

MEETING: REGULAR MEETING OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

DATE & TIME: Wednesday, February 5, 2025 at 5:30 PM

**LOCATION: Germantown Village Hall Board Room
N112 W17001 Mequon Road**

Any member of the body and/or citizen may attend the meeting virtually through the WebEx platform, Meeting #: **2555 672 0428** Password: **ZNmFyjsD343** which can be accessed by phone at 408-418-9388 or by logging on at: <https://villageofgermantown.my.webex.com/villageofgermantown.my/j.php?MTID=mc28ed9f85300bb8f63267a15d2f40b55>

Citizens not wishing to attend the meeting personally or virtually may submit any public comments by sending an email to comments@germantownwi.gov by 4 p.m. on the day of the meeting so that it can be provided to the members of the body for their consideration.

Previously recorded Village Board Meeting Videos can be viewed at https://www.youtube.com/channel/UCOYp0EgELzTCa9X_iCohyhQ.

AGENDA

- I. **CALL TO ORDER:** *This meeting has been given public notice in accordance with Section 19.83 and 19.84, Wis. Stats, in such form that will apprise the general public and news media of subject matter that is intended for consideration and action.*
- II. **ROLL CALL:**
- III. **APPROVAL OF MINUTES:**
 - A. January 8, 2025
- IV. **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.*
- V. **UNFINISHED BUSINESS:**
 - A. Discussion regarding a professional services agreement to TADI for an update to the 2020 traffic safety study in an amount not to exceed \$14,982.
- VI. **NEW BUSINESS:**
 - A. Approval to purchase a replacement all in one gate valve turner/Power Vac from Envirotech Equipment in the amount not to exceed \$89,595.00.
 - B. Approval of center and edge-line striping services with Washington County for approximately \$65,000.
 - C. Approval of 2025 mastic purchase from Sherwin Industries for \$24,324.00.
 - D. Authorization for a blanket purchase order for Adaptor, Inc. for internal/external manhole chimney seals and extensions not to exceed \$20,000.00.
 - E. Authorization for a blanket purchase order for Core and Main. to purchase manhole adjusting rings and miscellaneous materials not to exceed \$20,000.00.
 - F. Authorization for a blanket purchase order for Ferguson Waterworks for miscellaneous manhole repair materials not to exceed \$24,999.00.

- G. Authorization of a blanket purchase order to Enercon for material processing at the Residential Yard Waste Facility in an amount not to exceed \$30,400.00.
- H. Approval of an ordinance to create Municipal Code Section 1.331 regarding a Tree Advisory Board and Amend Section 1.215 related to Village Forester Duties.
- I. Approval of a revised sanitary sewer service area.
- J. Discussion regarding the updated FEMA flood insurance rate maps.
- K. Award of a professional services agreement from a Certified Floodplain Manager to perform analysis and design as part of the Division Road and 2025 Road Program projects.
- L. Award of the library access control project to O&W Communications for an amount not to exceed \$64,640.00.
- M. Award of the library fire alarm system upgrade project to O&W Communications for an amount not to exceed \$17,735.00.
- N. Award of the Village Hall fire alarm system upgrade project to O&W Communications for an amount not to exceed \$29,055.00.
- O. Award of the Goldendale Booster Station security system installation to O&W Communications for \$23,255.00.

VII. DIRECTOR'S REPORT:

- A. February Director's Report

VIII. NEXT MEETING DATE:

IX. ANNOUNCEMENTS:

X. 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)250-4745 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 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:	REGULAR MEETING OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE
DATE AND TIME:	Wednesday, January 8, 2025 5:30 PM
LOCATION:	Germantown Village Hall Board Room N112 W17001 Mequon Road

MINUTES

I. CALL TO ORDER:

Chairperson Kaminski called the Public Works and Highways Committee meeting to order at 5:30PM.

II. ROLL CALL:

Present: Trustee Terri Kaminski, Trustee Rick Miller, Trustee Phil Hudson, Trustee Robert Warren

Absent: None

Excused: None

III. APPROVAL OF MINUTES:

A. December 4, 2024

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

IV. PUBLIC COMMENT:

Three citizens spoke:

Melanie Smythe (N140W17938 Cedar Lane)

Daniel Wing

Jan Miller (W151N10297 Windsong Cir W)

V. UNFINISHED BUSINESS

VI. NEW BUSINESS:

A. Award of 2025 GIS Services to Ruekert & Mielke for an amount not to exceed \$45,125.00.

Director of Public Works discussed request to award 2025 GIS services to Ruekert & Mielke for an amount not to exceed \$45,125.00. Core services and tool suites will be charged a flat fee. Maintenance will be charged as Time and Material and will not exceed the amount that is listed unless approved by the Village.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- B. Authorization to purchase 2025 Wastewater pickup truck in an amount not to exceed \$81,000.00.

Director of Public Works Matt Mortwedt requested authorization to purchase a 2026 model year pick-up truck in an amount not to exceed \$81,000.00. Funds were allocated as part of the 2025 Wastewater budget in the amount of \$81,000.00 for the replacement of truck 555.

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- C. Authorization to purchase 2025 Highway Department pickup truck in an amount not to exceed \$71,000.00.

Director of Public Works Matt Mortwedt requested authorization to purchase a 2026 model year pick-up truck in an amount not to exceed \$71,000.00. Funds were allocated as part of the 2025 Parks Department budget in the amount of \$71,000.00 for the replacement of a pick-up truck.

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- D. Authorization to replace hydrants, replace valves, water main breaks, and water service repairs in 2025 up to identified amounts.

Director of Public Works Matt Mortwedt requested an open PO on a time and material

basis for hydrant replacements, water main and water lateral repairs, gate valve repairs and hard scape restoration. This is an ongoing replacement program and for emergency repairs as we identify old, malfunctioning areas and upgrading water infrastructure. This would also include resupply of underground materials. Contract services for replacement of hydrants, lead, valve assembly and hardscape restoration not to exceed \$215,000.00. Contract services for water lateral repair and hardscape restoration not to exceed \$50,000.00. Contract services for repair of water mains, gate valve repair and hardscape restoration not to exceed \$150,000.00.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- E. Approval to purchase JRB416 loader bucket from Kelbe Brothers for an amount not to exceed \$9,100.00.

Director of Public Works Matt Mortwedt requested the purchase of a front-end loader bucket from Kelbe Brothers in an amount not to exceed \$9,100.00 to be utilized to load salt from the salt dome at the old Public Works facility. Staff solicited pricing from three area vendors and Kelbe Brothers came in at the lowest price.

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- F. Discussion and action on preliminary design for Division Road including typical sections and specific improvements.

Director of Public Works Matt Mortwedt discussed preliminary designs for Division Road reconstruction including installation of a path on the west side of Division Road from Wendy Lane to Dotty Way, ROW acquisition for access (northwest corner of Donges Bay Road), installation of stormwater infrastructure on the west side of Division Road from Lilac Lane to the Jefferson Ditch, extending the path on the west side of Division Road to Lilac Lane.

Motion: Approve staff's preliminary designs as presented

Motioned By: Phil Hudson

Seconded By: Rick Miller

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

G. Approval of the 2025 paving plan, the 10-Year Road program, and the 5-Year Sealcoating Program.

Director of Public Works Matt Mortwedt requested the approval of the 2025 paving plan, the 10 Year Road Program, and the 5 Year Sealcoating Program. The prioritization is based on road condition, known as Pavement Surface Evaluation and Ratings (PASER ratings). A PASER=10 is new condition and a PASER=1 is very poor and needs replacement. These PASER ratings are posted on the Village's website.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

H. Acceptance of improvements to public infrastructure (various locations, various projects).

Director of Public Works Matt Mortwedt requested acceptance from the Public Works and Highways Committee of improvements to public infrastructure including:

1. Willow Creek Heights, Hilbert Lane, and Glenwood Subdivision Phase II pavement reconstruction by Wolf Paving Company (2024 Road Program).
2. Maple Road Paving by Stark Paving.
3. Water main relays in Hilbert Ln and Glenwood Subdivision Phase II by Vinton Construction Co.
4. Glenwood Subdivision Phase I pavement reconstruction by Payne and Dolan (2023 Road Program).
5. Water main in the Keller/Town 9 development by Keller Town 9/F-street.
6. Donges Bay Road reconstruction by Vinton Construction.

Motion: Approve as presented

Motioned By: Robert Warren

Seconded By: Phil Hudson

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- I. Acceptance of the WISDOT Agricultural Road Improvement Program grant in the amount of \$2,581,888.00.

Director of Public Works Matt Mortwedt explained the WisDOT Agricultural Road Improvement Program grant for roads in poor condition at a cost of 90/10. The total project estimate for roads eligible in Germantown is \$2,557,000.00 and the Village's share would be approximately \$258,000.00. The total must be paid up front and grant issued after payment.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- J. Modify section 7.03 of the Municipal Code to reduce the speed limit on a segment of Division Road to 35 miles per hour.

Director of Public Works Matt Mortwedt requested the Committee to consider an ordinance revision to reduce speed limits from 40 MPH to 35 MPH on Division Road from STH 145/Fond du Lac Avenue to Freistadt Road which is related to the plans for the roundabout project.

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- K. Approval of a Budget Amendment transferring \$83,901.69 of unencumbered and unspent funds from the 2024 road program.

Director of Public Works Matt Mortwedt requested to roll over 2024 road program funding that was not spent or invoiced in 2024 to two accounts.

\$20,000 will be rolled into the Highway capital equipment account.

\$63,901.69 will be rolled into the 2025 road program account.

This will allow for the upgrade of the 2025 Highway patrol truck to include brine distribution equipment. It will also allow for a traffic safety study to proceed that may serve as the basis for future HSIP grants.

Motion: Approve as presented

Motioned By: Terri Kaminski

Seconded By: Robert Warren

Yes: Terri Kaminski

No: Rick Miller, Phil Hudson, Robert Warren

Abstain: None

Motion Failed (Yes 1, No 3, Abstained 0)

- L. Award of a professional services agreement to TADI for an update to the 2020 traffic safety study in an amount not to exceed \$14,982.

Motion: Postpone until next meeting

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- M. Approval to purchase 2025 Highway Department patrol truck from Truck Country of Wisconsin / Burke Truck & Equipment for an amount not to exceed \$311,874.38.

Motion: Postpone until next meeting

Motioned By: Rick Miller

Seconded By: Phil Hudson

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

VII. DIRECTORS'S REPORT:

- A. January Director's Report

Director of Public Works Matt Mortwedt presented his January Director's Report. The report included Ruekert and Mielke's PSC CPR report for the Water Utility, the opening of the new Yard Waste Facility, the hiring of the Asset Manager position, safety in Public Works training, the update from WisDOT that the work at Mequon Rd

east of Wasaukee will be done this year and will impact traveling into Germantown from Mequon and vice versa. FEMA updated their flood plain maps and there are some issues associated with some locations in Germantown. Complaint log included a high number of complaints about Waste Management and trash collection.

VIII. NEXT MEETING DATE:

The next Public Works and Highway Committee Meeting will be held February 5, 2025 at 5:30PM.

IX. ANNOUNCEMENTS:

Trustee Phil Hudson has resigned and this is his last meeting. He was thanked for his service and wished well by all.

