

VILLAGE OF GERMANTOWN
N112 W17001 MEQUON ROAD
GERMANTOWN, WI 53022

MEETING: **PUBLIC SAFETY COMMITTEE**

DATE AND TIME: **MONDAY, October 1, 2018** **5:30 p.m.**

LOCATION: **VILLAGE HALL BOARD ROOM**
N112 W17001 MEQUON ROAD

- I. **CALL TO ORDER:** This meeting has been given public notice in accordance with Wisconsin Statutes, Section 19.83 and 19.84 in such form that will apprise the general public and news media of subject matter that is intended for discussion and action.
- II. **ROLL CALL:** Chairperson Hughes, Trustees Warren, Wing and Myers.
- III. **PUBLIC COMMENT:** *Please be advised per State Statute Section 19.84(2), information will be received from the public. It is the policy of this municipality that there be a three-minute time period, per person, with time extensions per the Chief Presiding Officer's discretion; be further advised that there may be limited discussion on the information received. However, NO ACTION will be taken under public comments.*
- IV. **APPROVAL OF MINUTES:** September 17, 2018 Regular Meeting.
- V. **REPORTS:**
- A. Police Department.
 - 1. Monthly.
 - B. Fire Department.
 - 1. Monthly.
 - C. Overtime Reports.
 - 1. Police Department.
 - 2. Fire Department.
 - D. Policy Updates.
 - 1. Police Department:
 - a. None.
 - 2. Fire Department:
 - a. None.
- VI. **UNFINISHED BUSINESS:**
- A. Stop Sign Request at the Intersection of Catskill Lane, Meadow Drive, and Meadow Court.
 - B. Stop Sign Request at the Intersection of Maple Road and Freistadt Road.
- VII. **NEW BUSINESS:**
- C. Operator's Licenses: Marie Chilicki, Peggy Olson, Taylor Rappold,
[Recommended Approval]

- D. New Class “B” Fermented Malt Beverage and “Class B” Liquor License for JP WI LLC, Jay & Pete’s dba, Jason Otto, Agent, W207 W10466 Appleton Ave.

VIII. **NEXT MEETING:** Set November 2018 Meeting Date and Time.

IX. **ADJOURNMENT:**

UPON REASONABLE NOTICE, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service please contact the Village Clerk at (262)250-4740 at least 2 days prior to the meeting.

NOTICE is given that a majority of the Village Board may attend this meeting to gather information about an agenda item over which they have decision making responsibility. This may constitute a meeting of the Village Board per State ex rel. Badke v. Greendale Village Board, even though the Village Board will not take formal action at this meeting.

MEETING MINUTES
PUBLIC SAFETY COMMITTEE MEETING
SEPTEMBER 17, 2018
GERMANTOWN VILLAGE HALL BOARD ROOM

CALL: The meeting was called to order at 5:30 p.m. by Chairman Hughes.

ROLL CALL: Chairman Hughes, Trustee Myers, Trustee Warren and Trustee Wing were present.

Also present were Chief Hoell, Interim Fire Chief Delain, Clerk Boldrey, Administrator Kreklow, Village President Wolter, Engineer Nitschke.

PUBLIC COMMENT: Charlie Hargan of W169 N11504 Biscayne Drive advised he had concerns regarding the closing of Fire Station 1 and noted the following:

- Village continues to grow, there is a need for 2 fire stations
- The location of station 1 was said to be a good area for the fire station as it related to the location of station 2 when it was built
- Does not want to see fire trucks and fire vehicles sold, concerned that this will result in asking for new vehicles in the future
- Understands that staffing concerns may justify working out of one station but doesn't want to see the older station eliminated when there may be a use for it and additional staff in the future
- Does not want to see department assets liquidated

APPROVAL OF MINUTES: a motion was made by Myers, seconded by Warren, to approve the minutes of the August 6, 2018 Public Safety Meeting. Motion carried unanimously.

POLICE DEPARTMENT MONTHLY REPORT: Hoell reported on the following:

- The department's first Youth Police Academy Class had its graduation with 42 youths attending; it received very good reviews, the department plans to hold another one next year
- Crime alert for the area of School Road and Pilgrim Road was issued due to multiple vehicles vandalized by deflating tires with punctures
- Police department partnered with Kiwanis to purchase Green Bay Packer cards which are available at the department and will be distributed by officers
- K9 fundraiser committee held a brat fry at Pick n Save and raised nearly \$800
- Monthly report numbers are tracking close to normal with increases in extra patrol and community policing numbers

FIRE DEPARTMENT MONTHLY REPORT: Delain reported on the following:

- Virginia Highlands held a brat fry fundraiser for the department and collected over \$300
- Muscular Dystrophy Association funds were collected with the Fill the Boot fundraiser during the July 4th parade totaling over \$2400
- Calls for service have increased from last year
- Staff is finalizing details for the Fire Department Safety Fair event on October 6th

- Hughes questioned the difference in numbers for fire calls vs EMS calls, Delain advised the numbers are combined on the report for an overall total

OVERTIME REPORTS:

Police Department – Hoell advised the department overtime numbers are tracking as expected.

Fire Department – Delain advised the department overtime numbers are good with some fluctuations due to staffing levels, overall numbers are about \$15,000 less than last year.

POLICY UPDATES FOR POLICE & FIRE DEPARTMENT:

Police Department - none

Fire Department - none

UNFINISHED BUSINESS

RESOLUTION 64-2018, APPROVAL TO HIRE ONE FULLTIME FIREFIGHTER/

PARAMEDIC: Delain advised that the cost for this position would be absorbed within their current budget from surplus funds due to the open fire chief position. He added he had also emailed out information regarding response time questions.

Discussion followed with Delain explaining staffing with this new position, stating it would give them 3 staff members on shift 24 hours/day.

A motion was made by Wing, seconded by Myers, to forward this item to Village Board with a recommendation of approval. In further discussion, Warren noted that the costs for this position were covered in this year's budget but wondered if next year's budget included these costs. Delain advised that he has been in budget meetings with the Administrator and Finance Director and is working on it and deferred the question to Administrator Kreklow.

Kreklow advised that this position and other position changes that were recommended to the Village Board are included in the Fire Department's budget request and are included in the numbers that were sent out by Finance Director. He added that the positions are funded in part through the revenue from the sale of the equipment from this year to bridge a gap between the funding available in 2019 for these position changes and what is expected to be available in property tax levy in 2020.

Wing noted that his concerns regarding this position were whether the position was needed and whether it would fit within the budget. He stated he was satisfied with the information received. Hughes asked if the union had met yet regarding this position, Delain advised that discussions had been started and additional meetings would be scheduled soon.

Motion carried with Myers and Warren voting aye, Wing abstaining, Hughes voting nay.

NEW BUSINESS

OPERATOR'S LICENSES: Dawn Eberhardt, Drew Fahrendorf, Alyssa Kane, Samantha Mages, Craig Peterburs, Abigail Roadhouse, Gina Roadhouse, Heather Spilger, Brittany Thomas, James Weggen [Recommended Approval]: a motion was made by Myers, seconded by Warren, to forward the applications for Operator Licenses as presented to Village Board with a recommendation of

approval. Hoell and Delain advised there were no objections from the police and fire department. Motion carried unanimously.

BLAZIN WINGS INC. N96 W18034 COUNTY LINE RD., CHANGE OF AGENT TO FRANK ARENA: a motion was made by Myers, seconded by Warren, to forward this application to Village Board with a recommendation of approval. Hoell and Delain advised there were no objections from the police and fire department. Motion carried unanimously.

FIRE DEPARTMENT – ASSET LIQUIDATION: Delain advised the department is requesting to sell 1 grass truck which is 40 years old, 1 ambulance which is 18 years old, 1 staff vehicle which is 7 years old, 1 engine that is 11 years old, and miscellaneous hose appliances. They did receive two bids for the engine from fire apparatus resellers for \$146,500 and \$100,000 and Menomonee Falls FD has also expressed interest in purchasing the engine. Delain requested that the committee consider approving the sale of the engine to either MFFD or Command Fire Apparatus, and then for the remaining items to be placed on the Wisconsin Surplus Auction Site.

A motion was made by Myers, seconded by Warren, to forward this request to liquidate the listed items to Village Board with a recommendation of approval. Discussion followed with Warren asking if the ambulance was one that had been recently rehabbed, Delain stated it was not, the ambulance they want to sell is the oldest one. Warren also addressed the concerns expressed by Mr. Hargan regarding the fire department selling these items and then finding themselves with a shortage of equipment as the community grows. He wondered if that was taken into consideration with the proposed sale of these items. Delain responded that they have more spots open on their apparatus than personnel to staff them. He went on to explain other options they have available, i.e. assistance from neighboring communities. He also stated the grass truck is rarely used and talked to Jackson regarding assistance from their department for grass fires and would like to look further into sharing resources with neighboring communities. Delain also advised that the engine they want to sell is their reserve engine, the ambulance is old and is last one out if needed and if it can be staffed. The staff vehicle can be released since they have two additional staff vehicle and grass truck is rarely used. He considers those vehicles to be surplus apparatus which are not used on a regular basis, but still cost money to maintain. Wing questioned the mileage on these vehicles, Delain responded that the ambulance has 68,000 miles, engine has 28,000 miles, grass truck has 5,000 miles (on its 3rd engine), staff vehicle has 78,000 miles, these are actual miles without the hours-to-miles calculated in.

Discussion continued with Wing stating that he was not averse to the sale of the staff vehicle and ambulance but had concerns with the sale of the engine which has low mileage. He added that Delain's comments that there are not enough personnel to staff the vehicles contrasts with his requests for additional personnel. Delain responded that the funds obtained from the sale of these items was in part how the new positions would be funded. Hughes referred to new village growth and asked if the engine might be an asset to the department. Delain agreed that extra equipment would be beneficial, but they need people to staff them. Hughes noted that the grass truck had recently been rehabbed and asked what the cost would be to keep that truck and where it could be parked, Delain stated it would cost nothing except for routine maintenance and could be parked at Station 1 for now. Warren asked how the funds from the sale of these items would affect the hiring of a new fulltime position, Delain stated those numbers were included in the budget for the new position. Kreklow advised the answer depends on other budget decisions the board makes which could include reducing budgets in other departments, further increase the property tax levy, reserves could be used, there are other options that could be utilized. Kreklow also addressed the concerns raised regarding village growth and

equipment needs and said it may be awhile before staffing is available to use the extra apparatus on a regular basis.

Wing stated he would like to amend the motion to split this agenda item into two with the liquidation of the engine voted on separately from the grass truck, ambulance and staff vehicle, and said he hopes the Board can find funds for the staffing request without selling the engine. Amended motion seconded by Myers and carried unanimously.

Original motion as amended then voted on. Hughes advised they would first vote on the three vehicles – the grass truck, ambulance and staff vehicle, to be forwarded to Village Board with a recommendation of approval. Motion carried 3 - 1 with Myers, Warren and Wing voting aye and Hughes voting nay. Hughes advised they would next vote on the engine to be forwarded to Village Board with a recommendation of approval. Motion failed 0 - 4 with all members voting nay.

FIRE DEPARTMENT APPARTUS PURCHASE CONTRACT: Hughes advised this item would no longer be discussed due to the previous motion against liquidation of the fire engine.

STOP SIGN REQUEST AT INTERSECTION OF CATSKILL LANE, MEADOW DRIVE AND MEADOW COURT: Myers advised this item was placed on the agenda on behalf of a citizen who forwarded his concerns with this intersection. Myers advised that there are view obstructions with large trees and greenery, line of sight to the east of Meadow is obstructed by a vehicle which parks on the side of the street on a regular basis, and speeding traffic on Catskill was also a concern. He was therefore requesting consideration of a 4-way stop at the intersection of Catskill Lane, Meadow Drive and Meadow Court. Myers added he had already discussed the speeding concerns with Chief Hoell.

Discussion followed with Hoell advising there was no objection from the police department to the request for a 4-way stop at that intersection. Warren advised the vision triangle should be reviewed at that location prior to putting up stop signs. He added that traffic and crashes warrant stop signs, but if that is not the case at this intersection, then trees/greenery can be trimmed or cut to improve sight distance, and "No Parking" signs could be put up where parking causes view obstructions.

A motion was made by Myers, seconded by Wing, to table this item until the vision triangle at the intersection can be reviewed. Motion carried unanimously.

STOP SIGN REQUEST AT INTERSECTION OF MAPLE ROAD AND FREISTADT ROAD: Hughes advised this item was placed on the agenda due to concerns from residents in the area who feel this intersection warrants a 4-way stop. Wing recalled that a study had been done on this intersection and questioned what the results were. Warren noted that when the study was done, there were concerns with sight distance issues due to the curves which are correct for the current posted speed limit, but speeding vehicles reduce sight distances which creates problems. To correct the problem the road profile would need to be changed by cutting it to lower and flatten it which would be cost prohibitive, so the turning lanes were created.

Crash history at that intersection was discussed, Hoell advised the majority of the crashes were due to failure to yield.

Warren stated he could not see putting a stop sign on Freistadt Road which is a collector road, drivers would not expect the sign there which could create more problems and recommended that the study be pulled out and reviewed for what was said about putting a 4-way stop at that intersection.

Village Engineer Eric Nitschke was present and stated he was unaware of the study done which was before he worked for the village, he said he and Larry would check the files and review it. He advised he looked at the intersection and agrees that the line of sight is an issue, accident history shows failure to yield is an issue and he agrees with Trustee Warren's comments on signing. Nitschke stated that there are ways to upgrade the safety of the intersection itself, such as rumble strips, high-resolution signage, ways to make the traffic on Maple more aware of the intersection. He added before committing to any new ideas, he would like to see what the recommendations were on the study. He also stated that if a 4-way stop is going to be looked at, he would recommend hurricane poles to make sure the stop signs are located over the lanes that vehicles are traveling in, and there would need to be significant upgrades to the intersection. Nitschke advised that there are many steps between what is currently in place at that intersection and creating a 4-way stop there, he would recommend looking at those steps before committing to a 4-way stop.

Resident Jim Siebers of N140 W18170 Cedar Lane was present and presented his concerns with this intersection to the committee. He advised he travels that area daily and is very aware of its faults. He has witnessed crashes, experienced problems with the sun angle causing sight problems, has talked with JW Speaker, Gehls, high school and found that numerous people would support a 4-way stop at Maple and Freistadt. He also questioned the 2 northbound and southbound lanes on Maple at the intersection and why the left lanes can't be designated as left turn only, Siebers went on to say that the intersection is frequently used by high school students and asked for quick action on improving the safety of the intersection. He also asked if the police chief had accident numbers for that intersection.

Hoell stated that 19 accidents were recorded there during the past 2 years and the accident summaries were given to committee members.

Wing stated he was in agreement that something should be done and stopping traffic on Freistadt Road would create a safer intersection. He did not agree that a study was necessary to offer options of what could be done, he felt everyone was familiar enough with that area and could make some commonsense suggestions.

President Wolter stated that he also was in agreement that improvements and some type of control need to be made at that intersection and due to his history with the Village, has seen previous discussions and ideas presented. He advised that a study was recommended for its professional input and the intent was not to delay any action. Wolter added that he would also like to review the study to refresh his memory, he recalled that one suggestion was to reduce the speed limit on Freistadt due to the industrial park growth and increased traffic on the road. He felt that there were definite steps that could be taken to slow traffic, such as reduced speed limits and rumble strips, but ultimately the intersection needs some type of control.

Hughes acknowledged that to fix this problem would be costly and the budget is currently being worked on, so he would agree that the engineer should be given an opportunity to review the study that was done and come back to the committee with realistic solution(s). Wing indicated he felt stop signs would create a much safer intersection and did not see a need for consulting or doing any further studies. Warren disagreed, stating that the study was done by professional traffic engineers who did

provide options ranging from less expensive to very expensive, including signalization of the intersection. The village chose to change the pavement markings with dedicated left turn lanes on Freistadt. Hughes asked if Engineer Nitschke could have a report prepared for next month's meeting, Nitschke agreed. Hughes stated discussion of this item would be continued at next month's meeting.

NEXT MEETING: Hughes advised the October meeting would be held on Monday, October 1, 2018 at the Village Hall Boardroom at 5:30 p.m.

ADJOURNMENT: There being no further business, the meeting was adjourned at 6:37 p.m.

Recorded by,

Julie L. Barth
Secretary

DRAFT

Overtime Report for Police & Fire Departments

2017 Year to date through:

9-Sep-18

2018					2017				
Empl #	Employee Name	Total OT Hours Paid	Total Cost of OT Paid	Total OT Hrs to Comp	Time off Hours	Total OT Hours Paid	Total OT Hrs to Comp	ANNUAL Total of OT hours worked	ANNUAL Total OT to Pay
Police Dept									
90	Ball, Brian	0.00	0.00	18.25	27.38	0.00	99.75	99.75	0.00
93	Bartelt, Adam	110.00	4,565.55	25.75	38.63	6.75	44.63	51.38	271.96
92	Bloch, Ryan	103.00	5,812.29	8.25	12.38	135.25	27.38	162.63	7,409.00
115	Case, Robert	55.25	3,197.32	29.50	44.25	203.75	85.50	289.25	11,497.61
118	Farnsworth, Cody	26.00	1,079.13	52.75	79.13	0.00	0.00	0.00	0.00
113	Gilbert-Roeder, Trent	63.50	2,635.57	28.75	43.13	33.00	49.50	82.50	1,329.57
107	Heaney, Troy	21.75	962.11	26.25	39.38	0.00	0.00	0.00	0.00
153	Jones, Matthew	31.50	1,479.40	25.50	38.25	0.00	0.00	0.00	0.00
101	Jones, Shawn	10.00	627.60	36.50	54.75	59.25	38.25	97.50	3,610.10
88	Laux, Kevin	3.00	169.29	73.50	110.25	40.75	116.25	157.00	2,299.52
142	Marten, Shawn	0.00	0.00	159.75	239.63	0.00	154.13	154.13	0.00
102	Mikulec, Daniel	14.50	818.24	79.50	119.25	26.00	185.25	211.25	1,467.18
119	Onela, Michael	0.00	0.00	40.25	60.38	37.00	53.50	90.50	2,087.91
138	Olson, Toni	94.50	5,468.72	7.00	10.50	127.75	50.25	178.00	7,184.02
137	Pesch, Justin	106.00	4,978.29	16.00	24.00	148.75	25.50	174.25	6,388.07
133	Pierce, Catherine	0.00	0.00	78.75	118.13	10.50	127.50	138.00	450.92
96	Pierzchalski, David	80.25	4,528.51	75.00	112.50	17.50	335.63	353.13	987.53
98	Rechlicz, Justin	37.75	2,130.23	55.25	82.88	99.25	119.25	218.50	5,600.68
121	Schubert, Matthew	0.00	0.00	49.50	74.25	0.00	48.38	48.38	0.00
89	Schulz, Zachary	29.25	1,293.87	45.00	67.50	140.75	20.25	161.00	5,506.14
97	Spreiter, Jared	13.75	608.23	97.50	146.25	208.25	94.50	302.75	8,943.30
99	von Bereghy, Darren	247.25	13,952.32	67.00	100.50	192.75	187.88	380.63	10,876.88
95	Whealon, Shaun	44.50	1,846.97	71.25	106.88	46.50	29.25	75.75	1,873.49
Total Police		56,153.63						*	77,783.87
Annual Budget		95,000.00							95,000.00

State Aid Reimbursement 0.00 08/21/2018
Hunting/Concealed Carry Permit 0.00 08/21/2018

Total year end actual = \$1: \$ 91,900.63
* (difference from report due to personnel changes)
2017 State Aid Reimb \$2,960.32
2017 'Hunting/Concealed Carry Permit 0.00

Note: Overtime hours to comp are reflected in regular wages

Fire Dept - Full Time

*	593 Smith, Steve	80.00	2685.60						0.00
*	694 Mayer, Andrea	41.50	62.25						18182.09
Fire Dept Regular Part-time									
		Overtime Hrs	True OT cost					OT Hours	True OT Cost
**	563 Rossman	151.17	4,984.11					573.00	19,214.37
**	605 Rodriguez	260.02	6,496.12					295.50	7,149.49
**	617 Hass, Thomas	60.02	1,499.57					105.75	2,346.29
**	625 Goetz, Steve	63.81	1,594.10					17.25	483.06
**	653 Asmondy	149.94	3,745.86					235.00	5,801.01
**	698 Wolf	165.75	4,140.92						
		22,460.68						34,994.22	

Effective July 24, 2013 - POC's over 53 hours/week

	Hrs over 53	2018	2017 Hours	2017 Cost

***	672 Krieg, Caitlin	41.25	1,587.62	30.25 942.05
***	694 Mayer, Andrea			6.25 192.75
***	690 Holms, Mitchell	12.50	367.13	

total POC overtime		53.75	1,954.75	36.50 1,134.80
*	Full time, hours are over and above the 20 normal overtime hours reflected in their base wages			
**	Part time hours worked over and above 53 normal hours in one week, which are paid at 1.5 times			

True OT Cost thru:
9-Sep-18 37,616.85

Last year's true OT Cost
\$ 54,311.11

Budget -- included within general wages

Total Fire Dept - OT wages paid through 12.31.17 \$54,311.11
Total Fire Dept - OT wages paid through 12.31.16 \$103,222.05
Total Fire Dept - OT wages paid through 12.31.15 \$129,824.98

COMMITTEE AGENDA ITEM

REQUEST FORM

I, Trustee DENNIS MYERS hereby request that the following item(s) be placed on the next agenda of the SAFETY Committee, for consideration and action:

ITEM REQUESTED:

STOP SIGNS ALL (4) CORNERS AT
CAT KILL LN, MEADOW DR., MEADOW
CT.

DISCUSSION/REASON:

(1) BAD VISION CROSSING FROM
MEADOW DR. LEFT OR RIGHT
(2) SPEEDING ON CATKILL LN.

1) SEE ATTACHED
MAP

2) LETTER

Dated this 4 day of SEPT., 20 18

Dennis Myers
Signature of Trustee

Received:

By:

Revised: 4/25/00

9/4/18
DB

9/17



Mail

Calendar

Contacts

Deleted Items

Drafts [1]

Inbox (1)

Junk E-Mail [9]

Sent Items

Click to view all folders

- COW 2015-16
- Outbox
- PUB Safe 2015-16
- Vil.-Board 2015-16
- lendg-2015-16
- new mail

Manage Folders...

Reply Reply All Forward Junk Close

Intersection of Catskill La. and Meadow Dr.

jhch14@sbcglobal.net [jhch14@sbcglobal.net]

Sent: Sunday, August 05, 2018 10:25 AM

To: Dennis Myers

Trustee Myers,

Per your request, here again is the reason for my concern about the intersection of Catskill La. and Meadow Dr.

Completing a left turn from Meadow Drive to Catskill Lane is difficult and dangerous due to obstructed views both east and west.

Vehicles must pull deep into intersection to obtain a full view. The situation is exacerbated when vehicles are parked on the south side of Catskill.

I'm encouraged that you share my concern.

