile mph: 40

Time Period	From	To	Major Road: Both App.	Minor Road: Both App. (VPH)	C-1	C-2	Both Met?	D (80%)		Both Met?
1	6:00	7:00	260	179	No	No	No	No	No	No
2	7:00	8:00	325	286	Yes	Yes	Yes	No	No	No
3	8:00	9:00	234	287	No	Yes	No	No	No	No
4	9:00	10:00	208	152	No	No	No	No	No	No
5	10:00	11:00	175	135	No	No	No	No	No	No
6	11:00	12:00	206	171	No	No	No	No	No	No
7	12:00	13:00	212	144	No	No	No	No	No	No
8	13:00	14:00	222	184	No	No	No	No	No	No
9	14:00	15:00	293	179	No	No	No	No	No	No
10	15:00	16:00	371	295	Yes	Yes	Yes	No	No	No
11	16:00	17:00	466	289	Yes	Yes	Yes	No	No	No
12	17:00	18:00	367	243	Yes	Yes	Yes	No	No	No
13	18:00	19:00	219	130	No	No	No	No	No	No
14	19:00	20:00								
15	20:00	21:00								
16	21:00	22:00								

No D. Use when previous criteria have not been met:
If 80% minimum values of Criteria B, C-1, and C-2 (C-3 excluded) are satisfied, warrant is met.

WisDOT

Met? Criteria

Yes 1 **Functional Highway Classification**

Approach	Classification
1: (SB)	Minor Arterial
2: (WB)	Minor Arterial
3: (NB)	Minor Arterial
4: (EB)	Major Collector

Forecasted Traffic
0.5% growth per year

Yes 2 **Average Daily Traffic**

Approach	AADT
Minor 1	3757
Minor 2	2795
Major 1	3165
Major 2	4082

Yes 3 **Crash History**

# of crashes in a 12 month period that can be corrected by multi-way stop control: 5

Expected to significantly reduce the overall severity of future crashes? Yes

4 **Alternatives**

Refer to TGM 13-26-5 Section D.

Yes 5 **Mobility Impact**

Will the high-volume "through" street experience significant delays for the benefit of reducing delays for a low-volume side street? No

6 **Right Turn Inclusion**

Refer to WisDOT TSDM 2-3-2

ATTACHMENT 6 – SYNCHRO CAPACITY/LOS ANALYSIS SUMMARIES

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	55	4	71	37	94	3	110	119	38	36	0
Future Vol, veh/h	2	55	4	71	37	94	3	110	119	38	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	75	75	75	78	78	78	88	88	88
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	5	5	5
Mvmt Flow	3	72	5	95	49	125	4	141	153	43	41	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	301	429	41	388	352	217	41	0	0	294	0	0
Stage 1	127	127	-	225	225	-	-	-	-	-	-	-
Stage 2	173	301	-	163	127	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.11	6.51	6.21	4.11	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.509	4.009	3.309	2.209	-	-	2.245	-	-
Pot Cap-1 Maneuver	656	522	1036	572	574	825	1575	-	-	1251	-	-
Stage 1	881	795	-	780	719	-	-	-	-	-	-	-
Stage 2	833	668	-	841	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	489	502	1036	471	552	825	1575	-	-	1251	-	-
Mov Cap-2 Maneuver	489	502	-	471	552	-	-	-	-	-	-	-
Stage 1	850	767	-	778	717	-	-	-	-	-	-	-
Stage 2	656	666	-	731	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.2	15.51	0.09	4.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	21	-	-	519	609	924	-	-
HCM Lane V/C Ratio	0.002	-	-	0.155	0.442	0.035	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	13.2	15.5	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	2.3	0.1	-	-

Intersection	
Int Delay, s/veh	12.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	55	10	96	42	73	4	68	98	111	126	6
Future Vol, veh/h	2	55	10	96	42	73	4	68	98	111	126	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	86	86	86	80	80	80	80	80	80
Heavy Vehicles, %	6	6	6	1	1	1	1	1	1	2	2	2
Mvmt Flow	3	92	17	112	49	85	5	85	123	139	158	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	558	656	161	637	599	146	165	0	0	208	0	0
Stage 1	439	439	-	156	156	-	-	-	-	-	-	-
Stage 2	119	218	-	481	443	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.11	6.51	6.21	4.11	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.509	4.009	3.309	2.209	-	-	2.218	-	-
Pot Cap-1 Maneuver	434	380	873	391	417	903	1419	-	-	1364	-	-
Stage 1	589	571	-	848	770	-	-	-	-	-	-	-
Stage 2	875	716	-	568	578	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	306	336	873	255	368	903	1419	-	-	1364	-	-
Mov Cap-2 Maneuver	306	336	-	255	368	-	-	-	-	-	-	-
Stage 1	523	507	-	845	767	-	-	-	-	-	-	-
Stage 2	740	713	-	405	513	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.95	32.07	0.18	3.63
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	38	-	-	369	369	815	-	-
HCM Lane V/C Ratio	0.004	-	-	0.303	0.664	0.102	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	18.9	32.1	7.9	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	4.6	0.3	-	-

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	60	5	80	40	105	5	120	130	40	40	5
Future Vol, veh/h	5	60	5	80	40	105	5	120	130	40	40	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	75	75	75	78	78	78	88	88	88
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	5	5	5
Mvmt Flow	7	79	7	107	53	140	6	154	167	45	45	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	333	473	48	426	392	237	51	0	0	321	0	0
Stage 1	139	139	-	250	250	-	-	-	-	-	-	-
Stage 2	193	333	-	176	142	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.11	6.51	6.21	4.11	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.509	4.009	3.309	2.209	-	-	2.245	-	-
Pot Cap-1 Maneuver	625	493	1026	541	545	804	1562	-	-	1223	-	-
Stage 1	869	785	-	756	702	-	-	-	-	-	-	-
Stage 2	813	647	-	828	781	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	445	472	1026	431	522	804	1562	-	-	1223	-	-
Mov Cap-2 Maneuver	445	472	-	431	522	-	-	-	-	-	-	-
Stage 1	835	755	-	752	698	-	-	-	-	-	-	-
Stage 2	617	644	-	709	751	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.08	17.99	0.14	3.79
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	32	-	-	488	573	829	-	-
HCM Lane V/C Ratio	0.004	-	-	0.189	0.524	0.037	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	14.1	18	8.1	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	3	0.1	-	-

Intersection	
Int Delay, s/veh	20.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	60	10	105	45	80	5	75	110	125	140	10
Future Vol, veh/h	5	60	10	105	45	80	5	75	110	125	140	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	86	86	86	80	80	80	80	80	80
Heavy Vehicles, %	6	6	6	1	1	1	1	1	1	2	2	2
Mvmt Flow	8	100	17	122	52	93	6	94	138	156	175	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	626	738	181	713	675	163	188	0	0	231	0	0
Stage 1	494	494	-	175	175	-	-	-	-	-	-	-
Stage 2	132	244	-	538	500	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.11	6.51	6.21	4.11	-	-	4.12	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.509	4.009	3.309	2.209	-	-	2.218	-	-
Pot Cap-1 Maneuver	391	341	851	348	377	885	1393	-	-	1337	-	-
Stage 1	550	540	-	829	756	-	-	-	-	-	-	-
Stage 2	862	697	-	529	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	260	295	851	205	326	885	1393	-	-	1337	-	-
Mov Cap-2 Maneuver	260	295	-	205	326	-	-	-	-	-	-	-
Stage 1	478	469	-	825	752	-	-	-	-	-	-	-
Stage 2	714	693	-	355	474	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	23.3	59.57	0.2	3.66
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	42	-	-	320	310	807	-	-
HCM Lane V/C Ratio	0.004	-	-	0.391	0.862	0.117	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	23.3	59.6	8	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.8	7.7	0.4	-	-

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	55	4	71	37	94	3	110	119	38	36	0
Future Vol, veh/h	2	55	4	71	37	94	3	110	119	38	36	0
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.78	0.78	0.78	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	5	5	5
Mvmt Flow	3	72	5	95	49	125	4	141	153	43	41	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	10.4	10.4	9.1
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	3%	35%	51%
Vol Thru, %	47%	90%	18%	49%
Vol Right, %	51%	7%	47%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	61	202	74
LT Vol	3	2	71	38
Through Vol	110	55	37	36
RT Vol	119	4	94	0
Lane Flow Rate	297	80	269	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.377	0.114	0.353	0.124
Departure Headway (Hd)	4.564	5.116	4.713	5.296
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	782	693	757	670
Service Time	2.63	3.203	2.781	3.383
HCM Lane V/C Ratio	0.38	0.115	0.355	0.125
HCM Control Delay, s/veh	10.4	8.9	10.4	9.1
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.8	0.4	1.6	0.4