X. ADJOURNMENT:

Chairperson Kaminski adjourned the meeting at 7:13PM.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Discussion regarding a professional services agreement to TADI for an update to the 2020 traffic safety study in an amount not to exceed \$14,982.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

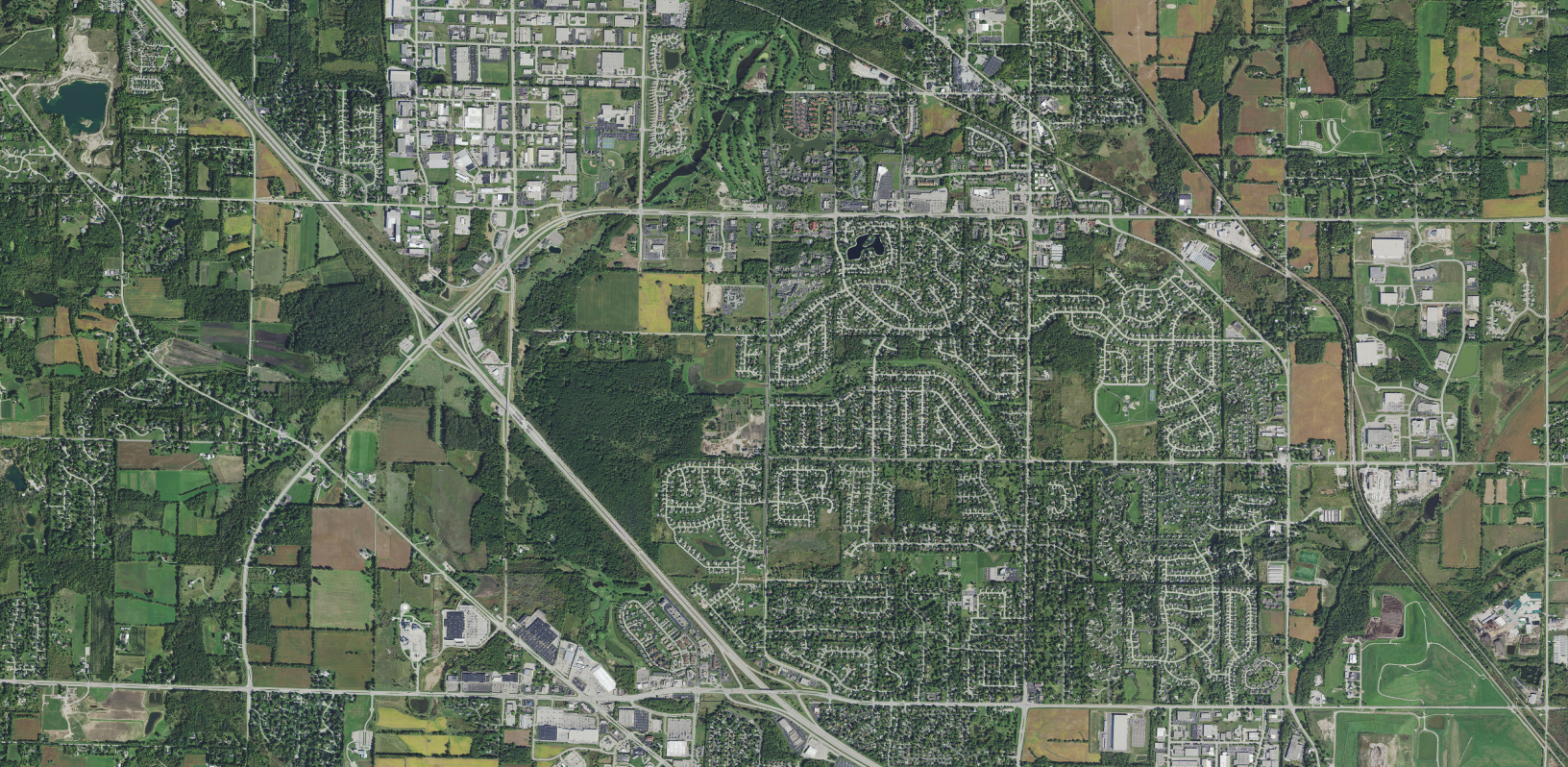
A traffic study conducted by TADI in 2020 was used to prioritize intersection improvements and serve as a precursor to HSIP funding for the Maple and Lannon project. Since 2000 other intersections have been reconstructed or are planned to be. Staff is requesting that the study be updated to reflect the current state of intersections and come up with a new prioritized list for intersection improvements. The effort could be used to justify additional HSIP funding, which is historically a 90/10 State/local split. The 2020 study and the proposal are included in the packet.

ATTACHMENT:

1. Ex A - 2020 Germantown Screening Report
2. Ex B - Germantown Safety Screening Scope 12-24-24

STAFF RECOMMENDATION:

ACTION BY Committee:



VILLAGE OF GERMANTOWN SAFETY SCREENING STUDY

YEARS 2015 - 2019

DATE SUBMITTED: NOVEMBER 11, 2020

PREPARED FOR:

Village of Germantown

Contact Person: Mr. Lawrence Ratayczak

Director of Public Works

Phone: (262) 250-4721

Email: lratayczak@village.germantown.wi.us

PREPARED BY:

Traffic Analysis and Design, Inc. (TADI)

P.O. Box 128

Cedarburg, WI 53012

Authors: John Campbell, P.E., RSP₂

Amy Pomeroy, P.E., RSP₁

Christian R. Sternke, P.E., RSP₁

Phone: (800) 605-3091



November 11th, 2020

Executive Summary

Introduction

TADI was hired by the Village of Germantown to conduct a village-wide intersection safety screening study. TADI worked with Village to determine the locations in the study and includes 28 total intersections and one short corridor section.

Objective

The study had three main objectives.

1. To identify safety issues that could be eligible for remediation through the Highway Safety Improvement Program (HSIP), which can provide up to a 90 percent Federal Funding contribution for improvements.
2. To identify safety issues that the Village of Germantown may want to address locally.
3. To provide a five-year summary (2015 – 2019) of the crash data to be used as a reference resource in addressing safety-related issues and questions.

Economic Loss Ranking

Intersections are referenced in the subsequent text by their economic loss rank, which is a good indicator of the severity of safety issues and can be used as a resource when prioritizing projects.

Summary of Results

The results are summarized into the following categories:

- A. Potentially eligible HSIP projects at connecting highway intersections
- B. Potentially eligible HSIP projects at local intersections*
- C. Remaining intersections* and local improvement options

* note – some intersections may be county or WisDOT jurisdiction

A. Potentially Eligible HSIP Projects at Connecting Highway Intersections

The following intersections are connecting highway intersections that have potentially eligible HSIP projects. Please note HSIP projects on connecting highways are required to have more than 50 percent of the project costs be roadway (non-incidental) work.

1. Maple Rd. & Lannon Rd/STH 167
Improve signal visibility and right-turn channelization – good chance
2. Pilgrim Rd & Mequon Rd/STH 167
Improve signal visibility, offsetting left-turns, and improving right-turn channelization – maybe chance
7. Pilgrim Rd & Sylvan Cir
Consider converting the 4-lane undivided cross-section of Pilgrim Road to a 3-lane TWLTL from Francese Dr to Fond du Lac Ave – maybe chance
8. STH 145/Fond du Lac Ave & Mequon Rd
Consider adding an eastbound left turn lane and an offset eastbound right turn lane to improve the triangle sight distance. Views were often obscured by EB vehicles in the outside lane – good chance

B. Potentially Eligible HSIP Projects at Local Intersections*

The following intersections local intersections that have potentially eligible HSIP projects.

* note – some intersections may be county or WisDOT jurisdiction. HSIP projects on state jurisdiction roadways are required to have more than 50 percent of the project costs be roadway (non-incidental) work.

Consider All-Way Stop Control

The following intersections had crash patterns potentially mitigatable by a change to all-way stop control from minor-stop control. At these locations, a traffic study is recommended to determine if all-way stop control is warranted.

3. STH 145/Fond du Lac Ave & CTH G/Division Road
4. Wasaukee Rd & Freistadt Rd
9. STH 145/Fond du Lac Ave & Freistadt Rd

Other Improvements

6. Wasaukee Rd & Highland Rd

Forty percent of the crashes involved vehicles disregarding the traffic control. Consider improving stop sign visibility by adding double stop signs and add “Cross Traffic Does Not Stop” signs. Clear and grub vegetation to improve sight distance. While project would likely be eligible for HSIP, small projects tend to be more cost-effective to fund locally.

14. STH 175/Appleton Ave & Willow Creek Rd

Consider centerline rumble strips from Willow Creek Rd to Hilltop Rd. Fatal head-on crash (NB crossed centerline) - maybe chance.

C. Remaining Intersections and Local Improvement Options

Also identified in the report were safety improvement options unlikely to qualify for HSIP funding (see table C1 and C2 in report). These are improvements the Village may want to consider implementing themselves or bringing to the issues/improvements to the attention of the county or state. Many of the local improvement options listed in the report are low cost safety improvements (e.g., additional signing, pavement marking, retroreflective backplates, etc.).

Next Steps

It is recommended that the Village of Germantown use the information in this report as a planning tool for making local safety improvements, applying for HSIP funding, and bringing safety issues to the county or WisDOT’s attention. For the intersections the Village of Germantown has an interest in potentially improving through the HSIP program, it is suggested to discuss potential safety solutions, strategies, and HSIP eligibility with TADI & WisDOT. If the February 15, 2021 application deadline is not able to be met, the next HSIP application deadline is six months later, on August 15th, 2021.

Village of Germantown Safety Screening Study



Date Submitted: November 11, 2020

To: Larry Ratayczak, Public Works Director

From: John Campbell, P.E., RSP₂
Amy Pomeroy, P.E., RSP₁
Christian R. Sternke, P.E., RSP₁

Subject: Village of Germantown Safety Screening Study (Five Years: 2015 thru 2019)

Introduction

TADI was hired by the Village of Germantown to conduct a village-wide safety screening study. The study focused on the village roadway network, including state and municipal highways. TADI worked with the Village of Germantown to determine the locations in the study, and address intersections of concern. The analysis was conducted using electronic crash data retrieved through the WisTransPortal system provided by the Wisconsin Traffic Operations Laboratory. Five-years of crash data (2015 – 2019) were screened.

Objective

The study had three main objectives.

1. To identify safety issues that could be eligible for remediation through the Highway Safety Improvement Program (HSIP), which can provide up to a 90 percent federal funding contribution for improvements.
2. To identify safety issues that the Village of Germantown may want to address locally.
3. To provide a five-year summary (2015 – 2019) of the crash data within the Village of Germantown to be used as a reference resource in addressing safety-related issues and questions.

Google Maps

Intersection crash data compiled for this report is available on Google Maps using the link below. Intersections are shown with red circles.

Google Login Link: <https://accounts.google.com/Login>

Google Username: germantownsafetyscreening@gmail.com

Google Password: 2savelives!

Map Link: <https://www.google.com/maps/d/edit?mid=137jzFq4J503lzgQ0BE-Tg6PvUS5809pX&usp=sharing>

RANKING DESCRIPTIONS & DEFINITIONS

The crash data was ranked using multiple techniques to assist in the identification of potential safety issues. Below is a description of the various rankings:

Appendix A1 – Intersection Rankings

A1.1 Intersection Database

An intersection database was assembled for 28 intersections in the Village of Germantown. The database includes the following information about each intersection: intersection name, traffic control (traffic signal, all-way stop, minor street stop, other-stop, uncontrolled, modern roundabout), number of legs, entering AADT (if available), and GIS coordinates. Also provided in the database is the five-year crash frequency, intersection crash rate, and economic loss associated with crashes.

A1.2 Economic Loss Ranking

A common and helpful method for measuring the severity of crashes is to associate economic loss values with different injury severities. There are a multitude of ways to assign and define economic loss. For this study, a basic methodology that assigns \$85,000 for crashes resulting in a fatality (K-Level), incapacitating injury (A-Level), and non-incapacitating injury (B-Level) was used. These are referred to as KAB crashes. For possible injury (C-Level), a value of \$25,000 was assigned to each crash and for non-injury (i.e., property damage only or PDO) a value of \$4,000 was assigned.

Ranking the intersections by economic loss is an effective method for identifying intersections that not only could warrant safety improvements, but also may be eligible for funding through the HSIP program administered by the Wisconsin Department of Transportation (WisDOT). The HSIP program uses economic loss as a measure when determining a project's eligibility. While they do not match the figures WisDOT uses (WisDOT HSIP economic loss values are not publicly available), we are comfortable making recommendations based on our past experiences using these values.

A1.3 Crash Frequency Ranking

A ranking of the intersections by the number of crashes that occurred in the five-year time span of 2015 thru 2019, categorized by crash severity.

A1.4 Crash Rate Ranking

Intersection crash rate, which is reported as the number of crashes per million entering vehicles, is a commonly used statistic. It measures the risk of a crash occurring per one million entering vehicles. It can be a helpful statistic for measuring crash risk and comparing to other locations.