Thank you for your representation

James Hull



legend

abbot ct

mequon rd

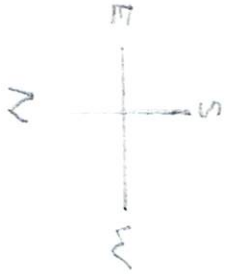
meadow ct

catskill ln

meadow dr

cromwell

squire



Deanna Boldrey

From: Jeffrey Hughes
Sent: Monday, September 10, 2018 5:53 PM
To: Deanna Boldrey
Subject: Fwd: Agenda item for next Public Safety committee meeting
Attachments: image001.jpg

Sent from my iPhone

Begin forwarded message:

From: Chief Peter Hoell <phoell@germantownpolice.org>
Date: September 7, 2018 at 2:25:26 PM CDT
To: Dean Wolter <dwolter@village.germantown.wi.us>, Jeffrey Hughes <jhughes@village.germantown.wi.us>
Cc: Steve Kreklow <skreklow@village.germantown.wi.us>
Subject: RE: Agenda item for next Public Safety committee meeting

Gentlemen,

I will run the crash numbers for the last two years. If it goes on the agenda, I can prepare a report.

Pete

*Peter G Hoell
Chief of Police
Germantown Police Department
N112 W16877 Mequon rd.
Germantown, WI. 53022
PH 262-253-7788
Fax 262-253-7787
E-mail phoell@germantownpolice.org*

Excellence In Police Service



From: Dean Wolter <dwolter@village.germantown.wi.us>
Sent: Friday, September 7, 2018 2:01 PM
To: Jeffrey Hughes <jhughes@village.germantown.wi.us>
Cc: Steve Kreklow <skreklow@village.germantown.wi.us>; Chief Peter Hoell <phoell@germantownpolice.org>
Subject: Agenda item for next Public Safety committee meeting

Good afternoon Jeff

I have received several phone calls from residents living north of Freistadt Road along Maple Road and Cedar Lane. All have requested a 4 way stop at the corner of Maple Road and Freistadt road. Reasons provided from residents include:

- 1) Dangerous intersection the scene of many accidents
- 2) Amount of traffic during rush hours makes it difficult for those traveling north & south along Maple Road to cross Freistadt road
- 3) Speed of traffic on Freistadt road is 5 to 10 MPH higher than posted

Jeff I know we have had this request before the Public Safety Committee before, I think when I was Chair. At that time the GPD felt this intersection though hazardous, did not have a majority of more accidents than others areas of the village with similar traffic situations. The Public Safety committee decided to lower the speed along Freistadt road to help this intersection.

Perhaps it is time to visit this intersection again and discuss the needs for a 4 way stop at this intersection

your thoughts and comments are appreciated

Dean M. Wolter
Germantown Village President
dwolter@village.germantown.wi.us
Ph - 262.250.4785

**BUSINESS OF THE PUBLIC SAFETY COMMITTEE
GERMANTOWN, WI**

MEETING DATE: October 1, 2018

AGENDA ITEM: New Business

ITEM TITLE: Discussion and possible action regarding the stop sign request at the
intersection of Maple Road and Freistadt Road.

SUBMITTED BY: Eric Nitschke, P.E., Village Engineer

SUMMARY EXPLANATION:

Concerns from residents and elected officials have been raised regarding the intersection of Freistadt Road and Maple Road. Despite temporary modifications to the intersection, there continues to be a significant amount of traffic accidents each year. The Public Safety Committee has requested that the Village Engineering Department review the Traffic Impact Study that was completed in 2015 to determine what actions may be taken to improve safety and traffic flow through the intersection.

ATTACHMENT: ORDINANCE _____ RESOLUTION _____ OTHER X

Committee Agenda Item Request Form
Intersection Alternatives Study

RECOMMENDATION:

Staff recommends that the Traffic Impact Study recommendation, to implement a signalized intersection, be followed. Staff further recommends that the matter be forwarded to the Public Works and Highway Committee for scheduling in the 10-year Roadway Capital Improvement Plan. Finally, staff recommends upgrades to the existing roadway signage as an interim measure to improve safety.

COMMITTEE ACTION:

Proper parliamentary procedure to deny a request is to have a motion made in the affirmative and by voting NAY would deny the request if a majority vote.



One Honey Creek Corporate Center
125 South 84th Street, Suite 401
Milwaukee, WI 53214-1470
414 / 259 1500
414 / 259 0037 fax
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MEMORANDUM

TO: Brionne Bischke, P.E.

FROM: Shana Brummond, P.E., PTOE

DATE: January 21, 2015

SUBJECT: Freistadt Road (CTH F) & Maple Road Intersection Alternatives Study
Village of Germantown, Wisconsin

Introduction

The Village of Germantown has identified potential safety and operational concerns for the Freistadt Road (CTH F) and Maple Road intersection. GRAEF has prepared this study to evaluate the existing conditions and analyze intersection improvement alternatives. The study includes a safety assessment, traffic forecasts, signal warrant analysis, traffic operational analyses, alternatives analysis and recommendation.

Study Area

The Freistadt Road and Maple Road intersection is shown on Exhibit 1. The intersection is located within the Germantown Business Park. Machining Concepts, Inc. is planning a manufacturing development in the northeast quadrant of the intersection. The intersection currently operates under two-way stop control and the existing intersection geometrics are shown on Exhibit 2.

The study area roadways are discussed below.

Freistadt Road (CTH F) is an east-west four-lane undivided roadway with a posted speed limit of 40 miles per hour (mph) through the study area. It should be noted that the four-lane undivided roadway is a 1 mile long section from approximately 600 feet west of McCormick Drive to River Lane. Freistadt Road narrows to a two-lane undivided roadway outside of this four-lane section. According to the Wisconsin Department of Transportation (WisDOT), the Year 2013 annual average daily traffic (AADT) along Freistadt Road was 4,300 vehicles per day (vpd) east of Maple Road

Maple Road is a north-south four-lane undivided roadway between Lannon Road (STH 167) and Freistadt Road and narrows to a two-lane undivided roadway north of Freistadt Road. The posted speed limit on Maple Road is 40 mph in the vicinity of

Freistadt Road. According to the WisDOT, the Year 2013 AADT for Maple Road ranged from 1,100 vpd south of STH 145 to 9,600 vpd north of Mequon Road.

Safety Assessment

The Village provided crash reports for the study area intersection for the most recent five year period (January 1, 2009 through December 31, 2013). During these five years, 23 crashes were reported at the intersection. It should be noted that property damage crashes with less than \$1,000 of damage do not need to be reported in Wisconsin. Table 1 summarizes the type and severity of the crashes.

Table 1
Year 2009-2013 Intersection Crash Summary

Crash Type	Crash Severity			Total
	Property Damage Only	Injury	Fatal	
Right Angle	9	7	0	16
Left Turn	2	2	0	4
Rear End	2	1	0	3
Total	13	10	0	23

For comparison purposes, intersection crash rates are expressed as crashes per million entering vehicles (MEV) to account for the traffic volumes. The study area intersection has a crash rate of 1.73 crashes per MEV. Intersections with crash rates exceeding 1.5 crashes per MEV should be evaluated further to identify potential safety improvements. An intersection collision diagram is provided in Appendix 1. Approximately 70 percent of the crashes were right angle. As shown on the collision diagram, the right angle crashes were comprised of the following patterns:

- 6 right angle crashes involved southbound and westbound vehicles
- 6 right angle crashes involved northbound and eastbound vehicles
- 4 right angle crashes involved northbound and westbound vehicles

The majority of the right angle crashes involved westbound vehicles that could be related to the crest vertical curve on Freistadt Road east of the intersection. Based on field observation, vehicles on Freistadt Road appear to be traveling at speeds higher than the posted speed limit. Freistadt Road could operate acceptably as a two-lane roadway and the additional capacity is allowing for increased travel speeds. Higher travel speeds along Freistadt Road causes safety concerns for drivers on Maple Road crossing the intersection to be able to identify an appropriate gap in traffic. In January of 2014, the Village installed dangerous intersection signs on Freistadt Road in the vicinity of the Maple Road intersection.

Roadway Review

As part of the safety assessment, GRAEF conducted a preliminary review of the study area roadways in the vicinity of the intersection to evaluate design standards. The roadway design speed is 5 mph higher than the posted speed limit. Therefore a design speed of 45 mph was used for Freistadt Road and Maple Road.

Vertical Curve

The existing Freistadt Road profile east of the Maple Road intersection has a crest vertical curve with the PI located approximately 200 feet east of the intersection. The existing grade extending to the east from the Maple Road intersection has a +2.05% grade leading into the crest vertical curve, followed by a -2.35% grade. The crest vertical curve has a length of approximately 500 feet which exceeds the minimum sight distance for a design speed of 45 mph.

Based on the survey provided by the Village, the existing Maple Road profile does not have a vertical curve through the intersection. The grades approaching the intersection are approximately 1.5% making a change of grade of 3.0% across the crown of Freistadt Road. This grade break exceeds the 0.7% maximum change of grade without a vertical curve threshold for the 45 mph design speed. The grade break has been acceptable under a low speed two-way stop control condition. If traffic signals are installed, the substandard profile should be brought up to current design standards.

Stopping Sight Distance

The stopping sight distance along Freistadt Road was evaluated with the 45 mph design speed. The K value is defined as the horizontal distance needed to produce a 1% change in gradient; a higher K value indicates a flatter curve making it acceptable for higher speeds. The existing 500 foot crest vertical curve has a K value of 113. The vertical curve exceeds the minimum criteria for stopping sight distance (K=61), but does not meet the desirable decision sight distance (K=212) for an object height of 24 inches.

Intersection Sight Distance

There are safety concerns related to the intersection sight distance specifically looking to the east over the crest vertical curve. A field evaluation was conducted to review the intersection sight distance. Table 2 summarizes the intersection sight distances looking to the east over the crest vertical curve.

Table 2
Intersection Sight Distances Looking to the East

Type of Vehicle	Direction of View	Intersection Sight Distance		Existing Conditions
		Minimum	Desirable	
Passenger Vehicle (Eye Height - 3.5 feet)	South Approach - looking to the right	535	700	Exceeds minimum
	North Approach - looking to the left	500	535	Exceeds minimum
Semi Truck (Eye Height - 7.6 feet)	South Approach - looking to the right	815	955	Exceeds minimum
	North Approach - looking to the left	790	955	Exceeds minimum

As shown in Table 2, the existing sight distance for the north and south approaches looking to the east meets the minimum requirement. Although traffic along Freistadt Road may be traveling above the 45 mph design speed, which would require longer sight distances.

Existing Traffic

In April of 2014, GRAEF conducted a turning movement traffic count at the Freistadt Road and Maple Road intersection. Based on the traffic count, the weekday morning peak hour was identified to be 6:45 to 7:45 am, the weekday afternoon peak hour was identified to be 2:15 to 3:15 pm and the weekday evening peak hour was identified to be 4:30 to 5:30 pm. The existing (Year 2014) peak hour traffic volumes are shown on Exhibit 3. The intersection traffic count is included in Appendix 2.

Traffic Forecasts

GRAEF evaluated the trends of the historic daily traffic volumes for Freistadt Road and Maple Road in the vicinity of this intersection. Based on historic and anticipated traffic growth for this area, an annual growth rate of 2% was applied to the existing traffic to develop the traffic forecasts. The trips expected to be generated by the manufacturing development are included in the traffic forecasts. For the purpose of this study, construction was estimated to occur in the Year 2017. The daily traffic forecasts for the anticipated construction year (Year 2017) and design year (Year 2037) are summarized in Table 3.

Table 3
Daily Traffic Forecasts

	Existing AADT (Year 2013)	Daily Traffic Forecasts	
		Year 2017	Year 2037
Freistadt Road (East of CTH Y/Goldendale Road)	3,500 (2010)	4,100	6,100
Freistadt Road (East of Maple Road)	4,300	4,700	7,000
Maple Road (North of Mequon Road)	9,600	10,600	15,700
Maple Road (South of STH 145)	1,100	1,200	1,800

As shown in Table 3, the design year (Year 2037) daily traffic forecast for Freistadt Road ranges from 6,100 vpd east of CTH Y/Goldendale Road to 7,000 vpd east of Maple Road. The Year 2037 traffic forecast for Freistadt Road indicates a two-lane roadway is sufficient. A two-lane roadway typically reaches its capacity with 14,000 to 15,000 vehicles per day. The Year 2037 daily traffic forecast for Maple Road ranges from 1,800 vpd south of STH 145 to 15,700 vpd north of Mequon Road. The design year peak hour traffic volumes for the study area intersection are shown on Exhibit 4.

Traffic Signal Warrant Analysis

The existing (Year 2014) traffic volumes for the Freistadt Road intersection with Maple Road were compared to the warrants for traffic signal installation set forth in the *2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD)* to determine if a traffic signal is warranted. The existing traffic volumes do not meet any warrants with the existing four-lane roadway section on Freistadt Road. Based on the traffic forecasts, Freistadt Road is expected to operate acceptably as a two-lane roadway through the Year 2037. With two travel lanes on Freistadt Road, the existing traffic volumes meet Warrant 2 (Four Hour Volume), which justifies further consideration of installing a traffic signal. The signal warrant analyses are provided in Appendix 3.

Traffic Operational Analysis

Level of Service Definition

The study area intersection was analyzed using procedures set forth in the *2010 Highway Capacity Manual* (HCM). Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS 'A', to very poor, represented by LOS 'F'. For analysis and design purposes, Level of Service (LOS) 'D' was used to define acceptable peak hour operating conditions. Descriptions of the various levels of service are presented below and summarized in Table 4:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized intersections, average delays are less than 10 seconds. At stop controlled 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 stop controlled 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 stop controlled 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 stop controlled 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 stop controlled intersections, average delays are 35 to 50 seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for stop controlled intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At stop controlled intersections, average delays exceed 50 seconds.

Table 4
Intersection Level of Service (LOS) Designations

Level of Service (LOS)	Stop Control	Traffic Signals
	Average Delay per Vehicle (sec/veh)	Average Delay per Vehicle (sec/veh)
A	<10.0	<10.0
B	10.1 – 15.0	10.1 – 20.0
C	15.1 – 25.0	20.1 – 35.0
D	25.1 – 35.0	35.1 – 55.0
E	35.1 – 50.0	55.1 – 80.0
F	>50.0	>80.0

Existing (Year 2014) Traffic Analysis

The existing (Year 2014) peak hour traffic volumes are shown on Exhibit 3. The existing intersection geometrics are shown on Exhibit 2. The existing peak hour operating conditions with the two-way stop control and intersection geometrics is shown on Exhibit 5. The southbound approach and the northbound left-turn and through movements currently operate unacceptably at LOS F conditions during the morning peak hour. All movements currently operate at LOS D or better conditions during the afternoon and evening peak hours. The existing traffic analysis is included in Appendix 4.

Alternatives Analysis

Based on discussions with Village staff, a roundabout was not desired at this location and therefore not considered during the alternatives analysis. The two improvement alternatives include restriping the four-lane undivided section of Freistadt Road to provide one through lane in each direction with exclusive left-turn lanes at the Maple Road intersection. Consider a 3-lane section with a two-way left-turn lane (TWLTL) outside of the intersection.

Two-Way Stop With Median Alternative: The intersection continues to operate under two-way stop control for the Maple Road approaches with a raised median provided on Freistadt Road to allow for two-stage crossing. Exhibit 6 shows the design year traffic operations for the two-way stop with median alternative. With the two-way stop with median alternative, select northbound and southbound movements are expected to experience unacceptable operations (LOS E or F) during the weekday morning and evening peak hours.

Traffic Signal Alternative: The intersection operates under fully actuated traffic signal control. Due to the low traffic volumes on Freistadt Road (major street), the existing traffic meets one warrant for traffic signals with the major street becoming a two-lane roadway (i.e. one lane in each direction). Exhibit 7 summarizes the design year traffic operations for the traffic signal alternative. All movements are expected to operate acceptably at LOS D or better conditions with the traffic signal alternative.

The design year (Year 2037) traffic analysis is included in Appendix 5.

Recommendations

Based on the traffic analysis, the two-way stop with median alternative is expected to experience unacceptable delays with the design year (Year 2037) traffic and therefore is not a feasible improvement. It is recommended to reduce the travel lanes on the one mile section of Freistadt Road to a two-lane roadway and plan for a future traffic signal at this intersection. The recommended intersection geometry for the traffic signal alternative is shown on Exhibit 8. The conceptual layouts and cost estimate are provided in Appendix 6. The estimated cost for the improvement project including the one mile section of Freistadt Road is approximately \$480,000. It should be noted that the cost estimate is based on conceptual level design and does not account for utility impacts, construction engineering or real-estate acquisitions for grading easements. As traffic volumes increase in the future, exclusive right-turn lanes may be needed at the signalized intersection for the eastbound and northbound right-turn movements to reduce delays and traffic queues.

Interim Safety Improvements

Consider the following interim safety improvements for the two-way stop control intersection:

- Reduce the travel lanes on Freistadt Road to a two-lane roadway. Geometric improvements are typically more effective at reducing the travel speeds than signage alone. The interim improvement would require seal coating and pavement marking for the one mile section of roadway and is estimated to cost approximately \$125,000.
- Grading the terrace along the north side of Freistadt Road (east of Maple Road) to improve sight distance for the north approach. This could be required with the development of the northeast quadrant.
- Install intersection warning sign (W2-1) with flashing beacon on Freistadt Road on the approach to the Maple Road intersection.
- Install radar speed feedback signs on Freistadt Road to increase driver's awareness of their travel speed.
- Increase police presence and enforcement along Freistadt Road.

Conclusions

Freistadt Road could operate acceptably as a two-lane roadway and the additional capacity of the four-lane roadway is allowing for increased travel speeds. The higher travel speeds along Freistadt Road and crest vertical curve could be contributing to the right angle crashes occurring at the Maple Road intersection. The intersection currently experiences operational issues during the morning peak hour under two-way stop control. A traffic signal is warranted with Freistadt Road reconfigured to a two-lane roadway. It is recommended to plan for a future traffic signal at this intersection and consider interim safety improvements for the two-way stop control condition.

Exhibits

Exhibit 1	Study Area Map
Exhibit 2	Existing Intersection Geometrics
Exhibit 3	Existing (Year 2014) Peak Hour Traffic Volumes
Exhibit 4	Design Year (Year 2037) Peak Hour Traffic Volumes
Exhibit 5	Existing (Year 2014) Traffic Operations with Existing Geometrics
Exhibit 6	Two-Way Stop With Median Alternative – Design Year (Year 2037) Traffic Operations
Exhibit 7	Traffic Signal Alternative – Design Year (Year 2037) Traffic Operations
Exhibit 8	Traffic Signal Alternative Recommended Geometrics

Appendix

Appendix 1	Intersection Collision Diagram
Appendix 2	Intersection Traffic Count
Appendix 3	Traffic Signal Warrant Analyses
Appendix 4	Existing (Year 2014) Traffic Operational Analysis
Appendix 5	Design Year (Year 2037) Traffic Operational Analysis
Appendix 6	Traffic Signal Alternative – Conceptual Layout & Cost Estimate



NORTH
NOT TO SCALE

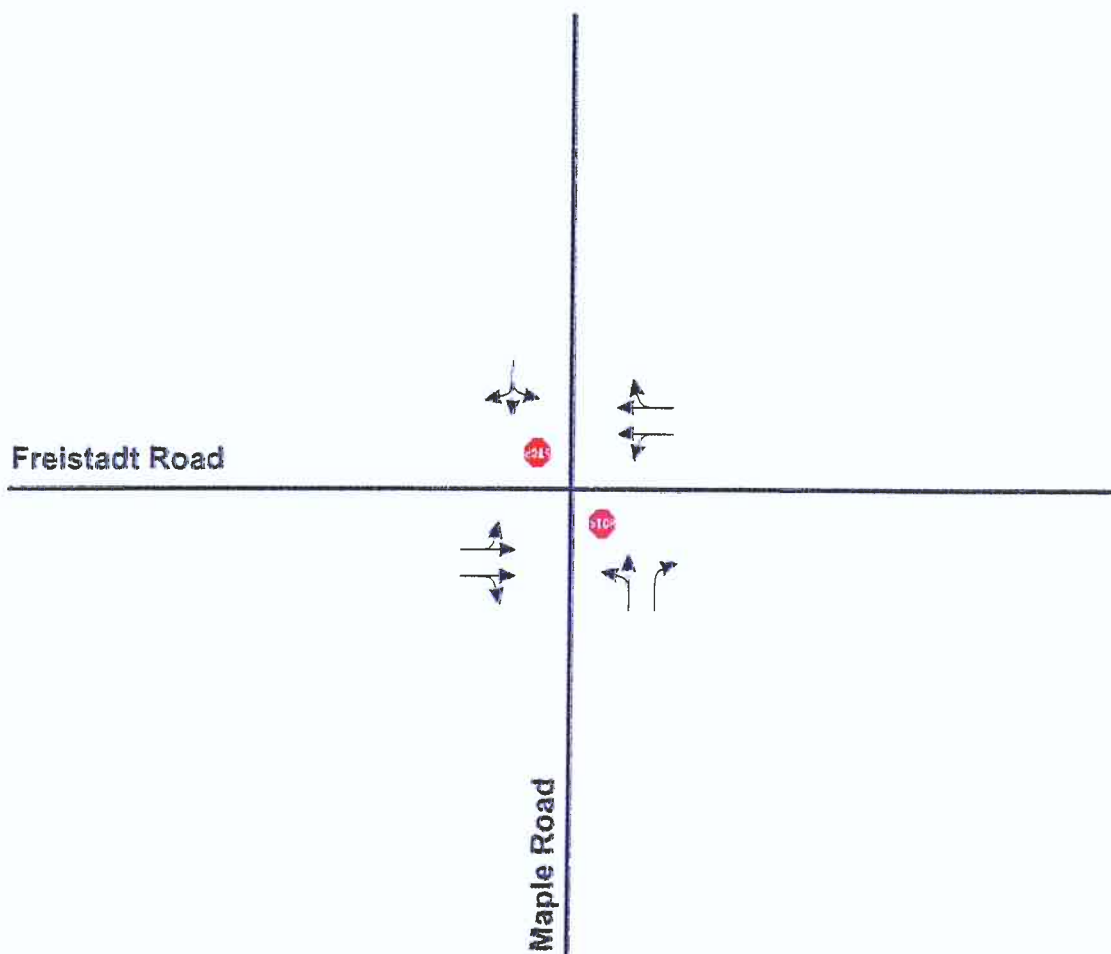


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EXHIBIT 1
STUDY AREA MAP
FREISTADT ROAD & MAPLE ROAD INTERSECTION
GERMANTOWN, WISCONSIN