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	55	10	96	42	73	4	68	98	111	126	6
Future Vol, veh/h	2	55	10	96	42	73	4	68	98	111	126	6
Peak Hour Factor	0.60	0.60	0.60	0.86	0.86	0.86	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	6	6	6	1	1	1	1	1	1	2	2	2
Mvmt Flow	3	92	17	112	49	85	5	85	123	139	158	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10	11.5	10.2	12.7
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	3%	45%	46%
Vol Thru, %	40%	82%	20%	52%
Vol Right, %	58%	15%	35%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	67	211	243
LT Vol	4	2	96	111
Through Vol	68	55	42	126
RT Vol	98	10	73	6
Lane Flow Rate	213	112	245	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.298	0.177	0.365	0.45
Departure Headway (Hd)	5.056	5.713	5.359	5.33
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	710	626	670	674
Service Time	3.098	3.762	3.4	3.367
HCM Lane V/C Ratio	0.3	0.179	0.366	0.451
HCM Control Delay, s/veh	10.2	10	11.5	12.7
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.2	0.6	1.7	2.3

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	60	5	80	40	105	5	120	130	40	40	5
Future Vol, veh/h	5	60	5	80	40	105	5	120	130	40	40	5
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.78	0.78	0.78	0.88	0.88	0.88
Heavy Vehicles, %	0	0	0	1	1	1	1	1	1	5	5	5
Mvmt Flow	7	79	7	107	53	140	6	154	167	45	45	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.3	11.4	11.4	9.5
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	7%	36%	47%
Vol Thru, %	47%	86%	18%	47%
Vol Right, %	51%	7%	47%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	70	225	85
LT Vol	5	5	80	40
Through Vol	120	60	40	40
RT Vol	130	5	105	5
Lane Flow Rate	327	92	300	97
Geometry Grp	1	1	1	1
Degree of Util (X)	0.427	0.138	0.412	0.149
Departure Headway (Hd)	4.819	5.413	4.949	5.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	752	665	732	648
Service Time	2.819	3.428	2.949	3.566
HCM Lane V/C Ratio	0.435	0.138	0.41	0.15
HCM Control Delay, s/veh	11.4	9.3	11.4	9.5
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	2.1	0.5	2	0.5

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	60	10	105	45	80	5	75	110	125	140	10
Future Vol, veh/h	5	60	10	105	45	80	5	75	110	125	140	10
Peak Hour Factor	0.60	0.60	0.60	0.86	0.86	0.86	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	6	6	6	1	1	1	1	1	1	2	2	2
Mvmt Flow	8	100	17	122	52	93	6	94	138	156	175	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.7	12.7	11.2	14.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	7%	46%	45%
Vol Thru, %	39%	80%	20%	51%
Vol Right, %	58%	13%	35%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	75	230	275
LT Vol	5	5	105	125
Through Vol	75	60	45	140
RT Vol	110	10	80	10
Lane Flow Rate	238	125	267	344
Geometry Grp	1	1	1	1
Degree of Util (X)	0.35	0.21	0.418	0.528
Departure Headway (Hd)	5.303	6.036	5.621	5.533
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	591	637	650
Service Time	3.368	4.112	3.684	3.592
HCM Lane V/C Ratio	0.353	0.212	0.419	0.529
HCM Control Delay, s/veh	11.2	10.7	12.7	14.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.6	0.8	2.1	3.1

ATTACHMENT 7 – HCS7 SUMMARY REPORTS

HCS7 Roundabouts Report

General Information

Analyst	SLK
Agency or Co.	JT Engineering
Date Performed	1/12/2025
Analysis Year	2024
Time Analyzed	AM Peak
Project Description	CTH X & CTH XX/Pine Rd

Site Information

Intersection	CTH X & CTH XX/Pine Rd
E/W Street Name	Pine Rd/CTH X
N/S Street Name	CTH XX/CTH X
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	Kronenwetter

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	2	55	4	0	71	37	94	0	3	110	119	0	38	36	0
Percent Heavy Vehicles, %	0	0	0	0	1	1	1	1	1	1	1	1	5	5	5	5
Flow Rate (v_{PCE}), pc/h	0	2	60	4	0	78	41	103	0	3	121	131	0	43	41	0
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.7000			4.7000			4.7000			4.7000	
Follow-Up Headway (s)		2.6000			2.6000			2.6000			2.6000	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		66			222			255			84	
Entry Volume, veh/h		66			220			252			80	
Circulating Flow (v_c), pc/h	162			126			105			122		
Exiting Flow (v_{ex}), pc/h	234			44			226			123		
Capacity (c_{pce}), pc/h		1188			1229			1254			1234	
Capacity (c), veh/h		1188			1217			1241			1175	
v/c Ratio (x)		0.06			0.18			0.20			0.07	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.5			4.5			4.7			3.6	
Lane LOS		A			A			A			A	
95% Queue, veh		0.2			0.7			0.8			0.2	
Approach Delay, s/veh	3.5			4.5			4.7			3.6		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.3						A					

HCS7 Roundabouts Report

General Information

Analyst	SLK
Agency or Co.	JT Engineering
Date Performed	1/12/2025
Analysis Year	2024
Time Analyzed	PM Peak
Project Description	CTH X & CTH XX/Pine Rd

Site Information

Intersection	CTH X & CTH XX/Pine Rd
E/W Street Name	Pine Rd/CTH X
N/S Street Name	CTH XX/CTH X
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	Kronenwetter

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	2	55	10	0	96	42	73	0	4	68	98	0	111	126	6
Percent Heavy Vehicles, %	6	6	6	6	1	1	1	1	1	1	1	1	2	2	2	2
Flow Rate (v_{PCE}), pc/h	0	2	63	12	0	105	46	80	0	4	75	108	0	123	140	7
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.7000			4.7000			4.7000			4.7000	
Follow-Up Headway (s)		2.6000			2.6000			2.6000			2.6000	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		77			231			187			270	
Entry Volume, veh/h		73			229			185			265	
Circulating Flow (v_c), pc/h	368			81			188			155		
Exiting Flow (v_{ex}), pc/h	294			57			157			257		
Capacity (c_{pce}), pc/h		978			1283			1159			1196	
Capacity (c), veh/h		923			1270			1148			1173	
v/c Ratio (x)		0.08			0.18			0.16			0.23	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.6			4.4			4.5			5.1	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.7			0.6			0.9	
Approach Delay, s/veh	4.6			4.4			4.5			5.1		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.7						A					

HCS7 Roundabouts Report

General Information

Analyst	SLK
Agency or Co.	JT Engineering
Date Performed	1/12/2025
Analysis Year	2046
Time Analyzed	AM Peak
Project Description	CTH X & CTH XX/Pine Rd

Site Information

Intersection	CTH X & CTH XX/Pine Rd
E/W Street Name	Pine Rd/CTH X
N/S Street Name	CTH XX/CTH X
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	Kronenwetter

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	60	5	0	80	40	105	0	5	120	130	0	40	40	5
Percent Heavy Vehicles, %	0	0	0	0	1	1	1	1	1	1	1	1	5	5	5	5
Flow Rate (v_{PCE}), pc/h	0	5	65	5	0	88	44	115	0	5	132	143	0	46	46	6
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.7000			4.7000			4.7000			4.7000	
Follow-Up Headway (s)		2.6000			2.6000			2.6000			2.6000	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		75			247			280			98	
Entry Volume, veh/h		75			245			277			93	
Circulating Flow (v_c), pc/h	180			142			116			137		
Exiting Flow (v_{ex}), pc/h	254			55			252			139		
Capacity (c_{pce}), pc/h		1168			1211			1241			1217	
Capacity (c), veh/h		1168			1199			1229			1159	
v/c Ratio (x)		0.06			0.20			0.23			0.08	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.6			4.8			4.9			3.8	
Lane LOS		A			A			A			A	
95% Queue, veh		0.2			0.8			0.9			0.3	
Approach Delay, s/veh	3.6			4.8			4.9			3.8		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	4.6						A					

HCS7 Roundabouts Report

General Information

Analyst	SLK
Agency or Co.	JT Engineering
Date Performed	1/12/2025
Analysis Year	2046
Time Analyzed	PM Peak
Project Description	CTH X & CTH XX/Pine Rd