A1.5 Night-Time Crash Ranking

The number of crashes occurring in low-light (dawn/dusk) or at night are considered night-time crashes in this analysis and are summarized in this ranking. A high number of night-time crashes can indicate a need to add or upgrade street lighting.

A1.6 Slippery Conditions Crash Ranking

The number of crashes occurring in slippery pavement conditions (wet, snow, or ice) are summarized in this ranking. A high number of slippery pavement crashes can indicate a need to improve the pavement friction or to consider more aggressive winter maintenance.

A1.7 Pedestrian Crashes

The number of crashes and economic loss associated with crashes involving pedestrians are displayed in this ranking. Bicyclists that are struck by vehicles in crosswalks are considered pedestrian crashes in this analysis as safety improvement solutions for crosswalk crashes are typically categorized with pedestrian safety improvements.

A1.8 Bicycle Crashes

The number of crashes and economic loss associated with crashes involving bicyclists are displayed in this ranking. As noted previously, bicyclists that are struck by vehicles in crosswalks are considered pedestrian crashes in this analysis.

A1.9 Top Crash Types

The overall top 50 crash types (e.g., right-angle crashes at the intersection of Maple Road & Lannon Road) were ranked by economic loss and are provided in in this ranking. This information is helpful in identifying the most frequent crash patterns at intersections in Germantown.

A1.10 Top Crash Types (by direction)

The overall top 50 specific crash types by direction were ranked by economic loss and are provided in in this ranking. The crash patterns are directionally specified, such as “WB rear-end crash”. This analysis is helpful in identifying specific crash patterns that might be overlooked when looking at total intersection crash statistics.

Appendix A2 - Intersection Collision Diagrams

Intersection collision diagrams and crash statistics are provided in Appendix A2 and are also available via the Google Maps link. The visualization of the data in a collision diagram format is helpful in identifying potential safety issues. It should be noted that the collision diagrams are based on the directional information provided in the electronic crash data, but fatal and injury crashes have been validated with a review of each individual crash report form. For each of the 28 intersections, there is a collision diagram on the first page and details about each individual crash on the second page.

Appendix B1 – Corridor Safety Analysis

Safety analysis sheets that summarize the number and type of crashes along the corridor screened in this study are provided in Appendix B1.

Summary

The safety analysis was used to help identify safety issues and recommendations at intersections and for one corridor. The analysis was also used to identify crash patterns and behavior characteristics (e.g., percent speed-related) that the village may want to target addressing.

RECOMMENDATIONS

The recommendations of the study are meant to serve as a planning tool for the Village of Germantown to address safety issues throughout the village with local improvements and with potential federal aid assistance through the HSIP program.

Intersection Evaluation

Recommendations for intersections are organized into four categories. Because the HSIP program is both dynamic (crash modification factors are constantly evolving) and competitive (applications are received from all over the state), our recommendations are broadly categorized as a Tier 1 – a good chance treatments would be eligible for HSIP funding, a Tier 2 - maybe treatments would be eligible for HSIP funding, a Tier 3 - low chance treatments would be eligible for HSIP funding. Intersections with a “M” – are suggested for monitoring traffic volumes. A “√” indicates that a traffic study is recommended to evaluate the best solutions to the safety issues identified.

The categories represent our interpretation of the data available to estimate the likelihood of HSIP eligibility. HSIP eligibility is a function of the expected crash reduction benefits weighed against the anticipated construction costs. The calculations to determine eligibility are performed internally by WisDOT. While we do not have access to the calculations, our experience with similar projects and HSIP applications helps us to estimate the eligibility of potential projects.

Recommendations for individual intersections are shown on the tables spanning the subsequent pages. The intersections are labeled by number in order of economic loss. The intersections are organized into the following groups:

- A. Potentially eligible HSIP projects at connecting highway intersections
- B. Potentially eligible HSIP projects at local intersections*
- C. Remaining intersections* and local improvement options

* note – some intersections may be county or WisDOT jurisdiction

Corridor Evaluation

Crashes were analyzed on the STH 145/Pilgrim Road corridor. A one-page summary of the crash statistics is provided for this corridor in the appendix and has information about the crash trends observed. A corridor location map and target crash types the village may want to aim to reduce are shown on the summary page.

The following corridor was evaluated:

B1.1 STH 145/Pilgrim Road (Francese Drive to Fond du Lac Avenue) – 0.3 miles

Based on the estimated daily traffic (8,200 vehicles per day), crash types and injury severity of those crashes, it is recommended that the Village of Germantown consider converting the 0.3 mile 4-lane undivided roadway to a 3-lane roadway with two thru-lanes and a center two-way left-turn lane (TWLTL).

CONCLUSIONS

The study found there are opportunities to improve traffic safety throughout the Village of Germantown with projects that appear to be good candidates for applying for 90 percent Federal Funding through the HSIP program. It is recommended to use the information in this memorandum as a planning tool for making local safety improvements and applying for HSIP funding.

NEXT STEPS

HSIP application are due on February 15, 2021 for the next cycle of applications. If Germantown is interested in pursuing any of the potential projects listed in this study, it is suggested that such applications are begun as soon as possible to ensure time to prepare the applications and proactively coordinate with WisDOT. For the locations and projects in the Tier 1 – “good” and Tier 2 – “maybe” categories that Germantown has interest in potentially improving through the HSIP program, it is suggested to discuss potential safety solutions, strategies, and HSIP eligibility with TADI & WisDOT. If the February 15th, 2021 deadline is not able to be met, the next HSIP application deadline is six months later, on August 15th, 2021.

A. Potentially Eligible HSIP Projects at Connecting Highway Intersections

1	Tier 1 - Good chance treatments would be eligible for HSIP funding		
2	Tier 2 - Maybe treatments would be eligible for HSIP funding		
3	Tier 3 - Low chance treatments would be eligible for HSIP funding		
M	Recommended to Monitor Traffic Volumes	✓	Traffic Study Recommended

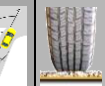
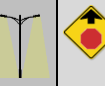
RECOMMENDATIONS

Label & Link	Econ Loss Rank	Intersection Name	Traffic Control	Entering AADT	Total Crashes	Economic Loss	CAUSATION		CHANGE IN TRAFFIC CONTROL			TRAFFIC SIGNAL IMPROVEMENTS					DESIGN IMPROVEMENTS							Monitor Traffic Volumes	Traffic Study Recommended?	NOTES
							 Failure to Yield Crashes (i.e., gap acceptance)	 Dis-regard Traffic Control Crashes (e.g., run-red/stop)	 Modern Roundabout	 Traffic Signal	 All-Way Stop	 Full Traffic Signal Replacement	 Partial Traffic Signal Upgrades	 Retroreflective Backplates	 Countdown Ped Timers	 Signal Timing	 Geometric Modifications	 High-Friction-Surface	 Street Lighting Improvements	 Pavement Marking/Signing	 High-Visibility Crosswalks	 Upgrade Curb Ramps	 Other			
A2.1	1	Maple Rd & Lannon Rd/STH 167	Traffic Signal	27,550	73	\$ 865,000	10	7				1		1			1	2								Patterns of right angle, left-turn angle and rear-end crashes indicate the need to improve the visibility of the signal heads (good chance). Consideration should be given to placing a signal head over each lane with retro-reflective backplates, as well as improving the channelization of the right-turn lanes (good chance). Twenty-one percent of the crashes occurred at night; improvements to street lighting could be a possibility (maybe chance).
A2.2	2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	23,500	54	\$ 771,000	17	3						2			2									There were sixteen left-turn angle crashes at this intersection. Consideration should be given to improving the offset to provide a positive offset of all left-turn lanes. To improve the visibility of the signal heads, it is recommended that retro-reflective backplates be considered. A pattern of right-turn rear-end crashes indicate that consideration could be given to improving the channelization of the right-turn lanes.
A2.7	7	Pilgrim Rd & Sylvan Circle	Minor Street Stop	10,250	8	\$ 377,000	5										2									Consider converting the 4-lane undivided cross-section to a 3-lane TWLTL from Francese Dr to Fond du Lac Ave. Possibly improve street lighting. (see corridor analysis)
A2.8	8	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	13,600	21	\$ 369,000	16										1									Consider adding an eastbound left turn lane and an offset eastbound right turn lane to improve the triangle sight distance. Views were often obscured by EB vehicles in the outside lane.

B. Potentially Eligible HSIP Projects at Local Intersections

1	Tier 1 - Good chance treatments would be eligible for HSIP funding		
2	Tier 2 - Maybe treatments would be eligible for HSIP funding		
3	Tier 3 - Low chance treatments would be eligible for HSIP funding		
M	Recommended to Monitor Traffic Volumes	✓	Traffic Study Recommended

RECOMMENDATIONS

M	Recommended to Monitor Traffic Volumes			✓	Traffic Study Recommended		CAUSATION		TRAFFIC CONTROL			IMPROVEMENTS					IMPROVEMENTS										
Label & Link	Econ Loss Rank	Intersection Name	Traffic Control	Entering AADT	Total Crashes	Economic Loss																				NOTES	
							Failure to Yield Crashes (i.e., gap acceptance)	Dis-regard Traffic Control Crashes (e.g., run-red/stop)	Modern Roundabout	Traffic Signal	All-Way Stop	Full Traffic Signal Replacement	Partial Traffic Signal Upgrades	Retroreflective Backplates	Countdown Ped Timers	Signal Timing	Geometric Modifications	High-Friction-Surface	Street Lighting Improvements	Pavement Marking/Signaling	High-Visibility Crosswalks	Upgrade Curb Ramps	Other	Monitor Traffic Volumes	Traffic Study Recommended?		
A2.3	3	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	8,600	40	\$ 568,000	28	1									1								✓	Converting to an all-way stop control to address the pattern of angle crashes could be considered at this intersection if warranted by a traffic study. Geometric improvements including 2 approach lanes on each leg and a westbound right-turn bypass lane could also be considered.	
A2.4	4	Wasaukee Rd & Freistadt Rd	Minor Street Stop	9,650	24	\$ 546,000	17	4									1								✓	NB and SB drivers have difficulty crossing intersection. Consider all-way stop control if warranted by a traffic study.	
A2.5	5	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	5,435	28	\$ 499,000	22																		✓	6-leg intersection with stop-control on 4 legs. Consider traffic study to identify potential improvement options with suitable traffic control , safety, and operations.	
A2.6	6	Wasaukee Rd & Highland Rd	Minor Street Stop	8,300	10	\$ 385,000	3	4												1							Forty percent of the crashes involved vehicles disregarding the traffic control. Consider improving stop sign visibility by adding double stop signs and add "Cross Traffic Does Not Stop" signs. Clear and grub vegetation to improve sight distance.
A2.9	9	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	8,100	26	\$ 308,000	15				1						1								✓	EB/WB drivers having difficulty crossing STH 145. Consider all-way stop control if warranted by a traffic study.	
A2.14	14	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	9,050	4	\$ 97,000											2										Consider centerline rumble strips from Willow Creek Rd to Hilltop Rd. Fatal head-on crash (NB crossed centerline).

C. Remaining Intersections with Local Improvement Options

1	Tier 1 - Good chance treatments would be eligible for HSIP funding		
2	Tier 2 - Maybe treatments would be eligible for HSIP funding		
3	Tier 3 - Low chance treatments would be eligible for HSIP funding		
M	Recommended to Monitor Traffic Volumes	✓	Traffic Study Recommended

RECOMMENDATIONS

Label & Link	Econ Loss Rank	Intersection Name	Traffic Control	Entering AADT	Total Crashes	Economic Loss	CAUSATION		CHANGE IN TRAFFIC CONTROL			TRAFFIC SIGNAL IMPROVEMENTS					DESIGN IMPROVEMENTS						Other	Monitor Traffic Volumes	Traffic Study Recommended?	NOTES
																										
A2.10	10	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	5,950	8	\$ 215,000	1												3				3			Consider adding bike lanes – there was a fatal bicycle hit & run crash SB. Also, consider restriping a SB left-turn lane to address the SB rear-end crash pattern.
A2.11	11	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	6,155	3	\$ 174,000																				There are no recommendations at this time. It appears the intersection geometry was changed between 2015 and 2018. The last crash at this intersection was in 2016
A2.12	12	Maple Rd & Mequon Rd	All-Way Stop	14,100	16	\$ 145,000	6	1											3							Consider improving stop sign visibility.
A2.13	13	Division Rd & Lilac Ln	Minor Street Stop	6,500	2	\$ 110,000	1	1											3							Consider improving stop sign visibility.
A2.15	15	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	6,550	3	\$ 54,000	2																			There are no recommendations at this time.
A2.16	16	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	5,600	5	\$ 41,000	1																			There are no recommendations at this time.
A2.17	17	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	5,500	8	\$ 32,000																				There are no recommendations at this time.
A2.18	18	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	8,250	7	\$ 28,000		2																		There are no recommendations at this time.
A2.19	19	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	4,100	4	\$ 16,000	1												3							Consider improving stop sign visibility.
A2.20	20	Pilgrim Rd & Freistadt Rd	Minor Street Stop	5,550	4	\$ 16,000													3							Consider improving stop sign visibility.
A2.21	21	Division Rd & Wendy Ln	Minor Street Stop	6,850	3	\$ 12,000																	3			Trim trees and shrubs on north leg of Division Rd (source Google Earth).
A2.22	22	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	2,610	3	\$ 12,000	1												3							Consider improving stop sign visibility.