NORTH
NOT TO SCALE

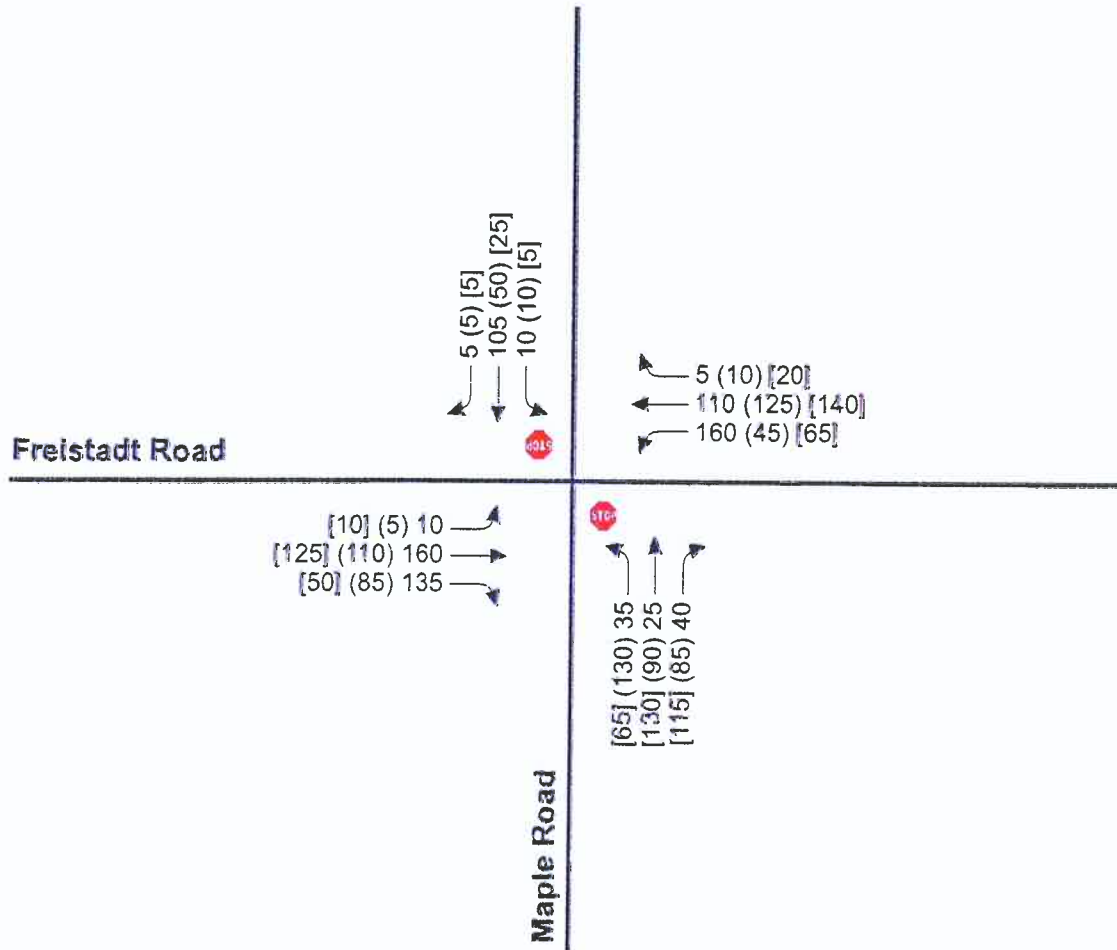


LEGEND

- STOP SIGN
- EXISTING GEOMETRICS



NORTH
NOT TO SCALE

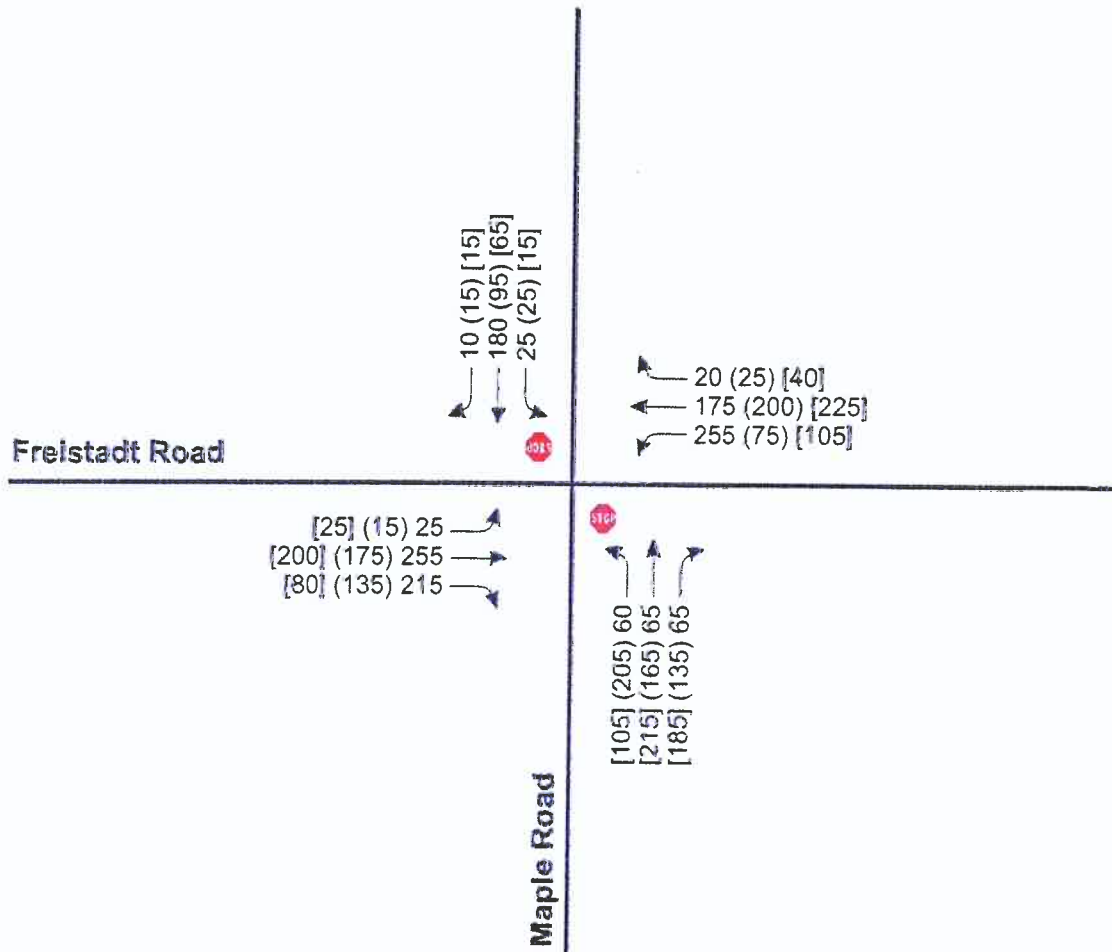


LEGEND

- STOP SIGN
- XXX WEEKDAY MORNING PEAK HOUR (6:45 - 7:45 AM) TRAFFIC VOLUMES
- (XXX) WEEKDAY AFTERNOON PEAK HOUR (2:15 - 3:15 PM) TRAFFIC VOLUMES
- [XXX] WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM) TRAFFIC VOLUMES

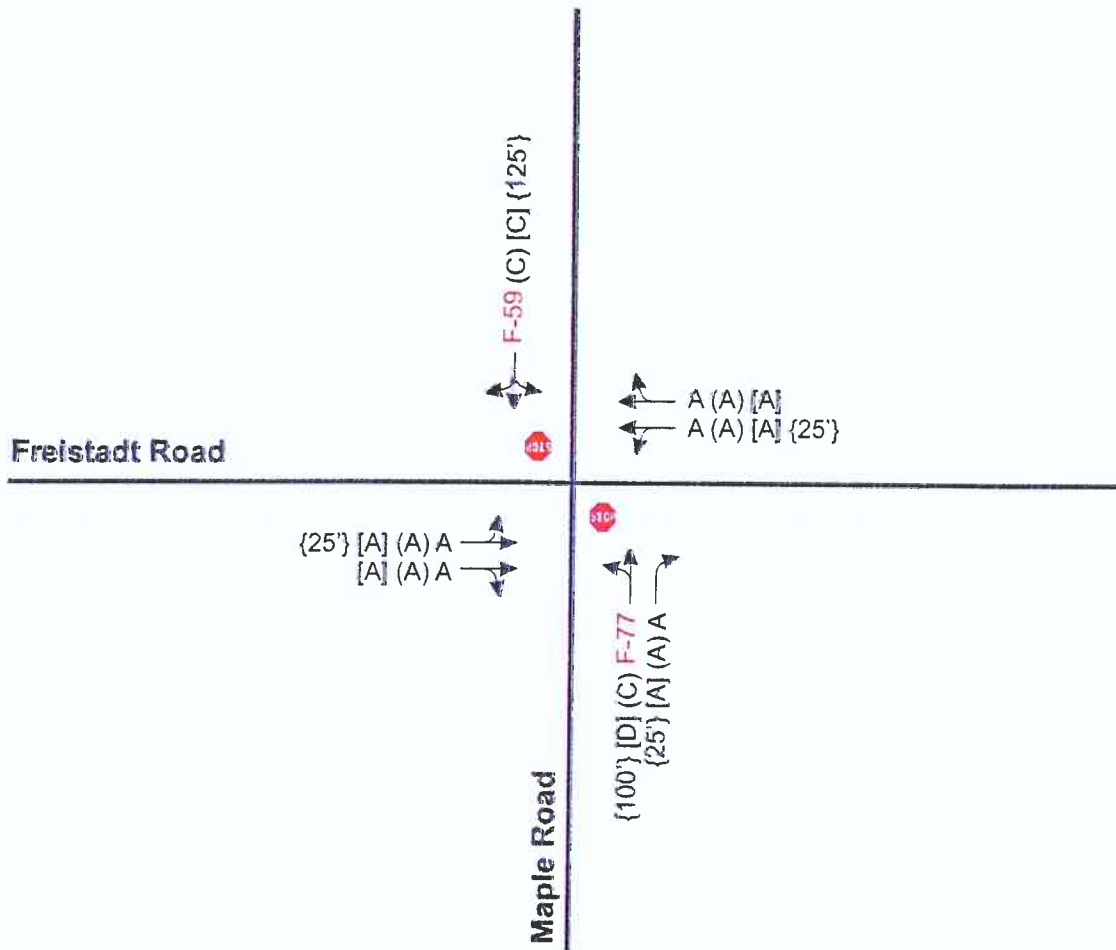


NORTH
NOT TO SCALE



LEGEND

-  STOP SIGN
- XXX WEEKDAY MORNING PEAK HOUR (6:45 - 7:45 AM) TRAFFIC VOLUMES
- (XXX) WEEKDAY AFTERNOON PEAK HOUR (2:15 - 3:15 PM) TRAFFIC VOLUMES
- [XXX] WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM) TRAFFIC VOLUMES



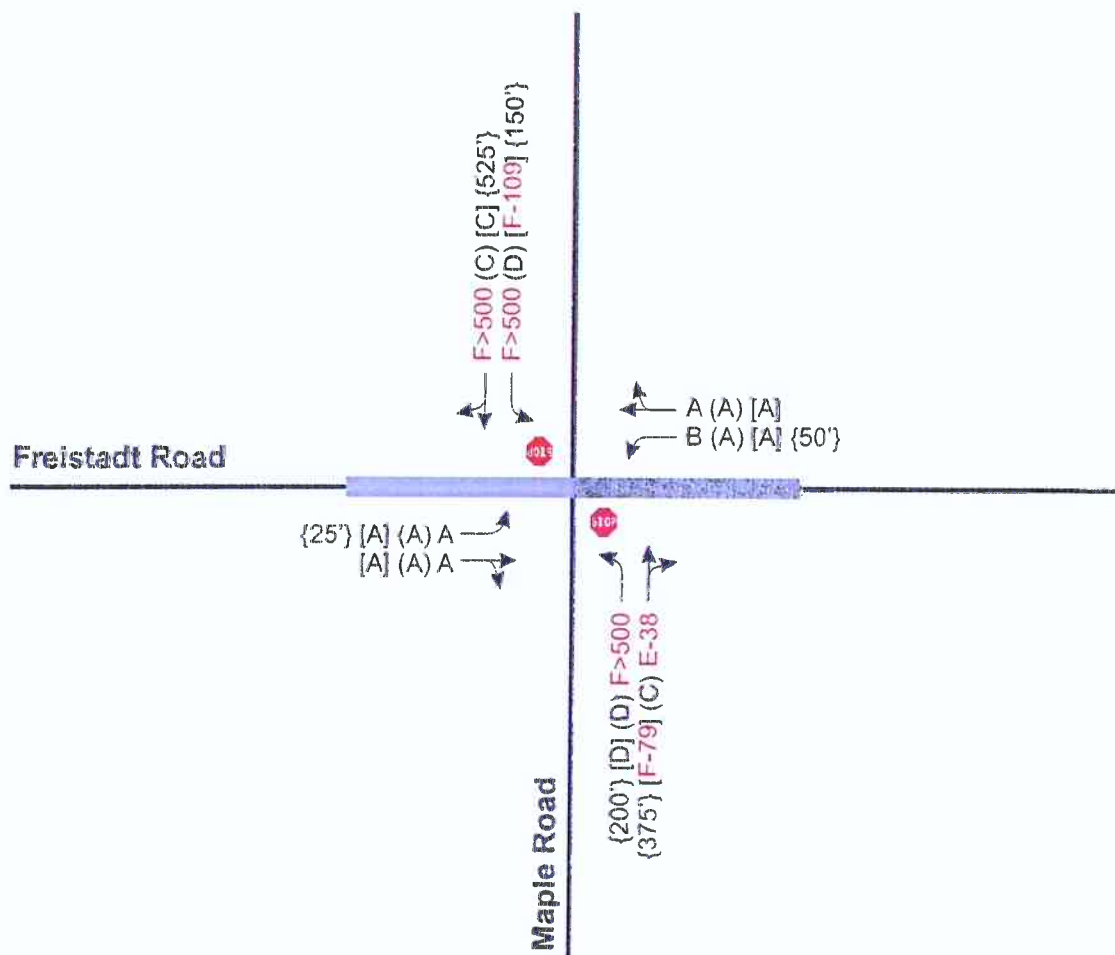
LEGEND

-  STOP SIGN
-  EXISTING GEOMETRICS
- X WEEKDAY MORNING PEAK HOUR (6:45 - 7:45 AM) LEVEL OF SERVICE
- (X) WEEKDAY AFTERNOON PEAK HOUR (2:15 - 3:15 PM) LEVEL OF SERVICE
- [X] WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM) LEVEL OF SERVICE
- {XXX'} MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE (IN FEET)

NOTE: FOR MOVEMENTS WITH LOS E OR F OPERATIONS, THE AVERAGE DELAY PER VEHICLE (IN SECONDS) IS PROVIDED.



NORTH
NOT TO SCALE



LEGEND

- STOP SIGN
- RECOMMENDED GEOMETRICS
- RAISED MEDIAN
- X WEEKDAY MORNING PEAK HOUR (6:45 - 7:45 AM) LEVEL OF SERVICE
- (X) WEEKDAY AFTERNOON PEAK HOUR (2:15 - 3:15 PM) LEVEL OF SERVICE
- [X] WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM) LEVEL OF SERVICE
- {XXX'} MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE (IN FEET)

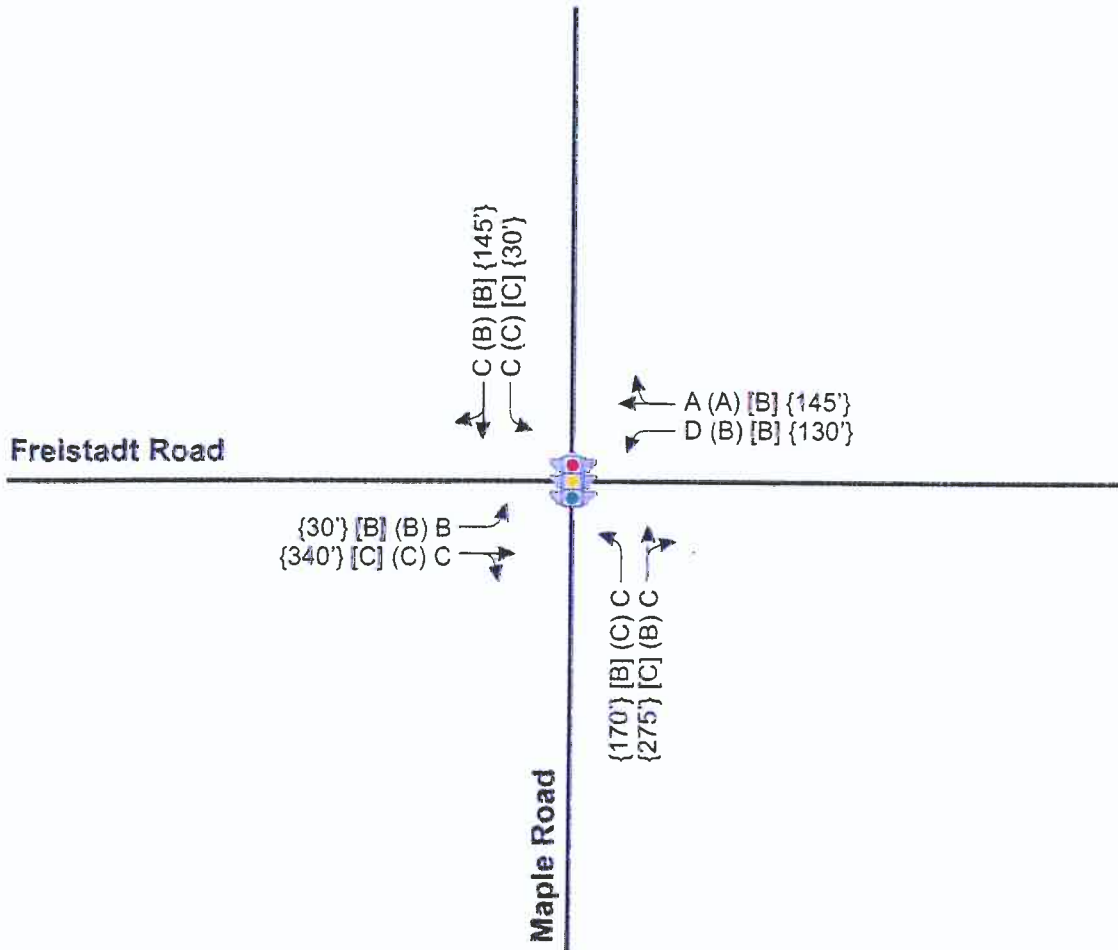
NOTE: FOR MOVEMENTS WITH LOS E OR F OPERATIONS, THE AVERAGE DELAY PER VEHICLE (IN SECONDS) IS PROVIDED.



EXHIBIT 6
TWO-WAY STOP WITH MEDIAN ALTERNATIVE
DESIGN YEAR (YEAR 2037) TRAFFIC OPERATIONS
FREISTADT ROAD & MAPLE ROAD INTERSECTION
GERMANTOWN, WISCONSIN



NORTH
NOT TO SCALE

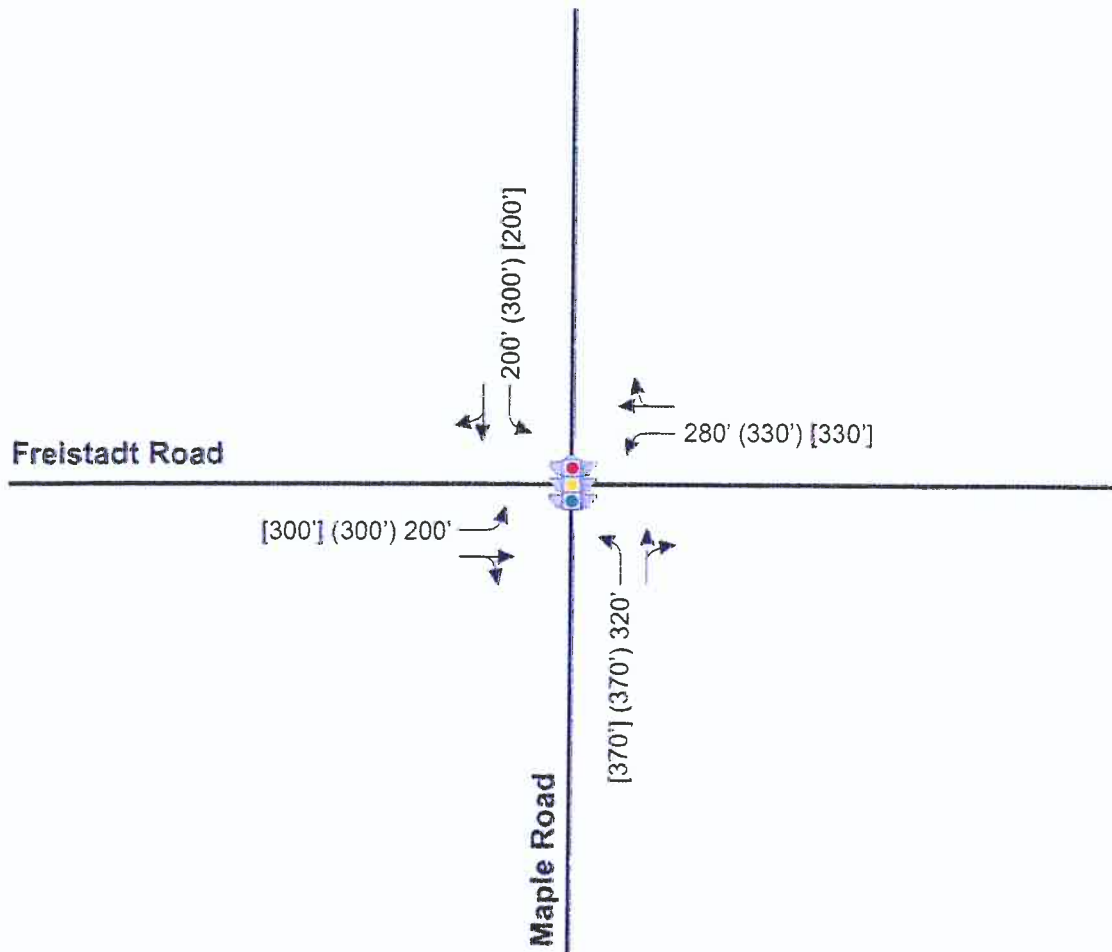


LEGEND

-  TRAFFIC SIGNAL
-  EXISTING GEOMETRICS
- X WEEKDAY MORNING PEAK HOUR (6:45 - 7:45 AM) LEVEL OF SERVICE
- (X) WEEKDAY AFTERNOON PEAK HOUR (2:15 - 3:15 PM) LEVEL OF SERVICE
- [X] WEEKDAY EVENING PEAK HOUR (4:30 - 5:30 PM) LEVEL OF SERVICE
- {XXX'} MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE (IN FEET)



NORTH
NOT TO SCALE



LEGEND

-  TRAFFIC SIGNAL
-  RECOMMENDED GEOMETRICS
- XXX' MINIMUM STORAGE LENGTH (IN FEET)
- (XXX') DESIRABLE STORAGE LENGTH (IN FEET)
- [XXX'] RECOMMENDED STORAGE LENGTH (IN FEET)