Site Information

Intersection	CTH X & CTH XX/Pine Rd
E/W Street Name	Pine Rd/CTH X
N/S Street Name	CTH XX/CTH X
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	Kronenwetter

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	5	60	10	0	105	45	80	0	5	75	110	0	125	140	10
Percent Heavy Vehicles, %	6	6	6	6	1	1	1	1	1	1	1	1	2	2	2	2
Flow Rate (v_{PCE}), pc/h	0	6	69	12	0	115	49	88	0	5	82	121	0	139	155	11
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.7000			4.7000			4.7000			4.7000	
Follow-Up Headway (s)		2.6000			2.6000			2.6000			2.6000	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		87			252			208			305	
Entry Volume, veh/h		82			250			206			299	
Circulating Flow (v_c), pc/h	409			93			214			169		
Exiting Flow (v_{ex}), pc/h	329			65			176			282		
Capacity (c_{pce}), pc/h		941			1268			1131			1180	
Capacity (c), veh/h		888			1256			1120			1157	
v/c Ratio (x)		0.09			0.20			0.18			0.26	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.9			4.6			4.9			5.5	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.7			0.7			1.0	
Approach Delay, s/veh	4.9			4.6			4.9			5.5		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	5.0						A					

ATTACHMENT 8 – COST ESTIMATES

CTH X & CTH XX NW Quadrant Vision Triangle - Marathon County

Cost Estimate

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	**REMOVALS**				
	Clearing & Grubbing	SY	90	$30.00	$ 2,700
11	**ROADWAY INCIDENTALS**	LS	0 % of Items 1-2	N/A	$ -
	Restoration	SY	90	$9.50	$ 855
14				**TOTAL ROADWAY COSTS (Items 1-13)**	**$ 3,560**
16	**MOBILIZATION**	LS	25 % of Items 14-15	N/A	$ 890
17				**Construction Costs Subtotal**	**$ 4,450**
18	**CONSTRUCTION DESIGN CONTINGENCY**	LS	15 % of Item 17	N/A	**$ 670**
22				**ESTIMATED CONTRACT LET AMOUNT**	$ 5,120
31	**REAL ESTATE**				
31.01	Acquisition	SF	800	$1.20	$ 960
31.05	Real Estate Incidentals	LS	0 % of Items 31.01 - 31.04	N/A	$ -
31.06				**Real Estate Subtotal**	**$ 960**
31.07	Real Estate Delivery	LS	10 % of Items 31.06	N/A	$ 100
				TOTAL REAL ESTATE COSTS	$ 1,060
32	**JURISDICTIONAL TRANSFER**	LS	0 % of Const & Utility	N/A	$ -
				TOTAL PROJECT COSTS	$ 6,180

CTH X & CTH XX AWSC - Marathon County

Cost Estimate

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
6	**TRAFFIC CONTROL**	LS			
	PCMS	DAY	28	$60.00	$ 1,680
	Temporary Rumble Strips	LF	594	$15.00	$ 8,910
8	**SIGNING/MARKINGS**				
	LED Flashing Stop Signs	EACH	2	$2,500.00	$ 5,000
	Other Signs and Posts	LS	1	$3,000.00	$ 3,000
	Pavement Markings - Stop Line	LF	80	$16.00	$ 1,280
14				**TOTAL ROADWAY COSTS (Items 1-13)**	**$ 19,870**
16	**MOBILIZATION**	LS	25 % of Items 14-15	N/A	$ 4,968
17				**Construction Costs Subtotal**	**$ 24,838**
18	**CONSTRUCTION DESIGN CONTINGENCY**	LS	**15** % of Item 17	N/A	**$ 3,726**
				TOTAL PROJECT COSTS	$ 28,600

CTH X & CTH XX RAB - Marathon County

Cost Estimate Without Sidepaths

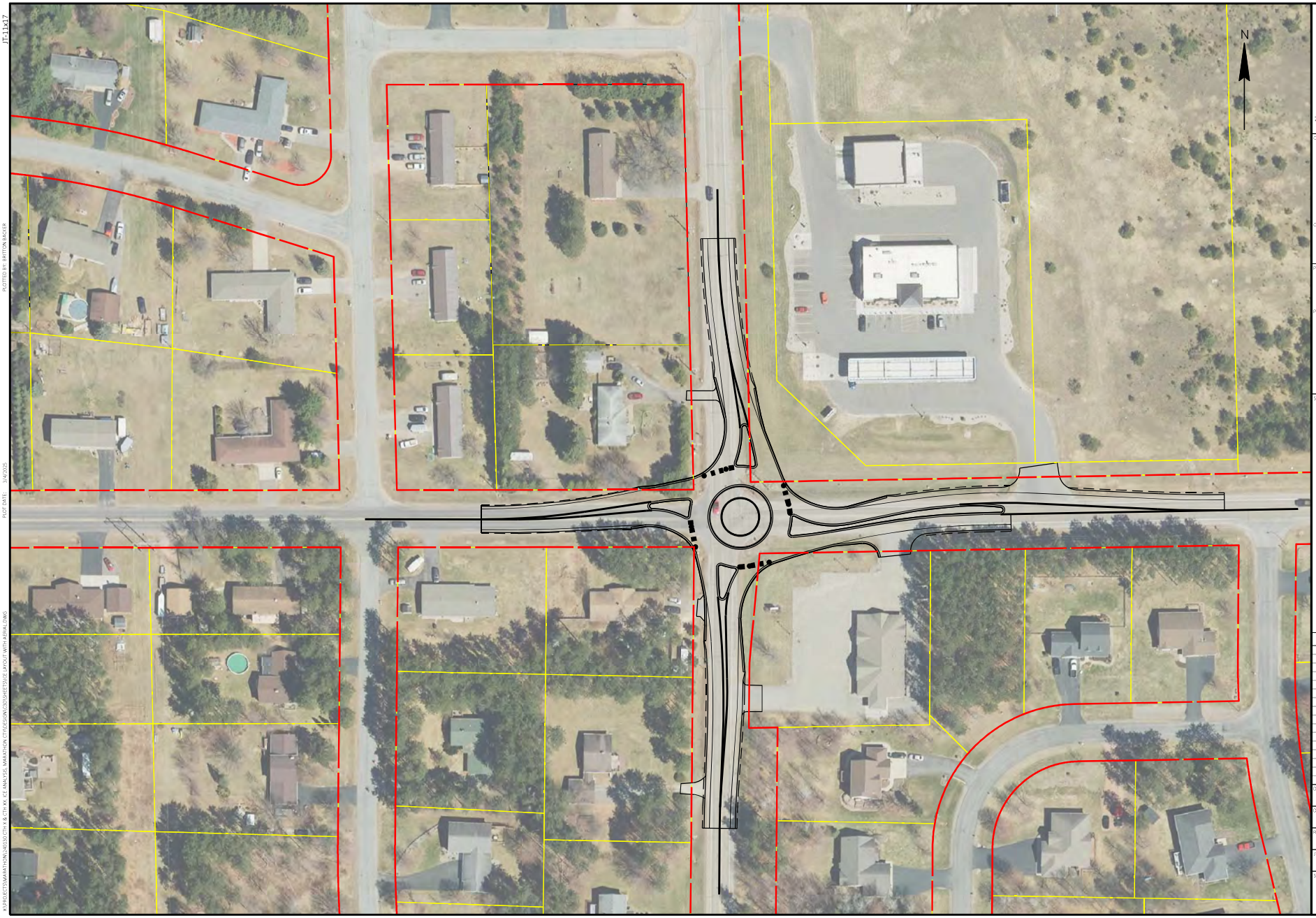
ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	**REMOVALS**				
1.02	Removing Curb & Gutter	LF	0	$2.00	$ -
2	**NEW PAVEMENT**				
2.10	Concrete Pavement	SY	0	$65.00	$ -
2.11	HMA Pavement	TON	2,100	$130.00	$ 273,000
2.13	Select Crush Material	TON	0	$18.25	$ -
2.16	Base Aggregate Dense 1 1/4-Inch	TON	6,600	$19.75	$ 130,350
				Subtotal Roadway Costs	**$ 403,350**
3	**EARTHWORK**	LS	% of Items 1-2	N/A	$ -
3.01	Excavation Common	CY	5,000	$10.00	$ 50,000
3.06	Full Depth Asphalt Saw Cut	LF	390	$2.60	$ 1,014
4	**DRAINAGE**	LS	30 % of Items 1-2	N/A	$ 121,005
5	**EROSION CONTROL**	LS	5 % of Items 1-2	N/A	$ 20,168
6	**TRAFFIC CONTROL**	LS	5 % of Items 1-2	N/A	$ 20,168
7	**LIGHTING (contractor installed)**				
	LIGHTING	LS	1	$150,000.00	$ 150,000
8	**SIGNING/MARKINGS**	LS	10 % of Items 1-2	N/A	$ 40,335
	Marking Epoxy 6-inch	LF	6,900	$1.50	$ 10,350
	Marking Epoxy 10-inch	LF	180	$2.40	$ 432
	Marking Epoxy 12-inch	LF	213	$12.50	$ 2,663
	Marking Epoxy 18-inch	LF	80	$16.00	$ 1,280
8.01	Pavement Markings	LF		$2.50	$ -
9	**ITS (contractor installed)**	LS	1		$ -
10	**TRAFFIC SIGNALS**	EACH		$0.00	$ -
11	**ROADWAY INCIDENTALS**	LS	5 % of Items 1-2	N/A	$ 20,168
11.01	Concrete Curb & Gutter	LF	2,200	$34.00	$ 74,800
11.02	Concrete Sidewalk 4-inch	SF	3,200	$6.35	$ 20,320
11.03	Truck Apron	SY	240	$180.00	$ 43,200
12	**WETLAND MITIGATION**	LS	0		$ -
13	**HAZMAT**	LS	0		$ -
14				**TOTAL ROADWAY COSTS (Items 1-13)**	**$ 991,352**
15	**STRUCTURES**				
				TOTAL STRUCTURE COSTS (Item 15)	$ -
16	**MOBILIZATION**	LS	10 % of Items 14-15	N/A	$ 99,135
17				**Construction Costs Subtotal**	**$ 1,090,487**
18	**CONSTRUCTION DESIGN CONTINGENCY**	LS	15 % of Item 17	N/A	**$ 163,573**
22				**ESTIMATED CONTRACT LET AMOUNT**	$ 1,254,100
31	**REAL ESTATE**				
31.01	Acquisition	SF	5400	$1.20	$ 6,480
31.03	Signs	LS		$0.00	$ -
31.06				**Real Estate Subtotal**	**$ 7,000**
31.07	Real Estate Delivery	LS	10 % of Items 31.06	N/A	$ 700
				TOTAL REAL ESTATE COSTS	$ 7,700
32	**JURISDICTIONAL TRANSFER**	LS	0 % of Const & Utility	N/A	$ -
				TOTAL PROJECT COSTS	$ 1,261,800