C. Remaining Intersections with Local Improvement Options

1	Tier 1 - Good chance treatments would be eligible for HSIP funding		
2	Tier 2 - Maybe treatments would be eligible for HSIP funding		
3	Tier 3 - Low chance treatments would be eligible for HSIP funding		
M	Recommended to Monitor Traffic Volumes	✓	Traffic Study Recommended

RECOMMENDATIONS

Label & Link	Econ Loss Rank	Intersection Name	Traffic Control	Entering AADT	Total Crashes	Economic Loss	CAUSATION		RECOMMENDATIONS														Other	Monitor Traffic Volumes	Traffic Study Recommended?	NOTES
																										
A2.23	23	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	5,250	3	\$ 12,000													3							Consider improving stop sign visibility.
A2.24	24	Maple Rd & Rockfield Rd	Minor Street Stop	3,000	3	\$ 12,000	2												3			3				Consider improving stop sign visibility. Trim trees and shrubs on northeast corner (source Google Earth).
A2.25	25	Division Rd & Cedar Ln	Minor Street Stop	5,250	2	\$ 8,000																				There are no recommendations at this time.
A2.26	26	Division Rd & Donges Bay Rd	Minor Street Stop	6,700	2	\$ 8,000	1																			There are no recommendations at this time.
A2.27	27	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	22,750	1	\$ 4,000	1																			There are no recommendations at this time.
A2.28	28	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	2,450	1	\$ 4,000																				There are no recommendations at this time.

APPENDIX A

▶ APPENDIX A - INTERSECTIONS

- ▶ A1 - Intersection Rankings
- ▶ A2 - Intersection Collision Diagrams

APPENDIX A1

INTERSECTION RANKINGS

- ▶ A1.1 Intersection Database
- ▶ A1.2 Economic Loss Ranking
- ▶ A1.3 Crash Frequency Ranking
- ▶ A1.4 Crash Rate Ranking
- ▶ A1.5 Night-time Crash Ranking
- ▶ A1.6 Slippery Conditions Crash Ranking
- ▶ A1.7 Pedestrian Crash Ranking
- ▶ A1.8 Bicycle Crash Ranking
- ▶ A1.9 Top Crash Types
- ▶ A1.10 Top Crash Types by Direction

APPENDIX A1.1

Intersection Database

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	LEGS	ENTERING AADT	COORDINATES	CRASH FREQ.	CRASH RATE	ECONOMIC LOSS
1	Maple Rd & Lannon Rd/STH 167	Traffic Signal	4	27,550	43.217902, -88.142925	73	1.45	\$865,000
2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	4	23,500	43.220967, -88.103192	54	1.26	\$771,000
3	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	4	8,600	43.239753, -88.123204	40	2.55	\$568,000
4	Wasaukee Rd & Freistadt Rd	Minor Street Stop	4	9,650	43.235634, -88.063909	24	1.36	\$546,000
5	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	3	5,435	43.250044, -88.142956	28	2.82	\$499,000
6	Wasaukee Rd & Highland Rd	Minor Street Stop	4	8,300	43.250153, -88.063882	10	0.66	\$385,000
7	Pilgrim Rd & Sylvan Circle	Minor Street Stop	4	10,250	43.223739, -88.103199	8	0.43	\$377,000
8	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	4	13,600	43.221034, -88.097062	21	0.85	\$369,000
9	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	4	8,100	43.235552, -88.116742	26	1.76	\$308,000
10	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	3	5,950	43.222817, -88.175674	8	0.74	\$215,000
11	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	3	6,155	43.228587, -88.181937	3	0.27	\$174,000
12	Maple Rd & Mequon Rd	All-Way Stop	4	14,100	43.221077, -88.142354	16	0.62	\$145,000
13	Division Rd & Lilac Ln	Minor Street Stop	4	6,500	43.213724, -88.122929	2	0.17	\$110,000
14	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	3	9,050	43.207155, -88.158945	4	0.24	\$97,000
15	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	3	6,550	43.208505, -88.162486	3	0.25	\$54,000
16	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	3	5,600	43.228267, -88.105097	5	0.49	\$41,000
17	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	4	5,500	43.230456, -88.108645	8	0.80	\$32,000
18	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	4	8,250	43.227156, -88.103259	7	0.46	\$28,000
19	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	3	4,100	43.212259, -88.083575	4	0.53	\$16,000
20	Pilgrim Rd & Freistadt Rd	Minor Street Stop	3	5,550	43.235521, -88.103323	4	0.39	\$16,000
21	Division Rd & Wendy Ln	Minor Street Stop	3	6,850	43.195188, -88.122898	3	0.24	\$12,000
22	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	4	2,610	43.279248, -88.083323	3	0.63	\$12,000
23	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	4	5,250	43.231739, -88.110593	3	0.31	\$12,000
24	Maple Rd & Rockfield Rd	Minor Street Stop	4	3,000	43.257290, -88.143000	3	0.55	\$12,000
25	Division Rd & Cedar Ln	Minor Street Stop	3	5,250	43.272167, -88.123075	2	0.21	\$8,000
26	Division Rd & Donges Bay Rd	Minor Street Stop	3	6,700	43.206463, -88.122917	2	0.16	\$8,000
27	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	3	22,750	43.235558, -88.083939	1	0.02	\$4,000
28	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	4	2,450	43.206486, -88.092099	1	0.22	\$4,000
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Averages per Intersection						13	0.73	\$203,143
Totals						366		\$5,688,000

1) Ranked by total economic loss. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, and \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.2

Economic Loss Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	CRASH FREQUENCY TOTAL	ECONOMIC LOSS (ALL CRASHES)
1	Maple Rd & Lannon Rd/STH 167	Traffic Signal	0	2	3	8	60	73	\$865,000
2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	0	0	4	11	39	54	\$771,000
3	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	0	2	2	4	32	40	\$568,000
4	Wasaukee Rd & Freistadt Rd	Minor Street Stop	0	0	4	6	14	24	\$546,000
5	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	0	2	2	3	21	28	\$499,000
6	Wasaukee Rd & Highland Rd	Minor Street Stop	0	1	3	1	5	10	\$385,000
7	Pilgrim Rd & Sylvan Circle	Minor Street Stop	0	1	3	1	3	8	\$377,000
8	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	0	0	3	2	16	21	\$369,000
9	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	0	1	1	2	22	26	\$308,000
10	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	0	1	1	5	8	\$215,000
11	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	0	1	1	0	1	3	\$174,000
12	Maple Rd & Mequon Rd	All-Way Stop	0	0	1	0	15	16	\$145,000
13	Division Rd & Lilac Ln	Minor Street Stop	0	0	1	1	0	2	\$110,000
14	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	1	0	0	0	3	4	\$97,000
15	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	0	0	0	2	1	3	\$54,000
16	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	0	0	0	1	4	5	\$41,000
17	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	0	0	0	0	8	8	\$32,000
18	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	0	0	0	0	7	7	\$28,000
19	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	0	0	0	0	4	4	\$16,000
20	Pilgrim Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	4	4	\$16,000
21	Division Rd & Wendy Ln	Minor Street Stop	0	0	0	0	3	3	\$12,000
22	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	0	0	0	0	3	3	\$12,000
23	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	0	0	0	0	3	3	\$12,000
24	Maple Rd & Rockfield Rd	Minor Street Stop	0	0	0	0	3	3	\$12,000
25	Division Rd & Donges Bay Rd	Minor Street Stop	0	0	0	0	2	2	\$8,000
26	Division Rd & Cedar Ln	Minor Street Stop	0	0	0	0	2	2	\$8,000
27	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	0	0	0	0	1	1	\$4,000
28	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	0	0	0	1	1	\$4,000
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Averages per Intersection		0.07	0.36	1.04	1.54	10.07	13.07	\$203,143
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Totals		2	10	29	43	282	366	\$5,688,000
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Avg. by Traffic Control	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	CRASHES	ECONOMIC LOSS
Traffic Signal	0.00	1.00	3.50	9.50	49.50	63.50	\$818,000
All-Way Stop	0.00	0.00	0.33	0.00	8.33	8.67	\$61,667
Modern Roundabout	---	---	---	---	---	---	---
Minor Street Stop	0.09	0.35	0.91	1.04	6.87	9.26	\$168,130
Minor Street Yield	---	---	---	---	---	---	---
Other	---	---	---	---	---	---	---

1) Ranked by total economic loss. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, and \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.3

Crash Frequency Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	CRASH FREQUENCY TOTAL
1	Maple Rd & Lannon Rd/STH 167	Traffic Signal	0	2	3	8	60	73
2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	0	0	4	11	39	54
3	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	0	2	2	4	32	40
4	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	0	2	2	3	21	28
5	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	0	1	1	2	22	26
6	Wasaukee Rd & Freistadt Rd	Minor Street Stop	0	0	4	6	14	24
7	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	0	0	3	2	16	21
8	Maple Rd & Mequon Rd	All-Way Stop	0	0	1	0	15	16
9	Wasaukee Rd & Highland Rd	Minor Street Stop	0	1	3	1	5	10
10	Pilgrim Rd & Sylvan Circle	Minor Street Stop	0	1	3	1	3	8
11	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	0	1	1	5	8
12	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	0	0	0	0	8	8
13	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	0	0	0	0	7	7
14	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	0	0	0	1	4	5
15	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	0	0	0	0	4	4
16	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	1	0	0	0	3	4
17	Pilgrim Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	4	4
18	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	0	0	0	2	1	3
19	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	0	1	1	0	1	3
20	Division Rd & Wendy Ln	Minor Street Stop	0	0	0	0	3	3
21	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	0	0	0	0	3	3
22	Maple Rd & Rockfield Rd	Minor Street Stop	0	0	0	0	3	3
23	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	0	0	0	0	3	3
24	Division Rd & Donges Bay Rd	Minor Street Stop	0	0	0	0	2	2
25	Division Rd & Cedar Ln	Minor Street Stop	0	0	0	0	2	2
26	Division Rd & Lilac Ln	Minor Street Stop	0	0	1	1	0	2
27	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	0	0	0	0	1	1
28	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	0	0	0	1	1
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Averages per Intersection		0.07	0.36	1.04	1.54	10.07	13.07
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Totals		2	10	29	43	282	366
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Avg. by Traffic Control	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	CRASH FREQUENCY
Traffic Signal	0.00	1.00	3.50	9.50	49.50	63.50
All-Way Stop	0.00	0.00	0.33	0.00	8.33	8.67
Modern Roundabout	---	---	---	---	---	---
Minor Street Stop	0.09	0.35	0.91	1.04	6.87	9.26
Minor Street Yield	---	---	---	---	---	---
Other	---	---	---	---	---	---

1) Ranked by total crash frequency in five-year period.