Appendix 1

Intersection Collision Diagram

COLLISION DIAGRAM

INTERSECTION: FREISTADT ROAD & MAPLE ROAD

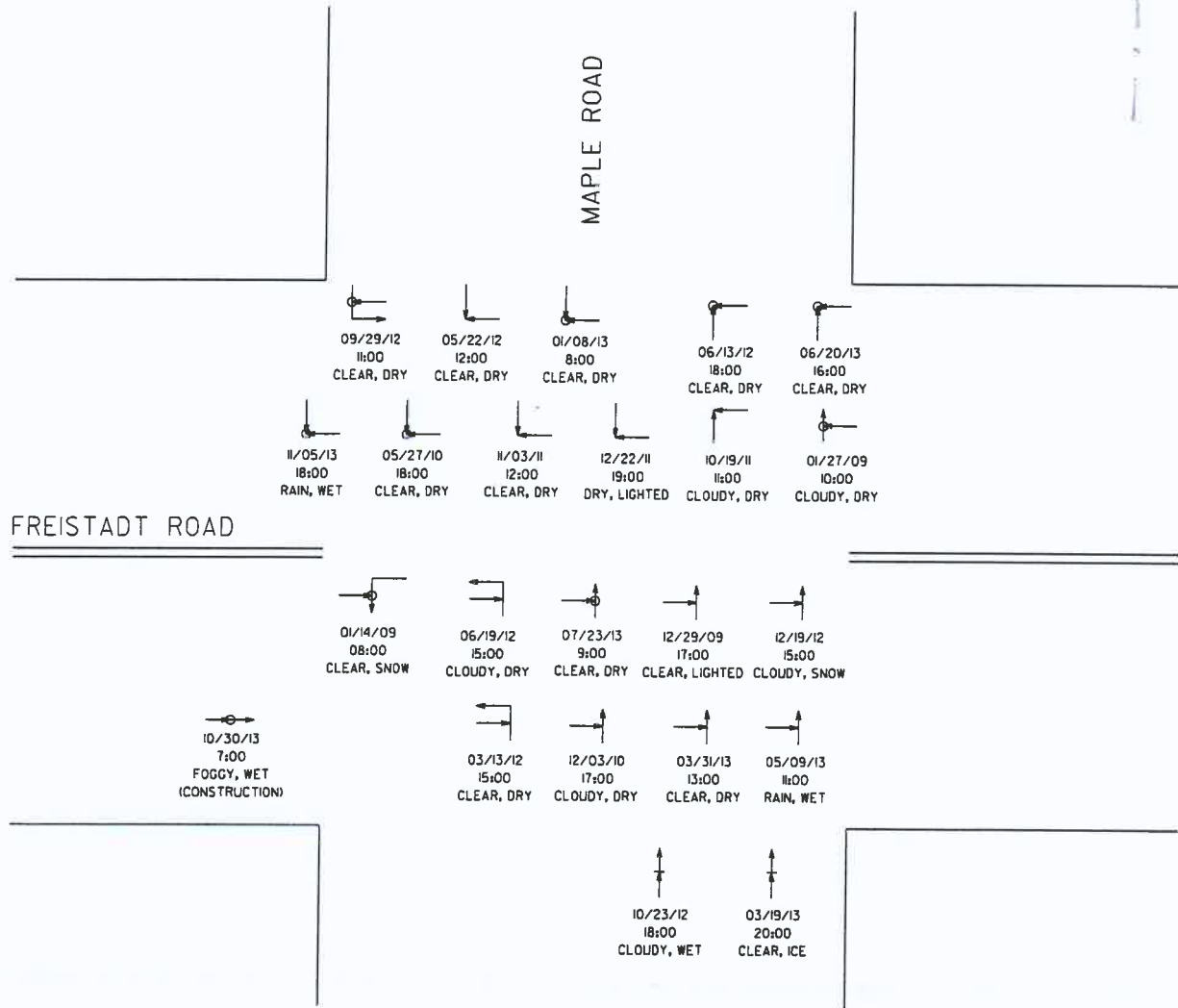
PERIOD: 5 YR.

FROM: 2009

TO: 2013

MUNICIPALITY: VILLAGE OF GERMANTOWN

PREPARED BY: JAO



NUMBER OF CRASHES	SYMBOLS	TYPES OF COLLISIONS	SHOW FOR EACH CRASH
13 PROPERTY DAMAGE ONLY	MOVING VEHICLE	REAR END 3	1. DATE AND TIME
10 INJURY	BACKING VEHICLE	HEAD ON 0	2. WEATHER AND ROAD SURFACE (IF UNUSUAL CONDITION EXISTED)
23 TOTAL ACCIDENTS	PEDESTRIAN/BICYCLE	SIDE SWIPE 0	
	PARKED VEHICLE	LEFT TURN 4	
	FIXED OBJECT	RIGHT ANGLE 16	
	FATAL CRASH	SINGLE VEHICLE 0	
	INJURY CRASH		

GRaEF

One Honey Creek Corporate Center
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Suite 401
Milwaukee, WI 53214-1470
414 / 259 1500
414 / 259 0037 fax
www.graef-usa.com

FREISTADT ROAD & MAPLE ROAD
INTERSECTION
COLLISION DIAGRAM
GERMANTOWN, WISCONSIN

EXHIBIT

Appendix 2

Intersection Traffic Count



125 S. 84th Street, Suite 401
Milwaukee, WI 53214-1470
(414) 259-1500

Freistadt Road & Maple Road
Weekday 12-Hour Count
Germantown, WI
2014-1010

File Name : Freistadt & Maple
Site Code : 00000000
Start Date : 4/8/2014
Page No : 1

Groups Printed- Cars - Buses - Trucks																							
	Maple Road From North					Freistadt Road From East					Maple Road From South					Freistadt Road From West							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	2	16	1	0	19	20	8	1	0	29	3	2	5	0	10	0	11	11	0	22	0	80	80
06:15 AM	1	26	0	0	27	27	9	0	0	36	22	1	16	0	39	0	13	14	0	27	0	129	129
06:30 AM	1	23	1	0	25	27	20	1	0	48	18	2	1	0	21	0	15	13	0	28	0	122	122
06:45 AM	1	31	0	0	32	29	24	1	0	54	12	6	3	0	21	1	26	32	0	59	0	166	166
Total	5	96	2	0	103	103	61	3	0	167	55	11	25	0	91	1	65	70	0	136	0	497	497
07:00 AM	5	22	1	0	28	56	24	2	0	82	8	6	8	0	22	2	54	63	0	119	0	251	251
07:15 AM	3	27	3	0	33	34	34	1	0	69	10	6	16	0	32	2	49	23	0	74	0	208	208
07:30 AM	1	24	1	0	26	41	24	0	0	65	4	3	9	0	16	1	31	17	0	49	0	156	156
07:45 AM	0	19	4	0	23	36	21	1	0	58	8	2	9	0	19	0	27	21	0	48	0	148	148
Total	9	92	9	0	110	167	103	4	0	274	30	17	42	0	89	5	161	124	0	290	0	763	763
08:00 AM	0	18	0	0	18	20	14	0	0	34	5	7	5	0	17	0	26	17	0	43	0	112	112
08:15 AM	3	12	1	0	16	15	9	0	0	24	9	16	4	0	29	2	21	10	0	33	0	102	102
08:30 AM	2	10	0	0	12	13	17	2	0	32	12	13	6	0	31	1	14	11	0	26	0	101	101
08:45 AM	1	15	2	0	18	9	13	0	0	22	11	8	6	0	25	0	11	13	0	24	0	89	89
Total	6	55	3	0	64	57	53	2	0	112	37	44	21	0	102	3	72	51	0	126	0	404	404
09:00 AM	1	12	1	0	14	8	11	0	0	19	7	6	7	0	20	0	14	11	0	25	0	78	78
09:15 AM	1	7	0	0	8	8	8	0	0	16	4	3	8	0	15	0	18	10	0	28	0	67	67
09:30 AM	0	4	0	0	4	11	5	0	0	16	6	4	3	0	13	1	12	6	0	19	0	52	52
09:45 AM	0	6	2	0	8	16	10	0	0	26	6	7	3	0	16	0	13	8	0	21	0	71	71
Total	2	29	3	0	34	43	34	0	0	77	23	20	21	0	64	1	57	35	0	93	0	268	268
10:00 AM	1	0	2	0	3	6	10	0	0	16	8	9	5	0	22	2	13	9	0	24	0	65	65
10:15 AM	1	9	3	0	13	14	15	2	0	31	6	6	9	0	21	2	11	5	0	18	0	83	83
10:30 AM	1	4	0	0	5	4	14	2	0	20	4	4	8	0	16	0	13	7	0	20	0	61	61
10:45 AM	0	10	3	0	13	11	7	0	0	18	3	3	8	2	14	2	10	6	0	18	2	63	65
Total	3	23	8	0	34	35	46	4	0	85	21	22	30	2	73	6	47	27	0	80	2	272	274
11:00 AM	0	6	0	0	6	8	22	1	0	31	7	8	4	0	19	1	14	8	0	23	0	79	79
11:15 AM	0	3	2	0	5	3	12	0	0	15	5	7	6	0	18	1	15	7	0	23	0	61	61
11:30 AM	0	8	0	0	8	4	18	2	0	24	6	10	9	0	25	0	15	9	0	24	0	81	81
11:45 AM	1	7	0	0	8	10	12	4	0	26	10	9	12	0	31	1	18	4	0	23	0	88	88
Total	1	24	2	0	27	25	64	7	0	96	28	34	31	0	93	3	62	28	0	93	0	309	309



125 S. 84th Street, Suite 401
Milwaukee, WI 53214-1470
(414) 259-1500

Freistadt Road & Maple Road
Weekday 12-Hour Count
Germantown, WI
2014-1010

File Name : Freistadt & Maple
Site Code : 00000000
Start Date : 4/8/2014
Page No : 2

Groups Printed- Cars - Buses - Trucks

Start Time	Maple Road From North					Freistadt Road From East					Maple Road From South					Freistadt Road From West					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
12:00 PM	2	5	0	0	7	16	19	3	0	38	5	8	10	0	23	0	15	7	0	22	0	90	90
12:15 PM	2	10	1	0	13	9	16	3	0	28	6	4	13	2	23	0	11	9	0	20	2	84	86
12:30 PM	2	6	1	0	9	11	23	0	0	34	6	6	3	2	15	1	14	4	0	19	2	77	79
12:45 PM	2	5	2	0	9	16	16	2	0	34	14	7	7	1	28	2	15	5	0	22	1	93	94
Total	8	26	4	0	38	52	74	8	0	134	31	25	33	5	89	3	55	25	0	83	5	344	349
01:00 PM	0	3	0	0	3	5	19	1	0	25	5	8	6	0	19	1	13	8	0	22	0	69	69
01:15 PM	0	6	0	0	6	5	13	0	0	18	17	6	11	0	34	0	11	14	0	25	0	83	83
01:30 PM	0	3	0	0	3	5	19	0	0	24	11	4	11	0	26	0	14	13	0	27	0	80	80
01:45 PM	0	9	0	0	9	8	19	1	0	28	14	8	11	0	33	0	15	12	0	27	0	97	97
Total	0	21	0	0	21	23	70	2	0	95	47	26	39	0	112	1	53	47	0	101	0	329	329
02:00 PM	1	9	0	0	10	7	9	2	0	18	20	12	17	0	49	0	14	10	0	24	0	101	101
02:15 PM	1	21	0	0	22	12	19	1	0	32	19	12	19	0	50	2	30	12	0	44	0	148	148
02:30 PM	1	5	1	0	7	8	27	4	0	39	46	29	33	1	108	0	27	19	0	46	1	200	201
02:45 PM	2	11	1	0	14	10	35	3	0	48	35	24	19	0	78	3	27	23	0	53	0	193	193
Total	5	46	2	0	53	37	90	10	0	137	120	77	88	1	285	5	98	64	0	167	1	642	643
03:00 PM	3	10	2	0	15	11	40	2	0	53	26	22	10	0	58	0	25	30	0	55	0	181	181
03:15 PM	0	13	1	0	14	20	26	2	0	48	11	13	12	0	36	3	24	22	0	49	0	147	147
03:30 PM	1	6	2	0	9	16	22	2	0	40	16	29	25	0	70	2	28	14	0	44	0	163	163
03:45 PM	3	11	3	0	17	9	31	2	0	42	10	28	21	0	59	0	17	11	0	28	0	146	146
Total	7	40	8	0	55	56	119	8	0	183	63	92	68	0	223	5	94	77	0	176	0	637	637
04:00 PM	0	15	1	0	16	16	33	1	1	50	26	25	18	0	69	0	20	13	0	33	1	168	169
04:15 PM	1	10	0	0	11	14	26	1	0	41	14	15	12	0	41	1	24	6	0	31	0	124	124
04:30 PM	1	12	2	0	15	13	26	2	0	41	18	34	31	0	83	3	35	14	0	52	0	191	191
04:45 PM	0	3	0	0	3	14	28	4	0	46	15	27	19	0	61	2	34	12	0	48	0	158	158
Total	2	40	3	0	45	57	113	8	1	178	73	101	80	0	254	6	113	45	0	164	1	641	642
05:00 PM	1	3	0	0	4	28	44	5	0	77	20	44	31	0	95	2	33	15	0	50	0	226	226
05:15 PM	2	3	2	0	7	10	39	5	0	54	9	25	33	0	67	3	22	5	0	30	0	158	158
05:30 PM	1	7	2	0	10	15	29	2	0	46	12	21	22	0	55	2	22	5	0	29	0	140	140
05:45 PM	0	8	1	0	9	15	22	3	0	40	10	12	14	0	36	0	13	5	0	18	0	103	103
Total	4	21	5	0	30	68	134	15	0	217	51	102	100	0	253	7	90	30	0	127	0	627	627
Grand Total	52	513	49	0	614	723	961	71	1	1755	579	571	578	8	1728	46	967	623	0	1636	9	5733	5742
Apprch %	8.5	83.6	8			41.2	54.8	4			33.5	33	33.4			2.8	59.1	38.1					
Total %	0.9	8.9	0.9		10.7	12.6	16.8	1.2		30.6	10.1	10	10.1		30.1	0.8	16.9	10.9		28.5	0.2	99.8	
Cars	49	461	46		556	663	866	68		1598	506	535	524		1573	38	891	540		1469	0	0	5196
% Cars	94.2	89.9	93.9	0	90.6	91.7	90.1	95.8	100	91	87.4	93.7	90.7	100	90.6	82.6	92.1	86.7	0	89.8	0	0	90.5



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(414) 259-1500

Freistadt Road & Maple Road
Weekday 12-Hour Count
Germantown, WI
2014-1010

File Name : Freistadt & Maple
Site Code : 00000000
Start Date : 4/8/2014
Page No : 3

Groups Printed- Cars - Buses - Trucks

	Maple Road From North					Freistadt Road From East					Maple Road From South					Freistadt Road From West					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
Buses	0	37	0		37	6	17	1		24	5	19	4		28	2	10	12		24	0	0	113
% Buses	0	7.2	0	0	6	0.8	1.8	1.4	0	1.4	0.9	3.3	0.7	0	1.6	4.3	1	1.9	0	1.5	0	0	2
Trucks	3	15	3		21	54	78	2		134	68	17	50		135	6	66	71		143	0	0	433
% Trucks	5.8	2.9	6.1	0	3.4	7.5	8.1	2.8	0	7.6	11.7	3	8.7	0	7.8	13	6.8	11.4	0	8.7	0	0	7.5



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2014-1010

File Name : Freistadt & Maple
Site Code : 00000000
Start Date : 4/8/2014
Page No : 1

Groups Printed- Buses - Trucks

Start Time	Maple Road From North					Freistadt Road From East					Maple Road From South					Freistadt Road From West					Exclu. Total	Inclu. Total	Irit. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
06:00 AM	0	1	0	0	1	3	1	0	0	4	0	0	0	0	0	0	1	0	0	1	0	6	6
06:15 AM	0	3	0	0	3	3	1	0	0	4	2	1	1	0	4	0	0	1	0	1	0	12	12
06:30 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	5	5
06:45 AM	0	1	0	0	1	2	2	0	0	4	1	1	0	0	2	0	3	1	0	4	0	11	11
Total	0	8	0	0	8	8	5	0	0	13	3	2	1	0	6	0	5	2	0	7	0	34	34
07:00 AM	0	2	1	0	3	0	1	0	0	1	1	1	0	0	2	0	3	3	0	6	0	12	12
07:15 AM	0	0	0	0	0	1	4	0	0	5	2	0	3	0	5	0	6	3	0	9	0	19	19
07:30 AM	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	2	1	0	3	0	9	9
07:45 AM	0	2	0	0	2	1	0	0	0	1	1	0	2	0	3	0	3	0	0	3	0	9	9
Total	0	4	1	0	5	2	9	0	0	11	6	1	5	0	12	0	14	7	0	21	0	49	49
08:00 AM	0	0	0	0	0	1	1	0	0	2	1	0	2	0	3	0	2	2	0	4	0	9	9
08:15 AM	0	0	0	0	0	1	4	0	0	5	4	0	3	0	7	0	0	1	0	1	0	13	13
08:30 AM	1	0	0	0	1	3	3	0	0	6	4	2	1	0	7	1	1	1	0	3	0	17	17
08:45 AM	0	1	0	0	1	1	1	0	0	2	3	2	2	0	7	0	1	4	0	5	0	15	15
Total	1	1	0	0	2	6	9	0	0	15	12	4	8	0	24	1	4	8	0	13	0	54	54
09:00 AM	0	1	0	0	1	1	1	0	0	2	2	2	2	0	6	0	1	3	0	4	0	13	13
09:15 AM	1	0	0	0	1	3	0	0	0	3	2	1	3	0	6	0	2	4	0	6	0	16	16
09:30 AM	0	0	0	0	0	1	0	0	0	1	2	0	3	0	5	1	2	1	0	4	0	10	10
09:45 AM	0	2	1	0	3	3	1	0	0	4	2	3	0	0	5	0	3	1	0	4	0	16	16
Total	1	3	1	0	5	8	2	0	0	10	8	6	8	0	22	1	8	9	0	18	0	55	55
10:00 AM	0	0	0	0	0	1	4	0	0	5	1	1	1	0	3	0	3	1	0	4	0	12	12
10:15 AM	0	1	1	0	2	3	2	0	0	5	1	1	2	0	4	2	4	1	0	7	0	18	18
10:30 AM	0	0	0	0	0	1	3	0	0	4	1	0	1	0	2	0	0	2	0	2	0	8	8
10:45 AM	0	0	0	0	0	3	1	0	0	4	2	0	1	0	3	0	1	3	0	4	0	11	11
Total	0	1	1	0	2	8	10	0	0	18	5	2	5	0	12	2	8	7	0	17	0	49	49
11:00 AM	0	0	0	0	0	2	3	0	0	5	3	1	0	0	4	0	1	3	0	4	0	13	13
11:15 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	3	0	4	0	8	8
11:30 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	2	3	0	5	0	8	8
11:45 AM	0	0	0	0	0	3	2	1	0	6	1	0	1	0	2	0	2	3	0	5	0	13	13
Total	0	1	0	0	1	5	9	1	0	15	6	1	1	0	8	0	6	12	0	18	0	42	42



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Groups Printed- Buses - Trucks																							
	Maple Road From North					Freistadt Road From East					Maple Road From South					Freistadt Road From West							
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Trucks	3	15	3		21	54	78	2		134	68	17	50		135	6	66	71		143	0	0	433
% Trucks	100	28.8	100	0	36.2	90	82.1	66.7	0	84.8	93.2	47.2	92.6	0	82.8	75	86.8	85.5	0	85.6	0	0	79.3

Appendix 3

Traffic Signal Warrant Analyses

Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

70% RURAL

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

Intersection: Freistadt Road & Maple Road - Existing (Year 2014)

Date: 5/12/2014

County: Washington

Town
Village Germantown
City

Major Street Freistadt Road

Critical Approach Speed 40

Lanes 2

Minor Street Maple Road

Critical Approach Speed 40

Lanes 1

Note: The warrants for rural areas (70% of urban warrant) are used when the 85% speed on the major street exceeds 40 m.p.h. or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

THE ANALYSIS IS BASED ON COUNTS CONDUCTED ON 4/8 & , 20 14 , 1 , FROM 6 AM TO 6 PM
DATES DAYS

% Right Turns Included

Warrant Evaluation Summary

YES/NO/NOT EVALUATED

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	.....	N/A
Warrant 2	Four-Hour Volume	.....	No
Warrant 3	Peak Hour Volume	.....	No
Warrant 4	Pedestrian Volume	.....	N/A
Criterion A	Four-Hour	.....	N/A
Criterion B	Peak Hour	.....	N/A
Warrant 5	School Crossing	.....	N/A
Warrant 6	Coordinated Signal System	.....	N/A
Warrant 7	Crash Experience	.....	N/A
Warrant 8	Roadway Network	.....	N/A
Warrant 9	Intersection Near A Grade Crossing	.....	N/A

This analysis was conducted by:

Shana Brummond, P.E., PTOE

(Name)

GRAEF

(Agency)

5/12/2014

(Date)

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 1

Intersection: Freistadt Road & Maple Road - Existing (Year 2014)
County: Washington

Date: 5/12/2014

Town
Village Germantown
City

Major Street Freistadt Road
Minor Street Maple Road

Critical Approach Speed 40
Critical Approach Speed 40

Lanes 2
Lanes 1

Volume Level

1. Critical speed of major road traffic > 40 mph : Yes ☒ No ☐
2. In built-up area of isolated community of < 10,000 pop.: Yes ☐ No ☒
If Question 1 or 2 above is answered "Yes" then use "70%" volume level: 70% ☒ 100% ☐

WARRANT 1 – Eight-Hour Vehicular Volume

Warrant is satisfied if Condition A or B is "100 % satisfied." Warrant also satisfied if Condition C (80% of A and B) is satisfied.

8 Highest Hours								
Hour	7:00	5:00	4:00	2:00	3:00	6:00	8:00	1:00
Major Road Both App. vph	564	344	342	304	359	303	238	196
Minor Road High App. vph	110	253	254	285	223	103	102	112

Record hours where condition is met and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours.