CTH X & CTH XX RAB - Marathon County

Cost Estimate With Sidepaths

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	**REMOVALS**				
1.02	Removing Curb & Gutter	LF	0	$2.00	$ -
2	**NEW PAVEMENT**				
2.10	Concrete Pavement	SY	0	$65.00	$ -
2.11	HMA Pavement	TON	2,100	$130.00	$ 273,000
2.13	Select Crush Material	TON	0	$18.25	$ -
2.16	Base Aggregate Dense 1 1/4-Inch	TON	6,700	$19.75	$ 132,325
				Subtotal Roadway Costs	**$ 405,325**
3	**EARTHWORK**	LS	% of Items 1-2	N/A	$ -
3.01	Excavation Common	CY	5,100	$10.00	$ 51,000
3.06	Full Depth Asphalt Saw Cut	LF	390	$2.60	$ 1,014
4	**DRAINAGE**	LS	30 % of Items 1-2	N/A	$ 121,598
5	**EROSION CONTROL**	LS	5 % of Items 1-2	N/A	$ 20,266
6	**TRAFFIC CONTROL**	LS	5 % of Items 1-2	N/A	$ 20,266
7	**LIGHTING (contractor installed)**				
	LIGHTING	LS	1	$150,000.00	$ 150,000
8	**SIGNING/MARKINGS**	LS	10 % of Items 1-2	N/A	$ 40,533
	Marking Epoxy 6-inch	LF	6,900	$1.50	$ 10,350
	Marking Epoxy 10-inch	LF	180	$2.40	$ 432
	Marking Epoxy 12-inch	LF	213	$12.50	$ 2,663
	Marking Epoxy 18-inch	LF	80	$16.00	$ 1,280
8.01	Pavement Markings	LF		$2.50	$ -
9	**ITS (contractor installed)**	LS	1		$ -
10	**TRAFFIC SIGNALS**	EACH		$0.00	$ -
11	**ROADWAY INCIDENTALS**	LS	5 % of Items 1-2	N/A	$ 20,266
11.01	Concrete Curb & Gutter	LF	2,200	$34.00	$ 74,800
11.02	Concrete Sidewalk 4-inch	SF	7,200	$6.35	$ 45,720
11.03	Truck Apron	SY	240	$180.00	$ 43,200
12	**WETLAND MITIGATION**	LS	0		$ -
13	**HAZMAT**	LS	0		$ -
14				**TOTAL ROADWAY COSTS (Items 1-13)**	**$ 1,020,872**
15	**STRUCTURES**				
				TOTAL STRUCTURE COSTS (Item 15)	$ -
16	**MOBILIZATION**	LS	10 % of Items 14-15	N/A	$ 102,087
17				**Construction Costs Subtotal**	**$ 1,122,959**
18	**CONSTRUCTION DESIGN CONTINGENCY**	LS	**15** % of Item 17	N/A	**$ 168,444**
22				**ESTIMATED CONTRACT LET AMOUNT**	$ 1,291,500
31	**REAL ESTATE**				
31.01	Acquisition	SF	8900	$1.20	$ 10,680
31.03	Signs	LS		$0.00	$ -
31.06				**Real Estate Subtotal**	**$ 10,700**
31.07	Real Estate Delivery	LS	10 % of Items 31.06	N/A	$ 1,100
				TOTAL REAL ESTATE COSTS	$ 11,800
32	**JURISDICTIONAL TRANSFER**	LS	0 % of Const & Utility	N/A	$ -
				TOTAL PROJECT COSTS	$ 1,303,300

ATTACHMENT 9 – PRELIMINARY ROUNDABOUT ALTERNATIVE LAYOUTS



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PLOTTED BY: BRITTON BACKER

PLOT DATE: 3/4/2025

K:\PROJECTS\MARATHON\240130\CTH X & CTH XX ICE ANALYSIS_MARATHON_CTY\DESIGN\CDS\SHEETS\ICE LAYOUT_WITH AERIAL.DWG

GREEN BAY | MADISON
MILWAUKEE | CHIPPEWA FALLS
MADISON OFFICE
781 W NETHERWOOD ROAD, SUITE 1
OREGON, WI 53575

CLIENT:
MARATHON COUNTY

CLIENT ADDRESS:
500 FOREST STREET
WAUSAU, WI 54403

PROJECT:
CTH X & CTH XX ICE ANALYSIS

PROJECT ADDRESS:

SHEET TITLE:
CTH X & CTH XX
ROUNDABOUT
WITHOUT SIDEPATHS

DRAFT/REVISIONS:

NO.	DATE:	DESCRIPTION:

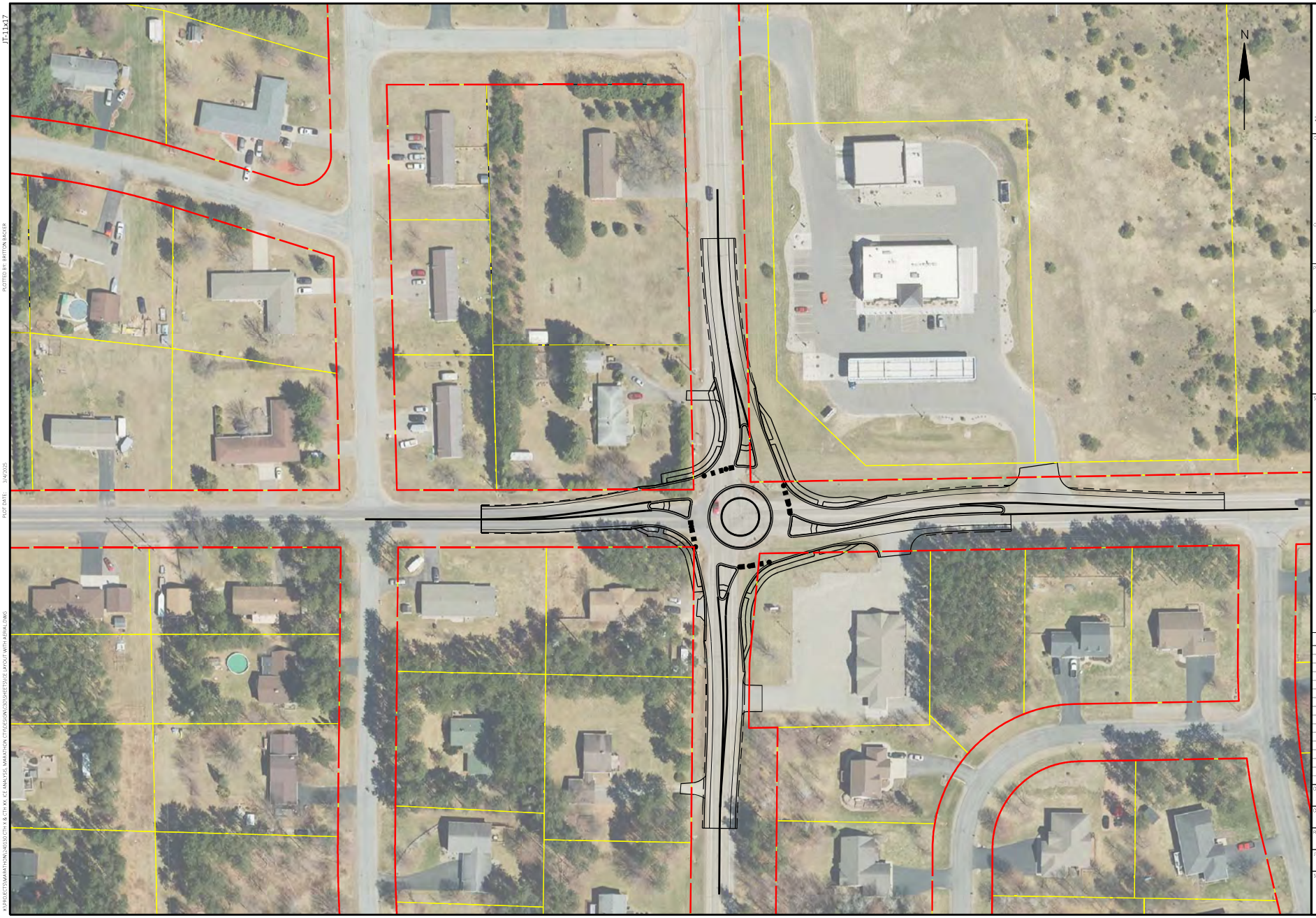
DATE ISSUED:
1/2/24

DRAWN BY:
JM

REVIEWED BY:

JT PROJECT NUMBER:
240130

SHEET NUMBER:
2



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PLOTTED BY: BRITTON BACKER

PLOT DATE: 3/4/2025

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GREEN BAY | MADISON
MILWAUKEE | CHIPPEWA FALLS
MADISON OFFICE
781 W NETHERWOOD ROAD, SUITE 1
OREGON, WI 53575

CLIENT:
MARATHON COUNTY

CLIENT ADDRESS:
500 FOREST STREET
WAUSAU, WI 54403

PROJECT:
CTH X & CTH XX ICE ANALYSIS

PROJECT ADDRESS:

SHEET TITLE:
CTH X & CTH XX
ROUNDABOUT
WITH SIDEPATHS

DRAFT/REVISIONS:

NO.	DATE:	DESCRIPTION:

DATE ISSUED:
1/2/24

DRAWN BY:
JM

REVIEWED BY:

JT PROJECT NUMBER:
240130

SHEET NUMBER:
1

ATTACHMENT 10 – FHWA PROVEN SAFETY COUNTERMEASURES: ROUNDABOUTS

U.S. Department of Transportation
Federal Highway Administration

OFFICE OF SAFETY
Proven Safety Countermeasures

Roundabouts

The modern roundabout is an intersection with a circular configuration that safely and efficiently moves traffic. Roundabouts feature channelized, curved approaches that reduce vehicle speed, entry yield control that gives right-of-way to circulating traffic, and counterclockwise flow around a central island that minimizes conflict points. The net result of lower speeds and reduced conflicts at roundabouts is an environment where crashes that cause injury or fatality are substantially reduced.

Roundabouts are not only a safer type of intersection; they are also efficient in terms of keeping people moving. Even while calming traffic, they can reduce delay and queuing when compared to other intersection alternatives. Furthermore, the lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling.

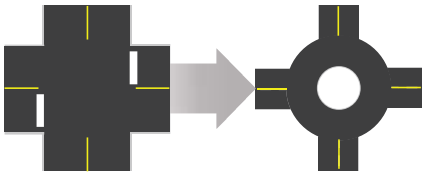
Roundabouts can be implemented in both urban and rural areas under a wide range of traffic conditions. They can replace signals, two-way stop controls, and all-way stop controls. Roundabouts are an effective option for managing speed and transitioning traffic from high-speed to low-speed environments, such as freeway interchange ramp terminals, and rural intersections along high-speed roads.

Illustration of a multilane roundabout. Source: FHWA

Example of a single-lane roundabout. Source: FHWA

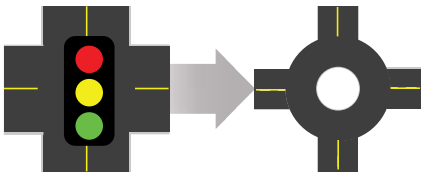
Safety Benefits:

Two-Way Stop-Controlled Intersection to a Roundabout



82%
reduction in fatal and injury crashes.[1]

Signalized Intersection to a Roundabout



78%
reduction in fatal and injury crashes.[1]

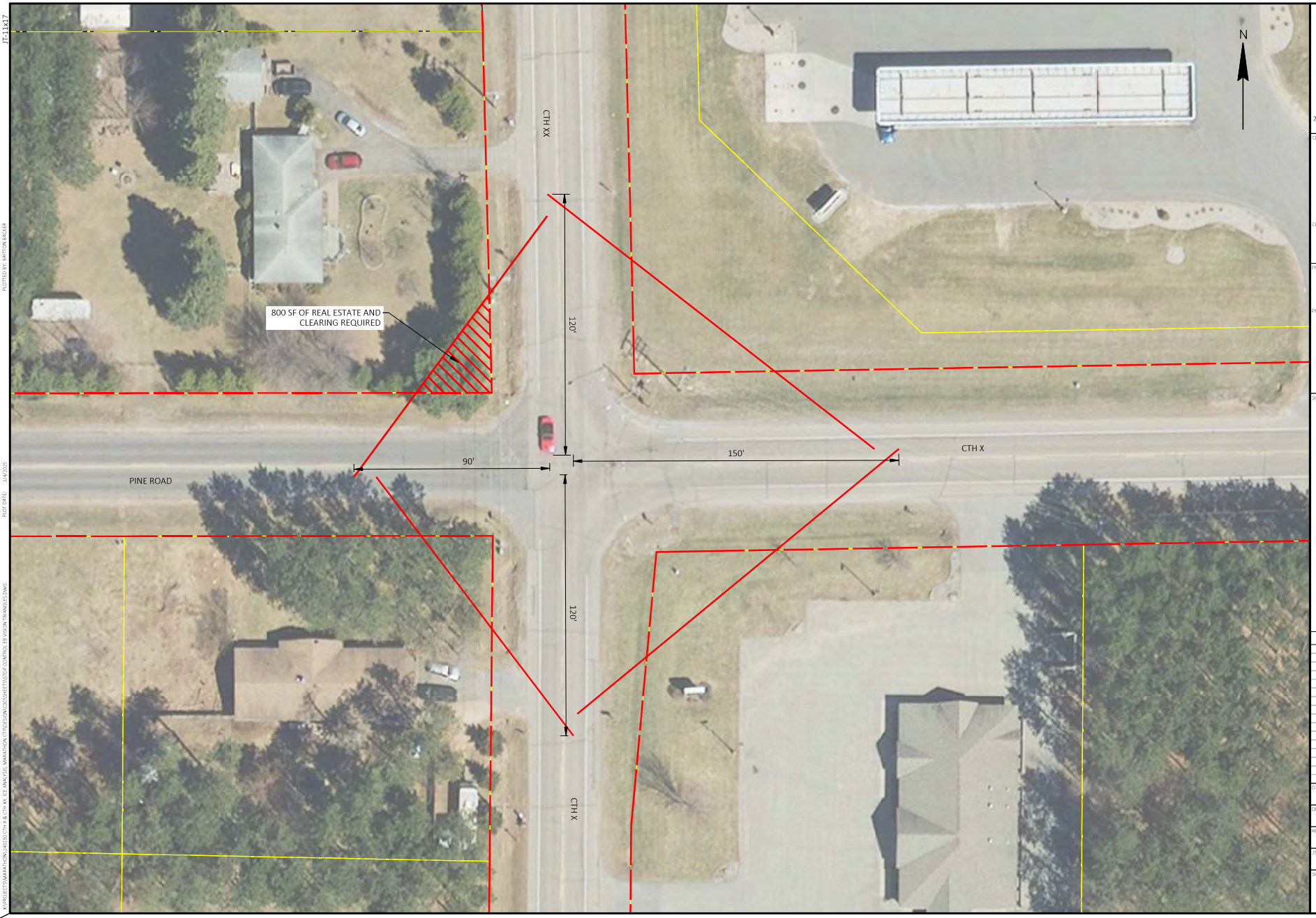
For more information on this and other FHWA Proven Safety Countermeasures, please visit https://highways.dot.gov/safety/proven-safety-countermeasures and https://highways.dot.gov/safety/intersection-safety/intersection-types/roundabouts.