APPENDIX A1.4

Crash Rate Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	ENTERING AADT	CRASH FREQUENCY	CRASH RATE
1	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	5,435	28	2.82
2	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	8,600	40	2.55
3	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	8,100	26	1.76
4	Maple Rd & Lannon Rd/STH 167	Traffic Signal	27,550	73	1.45
5	Wasauke Rd & Freistadt Rd	Minor Street Stop	9,650	24	1.36
6	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	23,500	54	1.26
7	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	13,600	21	0.85
8	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	5,500	8	0.80
9	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	5,950	8	0.74
10	Wasauke Rd & Highland Rd	Minor Street Stop	8,300	10	0.66
11	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	2,610	3	0.63
12	Maple Rd & Mequon Rd	All-Way Stop	14,100	16	0.62
13	Maple Rd & Rockfield Rd	Minor Street Stop	3,000	3	0.55
14	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	4,100	4	0.53
15	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	5,600	5	0.49
16	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	8,250	7	0.46
17	Pilgrim Rd & Sylvan Circle	Minor Street Stop	10,250	8	0.43
18	Pilgrim Rd & Freistadt Rd	Minor Street Stop	5,550	4	0.39
19	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	5,250	3	0.31
20	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	6,155	3	0.27
21	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	6,550	3	0.25
22	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	9,050	4	0.24
23	Division Rd & Wendy Ln	Minor Street Stop	6,850	3	0.24
24	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	2,450	1	0.22
25	Division Rd & Cedar Ln	Minor Street Stop	5,250	2	0.21
26	Division Rd & Lilac Ln	Minor Street Stop	6,500	2	0.17
27	Division Rd & Donges Bay Rd	Minor Street Stop	6,700	2	0.16
28	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	22,750	1	0.02
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Totals			247,150	366	0.81

Avg. by Traffic Control	ENTERING AADT	CRASH FREQUENCY	CRASH RATE
Traffic Signal	25,525	63.50	1.36
All-Way Stop	8,320	8.67	0.57
Modern Roundabout	---	---	---
Minor Street Stop	7,441	9.26	0.68
Minor Street Yield	---	---	---
Other	---	---	---

1) Ranked by total number of crashes per million entering vehicles in five-year period.

APPENDIX A1.5

Night-Time Crash Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	NIGHT-TIME CRASHES	TOTAL NUMBER OF CRASHES	PERCENT NIGHT-TIME	ECONOMIC LOSS (NIGHT-TIME)
1	Maple Rd & Lannon Rd/STH 167	Traffic Signal	15	73	21%	\$222,000
2	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	2	8	25%	\$170,000
3	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	16	54	30%	\$169,000
4	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	6	28	21%	\$147,000
5	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	4	21	19%	\$97,000
6	Wasaukee Rd & Freistadt Rd	Minor Street Stop	3	24	13%	\$93,000
7	Pilgrim Rd & Sylvan Circle	Minor Street Stop	2	8	25%	\$89,000
8	Division Rd & Lilac Ln	Minor Street Stop	1	2	50%	\$85,000
9	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	5	40	13%	\$20,000
10	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	3	8	38%	\$12,000
11	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	2	26	8%	\$8,000
12	Division Rd & Wendy Ln	Minor Street Stop	2	3	67%	\$8,000
13	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	1	1	100%	\$4,000
14	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	1	7	14%	\$4,000
15	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	1	3	33%	\$4,000
16	Maple Rd & Mequon Rd	All-Way Stop	1	16	6%	\$4,000
17	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	1	4	25%	\$4,000
18	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	1	3	33%	\$4,000
19	Pilgrim Rd & Freistadt Rd	Minor Street Stop	1	4	25%	\$4,000
20	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	1	5	20%	\$4,000
21	Division Rd & Cedar Ln	Minor Street Stop	0	2	0%	\$0
22	Division Rd & Donges Bay Rd	Minor Street Stop	0	2	0%	\$0
23	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	1	0%	\$0
24	Wasaukee Rd & Highland Rd	Minor Street Stop	0	10	0%	\$0
25	Maple Rd & Rockfield Rd	Minor Street Stop	0	3	0%	\$0
26	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	0	3	0%	\$0
27	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	0	3	0%	\$0
28	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	0	4	0%	\$0
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Averages per Intersection			2.46	13.07	19%	\$57,600
Totals			69	366	19%	\$1,152,000

1) Crashes ranked by economic loss of night-time crashes. Night-time includes night, or during low-light (dawn/dusk) conditions. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.6

Slippery Conditions Crash Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	SLIPPERY CONDITIONS CRASHES	TOTAL NUMBER OF CRASHES	PERCENT SLIPPERY CONDITIONS	ECONOMIC LOSS (SLIPPERY CONDITIONS)
1	Wasaukee Rd & Freistadt Rd	Minor Street Stop	6	24	25%	\$228,000
2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	12	54	22%	\$213,000
3	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	4	26	15%	\$178,000
4	Pilgrim Rd & Sylvan Circle	Minor Street Stop	3	8	38%	\$174,000
5	Maple Rd & Lannon Rd/STH 167	Traffic Signal	22	73	30%	\$151,000
6	Wasaukee Rd & Highland Rd	Minor Street Stop	4	10	40%	\$118,000
7	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	4	21	19%	\$118,000
8	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	4	28	14%	\$97,000
9	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	10	40	25%	\$61,000
10	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	1	5	20%	\$25,000
11	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	1	3	33%	\$25,000
12	Maple Rd & Mequon Rd	All-Way Stop	4	16	25%	\$16,000
13	Division Rd & Wendy Ln	Minor Street Stop	3	3	100%	\$12,000
14	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	2	8	25%	\$8,000
15	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	2	4	50%	\$8,000
16	Division Rd & Cedar Ln	Minor Street Stop	1	2	50%	\$4,000
17	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	1	3	33%	\$4,000
18	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	1	8	13%	\$4,000
19	Maple Rd & Rockfield Rd	Minor Street Stop	1	3	33%	\$4,000
20	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	1	3	33%	\$4,000
21	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	0	1	0%	\$0
22	Division Rd & Donges Bay Rd	Minor Street Stop	0	2	0%	\$0
23	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	0	4	0%	\$0
24	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	0	7	0%	\$0
25	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	1	0%	\$0
26	Pilgrim Rd & Freistadt Rd	Minor Street Stop	0	4	0%	\$0
27	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	0	3	0%	\$0
28	Division Rd & Lilac Ln	Minor Street Stop	0	2	0%	\$0
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Averages per Intersection			3	13	24%	\$72,600
Totals			87	366	24%	\$1,452,000

¹) Crashes ranked by economic loss of slippery pavement conditions crashes. Slippery conditions includes wet, snowy, or icy. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.7

Pedestrian Crash Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	TOTAL PEDESTRIAN CRASHES	ECONOMIC LOSS (PED CRASHES)
1	Wasaukee Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
2	Division Rd & Cedar Ln	Minor Street Stop	0	0	0	0	0	0	\$0
3	Maple Rd & Lannon Rd/STH 167	Traffic Signal	0	0	0	0	0	0	\$0
4	Maple Rd & Mequon Rd	All-Way Stop	0	0	0	0	0	0	\$0
5	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	0	0	0	0	0	0	\$0
6	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	0	0	0	0	0	0	\$0
7	Division Rd & Wendy Ln	Minor Street Stop	0	0	0	0	0	0	\$0
8	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	0	0	0	0	0	0	\$0
9	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	0	0	0	0	0	0	\$0
10	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	0	0	0	0	0	0	\$0
11	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
12	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	0	0	0	0	0	0	\$0
13	Division Rd & Lilac Ln	Minor Street Stop	0	0	0	0	0	0	\$0
14	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	0	0	0	0	0	0	\$0
15	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	0	0	0	0	0	0	\$0
16	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	0	0	0	0	0	0	\$0
17	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	0	0	0	0	0	0	\$0
18	Pilgrim Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
19	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	0	0	0	0	0	0	\$0
20	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	0	0	0	0	0	0	\$0
21	Maple Rd & Rockfield Rd	Minor Street Stop	0	0	0	0	0	0	\$0
22	Division Rd & Donges Bay Rd	Minor Street Stop	0	0	0	0	0	0	\$0
23	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	0	0	0	0	0	0	\$0
24	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
25	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	0	0	0	0	0	0	\$0
26	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	0	0	0	0	0	0	\$0
27	Pilgrim Rd & Sylvan Circle	Minor Street Stop	0	0	0	0	0	0	\$0
28	Wasaukee Rd & Highland Rd	Minor Street Stop	0	0	0	0	0	0	\$0
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Averages per Intersection			0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
Totals			0	0	0	0	0	0	\$0.00

1) Ranked by economic loss of crashes involving pedestrians. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.8

Bicycle Crash Ranking

Village of Germantown (2015 thru 2019)

RANK ¹	INTERSECTION	TRAFFIC CONTROL	FATAL	A-LEVEL	B-LEVEL	C-LEVEL	PDO	TOTAL BICYCLE CRASHES	ECONOMIC LOSS (BICYCLE CRASHES)
1	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	0	0	0	0	1	\$85,000
2	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	0	0	0	1	0	1	\$25,000
3	Division Rd & Cedar Ln	Minor Street Stop	0	0	0	0	0	0	\$0
4	Heritage Hills Pkwy & Donges Bay Rd	Minor Street Stop	0	0	0	0	0	0	\$0
5	Division Rd & Lilac Ln	Minor Street Stop	0	0	0	0	0	0	\$0
6	Wasaukee Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
7	Maple Rd & Lannon Rd/STH 167	Traffic Signal	0	0	0	0	0	0	\$0
8	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	0	0	0	0	0	0	\$0
9	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	0	0	0	0	0	0	\$0
10	Division Rd & Wendy Ln	Minor Street Stop	0	0	0	0	0	0	\$0
11	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	0	0	0	0	0	0	\$0
12	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	0	0	0	0	0	0	\$0
13	Maple Rd & Mequon Rd	All-Way Stop	0	0	0	0	0	0	\$0
14	Country Aire Dr & CTH F/Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
15	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	0	0	0	0	0	0	\$0
16	STH 145/Fond du Lac Ave & Country Aire Rd	Minor Street Stop	0	0	0	0	0	0	\$0
17	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	0	0	0	0	0	0	\$0
18	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	0	0	0	0	0	0	\$0
19	Pilgrim Rd & STH 145/Fond du Lac Ave	All-Way Stop	0	0	0	0	0	0	\$0
20	Pilgrim Rd & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
21	Country Aire Dr & CTH M/Pioneer Rd	All-Way Stop	0	0	0	0	0	0	\$0
22	STH 145/Fond du Lac Ave & Park Ave	Minor Street Stop	0	0	0	0	0	0	\$0
23	Maple Rd & Rockfield Rd	Minor Street Stop	0	0	0	0	0	0	\$0
24	Division Rd & Donges Bay Rd	Minor Street Stop	0	0	0	0	0	0	\$0
25	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	0	0	0	0	0	0	\$0
26	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	0	0	0	0	0	0	\$0
27	Pilgrim Rd & Sylvan Circle	Minor Street Stop	0	0	0	0	0	0	\$0
28	Wasaukee Rd & Highland Rd	Minor Street Stop	0	0	0	0	0	0	\$0
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Averages per Intersection			0.04	0.00	0.00	0.04	0.00	0.07	\$55,000.00
Totals			1	0	0	1	0	2	\$110,000.00

1) Ranked by economic loss of crashes involving bicyclists. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level.