Condition A – Minimum Vehicular Volume

(volumes in veh/h)	Minimum Requirements (80% Shown in Brackets)			
Approach Lanes:	1		2 or more	
Volume Level:	100%	Hours	100%	Hours
Major Road-Both Approaches	350 (280)		420 (336)	1 4
Minor Road-Highest Approach	105 (84)	6 8	140 (112)	

100% Satisfied: No
80 % Satisfied: No

Condition B – Interruption of Continuous Traffic

(volumes in veh/h)	Minimum Requirements (80% Shown in Brackets)			
Approach Lanes:	1		2 or more	
Volume Level:	100%	Hours	100%	Hours
Major Road-Both Approaches	525 (420)		630 (504)	0 1
Minor Road-Highest Approach	53 (42)	8 8	70 (56)	

100% Satisfied: No
80 % Satisfied: No

Condition C – Combination of Condition A and B: Condition A and B Both 80% Satisfied?:

Warrant Satisfied?: No

% Right Turns Included: 100

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 2

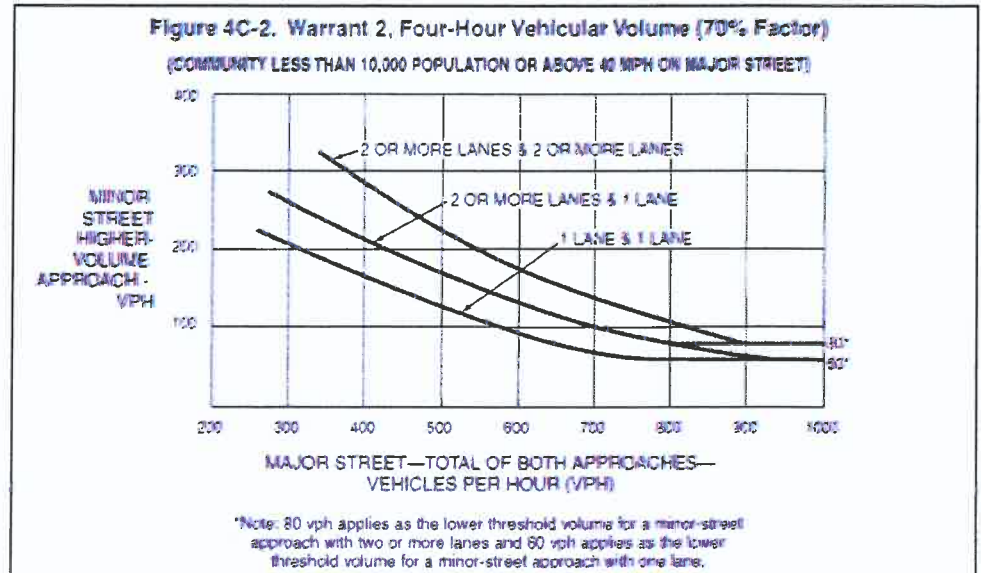
Warrant 2 – Four-Hour Vehicular Volume

Plot four volume combinations on the applicable figure below. If four points lie above the appropriate line, then the warrant is satisfied.

Figure A. Criteria for “70%” volume level.

Hour	7:00	5:00	4:00	2:00
Major Vol.	564	344	342	304
Minor Vol.	110	253	254	285

Satisfied?: No



Warrant 3 – Peak Hour

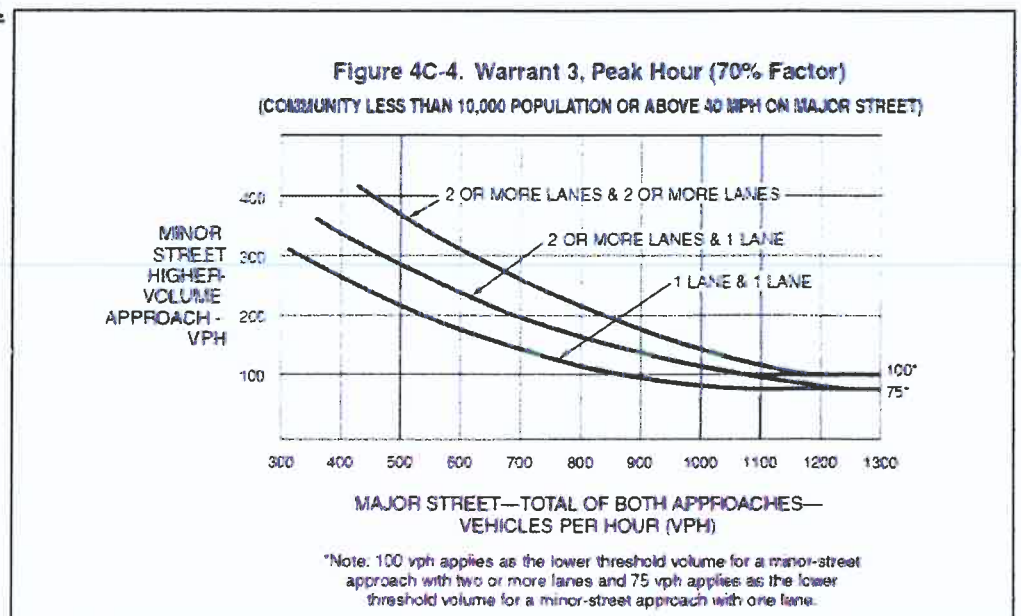
Unusual condition justifying use of warrant: _____
Record hour where criteria are fulfilled and the corresponding delay or volume in boxes provided. Plot the peak hour volume combination on the applicable figure below. If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Criteria	Approach Lanes		No. of Approaches		Hour	Fulfilled?	
	1	2	3	4		Yes	No
1. Delay on Minor Approach (veh/h)	4	5				☐	☐
2. Volume on Minor Approach (veh/h)	100	150				☐	☐
3. Total Entering Volume (veh/h)			650	800		☐	☐

Figure A. Criteria for “70%” volume level.

Hour	7:00
Major Vol.	564
Minor Vol.	110

Satisfied?: No



TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

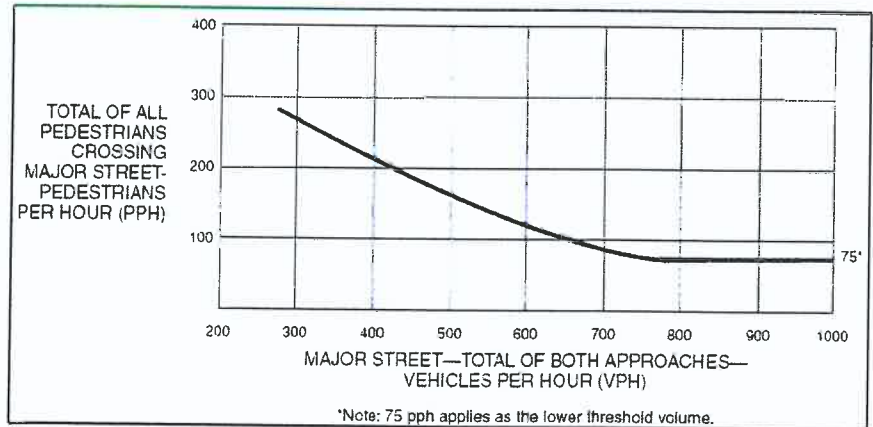
Sheet 3

Warrant 4 – Pedestrian Volume

Plot four volume combinations on the applicable figure below.

Criterion A

Hour				
Major Vol.				
Pedestrian Vol.				

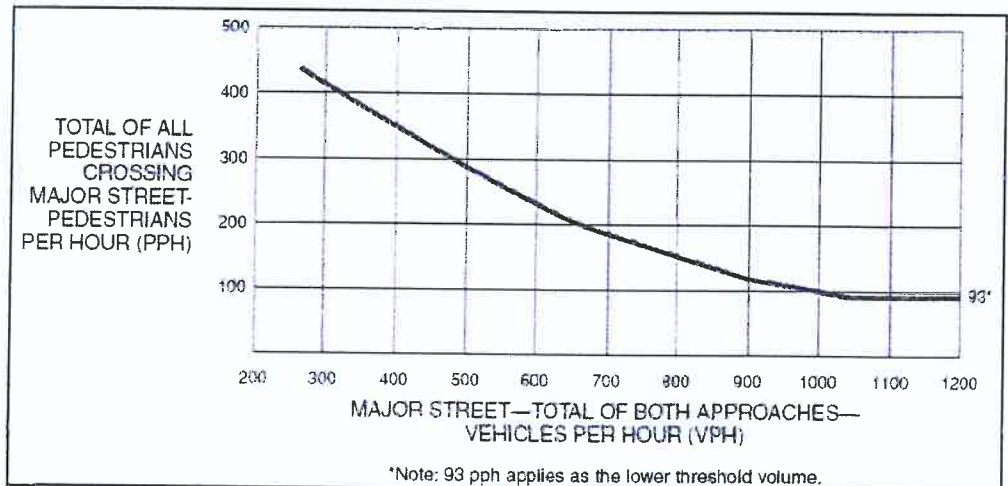


Criterion A Satisfied?: N/A

Criterion B

Plot the peak hour volume combination on the applicable figure below.

Hour	
Major Vol.	
Pedestrian Vol.	



Criterion B Satisfied?:

N/A

Warrant Satisfied?:

N/A

Warrant 5 – School Crossing

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria	Fulfilled?	
	Yes	No
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.	☐	☐

Satisfied?: N/A

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 4

Warrant 6 – Coordinated Signal System

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 1000 ft.

Criteria	Fulfilled?	
	Yes	No
1. 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.	☐	☐
2. On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and adjacent signals will collectively provide a progressive operation.	☐	☐

Satisfied?: N/A

Warrant 7 – Crash Experience

The warrant is satisfied if all three of the criteria are fulfilled.

Criteria (Must use 80% - Urban - Condition Warrant Volume Levels)		Met?		Fulfilled?	
		Yes	No	Yes	No
A. Adequate trial of other remedial measures has failed to reduce crash frequency.	Measures tried:			☐	☐
B. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo period.	Number of crashes per 12 months:			☐	☐
C. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied from Table 1 above)	☐	☐	☐	☐
	Warrant 1, Condition B (80% satisfied from Table 1 above)	☐	☐		
	Warrant 4, Criterion A (80% satisfied above)	☐	☐		
	Warrant 4, Criterion B (80% satisfied above)	☐	☐		

Table 1: 80% Volume Comparison Criteria for Warrant 1

(Volumes in veh/h)		Minimum Requirements			
Approach Lanes:		1		2 or more	
Volume Level:		80%	Hours	80%	Hours
Major Road Both App. vph	1A	280		336	
	1B	420		504	
Minor Road High App. vph	1A	84		112	
	1B	42		56	

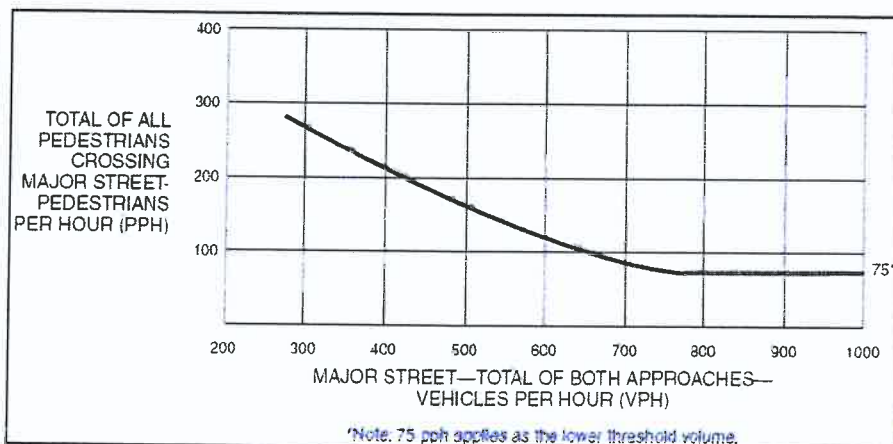
TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 5

Criterion 4A

Plot four volume combinations on the applicable figure below. Draw vertical line for each of the four major road volumes. Where this line meets the graphed line, draw horizontal line to determine the minimum pedestrian volume to meet the warrant for this major road volume. Enter that value as the "Graph Ped. Volume." Multiply the "Graph Ped. Volume" by 0.8. Enter this new value as the "80% of Graphed Ped. Volume." If your actual "Pedestrian Volume" value exceeds the "80% of Graphed Ped. Volume" for each of the four hours, the 80% warrant is met.

Hour				
Major Vol.				
Ped. Vol.				
Graphed Ped. Vol.				
80% of Graphed Ped. Vol.				



Criterion A Satisfied?:

N/A

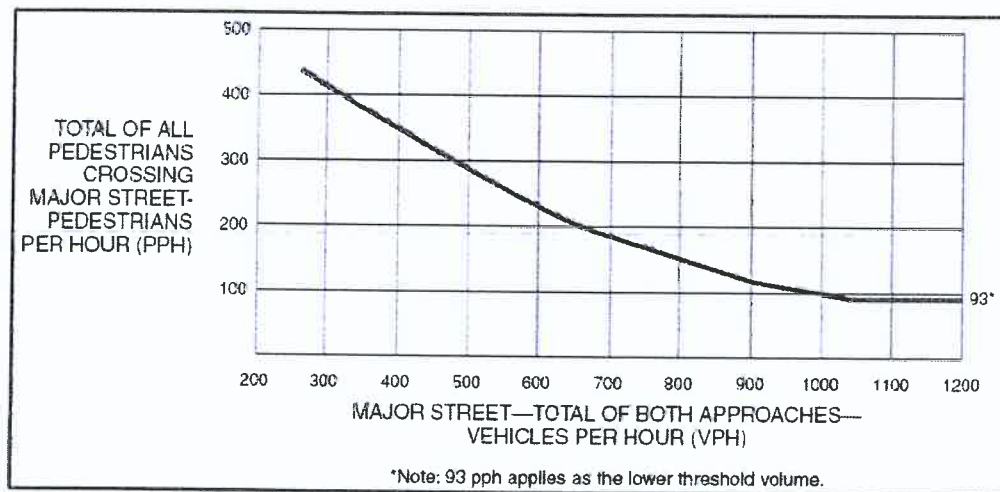
Warrant Satisfied?:

N/A

Criterion 4B

Plot and establish the pedestrian volumes for the peak hour as explained in Criterion 4A.

Hour	
Major Vol.	
Ped. Vol.	
Graph Ped. Volume	
80% of Graphed Ped Volume	



Criterion B Satisfied?:

N/A

Warrant Satisfied?:

N/A

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 6

Warrant 8 – Roadway Network

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria						Met?		Fulfilled?			
						Yes	No	Yes	No		
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/h during typical weekday peak hour.		Entering volume:			☐	☐	☐	☐		
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant(s) satisfied:			☐	☐				
2. Total entering volume at least 1,000 veh/h for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							-Hr.	☐	☐		
							-Vol.				
Characteristics of Major Routes								Fulfilled?			
								Yes	No		
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 Satisfied?: N/A

Warrant 9 – Intersection Near a Grade Crossing

Plot the peak hour volume combination on the applicable figure below. Use curve for D (where D = Clear Storage Distance as defined in 1A.13) that is nearest to the actual distance.

Hour	7:00
Major Vol.	564
Minor Vol.	110
Adjusted Minor Vol.	

Adjustment Factors Applied	
Rail Traffic	
% Buses	
% Trucks	

Adjustment Factor for Daily Frequency of Rail Traffic	
Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.31
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Adjustment Factor for Percentage of High-Occupancy Buses	
% of High-Occupancy Buses* on Minor-Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people.

Adjustment Factor for Percentage of Tractor-Trailer Trucks		
% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.29	1.64
More than 27.5%	4.18	2.09

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 7

Figure 4C-9 – One Approach Lane at the Track Crossing

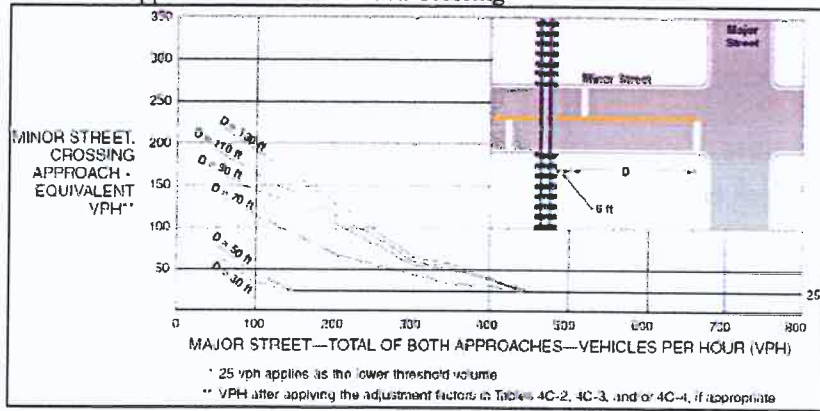
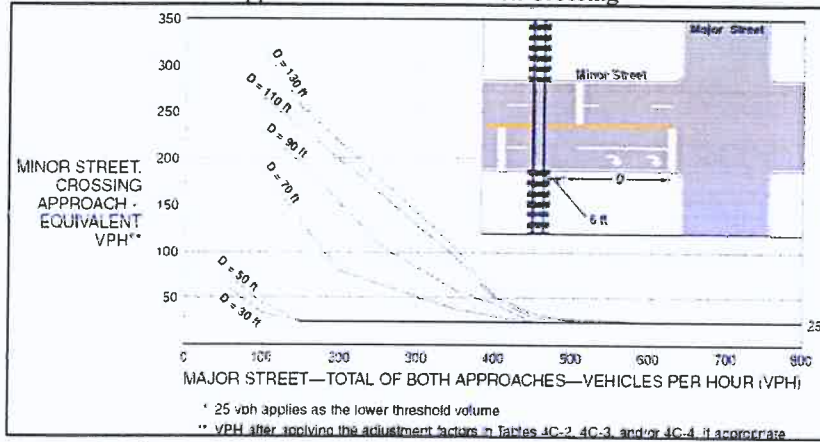


Figure 4C-10 – Two or More Approach Lanes at the Track Crossing



Warrant Satisfied?: N/A

CONCLUSIONS:

Wisconsin Department of Transportation

Traffic Signal Warrant Summary Worksheet

70% RURAL

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

Intersection: Freistadt Road & Maple Road - Existing (Year 2014)

Date: 5/12/2014

County: Washington

Town
Village
City
Germantown

Major Street Freistadt Road

Critical Approach Speed 40

Lanes 1

Minor Street Maple Road

Critical Approach Speed 40

Lanes 1

Note: The warrants for rural areas (70% of urban warrant) are used when the 85% speed on the major street exceeds 40 m.p.h. or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

THE ANALYSIS IS BASED ON COUNTS CONDUCTED ON 4/8 & , 20 14 , 1 , FROM 6 AM TO 6 PM
DATES DAYS

% Right Turns Included

Warrant Evaluation Summary

YES/NO/NOT EVALUATED

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 N/A

Warrant 2 Four-Hour Volume Yes

Warrant 3 Peak Hour Volume No

Warrant 4 Pedestrian Volume N/A

Criterion A Four-Hour N/A

Criterion B Peak Hour N/A

Warrant 5 School Crossing N/A

Warrant 6 Coordinated Signal System N/A

Warrant 7 Crash Experience N/A

Warrant 8 Roadway Network N/A

Warrant 9 Intersection Near A Grade Crossing N/A

This analysis was conducted by:

Shana Brummond, P.E., PTOE

(Name)

GRAEF

(Agency)

5/12/2014

(Date)

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 1

Intersection: Freistadt Road & Maple Road - Existing (Year 2014)
County: Washington

Date: 5/12/2014

Town
Village Germantown
City

Major Street Freistadt Road
Minor Street Maple Road

Critical Approach Speed 40
Critical Approach Speed 40

Lanes 1
Lanes 1

Volume Level

1. Critical speed of major road traffic > 40 mph : Yes ☒ No ☐
2. In built-up area of isolated community of < 10,000 pop.: Yes ☐ No ☒
If Question 1 or 2 above is answered "Yes" then use "70%" volume level: 70% ☒ 100% ☐

WARRANT 1 – Eight-Hour Vehicular Volume

Warrant is satisfied if Condition A or B is "100 % satisfied." Warrant also satisfied if Condition C (80% of A and B) is satisfied.

8 Highest Hours								
Hour	7:00	5:00	4:00	2:00	3:00	6:00	8:00	1:00
Major Road Both App. vph	564	344	342	304	359	303	238	196
Minor Road High App. vph	110	253	254	285	223	103	102	112

Record hours where condition is met and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours.

Condition A – Minimum Vehicular Volume

(volumes in veh/h)	Minimum Requirements (80% Shown in Brackets)			
Approach Lanes:	1		2 or more	
Volume Level:	100%	Hours	100%	Hours
Major Road-Both Approaches	350 (280)	2 1	420 (336)	
Minor Road-Highest Approach	105 (84)	6 8	140 (112)	

100% Satisfied: No
80 % Satisfied: No

Condition B – Interruption of Continuous Traffic

(volumes in veh/h)	Minimum Requirements (80% Shown in Brackets)			
Approach Lanes:	1		2 or more	
Volume Level:	100%	Hours	100%	Hours
Major Road-Both Approaches	525 (420)	1 1	630 (504)	
Minor Road-Highest Approach	53 (42)	8 8	70 (56)	

100% Satisfied: No
80 % Satisfied: No

Condition C – Combination of Condition A and B: Condition A and B Both 80% Satisfied?:

Warrant Satisfied?: No

% Right Turns Included: 100

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 2

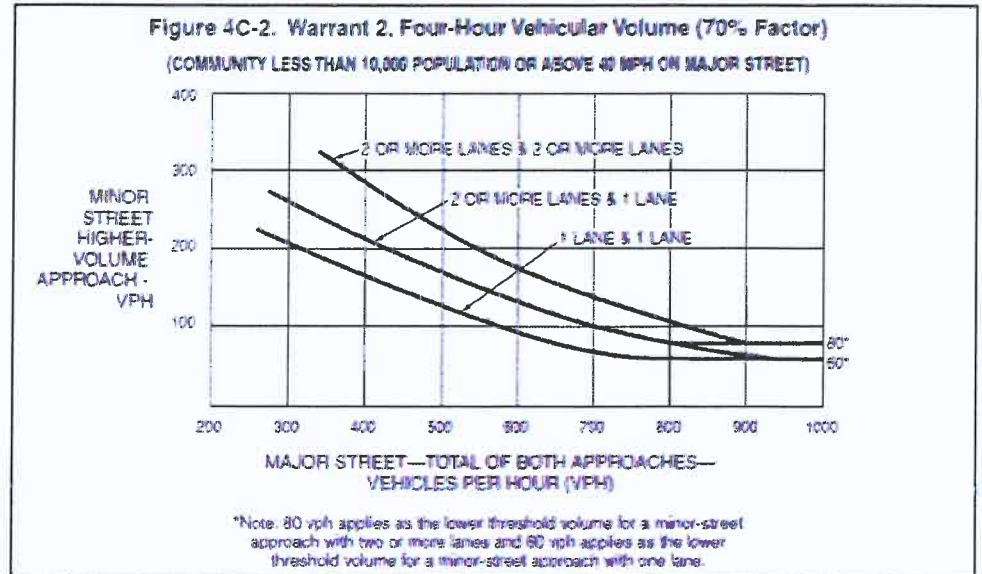
Warrant 2 – Four-Hour Vehicular Volume

Plot four volume combinations on the applicable figure below. If four points lie above the appropriate line, then the warrant is satisfied.

Figure A. Criteria for “70%” volume level.