FHWA-SA-21-042

1 (CMF ID: 211,226) AASHTO. The Highway Safety Manual, American Association of State Highway Transportation Professionals, Washington, D.C., (2010).

ZERO IS OUR GOAL
A SAFE SYSTEM IS HOW WE GET THERE

ATTACHMENT 11 – VISION TRIANGLES DIAGRAM



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PLOTTED BY: BRITTON BACHER

PLOT DATE: 3/4/2025

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GREEN BAY | MADISON
MILWAUKEE | CHIPPEWA FALLS
MADISON OFFICE
781 W NETHERWOOD ROAD, SUITE 1
OREGON, WI 53575

CLIENT:
MARATHON COUNTY

CLIENT ADDRESS:
500 FOREST STREET
WAUSAU, WI 54403

PROJECT:
CTH X & CTH XX ICE ANALYSIS

PROJECT ADDRESS:

SHEET TITLE:
CTH X & CTH XX
VISION TRIANGLES

DRAFT/REVISIONS:

NO.	DATE:	DESCRIPTION:

DATE ISSUED:
3/4/24

DRAWN BY:
JP

REVIEWED BY:

JT PROJECT NUMBER:
240130

SHEET NUMBER:
3

ATTACHMENT 12 – WISDOT SAFETY BENEFIT COST ANALYSIS TOOL

Project Information

Project ID:	
Region:	
County:	Marathon
Segment/Intersection:	CTH X & CTH XX/Pine Road
Analyst:	SLK
Date of Analysis:	2/25/2025

Method 1 Analysis Information

	Year	AADT
First Year of Analysis Period	2024	7100
Last Year of Analysis Period	2033	7400

Observed Crash History

	Year	Avg. AAD T
First Year of Observed Data	2019	7000
Last Year of Observed Data	2023	

	Crash Totals	Average
Fatal Crashes	0	0
Injury A Crashes	0	0
Injury B Crashes	2	0.4
Injury C Crashes	2	0.4
PDO Crashes	11	2.2
Fatal & Injury Crashes	4	0.8
Total	15	3

Economic Analysis Factors

Year of Crash Costs	2023
Crash Cost Index	0.00%
Discount Rate	5.00%

	Crash Cost	KABC Distribution
Fatal	$ 15,079,21 5	2.0%
Injury A	$ 788,325	10.4%
Injury B	$ 248,69 0	44.0%
Injury C	$ 141,821	43.6%
Property Damage	$ 18,57 6	
Fatal & Injury	$ -	

* The KABC Distribution was developed using 2019-2023 statewide data. It does not contain the distributions that were developed during the calibration process.

Summary

	Treatment Used	Treatment Costs	Cost Difference	Crash Costs (in 2024 Dollars)	Benefits (in 2024 Dollars)	Benefit/Cost Ratio	Crash Totals for Analysis Period: Fatal & Injury	Property Damage	All Crashes
Base Case	No Build	$ -	-	$ 4,100,708	-	-	8.3	22.8	31.1
Alternative 1	AWSC	$ 28,600	$ 28,600	$ 1,042,499	$ 3,058,209	106.9	1.9	11.8	13.8
Alternative 2	RAB	$ 1,260,000	$ 1,260,000	$ 820,337	$ 3,280,371	2.6	1.5	9.6	11.1
Alternative 3	Clear Sight	$ 6,180	$ 6,180	$ 3,574,564	$ 526,144	85.1	7.1	22.8	29.9
Alternative 4			-	-	-	-	-	-	-
Alternative 5			-	-	-	-	-	-	-

Inputs for Base Case and Alternatives

Base Case: No Build

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
1	2024	7100	0.81	2.23	-	-	-	-	-	-	1.00	1.00	0.81	0.02	0.08	0.36	0.35	2.23
2	2025	7133	0.82	2.24	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.24
3	2026	7167	0.82	2.25	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.25
4	2027	7200	0.82	2.26	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.09	0.36	0.36	2.26
5	2028	7233	0.83	2.27	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.36	0.36	2.27
6	2029	7267	0.83	2.28	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.28
7	2030	7300	0.83	2.29	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.29
8	2031	7333	0.84	2.30	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.30
9	2032	7366	0.84	2.32	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.32
10	2033	7400	0.85	2.33	-	-	-	-	-	-	1.00	1.00	0.85	0.02	0.09	0.37	0.37	2.33
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	8.29	0.17	0.86	3.65	3.61	22.79

Period	Crash Costs by Year (2024- 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232
2	$ 250,617	$ 66,677	$ 89,252	$ 50,367	$ 41,645	$ 498,559	$ 238,683	$ 63,502	$ 85,002	$ 47,968	$ 39,662	$ 474,818
3	$ 251,787	$ 66,989	$ 89,669	$ 50,602	$ 41,840	$ 500,886	$ 228,378	$ 60,761	$ 81,332	$ 45,897	$ 37,950	$ 454,319
4	$ 252,957	$ 67,300	$ 90,086	$ 50,837	$ 42,034	$ 503,214	$ 218,514	$ 58,136	$ 77,819	$ 43,915	$ 36,311	$ 434,695
5	$ 254,127	$ 67,611	$ 90,502	$ 51,072	$ 42,229	$ 505,541	$ 209,071	$ 55,624	$ 74,456	$ 42,017	$ 34,742	$ 415,910
6	$ 255,297	$ 67,922	$ 90,919	$ 51,307	$ 42,423	$ 507,869	$ 200,032	$ 53,219	$ 71,237	$ 40,201	$ 33,240	$ 397,928
7	$ 256,467	$ 68,234	$ 91,335	$ 51,542	$ 42,617	$ 510,196	$ 191,379	$ 50,917	$ 68,156	$ 38,462	$ 31,802	$ 380,716
8	$ 257,637	$ 68,545	$ 91,752	$ 51,778	$ 42,812	$ 512,523	$ 183,098	$ 48,714	$ 65,207	$ 36,797	$ 30,426	$ 364,241
9	$ 258,807	$ 68,856	$ 92,169	$ 52,013	$ 43,006	$ 514,851	$ 175,171	$ 46,605	$ 62,383	$ 35,204	$ 29,108	$ 348,471
10	$ 259,977	$ 69,168	$ 92,585	$ 52,248	$ 43,201	$ 517,178	$ 167,583	$ 44,586	$ 59,681	$ 33,679	$ 27,848	$ 333,378
TOTALS	$ 2,547,119	$ 677,668	$ 907,105	$ 511,898	$ 423,259	$ 5,067,049	$ 2,061,356	$ 548,430	$ 734,110	$ 414,273	$ 342,539	$ 4,100,708

Alternative 1: AWSC

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
						0.23	0.52											
1	2024	7100	0.81	2.23	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.16
2	2025	7133	0.82	2.24	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.17
3	2026	7167	0.82	2.25	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.17
4	2027	7200	0.82	2.26	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.18
5	2028	7233	0.83	2.27	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.18
6	2029	7267	0.83	2.28	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.19
7	2030	7300	0.83	2.29	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.19
8	2031	7333	0.84	2.30	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.08	0.08	1.20
9	2032	7366	0.84	2.32	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.09	0.08	1.20
10	2033	7400	0.85	2.33	-	0.23	0.52	-	-	-	0.23	0.52	0.19	0.00	0.02	0.09	0.08	1.21
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	1.91	0.04	0.20	0.84	0.83	11.85