APPENDIX A1.9

Top Crash Types

Village of Germantown (2015 thru 2019)

RANK ¹	CRASH TYPES	INTERSECTION	TRAFFIC CONTROL	NUMBER OF CRASHES	ECONOMIC LOSS
1	RT-ANGLE	Wasaukee Rd & Freistadt Rd	Minor Street Stop	20	\$530,000
2	LT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	17	\$476,000
3	RT-ANGLE	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	26	\$470,000
4	RT-ANGLE	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	22	\$433,000
5	RT-ANGLE	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	13	\$337,000
6	RT-ANGLE	Wasaukee Rd & Highland Rd	Minor Street Stop	6	\$288,000
7	REAR-END	Maple Rd & Lannon Rd/STH 167	Traffic Signal	24	\$240,000
8	LT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	7	\$190,000
9	MISC. OTHER	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	3	\$174,000
10	RT-ANGLE	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	12	\$171,000
11	RT-TURN REAR-END	Maple Rd & Lannon Rd/STH 167	Traffic Signal	16	\$148,000
12	RT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	7	\$130,000
13	LT-ANGLE	Pilgrim Rd & Sylvan Circle	Minor Street Stop	3	\$114,000
14	RT-ANGLE	Division Rd & Lilac Ln	Minor Street Stop	2	\$110,000
15	REAR-END	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	11	\$107,000
16	FIXED-OBJECT	Maple Rd & Lannon Rd/STH 167	Traffic Signal	6	\$105,000
17	RT-ANGLE	Maple Rd & Mequon Rd	All-Way Stop	6	\$105,000
18	LT-ANGLE	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	3	\$93,000
19	FIXED-OBJECT	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	2	\$89,000
20	RT-ANGLE	Pilgrim Rd & Sylvan Circle	Minor Street Stop	2	\$89,000
21	REAR-END	Pilgrim Rd & Sylvan Circle	Minor Street Stop	2	\$89,000
22	BICYCLE-RELATED	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	\$85,000
23	HEAD-ON	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	1	\$85,000
24	MISC. OTHER	Pilgrim Rd & Sylvan Circle	Minor Street Stop	1	\$85,000
25	REAR-END	Wasaukee Rd & Highland Rd	Minor Street Stop	1	\$85,000
26	RT-TURN REAR-END	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	9	\$78,000
27	REAR-END	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	4	\$37,000
28	LT-ANGLE	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	4	\$37,000
29	REAR-END	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	3	\$33,000
30	RT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$33,000
31	MISC. OTHER	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	3	\$33,000
32	REAR-END	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	3	\$33,000
33	MISC. OTHER	Maple Rd & Lannon Rd/STH 167	Traffic Signal	8	\$32,000
34	RT-ANGLE	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	2	\$29,000
35	REAR-END	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	1	\$25,000
36	BICYCLE-RELATED	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	1	\$25,000
37	LT-ANGLE	STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd	Minor Street Stop	1	\$25,000
38	FIXED-OBJECT	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	6	\$24,000
39	RT-TURN REAR-END	STH 145/Fond du Lac Ave & Freistadt Rd	Minor Street Stop	6	\$24,000
40	SIDE-SWIPE-SAME	Maple Rd & Lannon Rd/STH 167	Traffic Signal	5	\$20,000
41	MISC. OTHER	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	4	\$16,000
42	REAR-END	STH 145/Fond du Lac Ave & CTH G/Division Rd	Minor Street Stop	4	\$16,000
43	MISC. OTHER	Wasaukee Rd & Freistadt Rd	Minor Street Stop	3	\$12,000
44	REAR-END	Maple Rd & Mequon Rd	All-Way Stop	3	\$12,000
45	MISC. OTHER	STH 145/Fond du Lac & Crusader Ct-Church St	Minor Street Stop	3	\$12,000
46	SIDE-SWIPE-SAME	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$12,000
47	LT-ANGLE	STH 145/Fond du Lac Ave & Mequon Rd	Minor Street Stop	3	\$12,000
48	DRIVEWAY-RELATED	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	2	\$8,000
49	FIXED-OBJECT	Division Rd & Wendy Ln	Minor Street Stop	2	\$8,000
50	FIXED-OBJECT	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	2	\$8,000
Totals for Top 50 Crash Types				302	\$ 5,432,000

¹) Ranked by economic loss per crash type. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level. Most crashes within 300 feet of intersection, per the accident report form.

APPENDIX A1.10

Top Crash Types by Direction

Village of Germantown (2015 thru 2019)

RANK ¹	CRASH PATTERN	INTERSECTION	TRAFFIC CONTROL	NUMBER OF CRASHES	ECONOMIC LOSS
1	WB/NB_RT-ANGLE	Wasaukee Rd & Freistadt Rd	Minor Street Stop	8	\$338,000
2	EB_REAR	Maple Rd & Lannon Rd/STH 167	Traffic Signal	10	\$184,000
3	EB_LT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	5	\$143,000
4	NB_LT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	5	\$143,000
5	SB/WB_RT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	3	\$114,000
6	SB_RT-TURN_REAR-END	Maple Rd & Lannon Rd/STH 167	Traffic Signal	10	\$103,000
7	WB_LT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	5	\$101,000
8	SB/WB_RT-ANGLE	Wasaukee Rd & Freistadt Rd	Minor Street Stop	4	\$97,000
9	NB_LT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	3	\$93,000
10	NB_FIXED-OBJECT	Maple Rd & Lannon Rd/STH 167	Traffic Signal	2	\$89,000
11	NB/EB_RT-ANGLE	Maple Rd & Mequon Rd	All-Way Stop	2	\$89,000
12	SB_LT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	2	\$89,000
13	WB_LT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	1	\$85,000
14	WB_FIXED-OBJECT	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	\$85,000
15	SB_BIKE	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	1	\$85,000
16	MISC._WEST-LEG	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	1	\$85,000
17	MISC._NORTH-LEG	STH 175/Appleton Ave & Amy Belle Rd	Minor Street Stop	1	\$85,000
18	HEAD-ON_NORTH-LEG	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	1	\$85,000
19	WB/NB_RT-ANGLE	Division Rd & Lilac Ln	Minor Street Stop	1	\$85,000
20	NB/EB_RT-ANGLE	Wasaukee Rd & Freistadt Rd	Minor Street Stop	6	\$66,000
21	SB_REAR	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$54,000
22	WB_RT-TURN_REAR-END	Maple Rd & Lannon Rd/STH 167	Traffic Signal	6	\$45,000
23	SB_REAR	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	3	\$33,000
24	WB_RT-TURN_REAR-END	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$33,000
25	SB_RT-TURN_REAR-END	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$33,000
26	EB/SB_RT-ANGLE	Wasaukee Rd & Freistadt Rd	Minor Street Stop	2	\$29,000
27	NB_REAR	STH 145/Fond du Lac Ave & Main St	Minor Street Stop	2	\$29,000
28	EB/SB_RT-ANGLE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	2	\$29,000
29	NB_REAR	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	2	\$29,000
30	WB_REAR	Maple Rd & Lannon Rd/STH 167	Traffic Signal	7	\$28,000
31	SB/WB_RT-ANGLE	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	1	\$25,000
32	SB_REAR	STH 175/Appleton Ave & Hilltop Rd	Minor Street Stop	1	\$25,000
33	EB/SB_RT-ANGLE	Division Rd & Lilac Ln	Minor Street Stop	1	\$25,000
34	SB_BIKE	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	1	\$25,000
35	NB/EB_RT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	4	\$16,000
36	MISC._SOUTH-LEG	Maple Rd & Lannon Rd/STH 167	Traffic Signal	4	\$16,000
37	SB_REAR	Maple Rd & Lannon Rd/STH 167	Traffic Signal	4	\$16,000
38	EB_LT-ANGLE	Maple Rd & Lannon Rd/STH 167	Traffic Signal	3	\$12,000
39	NB_REAR	Maple Rd & Lannon Rd/STH 167	Traffic Signal	3	\$12,000
40	EB_REAR	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$12,000
41	WB_REAR	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$12,000
42	SB_FIXED-OBJECT	Pilgrim Rd & Mequon Rd/STH 167	Traffic Signal	3	\$12,000
43	EB_FIXED-OBJECT	Maple Rd & Lannon Rd/STH 167	Traffic Signal	2	\$8,000
44	WB_SSS	Maple Rd & Lannon Rd/STH 167	Traffic Signal	2	\$8,000
45	NB_SSS	Maple Rd & Lannon Rd/STH 167	Traffic Signal	2	\$8,000
46	SB_DRIVEWAY_NEARSIDE	STH 175/Appleton Ave & Meeker Hill Rd	Minor Street Stop	2	\$8,000
47	NB_FIXED-OBJECT	STH 175/Appleton Ave & Willow Creek Rd	Minor Street Stop	2	\$8,000
48	WB/NB_RT-ANGLE	Maple Rd & Mequon Rd	All-Way Stop	2	\$8,000
49	NB_LT-ANGLE	Maple Rd & Mequon Rd	All-Way Stop	2	\$8,000
50	SB_REAR	Maple Rd & Mequon Rd	All-Way Stop	2	\$8,000
Totals for Top 50 Crash Patterns				152	\$ 2,858,000

¹) Ranked by economic loss per crash pattern by direction. Economic Loss calculated by using \$85k per Fatal K-Level, \$85k per Incapacitating Injury A-Level, \$85k per Non-Incapacitating Injury B-Level, \$25k per Possible Injury C-Level, and \$4k per Property Damage Only PD-Level. Most crashes within 300 feet of intersection, per the accident report form.

APPENDIX A2

INTERSECTION COLLISION DIAGRAMS

- ▶ A2.1 Maple Rd & Lannon Rd/STH 167
- ▶ A2.2 Pilgrim Rd & Mequon Rd/STH 167
- ▶ A2.3 STH 145/Fond du Lac Ave & CTH G/Division Rd
- ▶ A2.4 Wasaukee Rd & Freistadt Rd
- ▶ A2.5 STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd
- ▶ A2.6 Wasaukee Rd & Highland Rd
- ▶ A2.7 Pilgrim Rd & Sylvan Circle
- ▶ A2.8 STH 145/Fond du Lac Ave & Mequon Rd
- ▶ A2.9 STH 145/Fond du Lac Ave & Freistadt Rd
- ▶ A2.10 STH 175/Appleton Ave & Meeker Hill Rd
- ▶ A2.11 STH 175/Appleton Ave & Amy Belle Rd
- ▶ A2.12 Maple Rd & Mequon Rd
- ▶ A2.13 Division Rd & Lilac Ln
- ▶ A2.14 STH 175/Appleton Ave & Willow Creek Rd
- ▶ A2.15 STH 175/Appleton Ave & Hilltop Rd
- ▶ A2.16 STH 145/Fond du Lac Ave & Main St
- ▶ A2.17 STH 145/Fond du Lac & Crusader Ct-Church St
- ▶ A2.18 Pilgrim Rd & STH 145/Fond du Lac Ave
- ▶ A2.19 STH 145/Fond du Lac Ave & Country Aire Rd
- ▶ A2.20 Pilgrim Rd & Freistadt Rd
- ▶ A2.21 Division Rd & Wendy Ln
- ▶ A2.22 Country Aire Dr & CTH M/Pioneer Rd
- ▶ A2.23 STH 145/Fond du Lac Ave & Park Ave
- ▶ A2.24 Maple Rd & Rockfield Rd
- ▶ A2.25 Division Rd & Cedar Ln
- ▶ A2.26 Division Rd & Donges Bay Rd
- ▶ A2.27 Country Aire Dr & CTH F/Freistadt Rd
- ▶ A2.28 Heritage Hills Pkwy & Donges Bay Rd

A2.1 Intersection Collision Diagram

Location: Maple Rd & Lannon Rd/STH 167
Municipality: Germantown
County: Washington
Traffic Control: Traffic Signal

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 27,550
Area Type: Urban
GPS Coordinates: 43.217902, -88.142925

[MAP](#)