Hour	7:00	5:00	4:00	2:00
Major Vol.	564	344	342	304
Minor Vol.	110	253	254	285

Satisfied?: Yes



Warrant 3 – Peak Hour

Unusual condition justifying use of warrant: _____

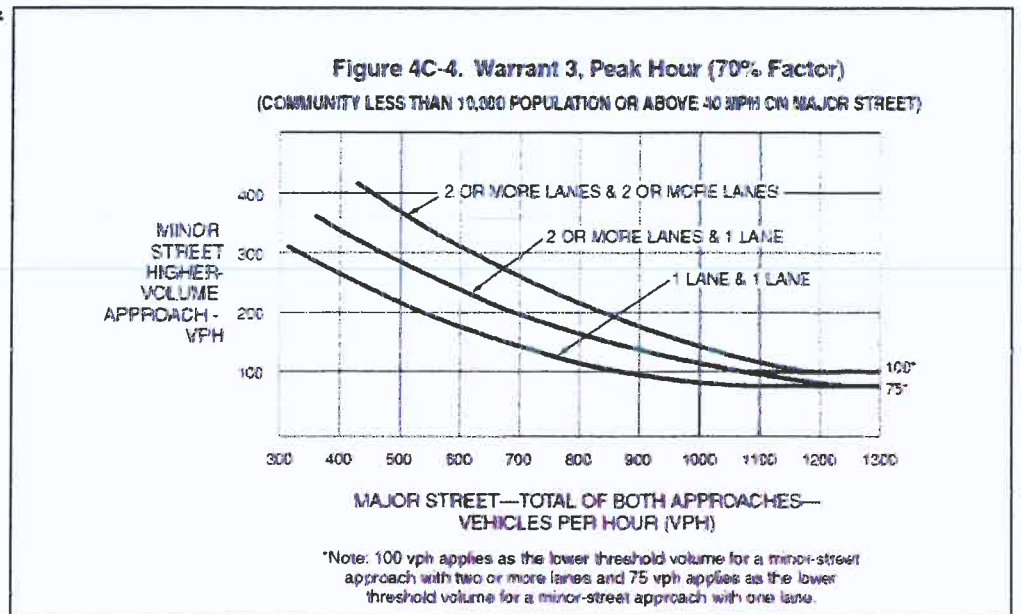
Record hour where criteria are fulfilled and the corresponding delay or volume in boxes provided. Plot the peak hour volume combination on the applicable figure below. If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Criteria	Approach Lanes		No. of Approaches		Hour	Fulfilled?	
	1	2	3	4		Yes	No
1. Delay on Minor Approach (veh/h)	4	5				☐	☐
2. Volume on Minor Approach (veh/h)	100	150				☐	☐
3. Total Entering Volume (veh/h)			650	800		☐	☐

Figure A. Criteria for “70%” volume level.

Hour	7:00
Major Vol.	564
Minor Vol.	110

Satisfied?: No



TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

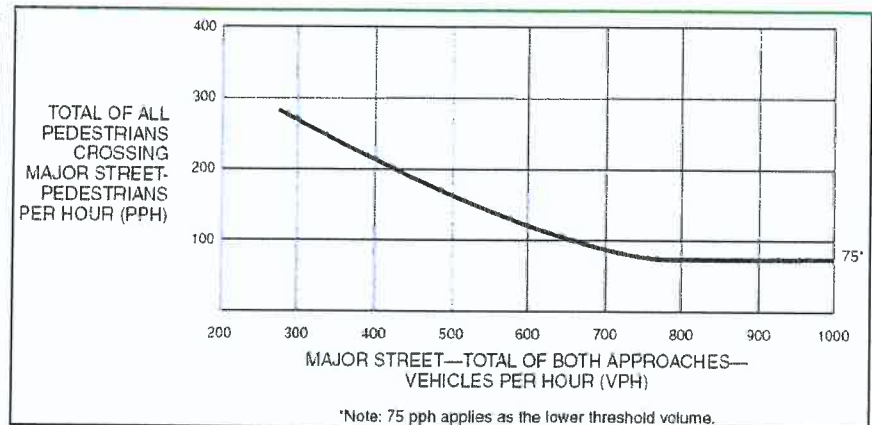
Sheet 3

Warrant 4 – Pedestrian Volume

Plot four volume combinations on the applicable figure below.

Criterion A

Hour				
Major Vol.				
Pedestrian Vol.				

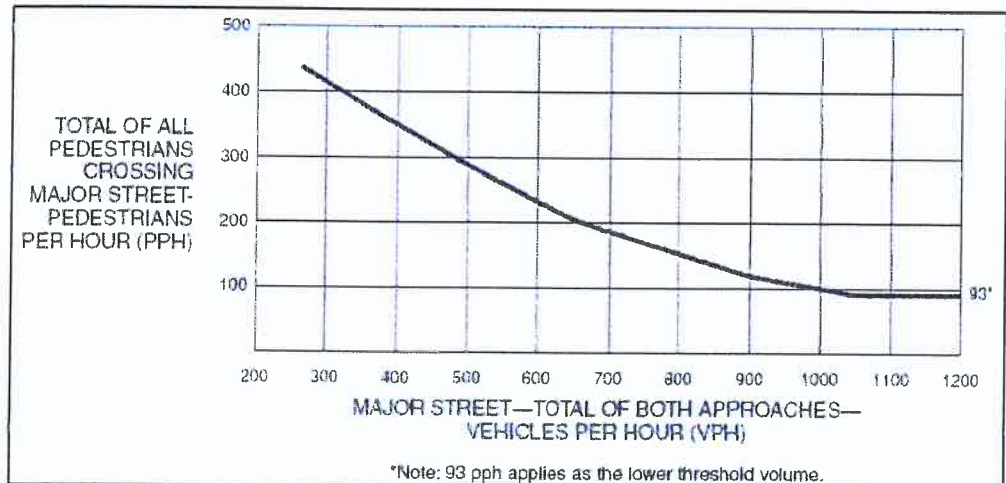


Criterion A Satisfied?: N/A

Criterion B

Plot the peak hour volume combination on the applicable figure below.

Hour	
Major Vol.	
Pedestrian Vol.	



Criterion B Satisfied?:

N/A

Warrant Satisfied?:

N/A

Warrant 5 – School Crossing

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided.
The warrant is satisfied if all three of the criteria are fulfilled.

Criteria	Fulfilled?	
	Yes	No
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.	☐	☐

Satisfied?: N/A

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 4

Warrant 6 – Coordinated Signal System

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 1000 ft.

Criteria	Fulfilled?	
	Yes	No
1. 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.	☐	☐
2. On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and adjacent signals will collectively provide a progressive operation.	☐	☐

Satisfied?: N/A

Warrant 7 – Crash Experience

The warrant is satisfied if all three of the criteria are fulfilled.

Criteria (Must use 80% - Urban - Condition Warrant Volume Levels)		Met?		Fulfilled?	
		Yes	No	Yes	No
A. Adequate trial of other remedial measures has failed to reduce crash frequency.	Measures tried:	☐	☐	☐	☐
B. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo period.	Number of crashes per 12 months:	☐	☐	☐	☐
C. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied from Table 1 above)	☐	☐	☐	☐
	Warrant 1, Condition B (80% satisfied from Table 1 above)	☐	☐		
	Warrant 4, Criterion A (80% satisfied above)	☐	☐		
	Warrant 4, Criterion B (80% satisfied above)	☐	☐		

Table 1: 80% Volume Comparison Criteria for Warrant 1

(Volumes in veh/h)		Minimum Requirements			
Approach Lanes:		1		2 or more	
Volume Level:		80%	Hours	80%	Hours
Major Road Both App. vph	1A	280		336	
	1B	420		504	
Minor Road High App. vph	1A	84		112	
	1B	42		56	

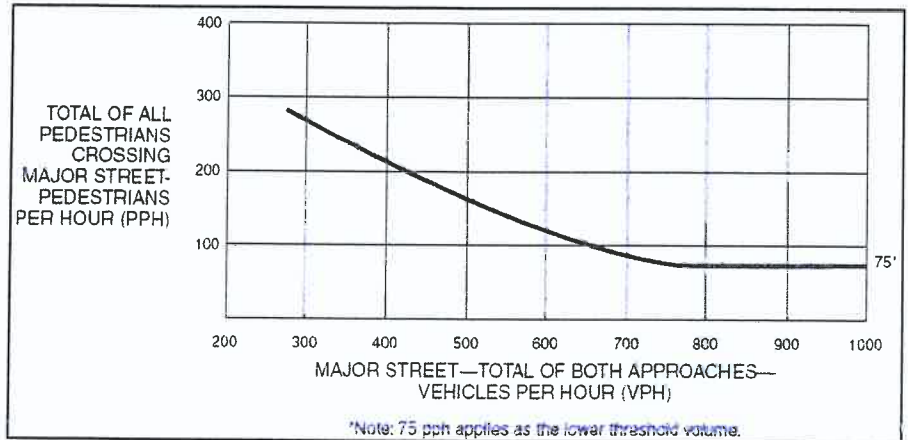
TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 5

Criterion 4A

Plot four volume combinations on the applicable figure below. Draw vertical line for each of the four major road volumes. Where this line meets the graphed line, draw horizontal line to determine the minimum pedestrian volume to meet the warrant for this major road volume. Enter that value as the "Graph Ped. Volume." Multiply the "Graph Ped. Volume" by 0.8. Enter this new value as the "80% of Graphed Ped. Volume." If your actual "Pedestrian Volume" value exceeds the "80% of Graphed Ped. Volume" for each of the four hours, the 80% warrant is met.

Hour				
Major Vol.				
Ped. Vol.				
Graphed Ped. Vol.				
80% of Graphed Ped. Vol.				



Criterion A Satisfied?:

N/A

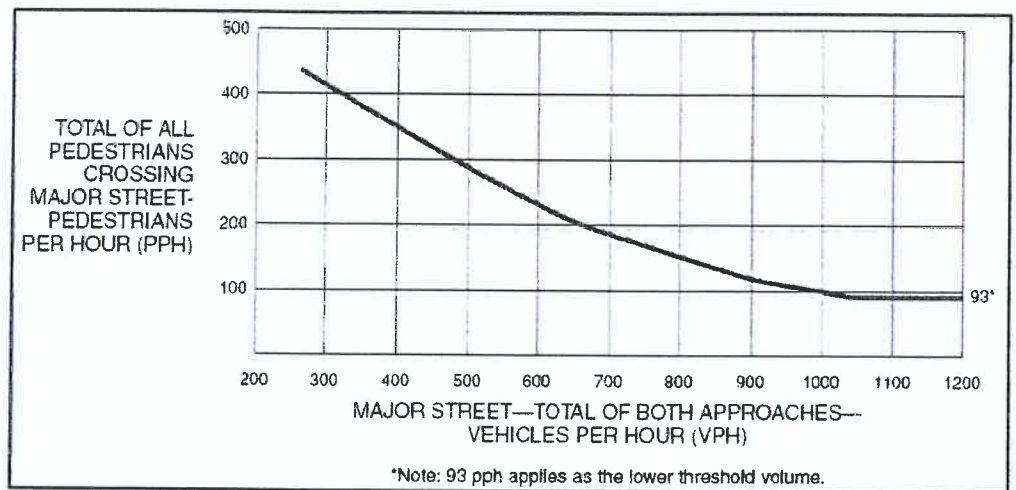
Warrant Satisfied?:

N/A

Criterion 4B

Plot and establish the pedestrian volumes for the peak hour as explained in Criterion 4A.

Hour	
Major Vol.	
Ped. Vol.	
Graph Ped. Volume	
80% of Graphed Ped Volume	



Criterion B Satisfied?:

N/A

Warrant Satisfied?:

N/A

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 6

Warrant 8 – Roadway Network

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria						Met?		Fulfilled?			
										Yes	No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/h during typical weekday peak hour.	Entering volume:				☐	☐			☐	☐
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant(s) satisfied:				☐	☐				
2. Total entering volume at least 1,000 veh/h for each of any 5 hrs of a non-normal business day (Sat. or Sun.)						-Hr.		☐	☐		
						-Vol.					
Characteristics of Major Routes								Fulfilled?			
								Yes	No		
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 Satisfied?: N/A

Warrant 9 – Intersection Near a Grade Crossing

Plot the peak hour volume combination on the applicable figure below. Use curve for D (where D = Clear Storage Distance as defined in 1A.13) that is nearest to the actual distance.

Hour	7:00
Major Vol.	564
Minor Vol.	110
Adjusted Minor Vol.	

Adjustment Factors Applied	
Rail Traffic	
% Buses	
% Trucks	

Adjustment Factor for Daily Frequency of Rail Traffic	
Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 9	1.18
9 to 11	1.25
12 or more	1.33

Adjustment Factor for Percentage of High-Occupancy Buses	
% of High-Occupancy Buses* on Minor-Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people.

Adjustment Factor for Percentage of Tractor-Trailer Trucks		
% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEET

Sheet 7

Figure 4C-9 – One Approach Lane at the Track Crossing

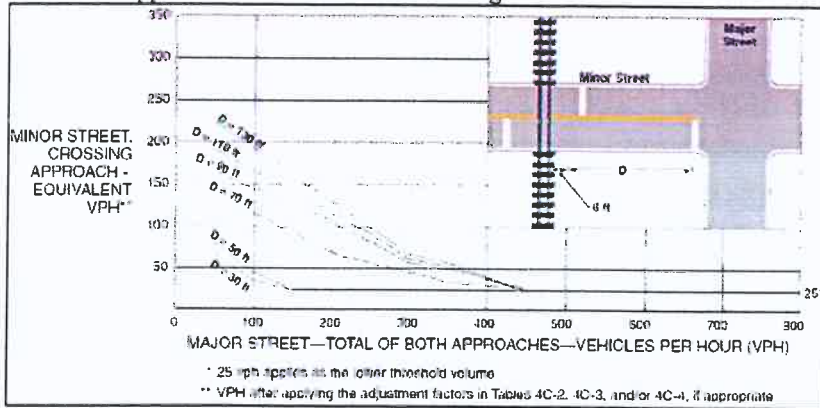
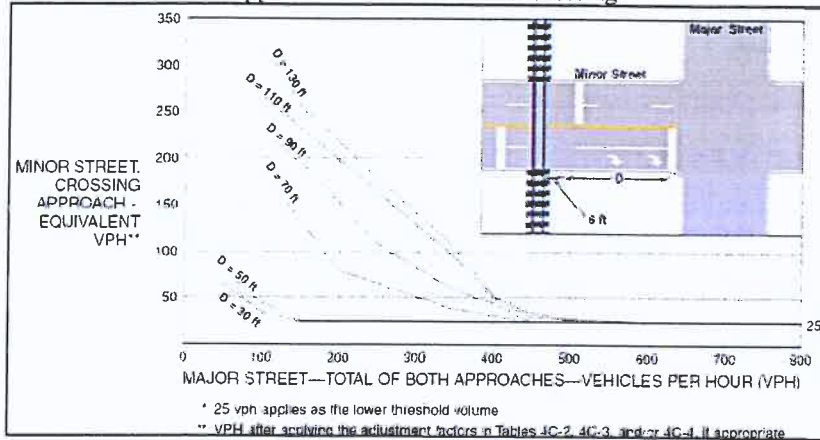


Figure 4C-10 – Two or More Approach Lanes at the Track Crossing



Warrant Satisfied?: N/A

CONCLUSIONS:

Appendix 4

Existing (Year 2014) Traffic Operational Analysis

Existing (Year 2014) Morning Peak Hour Traffic Analysis With Existing Geometrics
 3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection												
Int Delay, s/veh	16.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	160	135	160	110	5	35	25	40	10	105	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	8	8	8	6	6	6	12	12	12	4	4	4
Mvmt Flow	13	205	173	205	141	6	45	32	51	13	135	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	147	0	0	378	0	0	865	875	139	698	958	74
Stage 1	-	-	-	-	-	-	317	317	-	554	554	-
Stage 2	-	-	-	-	-	-	548	558	-	144	404	-
Critical Hdwy	4.26	-	-	4.22	-	-	7.74	6.74	7.14	7.58	6.58	6.98
Critical Hdwy Stg 1	-	-	-	-	-	-	6.74	5.74	-	6.58	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.74	-	6.58	5.58	-
Follow-up Hdwy	2.28	-	-	2.26	-	-	3.62	4.12	3.42	3.54	4.04	3.34
Pot Cap-1 Maneuver	1390	-	-	1149	-	-	232	269	790	323	252	966
Stage 1	-	-	-	-	-	-	642	628	-	479	507	-
Stage 2	-	-	-	-	-	-	464	486	-	838	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1390	-	-	1149	-	-	92	214	790	226	201	966
Mov Cap-2 Maneuver	-	-	-	-	-	-	92	214	-	226	201	-
Stage 1	-	-	-	-	-	-	634	620	-	473	409	-
Stage 2	-	-	-	-	-	-	249	392	-	734	586	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			5.2			49.7			58.3		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	121	790	1390	-	-	1149	-	-	210			
HCM Lane V/C Ratio	0.636	0.065	0.009	-	-	0.179	-	-	0.733			
HCM Control Delay (s)	76.2	9.9	7.6	0	-	8.8	0.2	-	58.3			
HCM Lane LOS	F	A	A	A	-	A	A	-	F			
HCM 95th %tile Q(veh)	3.3	0.2	0	-	-	0.6	-	-	4.9			

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Existing (Year 2014) Afternoon Peak Hour Traffic Analysis With Existing Geometrics

3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	110	85	45	125	10	130	90	85	10	50	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	13	13	13	14	14	14	6	6	6	35	35	35
Mvmt Flow	6	122	94	50	139	11	144	100	94	11	56	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	217	0	0	378	431	108	366	472	75
Stage 1	-	-	-	-	-	-	181	181	-	244	244	-
Stage 2	-	-	-	-	-	-	197	250	-	122	228	-
Critical Hdwy	4.36	-	-	4.38	-	-	7.62	6.62	7.02	8.2	7.2	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-	6.62	5.62	-	7.2	6.2	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.62	5.62	-	7.2	6.2	-
Follow-up Hdwy	2.33	-	-	2.34	-	-	3.56	4.06	3.36	3.85	4.35	3.65
Pot Cap-1 Maneuver	1352	-	-	1267	-	-	545	507	912	491	422	874
Stage 1	-	-	-	-	-	-	792	739	-	652	628	-
Stage 2	-	-	-	-	-	-	775	689	-	781	639	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1352	-	-	1267	-	-	467	483	912	357	402	874
Mov Cap-2 Maneuver	-	-	-	-	-	-	467	483	-	357	402	-
Stage 1	-	-	-	-	-	-	788	735	-	649	601	-
Stage 2	-	-	-	-	-	-	669	659	-	602	636	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.1	17.4	15.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	473	912	1352	-	-	1267	-	-	411
HCM Lane V/C Ratio	0.517	0.104	0.004	-	-	0.039	-	-	0.176
HCM Control Delay (s)	20.5	9.4	7.7	0	-	8	0.1	-	15.6
HCM Lane LOS	C	A	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.9	0.3	0	-	-	0.1	-	-	0.6

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Existing (Year 2014) Evening Peak Hour Traffic Analysis With Existing Geometrics
 3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection

Int Delay, s/veh 9.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	125	50	65	140	20	65	130	115	5	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	4	4	4	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	154	62	80	173	25	80	160	142	6	31	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	198	0	0	216	0	0	472	568	108	528	587	99
Stage 1	-	-	-	-	-	-	210	210	-	346	346	-
Stage 2	-	-	-	-	-	-	262	358	-	182	241	-
Critical Hdwy	4.18	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1357	-	-	1351	-	-	475	431	925	433	420	937
Stage 1	-	-	-	-	-	-	773	727	-	643	634	-
Stage 2	-	-	-	-	-	-	720	626	-	802	705	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1357	-	-	1351	-	-	418	398	925	238	388	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	418	398	-	238	388	-
Stage 1	-	-	-	-	-	-	765	720	-	637	592	-
Stage 2	-	-	-	-	-	-	633	584	-	522	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.3	20	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	404	925	1357	-	-	1351	-	-	386
HCM Lane V/C Ratio	0.596	0.153	0.009	-	-	0.059	-	-	0.112
HCM Control Delay (s)	26.2	9.6	7.7	0	-	7.8	0.1	-	15.5
HCM Lane LOS	D	A	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	3.7	0.5	0	-	-	0.2	-	-	0.4

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Appendix 5

Design Year (Year 2037) Traffic Operational Analysis

Design Year (Year 2037) Morning Peak Hour Traffic Analysis - Median Alternative
 3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection

Int Delay, s/veh 178.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	255	215	255	175	20	60	65	65	25	180	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	0	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	8	8	8	6	6	6	12	12	12	4	4	4
Mvmt Flow	32	327	276	327	224	26	77	83	83	32	231	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	250	0	0	603	0	0	1542	1433	465	1503	1558	237
Stage 1	-	-	-	-	-	-	529	529	-	891	891	-
Stage 2	-	-	-	-	-	-	1013	904	-	612	667	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.22	6.62	6.32	7.14	6.54	6.24
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.14	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.14	5.54	-
Follow-up Hdwy	2.272	-	-	2.254	-	-	3.608	4.108	3.408	3.536	4.036	3.336
Pot Cap-1 Maneuver	1281	-	-	955	-	-	89	128	577	99	~111	797
Stage 1	-	-	-	-	-	-	515	511	-	334	358	-
Stage 2	-	-	-	-	-	-	276	343	-	477	454	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1281	-	-	955	-	-	-	~82	577	40	~71	797
Mov Cap-2 Maneuver	-	-	-	-	-	-	~27	178	-	~4	~108	-
Stage 1	-	-	-	-	-	-	502	498	-	326	235	-
Stage 2	-	-	-	-	-	-	~3	226	-	331	443	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	6.1		\$ 1107
HCM LOS				F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	272	1281	-	-	955	-	-	4	113
HCM Lane V/C Ratio	-	0.613	0.025	-	-	0.342	-	-	8.013	2.156
HCM Control Delay (s)	-	37.1	7.9	-	-	10.7	-	-	\$ 4877.75	\$ 610.8
HCM Lane LOS	-	E	A	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	-	3.7	0.1	-	-	1.5	-	-	5.6	20.7

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Design Year (Year 2037) Afternoon Peak Hour Traffic Analysis - Median Alternative
 3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection

Int Delay, s/veh 12.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	175	135	75	200	25	205	165	135	25	95	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	0	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	13	13	13	14	14	14	6	6	6	35	35	35
Mvmt Flow	17	194	150	83	222	28	228	183	150	28	106	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	250	0	0	344	0	0	767	720	269	872	781	236
Stage 1	-	-	-	-	-	-	303	303	-	403	403	-
Stage 2	-	-	-	-	-	-	464	417	-	469	378	-
Critical Hdwy	4.23	-	-	4.24	-	-	7.16	6.56	6.26	7.45	6.85	6.55
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.45	5.85	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.45	5.85	-
Follow-up Hdwy	2.317	-	-	2.326	-	-	3.554	4.054	3.354	3.815	4.315	3.615
Pot Cap-1 Maneuver	1254	-	-	1151	-	-	314	349	760	238	291	728
Stage 1	-	-	-	-	-	-	698	656	-	563	546	-
Stage 2	-	-	-	-	-	-	571	584	-	517	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1254	-	-	1151	-	-	228	319	760	124	266	728
Mov Cap-2 Maneuver	-	-	-	-	-	-	359	460	-	197	392	-
Stage 1	-	-	-	-	-	-	689	647	-	555	507	-
Stage 2	-	-	-	-	-	-	410	542	-	293	553	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	24.7	18.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	359	559	1254	-	-	1151	-	-	197	418
HCM Lane V/C Ratio	0.634	0.596	0.013	-	-	0.072	-	-	0.141	0.292
HCM Control Delay (s)	30.9	20.5	7.9	-	-	8.4	-	-	26.3	17.1
HCM Lane LOS	D	C	A	-	-	A	-	-	D	C
HCM 95th %tile Q(veh)	4.2	3.9	0	-	-	0.2	-	-	0.5	1.2