Period	Crash Costs by Year (2024- 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 57,373	$ 15,264	$ 20,432	$ 11,530	$ 21,555	$ 126,154	$ 57,373	$ 15,264	$ 20,432	$ 11,530	$ 21,555	$ 126,154
2	$ 57,642	$ 15,336	$ 20,528	$ 11,584	$ 21,656	$ 126,746	$ 54,897	$ 14,606	$ 19,550	$ 11,033	$ 20,624	$ 120,710
3	$ 57,911	$ 15,407	$ 20,624	$ 11,638	$ 21,757	$ 127,337	$ 52,527	$ 13,975	$ 18,706	$ 10,556	$ 19,734	$ 115,499
4	$ 58,180	$ 15,479	$ 20,720	$ 11,693	$ 21,858	$ 127,929	$ 50,258	$ 13,371	$ 17,898	$ 10,100	$ 18,882	$ 110,510
5	$ 58,449	$ 15,551	$ 20,816	$ 11,747	$ 21,959	$ 128,521	$ 48,086	$ 12,793	$ 17,125	$ 9,664	$ 18,066	$ 105,734
6	$ 58,718	$ 15,622	$ 20,911	$ 11,801	$ 22,060	$ 129,112	$ 46,007	$ 12,240	$ 16,385	$ 9,246	$ 17,285	$ 101,163
7	$ 58,987	$ 15,694	$ 21,007	$ 11,855	$ 22,161	$ 129,704	$ 44,017	$ 11,711	$ 15,676	$ 8,846	$ 16,537	$ 96,787
8	$ 59,256	$ 15,765	$ 21,103	$ 11,909	$ 22,262	$ 130,296	$ 42,112	$ 11,204	$ 14,998	$ 8,463	$ 15,821	$ 92,599
9	$ 59,526	$ 15,837	$ 21,199	$ 11,963	$ 22,363	$ 130,888	$ 40,289	$ 10,719	$ 14,348	$ 8,097	$ 15,136	$ 88,590
10	$ 59,795	$ 15,909	$ 21,295	$ 12,017	$ 22,464	$ 131,479	$ 38,544	$ 10,255	$ 13,727	$ 7,746	$ 14,481	$ 84,753
TOTALS	$ 585,837	$ 155,864	$ 208,634	$ 117,736	$ 220,095	$ 1,288,166	$ 474,112	$ 126,139	$ 168,845	$ 95,283	$ 178,120	$ 1,042,499

Alternative 2: RAB

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
						0.18	0.42											
1	2024	7100	0.81	2.23	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.06	0.06	0.94
2	2025	7133	0.82	2.24	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.06	0.06	0.94
3	2026	7167	0.82	2.25	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.06	0.06	0.95
4	2027	7200	0.82	2.26	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.06	0.95
5	2028	7233	0.83	2.27	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.06	0.95
6	2029	7267	0.83	2.28	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.07	0.96
7	2030	7300	0.83	2.29	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.07	0.96
8	2031	7333	0.84	2.30	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.07	0.97
9	2032	7366	0.84	2.32	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.07	0.97
10	2033	7400	0.85	2.33	-	0.18	0.42	-	-	-	0.18	0.42	0.15	0.00	0.02	0.07	0.07	0.98
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	1.49	0.03	0.15	0.66	0.65	9.57

Period	Crash Costs by Year (2024 - 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 44,900	$ 11,946	$ 15,990	$ 9,024	$ 17,409	$ 99,270	$ 44,900	$ 11,946	$ 15,990	$ 9,024	$ 17,409	$ 99,270
2	$ 45,111	$ 12,002	$ 16,065	$ 9,066	$ 17,491	$ 99,736	$ 42,963	$ 11,430	$ 15,300	$ 8,634	$ 16,658	$ 94,986
3	$ 45,322	$ 12,058	$ 16,140	$ 9,108	$ 17,573	$ 100,201	$ 41,108	$ 10,937	$ 14,640	$ 8,262	$ 15,939	$ 90,885
4	$ 45,532	$ 12,114	$ 16,215	$ 9,151	$ 17,654	$ 100,667	$ 39,332	$ 10,465	$ 14,007	$ 7,905	$ 15,251	$ 86,960
5	$ 45,743	$ 12,170	$ 16,290	$ 9,193	$ 17,736	$ 101,132	$ 37,633	$ 10,012	$ 13,402	$ 7,563	$ 14,591	$ 83,202
6	$ 45,953	$ 12,226	$ 16,365	$ 9,235	$ 17,818	$ 101,598	$ 36,006	$ 9,579	$ 12,823	$ 7,236	$ 13,961	$ 79,605
7	$ 46,164	$ 12,282	$ 16,440	$ 9,278	$ 17,899	$ 102,063	$ 34,448	$ 9,165	$ 12,268	$ 6,923	$ 13,357	$ 76,161
8	$ 46,375	$ 12,338	$ 16,515	$ 9,320	$ 17,981	$ 102,529	$ 32,958	$ 8,768	$ 11,737	$ 6,624	$ 12,779	$ 72,865
9	$ 46,585	$ 12,394	$ 16,590	$ 9,362	$ 18,063	$ 102,995	$ 31,531	$ 8,389	$ 11,229	$ 6,337	$ 12,226	$ 69,711
10	$ 46,796	$ 12,450	$ 16,665	$ 9,405	$ 18,144	$ 103,460	$ 30,165	$ 8,025	$ 10,743	$ 6,062	$ 11,696	$ 66,691
TOTALS	$ 458,481	$ 121,980	$ 163,279	$ 92,142	$ 177,769	$ 1,013,651	$ 371,044	$ 98,717	$ 132,140	$ 74,569	$ 143,866	$ 820,337

Alternative 3: Clear Sight

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
						0.86												
1	2024	7100	0.81	2.23	-	0.86	-	-	-	-	0.86	1.00	0.70	0.01	0.07	0.31	0.30	2.23
2	2025	7133	0.82	2.24	-	0.86	-	-	-	-	0.86	1.00	0.70	0.01	0.07	0.31	0.31	2.24
3	2026	7167	0.82	2.25	-	0.86	-	-	-	-	0.86	1.00	0.70	0.01	0.07	0.31	0.31	2.25
4	2027	7200	0.82	2.26	-	0.86	-	-	-	-	0.86	1.00	0.71	0.01	0.07	0.31	0.31	2.26
5	2028	7233	0.83	2.27	-	0.86	-	-	-	-	0.86	1.00	0.71	0.01	0.07	0.31	0.31	2.27
6	2029	7267	0.83	2.28	-	0.86	-	-	-	-	0.86	1.00	0.71	0.01	0.07	0.31	0.31	2.28
7	2030	7300	0.83	2.29	-	0.86	-	-	-	-	0.86	1.00	0.72	0.01	0.07	0.32	0.31	2.29
8	2031	7333	0.84	2.30	-	0.86	-	-	-	-	0.86	1.00	0.72	0.01	0.07	0.32	0.31	2.30
9	2032	7366	0.84	2.32	-	0.86	-	-	-	-	0.86	1.00	0.72	0.01	0.08	0.32	0.32	2.32
10	2033	7400	0.85	2.33	-	0.86	-	-	-	-	0.86	1.00	0.73	0.01	0.08	0.32	0.32	2.33
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	7.13	0.15	0.74	3.14	3.10	22.79