TOTAL CRASHES: 73

AVG. CRASHES/YEAR: 14.6

CRASH RATE: 1.45 per MEV

KAB CRASH RATE: 0.10 per MEV

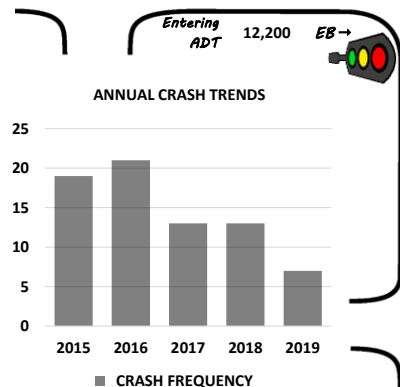
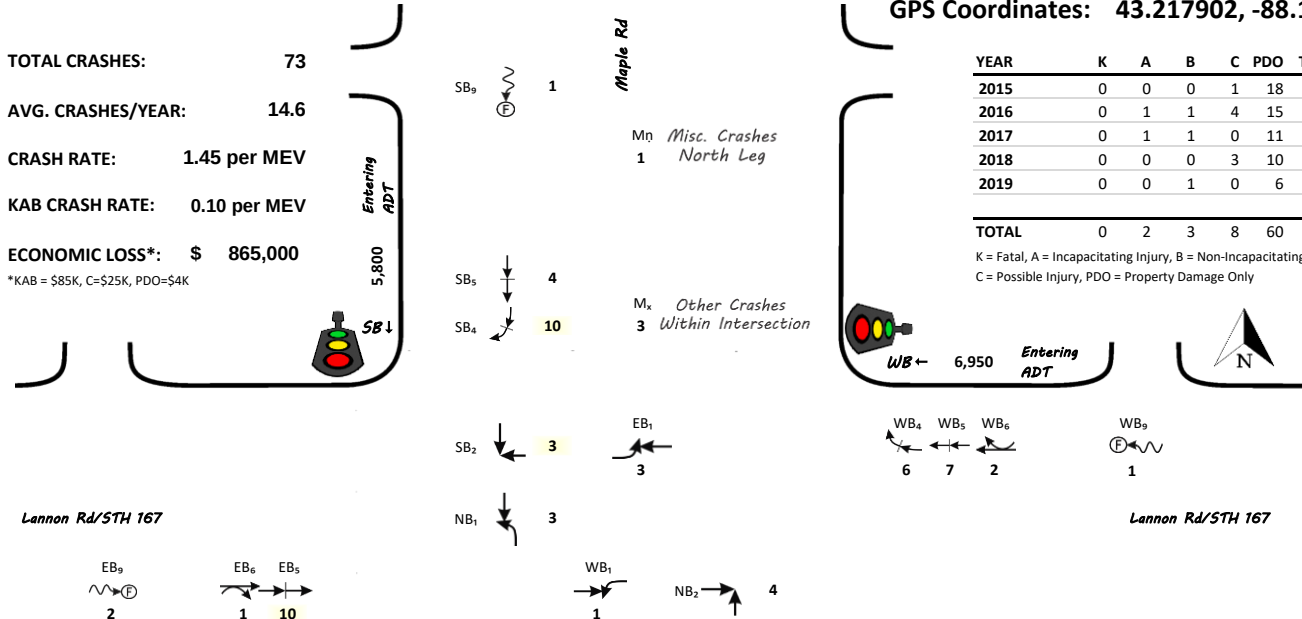
ECONOMIC LOSS*: \$ 865,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	1	18	19	\$ 97,000
2016	0	1	1	4	15	21	\$ 330,000
2017	0	1	1	0	11	13	\$ 214,000
2018	0	0	0	3	10	13	\$ 115,000
2019	0	0	1	0	6	7	\$ 109,000

TOTAL 0 2 3 8 60 73 \$ 865,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ROAD CONDITIONS		
DRY	51	70%
WET	15	21%
SNOW	7	10%
ICE	0	0%
OTH.	0	0%
TOT.	73	

LIGHT CONDITIONS		
DAY	58	79%
DARK	15	21%
TOT.	73	

DRIVER BEHAVIOR		
ALCOHOL	1	1%
DRUGS	1	1%
SPEED	5	7%

SEASON		
SPRING	23	32%
SUMMER	10	14%
FALL	16	22%
WINTER	24	33%
TOT.	73	

FAILURE TO YIELD		
NB	1	1%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	9	12%
TOT.	10	14%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	1	1%
TBD	6	8%
TOT.	7	10%

VEHICLE DAMAGE		
OTHER/UNK.	8	6%
NONE	8	6%
VERY MINOR	13	9%
MINOR	41	30%
MODERATE	42	30%
SEVERE	26	19%
VERY SEVERE	0	0%
TOTAL VEHICLES	138	

NOTES:
Validated KAB crashes

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	1	1	0	1	0	0	1	3	2	0	1	2	0	1	0	0	1	0	1	0	MON	15
TUE	0	0	0	0	0	0	0	1	2	0	0	0	1	1	1	4	4	3	0	0	0	0	0	0	0	TUE	17
WED	0	0	0	0	0	0	0	2	0	0	0	1	2	0	2	0	1	1	0	0	0	1	0	0	0	WED	10
THU	0	0	0	0	0	0	2	1	0	0	0	1	1	1	1	1	1	1	0	1	0	1	0	0	0	THU	12
FRI	0	0	0	0	0	1	0	1	0	0	1	0	1	2	3	2	0	1	0	0	0	0	0	0	0	FRI	12
SAT	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	2
SUN	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	SUN	5
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	1	0	0	0	3	3	5	4	0	1	3	9	6	8	8	8	8	1	1	0	3	0	1	0	TOT.	73

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 27,550
Area Type: Urban

Duration
5 Years
0 Months

74	
75	
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A2.2 Intersection Collision Diagram

Location: Pilgrim Rd & Mequon Rd/STH 167
Municipality: Germantown
County: Washington
Traffic Control: Traffic Signal

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 23,500
Area Type: Urban
GPS Coordinates: 43.220967, -88.103192

Duration

[MAP](#)

TOTAL CRASHES: 54

AVG. CRASHES/YEAR: 10.8

CRASH RATE: 1.26 per MEV

KAB CRASH RATE: 0.09 per MEV

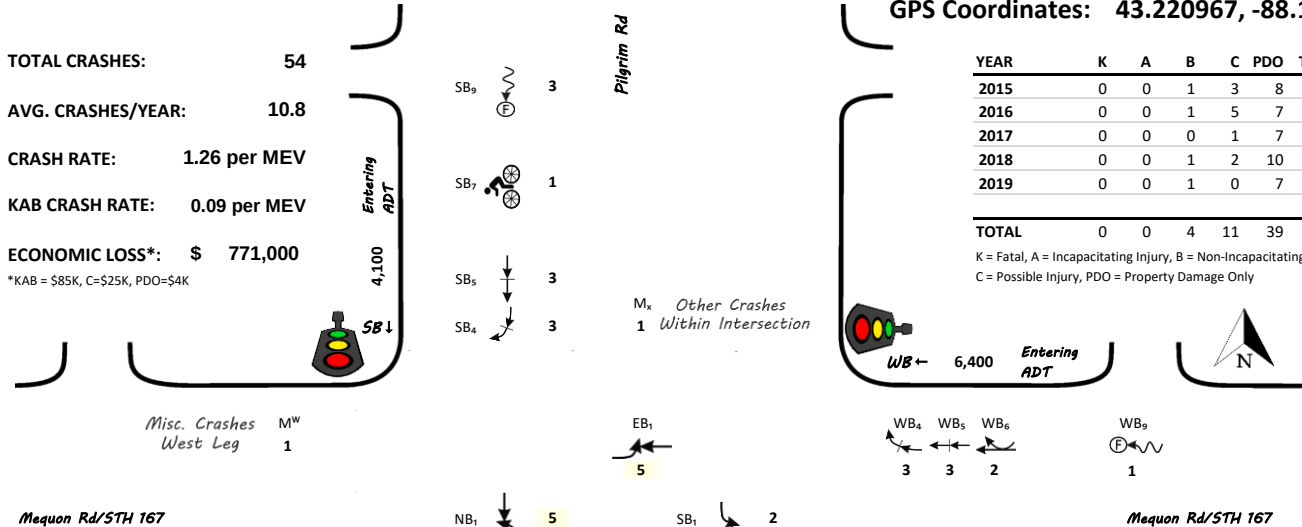
ECONOMIC LOSS*: \$ 771,000

*KAB = \$85K, C=\$25K, PDO=\$4K

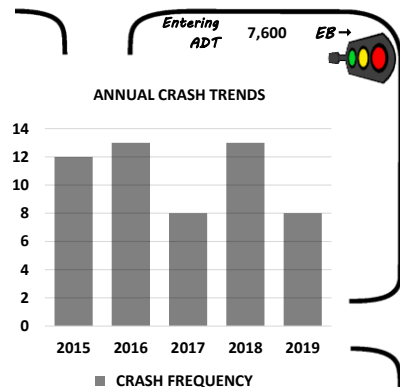
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	1	3	8	12	\$ 192,000
2016	0	0	1	5	7	13	\$ 238,000
2017	0	0	0	1	7	8	\$ 53,000
2018	0	0	1	2	10	13	\$ 175,000
2019	0	0	1	0	7	8	\$ 113,000

TOTAL 0 0 4 11 39 54 \$ 771,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



Mequon Rd/STH 167



ROAD CONDITIONS

DRY	42	78%
WET	8	15%
SNOW	4	7%
ICE	0	0%
OTH.	0	0%
TOT.	54	

LIGHT CONDITIONS

DAY	38	70%
DARK	16	30%
TOT.	54	

DRIVER BEHAVIOR

ALCOHOL	3	6%
DRUGS	0	0%
SPEED	3	6%

SEASON

SPRING	11	20%
SUMMER	12	22%
FALL	18	33%
WINTER	13	24%
TOT.	54	

FAILURE TO YIELD

NB	0	0%
SB	2	4%
EB	1	2%
WB	1	2%
TBD	13	24%
TOT.	17	31%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	3	6%
TOT.	3	6%

VEHICLE DAMAGE

OTHER/UNK.	4	4%
NONE	4	4%
VERY MINOR	11	11%
MINOR	32	32%
MODERATE	30	30%
SEVERE	19	19%
VERY SEVERE	0	0%
TOTAL VEHICLES	100	

NOTES:

Validated KAB crashes

DAY/TIME TRENDS

Daily Time Schedule																											
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	2	1	1	0	0	0	0	0	MON	7
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	1	0	1	0	0	0	0	TUE	7
WED	0	0	0	0	0	0	3	1	0	0	0	1	1	0	0	0	1	1	0	2	0	0	0	0	0	WED	10
THU	0	0	0	0	0	0	0	2	0	0	2	0	1	0	1	2	0	0	0	0	0	0	0	0	0	THU	8
FRI	1	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	3	0	0	1	0	0	0	0	FRI	10
SAT	0	0	1	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	1	0	0	0	SAT	7
SUN	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	0	1	0	0	0	0	SUN	5
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	1	0	2	1	0	0	3	4	1	1	4	3	4	3	4	3	3	8	2	3	3	1	0	0	0	TOT.	54