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Design Year (Year 2037) Evening Peak Hour Traffic Analysis - Median Alternative
3: Maple Road & Freistadt Road

HCM 2010 TWSC

Intersection:

Int Delay, s/veh 30

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	200	80	105	225	40	105	215	185	15	65	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	0	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	4	4	4	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	247	99	130	278	49	130	265	228	19	80	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	327	0	0	346	0	0	969	944	296	1167	969	302
Stage 1	-	-	-	-	-	-	358	358	-	562	562	-
Stage 2	-	-	-	-	-	-	611	586	-	605	407	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1221	-	-	1213	-	-	233	~262	743	171	254	738
Stage 1	-	-	-	-	-	-	660	628	-	512	510	-
Stage 2	-	-	-	-	-	-	481	497	-	485	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1221	-	-	1213	-	-	170	~228	743	45	221	738
Mov Cap-2 Maneuver	-	-	-	-	-	-	289	368	-	52	357	-
Stage 1	-	-	-	-	-	-	643	612	-	499	455	-
Stage 2	-	-	-	-	-	-	345	444	-	185	582	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	2.4	67.7	31.5
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	289	480	1221	-	-	1213	-	-	52	395
HCM Lane V/C Ratio	0.449	1.029	0.025	-	-	0.107	-	-	0.356	0.25
HCM Control Delay (s)	27.2	78.3	8	-	-	8.3	-	-	108.5	17.1
HCM Lane LOS	D	F	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	2.2	14.5	0.1	-	-	0.4	-	-	1.3	1

Notes:

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Design Year (Year 2037) Morning Peak Hour Traffic Analysis - Traffic Signal Alternative

3: Maple Road & Freistadt Road

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	255	215	255	175	20	60	65	65	25	180	10
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1792	1792	1900	1696	1696	1900	1827	1827	1900
Adj Flow Rate, veh/h	32	327	276	327	224	26	77	83	83	32	231	13
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	8	8	8	6	6	6	12	12	12	4	4	4
Cap, veh/h	534	362	305	357	948	110	218	183	183	270	403	23
Arrive On Green	0.41	0.41	0.41	0.12	0.60	0.60	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1063	883	745	1707	1577	183	1030	779	779	1191	1713	96
Grp Volume(v), veh/h	32	0	603	327	0	250	77	0	166	32	0	244
Grp Sat Flow(s),veh/h/ln	1063	0	1628	1707	0	1760	1030	0	1559	1191	0	1810
Q Serve(g_s), s	1.3	0.0	25.4	7.6	0.0	4.8	5.2	0.0	6.7	1.7	0.0	8.7
Cycle Q Clear(g_c), s	1.3	0.0	25.4	7.6	0.0	4.8	14.0	0.0	6.7	8.4	0.0	8.7
Prop In Lane	1.00		0.46	1.00		0.10	1.00		0.50	1.00		0.05
Lane Grp Cap(c), veh/h	534	0	667	357	0	1058	218	0	366	270	0	425
V/C Ratio(X)	0.06	0.00	0.90	0.92	0.00	0.24	0.35	0.00	0.45	0.12	0.00	0.57
Avail Cap(c_a), veh/h	577	0	733	357	0	1130	271	0	447	331	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	20.3	15.4	0.0	6.8	30.9	0.0	24.0	27.6	0.0	24.8
Incr Delay (d2), s/veh	0.0	0.0	13.8	27.5	0.0	0.1	1.0	0.0	0.9	0.2	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	14.0	6.2	0.0	2.3	1.5	0.0	2.9	0.6	0.0	4.5
LnGrp Delay(d),s/veh	13.2	0.0	34.1	42.9	0.0	6.9	31.9	0.0	24.9	27.8	0.0	26.0
LnGrp LOS	B		C	D		A	C		C	C		C
Approach Vol, veh/h	635			577			243			276		
Approach Delay, s/veh	33.0			27.3			27.1			26.2		
Approach LOS	C			C			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	50.0		23.2		14.0	36.0	23.2					
Change Period (Y+Rc), s	6.0		6.0		5.0	6.0	6.0					
Max Green Setting (Gmax), s	47.0		21.0		9.0	33.0	21.0					
Max Q Clear Time (g_c+I1), s	6.8		10.7		9.6	27.4	16.0					
Green Ext Time (p_c), s	6.6		2.0		0.0	2.6	1.3					
Intersection Summary												
HCM 2010 Ctrl Delay				29.2								
HCM 2010 LOS				C								

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Design Year (Year 2037) Morning Peak Hour Traffic Analysis - Traffic Signal Alternative 3: Maple Road & Freistadt Road

Timings

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	25	255	255	175	60	65	25	180
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	5	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	7.0	12.0	10.0	10.0	10.0	10.0
Minimum Split (s)	27.0	27.0	12.0	27.0	27.0	27.0	27.0	27.0
Total Split (s)	39.0	39.0	14.0	53.0	27.0	27.0	27.0	27.0
Total Split (%)	48.8%	48.8%	17.5%	66.3%	33.8%	33.8%	33.8%	33.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Min	Min	None	Min	None	None	None	None
Act Effct Green (s)	29.6	29.6	44.8	43.8	15.0	15.0	15.0	15.0
Actuated g/C Ratio	0.42	0.42	0.63	0.62	0.21	0.21	0.21	0.21
v/c Ratio	0.07	0.88	0.84	0.23	0.44	0.50	0.13	0.64
Control Delay	13.9	36.7	31.4	7.3	33.5	31.0	24.6	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	36.7	31.4	7.3	33.5	31.0	24.6	34.3
LOS	B	D	C	A	C	C	C	C
Approach Delay		35.6		20.9		31.8		33.2
Approach LOS		D		C		C		C

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 71

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.8

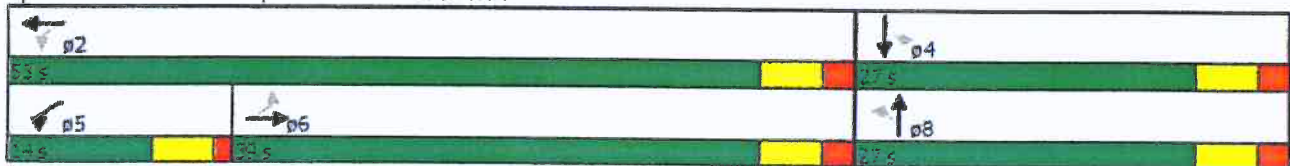
Intersection Capacity Utilization 78.3%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service D

Splits and Phases: 3: Maple Road & Freistadt Road



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Design Year (Year 2037) Morning Peak Hour Traffic Analysis - Traffic Signal Alternative
3: Maple Road & Freistadt Road

Queues



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	603	327	250	77	166	32	244
v/c Ratio	0.07	0.88	0.84	0.23	0.44	0.50	0.13	0.64
Control Delay	13.9	36.7	31.4	7.3	33.5	31.0	24.6	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	36.7	31.4	7.3	33.5	31.0	24.6	34.3
Queue Length 50th (ft)	8	232	56	42	31	68	12	104
Queue Length 95th (ft)	22	#339	#130	76	60	104	29	145
Internal Link Dist (ft)		1247		1260		770		836
Turn Bay Length (ft)	200		200				200	
Base Capacity (vph)	501	772	389	1185	252	471	357	543
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.78	0.84	0.21	0.31	0.35	0.09	0.45

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Design Year (Year 2037) Afternoon Peak Hour Traffic Analysis - Traffic Signal Alternative

3: Maple Road & Freistadt Road

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	175	135	75	200	25	205	165	135	25	95	15
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1681	1681	1900	1667	1667	1900	1792	1792	1900	1407	1407	1900
Adj Flow Rate, veh/h	17	194	150	83	222	28	228	183	150	28	106	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	13	13	13	14	14	14	6	6	6	35	35	35
Cap, veh/h	422	257	199	353	681	86	436	294	241	245	381	61
Arrive On Green	0.29	0.29	0.29	0.09	0.47	0.47	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1016	880	681	1587	1451	183	1215	913	748	788	1184	190
Grp Volume(v), veh/h	17	0	344	83	0	250	228	0	333	28	0	123
Grp Sat Flow(s), veh/h/ln	1016	0	1561	1587	0	1634	1215	0	1660	788	0	1374
Q Serve(g_s), s	0.7	0.0	11.5	1.8	0.0	5.5	9.9	0.0	9.8	1.8	0.0	3.8
Cycle Q Clear(g_c), s	0.7	0.0	11.5	1.8	0.0	5.5	13.7	0.0	9.8	11.5	0.0	3.8
Prop In Lane	1.00		0.44	1.00		0.11	1.00		0.45	1.00		0.14
Lane Grp Cap(c), veh/h	422	0	456	353	0	766	436	0	534	245	0	442
V/C Ratio(X)	0.04	0.00	0.75	0.24	0.00	0.33	0.52	0.00	0.62	0.11	0.00	0.28
Avail Cap(c_a), veh/h	657	0	817	405	0	1198	596	0	753	349	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	18.4	12.0	0.0	9.5	19.6	0.0	16.5	21.4	0.0	14.5
Incr Delay (d2), s/veh	0.0	0.0	2.6	0.3	0.0	0.2	1.0	0.0	1.2	0.2	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	0.0	5.2	0.8	0.0	2.5	3.4	0.0	4.6	0.4	0.0	1.5
LnGrp Delay(d), s/veh	14.6	0.0	21.0	12.4	0.0	9.8	20.6	0.0	17.7	21.6	0.0	14.8
LnGrp LOS	B		C	B		A	C		B	C		B
Approach Vol, veh/h	361			333			561			151		
Approach Delay, s/veh	20.7			10.4			18.9			16.1		
Approach LOS	C			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		32.9		24.4	10.1	22.7		24.4				
Change Period (Y+Rc), s		6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s		42.0		26.0	7.0	30.0		26.0				
Max Q Clear Time (g_c+1), s		7.5		13.5	3.8	13.5		15.7				
Green Ext Time (p_c), s		3.9		3.0	0.0	3.3		2.8				
Intersection Summary												
HCM 2010 Ctrl Delay	17.0											
HCM 2010 LOS	B											

GRAEF

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Design Year (Year 2037) Afternoon Peak Hour Traffic Analysis - Traffic Signal Alternative 3: Maple Road & Freistadt Road

Timings

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	15	175	75	200	205	165	25	95
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	5	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	7.0	12.0	10.0	10.0	10.0	10.0
Minimum Split (s)	27.0	27.0	12.0	27.0	27.0	27.0	27.0	27.0
Total Split (s)	36.0	36.0	12.0	48.0	32.0	32.0	32.0	32.0
Total Split (%)	45.0%	45.0%	15.0%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Min	Min	None	Min	None	None	None	None
Act Effct Green (s)	19.6	19.6	29.5	28.4	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.33	0.33	0.50	0.48	0.30	0.30	0.30	0.30
v/c Ratio	0.05	0.66	0.19	0.32	0.63	0.66	0.15	0.30
Control Delay	16.3	26.0	9.4	10.9	28.8	27.3	20.1	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	26.0	9.4	10.9	28.8	27.3	20.1	20.5
LOS	B	C	A	B	C	C	C	C
Approach Delay		25.5		10.6		27.9		20.5
Approach LOS		C		B		C		C

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 59.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 22.4

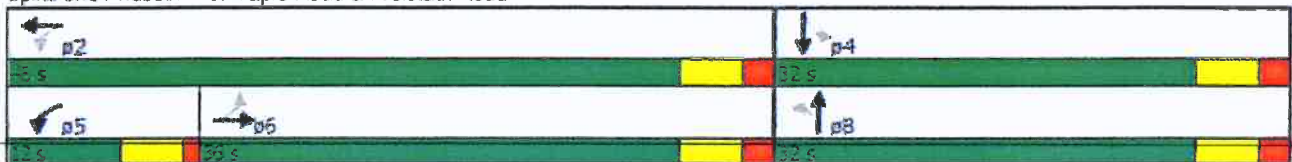
Intersection LOS: C

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Maple Road & Freistadt Road



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Design Year (Year 2037) Afternoon Peak Hour Traffic Analysis - Traffic Signal Alternative
3: Maple Road & Freistadt Road

Queues

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	344	83	250	228	333	28	123
v/c Ratio	0.05	0.66	0.19	0.32	0.63	0.66	0.15	0.30
Control Delay	16.3	26.0	9.4	10.9	28.8	27.3	20.1	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	26.0	9.4	10.9	28.8	27.3	20.1	20.5
Queue Length 50th (ft)	4	111	14	49	71	106	7	34
Queue Length 95th (ft)	18	220	40	111	168	225	29	88
Internal Link Dist (ft)		1247		1260		770		836
Turn Bay Length (ft)	200		200				200	
Base Capacity (vph)	560	866	427	1186	580	798	302	658
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.40	0.19	0.21	0.39	0.42	0.09	0.19
Intersection Summary								

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Design Year (Year 2037) Evening Peak Hour Traffic Analysis - Traffic Signal Alternative

3: Maple Road & Freistadt Road

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	200	80	105	225	40	105	215	185	15	65	15
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	31	247	99	130	278	49	130	265	228	19	80	19
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	330	132	380	689	121	533	334	287	210	525	125
Arrive On Green	0.27	0.27	0.27	0.10	0.45	0.45	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1028	1242	498	1774	1543	272	1291	926	796	900	1456	346
Grp Volume(v), veh/h	31	0	346	130	0	327	130	0	493	19	0	99
Grp Sat Flow(s), veh/h/ln	1028	0	1739	1774	0	1815	1291	0	1722	900	0	1802
Q Serve(g_s), s	1.4	0.0	11.4	3.0	0.0	7.6	4.7	0.0	16.0	1.2	0.0	2.3
Cycle Q Clear(g_c), s	1.4	0.0	11.4	3.0	0.0	7.6	7.0	0.0	16.0	17.2	0.0	2.3
Prop In Lane	1.00		0.29	1.00		0.15	1.00		0.46	1.00		0.19
Lane Grp Cap(c), veh/h	389	0	462	380	0	810	533	0	621	210	0	650
V/C Ratio(X)	0.08	0.00	0.75	0.34	0.00	0.40	0.24	0.00	0.79	0.09	0.00	0.15
Avail Cap(c_a), veh/h	529	0	698	401	0	1079	710	0	858	333	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	21.0	13.8	0.0	11.6	15.8	0.0	17.8	25.5	0.0	13.5
Incr Delay (d2), s/veh	0.1	0.0	2.5	0.5	0.0	0.3	0.2	0.0	3.6	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	5.7	1.5	0.0	3.8	1.7	0.0	8.1	0.3	0.0	1.2
LnGrp Delay(d),s/veh	17.4	0.0	23.4	14.3	0.0	12.0	16.1	0.0	21.4	25.7	0.0	13.6
LnGrp LOS	B		C	B		B	B		C	C		B
Approach Vol, veh/h	377			457			623			118		
Approach Delay, s/veh	22.9			12.6			20.3			15.5		
Approach LOS	C			B			C			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		33.8		28.5	11.3	22.5		28.5				
Change Period (Y+Rc), s		6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s		37.0		31.0	7.0	25.0		31.0				
Max Q Clear Time (g_c+I1), s		9.6		19.2	5.0	13.4		18.0				
Green Ext Time (p_c), s		4.3		3.3	0.1	3.2		3.5				
Intersection Summary												
HCM 2010 Ctrl Delay	18.3											
HCM 2010 LOS	B											

GRAEF

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Design Year (Year 2037) Evening Peak Hour Traffic Analysis - Traffic Signal Alternative
3: Maple Road & Freistadt Road

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	25	200	105	225	105	215	15	65
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		6	5	2		8		4
Permitted Phases	6		2		8		4	
Detector Phase	6	6	5	2	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	7.0	12.0	10.0	10.0	10.0	10.0
Minimum Split (s)	27.0	27.0	12.0	27.0	27.0	27.0	27.0	27.0
Total Split (s)	31.0	31.0	12.0	43.0	37.0	37.0	37.0	37.0
Total Split (%)	38.8%	38.8%	15.0%	53.8%	46.3%	46.3%	46.3%	46.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	Min	Min	None	Min	None	None	None	None
Act Effct Green (s)	18.9	18.9	28.8	27.7	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.30	0.30	0.45	0.43	0.36	0.36	0.36	0.36
v/c Ratio	0.10	0.67	0.31	0.41	0.28	0.79	0.10	0.15
Control Delay	20.5	29.5	13.5	14.9	17.9	29.7	16.8	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	29.5	13.5	14.9	17.9	29.7	16.8	15.9
LOS	C	C	B	B	B	C	B	B
Approach Delay		28.8		14.5		27.3		16.0
Approach LOS		C		B		C		B

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 63.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 23.1

Intersection Capacity Utilization 61.9%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service B

Splits and Phases: 3: Maple Road & Freistadt Road



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Design Year (Year 2037) Evening Peak Hour Traffic Analysis - Traffic Signal Alternative
3: Maple Road & Freistadt Road

Queues

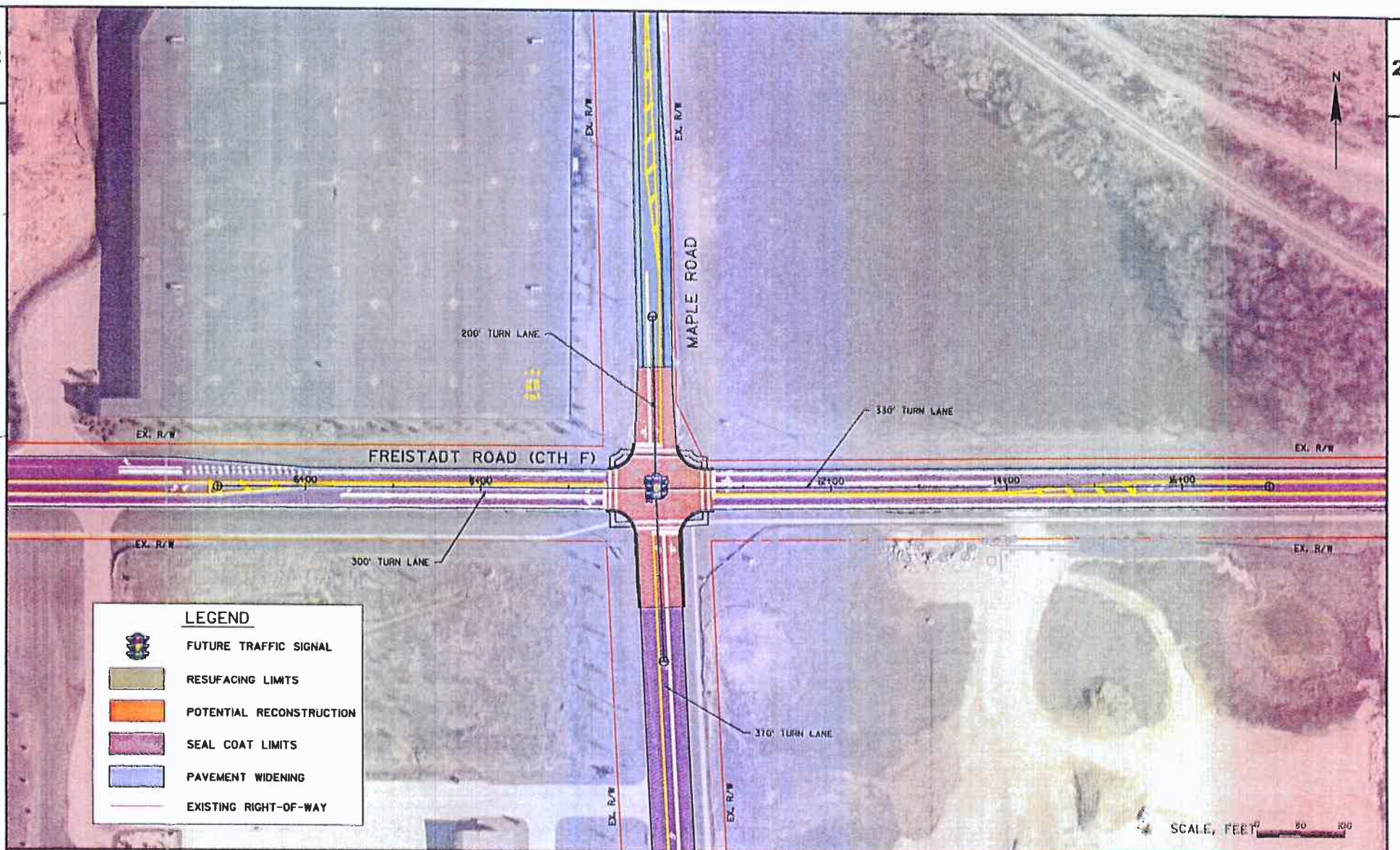
								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	346	130	327	130	493	19	99
v/c Ratio	0.10	0.67	0.31	0.41	0.28	0.79	0.10	0.15
Control Delay	20.5	29.5	13.5	14.9	17.9	29.7	16.8	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	29.5	13.5	14.9	17.9	29.7	16.8	15.9
Queue Length 50th (ft)	10	129	29	86	37	176	5	27
Queue Length 95th (ft)	28	204	59	143	74	273	18	56
Internal Link Dist (ft)		1247		1260		770		836
Turn Bay Length (ft)	200		200				200	
Base Capacity (vph)	440	748	414	1137	685	921	280	961
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.46	0.31	0.29	0.19	0.54	0.07	0.10
Intersection Summary								