Period	Crash Costs by Year (2024- 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 214,525	$ 57,075	$ 76,399	$ 43,113	$ 41,451	$ 432,562	$ 214,525	$ 57,075	$ 76,399	$ 43,113	$ 41,451	$ 432,562
2	$ 215,531	$ 57,343	$ 76,757	$ 43,315	$ 41,645	$ 434,591	$ 205,267	$ 54,612	$ 73,102	$ 41,253	$ 39,662	$ 413,896
3	$ 216,537	$ 57,610	$ 77,115	$ 43,518	$ 41,840	$ 436,620	$ 196,405	$ 52,254	$ 69,946	$ 39,472	$ 37,950	$ 396,027
4	$ 217,543	$ 57,878	$ 77,474	$ 43,720	$ 42,034	$ 438,649	$ 187,922	$ 49,997	$ 66,925	$ 37,767	$ 36,311	$ 378,921
5	$ 218,549	$ 58,146	$ 77,832	$ 43,922	$ 42,229	$ 440,677	$ 179,801	$ 47,837	$ 64,032	$ 36,135	$ 34,742	$ 362,546
6	$ 219,555	$ 58,413	$ 78,190	$ 44,124	$ 42,423	$ 442,706	$ 172,027	$ 45,768	$ 61,264	$ 34,573	$ 33,240	$ 346,872
7	$ 220,561	$ 58,681	$ 78,549	$ 44,327	$ 42,617	$ 444,735	$ 164,586	$ 43,789	$ 58,614	$ 33,077	$ 31,802	$ 331,868
8	$ 221,568	$ 58,949	$ 78,907	$ 44,529	$ 42,812	$ 446,764	$ 157,464	$ 41,894	$ 56,078	$ 31,646	$ 30,426	$ 317,507
9	$ 222,574	$ 59,216	$ 79,265	$ 44,731	$ 43,006	$ 448,793	$ 150,647	$ 40,080	$ 53,650	$ 30,276	$ 29,108	$ 303,760
10	$ 223,580	$ 59,484	$ 79,623	$ 44,933	$ 43,201	$ 450,821	$ 144,122	$ 38,344	$ 51,326	$ 28,964	$ 27,848	$ 290,603
TOTALS	$ 2,190,522	$ 582,795	$ 780,110	$ 440,232	$ 423,259	$ 4,416,918	$ 1,772,766	$ 471,650	$ 631,335	$ 356,275	$ 342,539	$ 3,574,564

Alternative 4:

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
1	2024	7100	0.81	2.23	-	-	-	-	-	-	1.00	1.00	0.81	0.02	0.08	0.36	0.35	2.23
2	2025	7133	0.82	2.24	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.24
3	2026	7167	0.82	2.25	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.25
4	2027	7200	0.82	2.26	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.09	0.36	0.36	2.26
5	2028	7233	0.83	2.27	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.36	0.36	2.27
6	2029	7267	0.83	2.28	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.28
7	2030	7300	0.83	2.29	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.29
8	2031	7333	0.84	2.30	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.30
9	2032	7366	0.84	2.32	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.32
10	2033	7400	0.85	2.33	-	-	-	-	-	-	1.00	1.00	0.85	0.02	0.09	0.37	0.37	2.33
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	8.29	0.17	0.86	3.65	3.61	22.79

Period	Crash Costs by Year (2024 - 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232
2	$ 250,617	$ 66,677	$ 89,252	$ 50,367	$ 41,645	$ 498,559	$ 238,683	$ 63,502	$ 85,002	$ 47,968	$ 39,662	$ 474,818
3	$ 251,787	$ 66,989	$ 89,669	$ 50,602	$ 41,840	$ 500,886	$ 228,378	$ 60,761	$ 81,332	$ 45,897	$ 37,950	$ 454,319
4	$ 252,957	$ 67,300	$ 90,086	$ 50,837	$ 42,034	$ 503,214	$ 218,514	$ 58,136	$ 77,819	$ 43,915	$ 36,311	$ 434,695
5	$ 254,127	$ 67,611	$ 90,502	$ 51,072	$ 42,229	$ 505,541	$ 209,071	$ 55,624	$ 74,456	$ 42,017	$ 34,742	$ 415,910
6	$ 255,297	$ 67,922	$ 90,919	$ 51,307	$ 42,423	$ 507,869	$ 200,032	$ 53,219	$ 71,237	$ 40,201	$ 33,240	$ 397,928
7	$ 256,467	$ 68,234	$ 91,335	$ 51,542	$ 42,617	$ 510,196	$ 191,379	$ 50,917	$ 68,156	$ 38,462	$ 31,802	$ 380,716
8	$ 257,637	$ 68,545	$ 91,752	$ 51,778	$ 42,812	$ 512,523	$ 183,098	$ 48,714	$ 65,207	$ 36,797	$ 30,426	$ 364,241
9	$ 258,807	$ 68,856	$ 92,169	$ 52,013	$ 43,006	$ 514,851	$ 175,171	$ 46,605	$ 62,383	$ 35,204	$ 29,108	$ 348,471
10	$ 259,977	$ 69,168	$ 92,585	$ 52,248	$ 43,201	$ 517,178	$ 167,583	$ 44,586	$ 59,681	$ 33,679	$ 27,848	$ 333,378
TOTALS	$ 2,547,119	$ 677,668	$ 907,105	$ 511,898	$ 423,259	$ 5,067,049	$ 2,061,356	$ 548,430	$ 734,110	$ 414,273	$ 342,539	$ 4,100,708

Alternative 5:

Period	Year	AADT	Crash Data Entry – Estimated Crashes KABC	PDO	CMF 1 All	CMF 1 KABC	CMF 1 PDO	CMF 2 All	CMF 2 KABC	CMF 2 PDO	Combined CMF KABC	Combined CMF PDO	Adjusted Crashes KABC	Fatal	Injury A	Injury B	Injury C	PDO
1	2024	7100	0.81	2.23	-	-	-	-	-	-	1.00	1.00	0.81	0.02	0.08	0.36	0.35	2.23
2	2025	7133	0.82	2.24	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.24
3	2026	7167	0.82	2.25	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.08	0.36	0.36	2.25
4	2027	7200	0.82	2.26	-	-	-	-	-	-	1.00	1.00	0.82	0.02	0.09	0.36	0.36	2.26
5	2028	7233	0.83	2.27	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.36	0.36	2.27
6	2029	7267	0.83	2.28	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.28
7	2030	7300	0.83	2.29	-	-	-	-	-	-	1.00	1.00	0.83	0.02	0.09	0.37	0.36	2.29
8	2031	7333	0.84	2.30	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.30
9	2032	7366	0.84	2.32	-	-	-	-	-	-	1.00	1.00	0.84	0.02	0.09	0.37	0.37	2.32
10	2033	7400	0.85	2.33	-	-	-	-	-	-	1.00	1.00	0.85	0.02	0.09	0.37	0.37	2.33
TOTALS		-	8.29	22.79	-	-	-	-	-	-	-	-	8.29	0.17	0.86	3.65	3.61	22.79

Period	Crash Costs by Year (2024 - 2033) Fatal	Injury A	Injury B	Injury C	PDO	Total	Crash Costs in 2024 Dollars Fatal	Injury A	Injury B	Injury C	PDO	Total
1	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232	$ 249,447	$ 66,366	$ 88,836	$ 50,132	$ 41,451	$ 496,232
2	$ 250,617	$ 66,677	$ 89,252	$ 50,367	$ 41,645	$ 498,559	$ 238,683	$ 63,502	$ 85,002	$ 47,968	$ 39,662	$ 474,818
3	$ 251,787	$ 66,989	$ 89,669	$ 50,602	$ 41,840	$ 500,886	$ 228,378	$ 60,761	$ 81,332	$ 45,897	$ 37,950	$ 454,319
4	$ 252,957	$ 67,300	$ 90,086	$ 50,837	$ 42,034	$ 503,214	$ 218,514	$ 58,136	$ 77,819	$ 43,915	$ 36,311	$ 434,695
5	$ 254,127	$ 67,611	$ 90,502	$ 51,072	$ 42,229	$ 505,541	$ 209,071	$ 55,624	$ 74,456	$ 42,017	$ 34,742	$ 415,910
6	$ 255,297	$ 67,922	$ 90,919	$ 51,307	$ 42,423	$ 507,869	$ 200,032	$ 53,219	$ 71,237	$ 40,201	$ 33,240	$ 397,928
7	$ 256,467	$ 68,234	$ 91,335	$ 51,542	$ 42,617	$ 510,196	$ 191,379	$ 50,917	$ 68,156	$ 38,462	$ 31,802	$ 380,716
8	$ 257,637	$ 68,545	$ 91,752	$ 51,778	$ 42,812	$ 512,523	$ 183,098	$ 48,714	$ 65,207	$ 36,797	$ 30,426	$ 364,241
9	$ 258,807	$ 68,856	$ 92,169	$ 52,013	$ 43,006	$ 514,851	$ 175,171	$ 46,605	$ 62,383	$ 35,204	$ 29,108	$ 348,471
10	$ 259,977	$ 69,168	$ 92,585	$ 52,248	$ 43,201	$ 517,178	$ 167,583	$ 44,586	$ 59,681	$ 33,679	$ 27,848	$ 333,378
TOTALS	$ 2,547,119	$ 677,668	$ 907,105	$ 511,898	$ 423,259	$ 5,067,049	$ 2,061,356	$ 548,430	$ 734,110	$ 414,273	$ 342,539	$ 4,100,708