Appendix 6

Traffic Signal Alternative Conceptual Layout & Cost Estimate

2

2



PROJECT NO: 2014-1010

HWY: CTH F

COUNTY: WASHINGTON

FREISTADT ROAD & MAPLE ROAD - TRAFFIC SIGNAL

SHEET

E

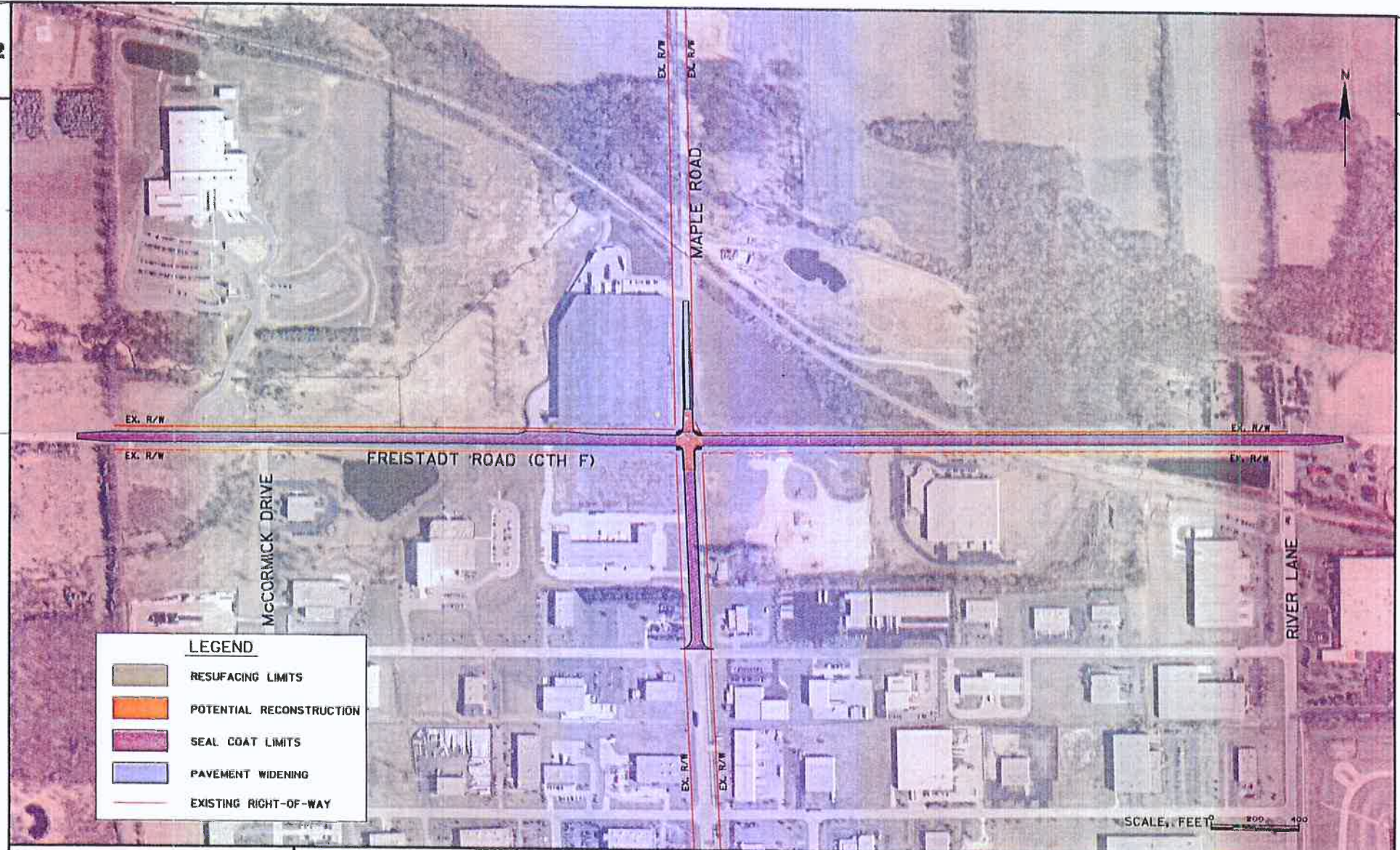
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PLOT DATE : 11/13/2014 3:38 PM

PLOT BY : OLSON, JILLIE

PLOT NAME :

WISDOT/CADDs SHEET 42



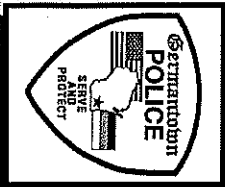
LEGEND

- RESURFACING LIMITS
- POTENTIAL RECONSTRUCTION
- SEAL COAT LIMITS
- PAVEMENT WIDENING
- EXISTING RIGHT-OF-WAY

ESTIMATE OF QUANTITIES - RECOMMENDED IMPROVEMENTS

Project I.D.	2014-1010						
Title	Freistadt Road and Maple Road Intersection						
Limits	600' west of McCormik Drive to River Lane						
Highway	CTH F						
County	Washington						
Date	1/19/2015						
		Freistadt and Maple					
Item #	Description	Qty	Unit	Cost	Total	Category	Rev (x)
1	Seal Coat	33,600	SY	\$ 2.00	\$67,200.00	0010	
2	Pavement Widening (North approach)	610	SY	\$ 35.00	\$21,342.22	0010	
3	Potential Reconstruction (Center of Intersection)	1,921	SY	\$ 35.00	\$67,238.89	0010	
4	Resurfacing North approach (2" Mill & Overlay)	1,348	SY	\$ 10.00	\$13,477.78	0010	
5	Concrete Curb & Gutter (Including Removal)	370	LF	\$ 30.00	\$11,100.00	0010	
6	Concrete Sidewalk	900	SF	\$ 4.00	\$3,600.00	0010	
7	Proposed Signal	1	LS	\$ 175,000.00	\$175,000.00	0010	
8	Epoxy Pavement Marking	1	LS	\$ 25,000.00	\$25,000.00	0010	
					\$0.00	0010	
Category 0010 Subtotal					\$383,958.89		
Miscellaneous		25%			\$95,989.72		
Construction Engineering - Not Included		0%			\$ -		
Total					\$479,948.61		
* Miscellaneous includes: signing, traffic control, mobilization and incidentals.							

ESTIMATE OF QUANTITIES - INTERM IMPROVEMENTS							
Project I.D.	2014-1010						
Title	Freistadt Road and Maple Road Intersection						
Limits	600' west of McCormik Drive to River Lane						
Highway	CTH F						
County	Washington						
Date	1/19/2015						
		Freistadt and Maple					
Item #	Description	Qty	Unit	Cost	Total	Category	Rev (x)
1	Seal Coat	33.600	SY	\$ 2.00	\$67,200.00	0010	
2	Epoxy Pavement Marking	1	LS	\$ 25,000.00	\$25,000.00	0010	
					\$0.00	0010	
Category 0010 Subtotal					\$92,200.00		
Miscellaneous		35%			\$32,270.00		
Construction Engineering - Not Included		0%			\$ -		
Total					\$124,470.00		
* Miscellaneous includes: signing, traffic control, mobilization and incidentals.							



Germantown Police Department
N112W16877 Mequon Rd | Germantown, WI 53022 | Phone: (262) 253-7780

Call Simple List

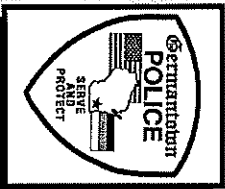
Monday, September 10, 2018
11:32:33 am

** For official use only **

*Alternate location is displayed if not = to common name

Germantown

Call#	Reported Date	CAD CFS	Location	Common Name	Disp	Unit#	Officer(s)
18-013015	08/06/18 12:47	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	742	CP133
17-020408	12/28/17 15:46	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	750	SPW09
17-016432	10/19/17 15:40	Accident/PDO	Maple Rd/Freistadt Rd;GT		CAN		5
17-016059	10/12/17 20:58	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	750	SPW09
17-006195	04/27/17 08:06	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	735	RAC115
16-018779	11/01/16 06:34	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	730	JGS128
16-015709	09/12/16 06:40	Accident/PDO	Maple Rd/Freistadt Rd;GT		A	735	RAC115



Germanantown Police Department
N112W16877 Mequon Rd | Germanantown, WI 53022 | Phone: (262) 253-7780

Call Simple List

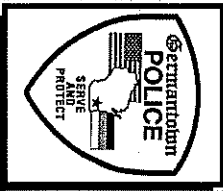
Monday, September 10, 2018
11:33:04 am

** For official use only **

*Alternate location is displayed if not = to common name

Germanantown

Call #	Reported Date	CAD CFS	Location	Common Name	Disp	Unit#	Officer(s)
18-013599	08/16/18 07:05	Accident/PI	Maple Rd/Freistadt Rd;GT		A	751	TPG113
18-007101	05/02/18 16:01	Accident/PI	Maple Rd/Freistadt Rd;GT		A	738	RPB092
18-002466	02/14/18 09:51	Accident/PI	Maple Rd/Freistadt Rd;GT		A	752	CAF118
							JR098
17-019229	12/06/17 17:13	Accident/PI	Maple Rd/Freistadt Rd;GT		C	738	RPB092
17-016112	10/13/17 15:47	Accident/PI	Maple Rd/Freistadt Rd;GT		A	739	KCL088
17-006080	04/25/17 12:22	Accident/PI	Maple Rd/Freistadt Rd;GT		A	736	MDS12
							1
17-003137	03/02/17 22:05	Accident/PI	Maple Rd/Freistadt Rd;GT		A	747	JLP137



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Call Simple List

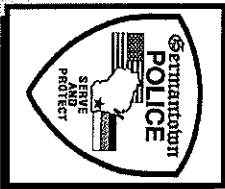
Monday, September 10, 2018
11:31:04 am

** For official use only **

*Alternate location is displayed if not = to common name

Germantown

Call #	Reported Date	CAD CFS	Location	Common Name	Disp	Unit#	Officer(s)
18-002615	02/16/18 17:15	Accident/PI	Freistadt Rd/Maple Rd;GT		A	710	DSH10
16-019212	11/08/16 15:13	Accident/PI	Freistadt Rd/Maple Rd;GT		A	743	DTV099



Germantown Police Department
N112W16877 Mequon Rd | Germantown, WI 53022 | Phone: (262) 253-7780

Call Simple List

Monday, September 10, 2018
11:31:26 am

** For official use only **

*Alternate location is displayed if not = to common name

Germantown

Call #	Reported Date	CAD CFS	Location	Common Name	Disp	Unit#	Officer(s)
18-006149	04/18/18 20:38	Accident/PDO	Freistadt Rd/Maple Rd;GT		A	748	ARB093
17-016431	10/19/17 15:40	Accident/PDO	Freistadt Rd/Maple Rd;GT		A	751	TPG113
17-013644	08/31/17 18:31	Accident/PDO	Freistadt Rd/Maple Rd;GT		A	749	BTD094
							DTV099
17-001464	01/30/17 06:09	Accident/PDO	Freistadt Rd/Maple Rd;GT		A	747	JLP137

From: [Jeff Retzlaff](#)
To: [Jason Otto](#)
Cc: [Deanna Boldrey](#); [Lori Johnson](#)
Subject: RE: W210 N10466 Appleton Ave; Jay & Pete's (formerly Public House)
Date: Wednesday, September 26, 2018 12:02:16 PM
Attachments: [JP WI LLC-Doctors Pub-Zoning Permit-APPROVAL-9-26-18.pdf](#)

Zoning Permit approval is attached.

Please forward a copy to the property owner, Renee Martin.

Thanks.

Jeff

*Jeffrey W. Retzlaff, AICP
Community Development Director
Zoning Administrator
Village of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4735
jretzlaff@village.germantown.wi.us*

From: Jason Otto <jason@globalsightandsound.com>
Sent: Tuesday, September 25, 2018 1:05 PM
To: Jeff Retzlaff <jretzlaff@village.germantown.wi.us>
Cc: Deanna Boldrey <dboldrey@village.germantown.wi.us>; Lori Johnson <ljohnson@village.germantown.wi.us>
Subject: Re: W210 N10466 Appleton Ave; Jay & Pete's (formerly Public House)

I wanted to thank everyone for their help so far in this process. I promise that once we get settled I will get everything you guys need rectified at this property. I know we are on the agenda for October 1st meeting did you need me to bring in the zoning permit with renee's signature on it before than or just that night. I appreciate everything again and please let me know at anytime if there is anything you guys need me to do and I will make sure it happens asap.

Jason Otto
Global Sight and Sound
262-227-9373 Cell
262-820-0600 Office
Jason@globalsightandsound.com

From: Jeff Retzlaff <jretzlaff@village.germantown.wi.us>
Date: Monday, September 17, 2018 at 12:44 PM

To: Jason Otto <jason@globalsightandsound.com>

Cc: Deanna Boldrey <dboldrey@village.germantown.wi.us>, Lori Johnson
<ljohnson@village.germantown.wi.us>

Subject: FW: W210 N10466 Appleton Ave; Jay & Pete's (formerly Public House)

Jason:

I have reviewed your Zoning Permit application for the property located at W210 N10466 Appleton Ave. As discussed in the attached email sent to the Village Clerk today, I will not approve the Zoning Permit application until outstanding zoning issues surrounding the property are resolved. A separate issue not mentioned in the letter concerns a fence permit application from 2015 that was submitted by the former operator but never issued; likely due to lack of payment and/or scheduling the final inspection.

Since I understand that you are not the owner of the property, we will need you to contact the owner, Renee Martin d/b/a Doctors Pub LLC, and have her sign the Zoning Permit application, too. You can work with Lori Johnson as far as getting Martin to sign the application.

I would appreciate it if you could also forward this message to her since we currently do not have up-to-date contact information for her.

Thank you.

Jeffrey W. Retzlaff, AICP
Community Development Director
Zoning Administrator
Village of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4735
jretzlaff@village.germantown.wi.us



Village of
Germantown
Willkommen

ZONING COMPLIANCE/ OCCUPANCY PERMIT

Date of Application: Text 9-12-18

\$175 Application Fee Received By: Clerk

Please read and print legibly. List name of actual contact person (NOT just business name).

APPLICANT OR AGENT:

Name: Jason Otto
Address: 101 W. Zedler Ln Mequon WI 53092
Phone: 262-227-9373
Fax: _____
E-Mail: jason@globalsightandsound.com

PROPERTY or Business OWNER:

Name: JP WI LLC
Address: 8655 N. Deerwood Dr Brown Deer WI 53209
Phone: 2622279373
Fax: _____
E-Mail: jason@globalsightandsound.com

PROPERTY ADDRESS OR Tax Parcel ID#:

W210N10466 Appleton Ave, Germantown WI 53022

DESCRIPTION OF PROPOSED USE (Describe improvements, structures, uses and activities conducted, services provided, products made or sold, # of employees, hours of operation, etc. that will enable Zoning Administrator to determine if the proposed use or operation complies with the applicable zoning district and/or other use restrictions that may apply to the subject property. Use back side or additional sheets as needed):

We will be using the current structure to have a bar that serves a very limited amount of food. We will have no more than 15 employees and plan on being open from 11am till bar time 7 days a week. We are not looking to make any structural changes at this time. All improvements will be purely cosmetic.

READ AND INITIAL THE FOLLOWING:

- ☒ I understand that Village Staff may request additional information to properly evaluate this request and failure to provide such information may in itself be sufficient cause to deny the petition.
- ☒ I understand that Village Staff can impose conditions or other requirements necessary in order to meet and/or remain in compliance with the Village's Zoning Codes and/or other Village requirements that may apply to the subject property.

INCLUDE THE FOLLOWING WITH YOUR APPLICATION:

- ☐ A scaled site plan showing location of proposed use on the property (not required if within building).
- ☐ \$175 Application Fee
- ☐ Other Information required by Zoning Administrator

SIGNATURES: ALL APPLICATIONS MUST BE SIGNED

[Signature]
Applicant

[Signature]
Property Owner

9-10-18

Date

9-10-18

Date

APPROVED
VILLAGE USE ONLY

☒ Building/Arch Plan	☐ Site Plan
☒ Landscaping Plan	☐ Sign Plan
☒ Lighting Plan	☒ Zoning Permit

[Signature]
Village Planner/Zoning Administrator

9-26-18
Date Approved

☒ Approval Conditions apply as noted below:
SEE CONDITIONS OF APPROVAL IN LETTER
SEPTEMBER 26, 2018



Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

FAX: (262) 253-8255

Website: www.village.germantown.wi.us

E-mail: jretzlaff@village.germantown.wi.us

September 26, 2018

Jason Otto
101 W. Zedler Lane
Mequon, WI 53092

RE: W210 N10466 Appleton Ave; Zoning Permit for Jay & Pete's Bar/Restaurant

The zoning permit application for a new bar operation at the above cited property (formerly the Public House & Doctors Pub) has been approved subject to the conditions listed below. Subject to compliance with the conditions below, the proposed use would comply with the zoning district regulations applicable to the subject property.

CONDITIONS OF APPROVAL:

1. Village building permits are required for all interior and exterior improvements and renovations (construction, electrical and/or plumbing). Contact Mike Guttman, Building Inspector, to discuss any proposed improvements, permit & inspection requirements, and state-approved plan requirements (if required). Contact Holly in Inspection Services for information about permit applications. Both can be reached at 262-250-4760.
2. Prior to occupancy or commencement of use, an occupancy inspection shall be conducted in coordination with the Village Fire Department and Inspection Services. Please contact the Fire Department and Inspection Services to arrange an inspection at 262-502-4701.
3. If required by the Fire Department or Inspection Services as part of the initial or future occupancy inspections, the owner/operator shall install and/or update necessary fire safety measures, emergency management and/or other improvements to ensure fire and building code compliance for the type of occupancy/use proposed.
4. All exterior signs, temporary and permanent, requires a sign permit. Contact Lori Johnson regarding proposed signs, and the Village's sign regulations and permit requirements at 262-250-4735.
5. No parking is allowed on the adjacent property south of the building at W210 N10466 Appleton Ave. As discussed in a May 29, 2013 letter to the former operator, use of the paved area south of the building for parking is not allowed under the Village's Zoning Code unless and until the property owner completes one of the alternatives discussed therein (e.g. combine the two parcels, obtain a conditional use permit for off-site parking, etc).

If you have any questions or concerns regarding this matter, feel free to contact me at (262) 250-4735 or Inspection Services at (262) 250-4760.

Respectfully,
Jeffrey W. Retzlaff, AICP
Zoning Administrator

Copy: Inspection Services
Renee Martin, Property Owner

Village of

★★★

Germantown

Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

Website: www.village.germantown.wi.us

FAX: (262) 253-8255

E-mail: jretzlaff@village.germantown.wi.us

May 29, 2013

COPY

Craig Braidigan
W201N10466 Appleton Ave
Germantown, WI 53022

RE: The Public House (formerly "Doctor's Pub"); Building Permit (Deck Addition)

Dear Mr. Braidigan:

Notwithstanding the provisions of Section 17.43(9) and the affect on your ability to obtain a building permit with or without site plan approval from the Village, my primary concern with the property and hesitancy to issue a building permit for the deck addition without said site plan approval is the continued use of the existing and non-compliant parking lot located at the front of the building that straddles the two parcels. This same issue was of sufficient concern to the Plan Commission back in 2008 that they approved a similar deck addition proposal with a series of conditions; including one that required the property owner to "fix" the non-compliant parking lot issue by combining the two parcels.

However, based on input and advice from the Village Attorney, in an effort to avoid further delay to your proposal to construct the deck addition, and, to also address the non-compliant parking lot issue, I am prepared to approve the building permit for your deck addition (for zoning code compliance) with a condition that the non-compliant parking lot issue be resolved within the next three (3) months. This would enable you to proceed with construction of your deck, subject to meeting the necessary building code and fire safety requirements, while you and/or the property owner decide how best to resolve the parking lot issue and pursue that course of action.

The reason why the parking lot issue needs to be resolved is that, despite its existence for some time, the existing parking lot located at the front of the building straddles the common property line with the 2.85-acre parcel to the east and, as a result, does not meet the minimum 8' parking lot setback required under Section 17.45(1)(c). Moreover, the existence of this parking lot does not "qualify" as a legal nonconforming use of the property because one cannot obtain legal nonconforming status for an accessory use such as parking (see City of Lake Geneva v. Smuda, 75 Wis. 2d 532, 537, 249 N.W.2d 783, 786-87, 1977).

Therefore, because there is no legal nonconforming status associated with the parking lot, any alterations to the building require compliance with the current parking setback/buffer regulations. Fortunately, you have a number of alternatives available to you (or the property owner) to fix the non-compliant parking lot issue, including:

1. To address the setbacks requirement, you could remove the existing parking stall(s) that encroach over the common property line and create a minimum 8' setback

"buffer" from the property line to the nearest paved parking stall. This alternative should include a greenbelt between the parking lot and the property line. As this property was subject to a prior plan commission approval, this change could be approved by me as the Zoning Administrator provided that the proposed changes do not constitute a major improvement.

2. Combine the two adjoining parcels into one using a procedure used by the Washington County Real Property Lister (and typically allowed by the Village of Germantown) that requires Village staff approval and only the recording of a Quit Claim Deed (contact Brian Braithwaite, Washington County Real Property Lister, 432 E. Washington Street, West Bend, for the necessary form and procedures). This combination would result in a sufficient setback such that the parking lot regulations would be met unless changes to the parking lot are made. A subsequent rezoning application would be required given the different zoning districts on the two parcels.
3. Obtain a Conditional Use Permit from the Village pursuant to Section 17.45(5) of the Zoning Code for an "off-site parking area". As we have already discussed, this provision was adopted in order to address situations just like yours where parking for a particular business is occurring on an adjacent (or non-adjacent) property that is non-compliant with the Zoning Code, and, to allow the business the ability to expand without having to actually combine the separate parcels as in the case of the two alternatives discussed above (this alternative was not available to the owner back in 2008 having only been added to the Zoning Code in 2010). This alternative requires Plan Commission and Village Board approval of a CUP Application.
4. Submit an application for a two-lot Certified Survey Map to redivide the two parcels so that the parking area is combined with the current "bar" parcel, leaving the remainder to the adjoining parcel. This alternative is/was one of the conditions of approval required by the Plan Commission as part of approving the previous deck addition in 2008. This alternative requires Plan Commission and Village Board approval of a CSM Application.
5. File an appeal with the Board of Zoning Appeals regarding the applicable sections of the Zoning Code and my application of those code sections to your particular situation and proposal. The Board of Zoning Appeals is the body of Village government that has the authority to hear allegations and make decisions regarding potential errors made by the Zoning Administrator in the application of and determinations under the Zoning Code.

Alternatives #1 and #3 give you the most flexibility in terms of being able to continue using the existing parking area located nearest to the front entrance of the bar while also offering the property owner the most flexibility in terms of being able to use or sell for future development purposes (the reason given to us back in 2008 as to why the previous deck addition wasn't completed and the parcels combined). Alternative #1 may result in continued code compliance issues (and possible municipal citations) for the owner of the 2.85-acre parcel if that area continues to be used for parking by patrons of the bar. Alternative #4 offers the best fix for the situation now in that it addresses the concerns of all of the parties

Craig Braidigan
W201N10466 Appleton Ave
The Public House; Building Permit (Deck Addition)
Page 3

involved. Alternative #2 simply pushes Alternative #4 to a date in the future, when the CSM would be required to redivide the properties.

Please contact me to discuss what alternative course of action you and/or the property owner want to pursue and we can discuss the necessary procedures, forms, fees, etc. In the event that you want to pursue Alternative #5, i.e. filing an appeal to the Board of Zoning Appeals, please contact the Village Clerk's Office to obtain the necessary forms and discuss those procedures.

Please proceed with filing the necessary plans and supporting information along with your building permit application. I will attach a letter of approval containing the conditional approval outlined above to that permit.

In the meantime, if you have any questions or concerns regarding this matter, feel free to contact me at (262) 250-4735.

Respectfully,

A handwritten signature in black ink, appearing to read 'Jeffrey W. Retzlaff', is written over a circular stamp. The signature is fluid and cursive.

Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator

Copies: Village Attorney
 Village President
 Village Administrator