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 23,500
Area Type: Urban

#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	Eb1	LLG6PKT	1/26/2015	LT-ANGLE	7 PM		SNOW	DARK				
2	Eb1	LLFRCP0	5/28/2015	LT-ANGLE	10 AM	C						
3	Eb1	LLFLXDQ	10/1/2015	LT-ANGLE	3 PM							
4	Eb1	LLHMNG7	9/30/2016	LT-ANGLE	8 PM	C	WET	DARK				
5	Eb1	C9L09KMLZB	1/21/2019	LT-ANGLE	11 AM	B	WET					
6	Eb1	C9L09XQZ1B	1/9/2018	RT-ANGLE	8 PM	C		DARK				
7	Eb1	C9L09QKR8G	5/6/2018	RT-ANGLE	1 PM							
8	Eb1	C9L09CGFK6	11/22/2019	RT-TURN REAR-END	5 PM			DARK				
9	Eb1	C9L09FXHKZ	11/15/2017	REAR-END	11 AM							
10	Eb1	C9L09QKRBM	6/14/2018	REAR-END	7 AM							
11	Eb1	C9L09DPGID	9/18/2019	REAR-END	7 AM							
12	Eb1	C9L09DPGGR	2/17/2018	FIXED-OBJECT	10 AM		UNKN	DAY				
13	MW	C9L09XQXZ6	8/10/2017	MISC. OTHER	12 PM							
14	WB1	LLHBRRP	4/13/2016	LT-ANGLE	6 AM	B						
15	WB1	RXMZM9L	8/1/2016	LT-ANGLE	12 PM							
16	WB1	C9L09CGFDG	5/25/2018	LT-ANGLE	8 AM							
17	WB1	C9L09FXHP9	5/22/2019	LT-ANGLE	12 PM							
18	WB1	C9L0FB001P	9/6/2019	LT-ANGLE	2 PM							
19	WB1	LLHL600	8/9/2016	RT-TURN REAR-END	5 PM	C						
20	WB1	C9L09JDKSM	3/24/2018	RT-TURN REAR-END	11 AM							
21	WB1	C9L0FB001T	9/20/2019	RT-TURN REAR-END	3 PM							
22	WB1	LLG7FTL	3/13/2015	REAR-END	12 AM			DARK	Y			
23	WB1	LLHFQMK	12/24/2015	REAR-END	10 AM							
24	WB1	C9L09B7D86	4/4/2018	REAR-END	5 PM							
25	WB1	LLHB1JL	8/28/2016	SIDE-SWIPE-SAME	10 AM							
26	WB1	C9L09B7D70	2/23/2017	SIDE-SWIPE-SAME	3 PM							
27	WB1	C9L09H5JPR	12/9/2017	FIXED-OBJECT	3 AM		SNOW	DARK	Y		Y	
28	M4	C9L09CGFD0	12/9/2017	MISC. OTHER	2 AM		SNOW	DARK			Y	
29	NB1	LLG7FV5	7/15/2015	LT-ANGLE	7 PM	B						Entered on yellow
30	NB1	LLFRCPD	10/28/2015	LT-ANGLE	6 AM	C	WET	DARK				
31	NB1	CLVHL65	2/1/2016	LT-ANGLE	6 PM	C		DARK				
32	NB1	LLHFQK	11/2/2016	LT-ANGLE	6 AM		WET	DARK				
33	NB1	C9L09CGFFM	10/30/2018	LT-ANGLE	6 PM		WET	DARK				
34	NB1	C9L09WHWT5	8/12/2017	RT-ANGLE	2 PM							
35	NB1	C9L09WHWTR	10/27/2017	RT-TURN REAR-END	5 PM							
36	NB1	C9L09FXHPJ	6/4/2019	RT-TURN REAR-END	1 PM							
37	NB1	LLHMNG3	9/24/2016	REAR-END	4 PM							
38	NB1	LLHLX7K	10/13/2016	REAR-END	2 PM	C						
39	NB1	LLG7FVC	8/16/2015	SIDE-SWIPE-SAME	8 PM			DARK				
40	NB1	C9L0F18Q88	3/10/2019	FIXED-OBJECT	9 AM		WET				Y	
41	M5	C9L09H5JQL	4/24/2018	MISC. OTHER	1 PM							
42	Sb1	LLHLX88	11/28/2016	LT-ANGLE	5 PM		WET	DAY				
43	Sb1	C9L09B7D9D	1/4/2018	LT-ANGLE	7 AM	B						
44	Sb1	LLFLXD5	6/23/2015	RT-TURN REAR-END	2 PM							
45	Sb1	LLFFONW	8/9/2015	RT-TURN REAR-END	4 PM							

29

A2.3 Intersection Collision Diagram

Location: STH 145/Fond du Lac Ave & CTH G/Division Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 8,600
Area Type: Rural
GPS Coordinates: 43.239753, -88.123204

Duration

[MAP](#)

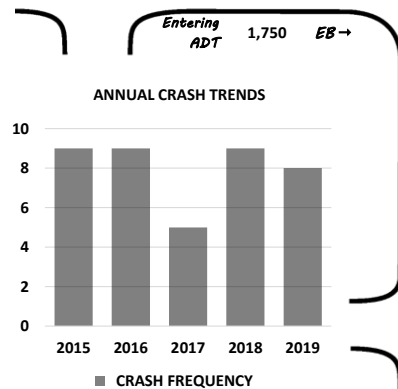
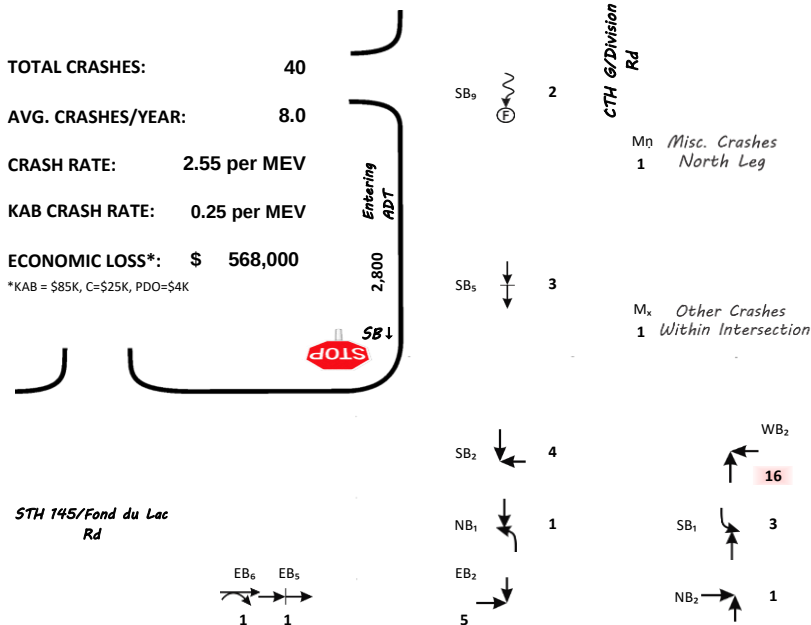
TOTAL CRASHES: 40
AVG. CRASHES/YEAR: 8.0
CRASH RATE: 2.55 per MEV
KAB CRASH RATE: 0.25 per MEV
ECONOMIC LOSS*: \$ 568,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	1	0	0	8	9	\$ 117,000
2016	0	0	0	3	6	9	\$ 99,000
2017	0	0	1	0	4	5	\$ 101,000
2018	0	1	1	1	6	9	\$ 219,000
2019	0	0	0	0	8	8	\$ 32,000

TOTAL 0 2 2 4 32 40 \$ 568,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	1	3	4	\$ 37,000
RT-ANGLE	0	2	2	2	20	26	\$ 470,000
PEDESTRIAN	0	0	0	0	0	0	-
RT-TURN REAR-END	0	0	0	0	0	0	-
REAR-END	0	0	0	0	4	4	\$ 16,000
SIDE-SWIPE-SAME	0	0	0	0	1	1	\$ 4,000
BICYCLE-RELATED	0	0	0	0	0	0	-
PARKED-VEHICLE	0	0	0	0	0	0	-
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	-
HEAD-ON	0	0	0	0	0	0	-
MISC. OTHER	0	0	0	1	2	3	\$ 33,000
TOTAL	0	2	2	4	32	40	\$ 568,000

ROAD CONDITIONS		
DRY	30	75%
WET	8	20%
SNOW	2	5%
ICE	0	0%
OTH.	0	0%
TOT.	40	

LIGHT CONDITIONS		
DAY	35	88%
DARK	5	13%
TOT.	40	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	2	5%

SEASON		
SPRING	9	23%
SUMMER	7	18%
FALL	13	33%
WINTER	11	28%
TOT.	40	

FAILURE TO YIELD		
NB	17	43%
SB	10	25%
EB	0	0%
WB	0	0%
TBD	1	3%
TOT.	28	70%

DISRGRD. CONTROL		
NB	0	0%
SB	1	3%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	1	3%

VEHICLE DAMAGE		
OTHER/UNK.	2	3%
NONE	3	4%
VERY MINOR	4	5%
MINOR	20	27%
MODERATE	18	24%
SEVERE	27	36%
VERY SEVERE	1	1%
TOTAL VEHICLES	75	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.	
MON	0	0	0	0	0	0	0	1	1	1	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	MON	7
TUE	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	0	0	TUE	6	
WED	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	WED	7	
THU	0	1	0	0	0	0	0	1	1	2	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	THU	9	
FRI	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	0	0	FRI	6	
SAT	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	SAT	3	
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	SUN	2	
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.	
TOT.	0	1	0	1	0	0	3	5	2	3	2	1	2	1	1	3	5	4	2	3	0	0	0	1	0	TOT.	40	

A2.3 Crash Data

Corresponds to Collision Diagram



Location: STH 145/Fond du Lac Ave & CTH G/Division Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015
To: 12/31/2019
AADT: 8,600
Area Type: Rural

Duration
5 Years
0 Months

Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	EB ₂	LLFGH36	5/29/2015	RT-ANGLE	7 PM		WET	DAY				
2	EB ₂	LLHL52Q	7/6/2016	RT-ANGLE	7 AM							
3	EB ₂	LLHF0G9	9/22/2016	RT-ANGLE	9 AM	C						
4	EB ₂	LLH99B1	12/9/2016	RT-ANGLE	7 AM							
5	EB ₂	C9L09H5IQ5	1/15/2018	RT-ANGLE	9 AM		WET					
6	EB ₂	C9LOF1BQCI	11/5/2019	REAR-END	6 AM			DAY				Slowing for EBL
7	EB ₂	LLH8K4B	3/4/2016	SIDE-SWIPE-SAME	4 PM							
8	WB ₂	LLFP4X6	10/13/2015	RT-ANGLE	7 PM			DARK				
9	WB ₂	LLG3QW8	10/22/2015	RT-ANGLE	3 PM							
10	WB ₂	LLHF0DR	11/25/2015	RT-ANGLE	12 PM							
11	WB ₂	LM4BDMH	11/27/2015	RT-ANGLE	4 PM							
12	WB ₂	LLH8K3Q	2/4/2016	RT-ANGLE	2 PM							
13	WB ₂	LLHL61L	12/14/2016	RT-ANGLE	4 PM		WET					
14	WB ₂	C9L09LVN04	5/23/2017	RT-ANGLE	6 PM		WET					
15	WB ₂	C9L09LVN0P	11/15/2017	RT-ANGLE	5 PM			DARK				
16	WB ₂	C9L09B7D8R	11/16/2017	RT-ANGLE	8 AM							
17	WB ₂	C9L09FXHLD	12/10/2017	RT-ANGLE	3 PM	B						
18	WB ₂	C9L09JDKSJ	2/28/2018	RT-ANGLE	7 AM	B						
19	WB ₂	C9L09XQZ2K	4/23/2018	RT-ANGLE	7 PM							
20	WB ₂	C9L09B7DBL	5/12/2018	RT-ANGLE	3 PM	C						
21	WB ₂	C9L09QKRBN	7/12/2018	RT-ANGLE	11 AM	A						Pushed into semi
22	WB ₂	C9L09LVN18	8/13/2018	RT-ANGLE	10 AM							
23	WB ₂	C9L09KMLZC	1/21/2019	RT-ANGLE	1 PM		WET					
24	NB ₂	LLGN1KT	3/4/2016	LT-ANGLE	4 PM	C						
25	NB ₂	C9LOF7HVV7	8/1/2019	RT-ANGLE	9 AM							
26	Ms	LLG7FVJ	9/5/2015	MISC. OTHER	3 AM			DARK				Swerved for turkey
27	SB ₂	C9L09LVN1C	8/30/2018	LT-ANGLE	5 PM							
28	SB ₂	C9L09FXHN6	12/17/2018	LT-ANGLE	7 AM							
29	SB ₂	C9L09CGFJ1	5/22/2019	LT-ANGLE	4 PM							
30	SB ₂	LLG7FTZ	7/6/2015	RT-ANGLE	10 AM	A						
31	SB ₂	LLHCIOX	10/12/2016	RT-ANGLE	5 PM		WET	DAY				WBR obstructed view
32	SB ₂	C9L09H5JT7	4/26/2019	RT-ANGLE	5 PM							
33	SB ₂	C9L09H5JV6	10/8/2019	RT-ANGLE	6 PM							
34	SB ₂	LLG7FTD	2/2/2015	REAR-END	8 AM		SNOW			Y		
35	SB ₂	C9L09B7DBQ	11/16/2017	REAR-END	7 AM							Pulled out, stopped
36	SB ₂	C9L09DPGHJ	1/22/2019	REAR-END	6 AM			DAY				
37	SB ₂	C9L09KMLXT	11/10/2018	FIXED-OBJECT	6 AM		SNOW	DAY				Icy road, sign
38	SB ₂	C9L09JDKWX	8/11/2019	FIXED-OBJECT	11 PM			DARK				Sign
39	M ₀	LLG7FTM	4/9/2015	MISC. OTHER	1 AM		WET	DARK		Y		EBL, Utility pole
40	M ₄	LLH8K3P	2/2/2016	MISC. OTHER	12 PM	C	WET					WBR, Sign
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#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
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105												
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A2.4 Intersection Collision Diagram



Location: Wasaukee Rd & Freistadt Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 9,650
Area Type: Rural
GPS Coordinates: 43.235634, -88.063909

Duration

[MAP](#)

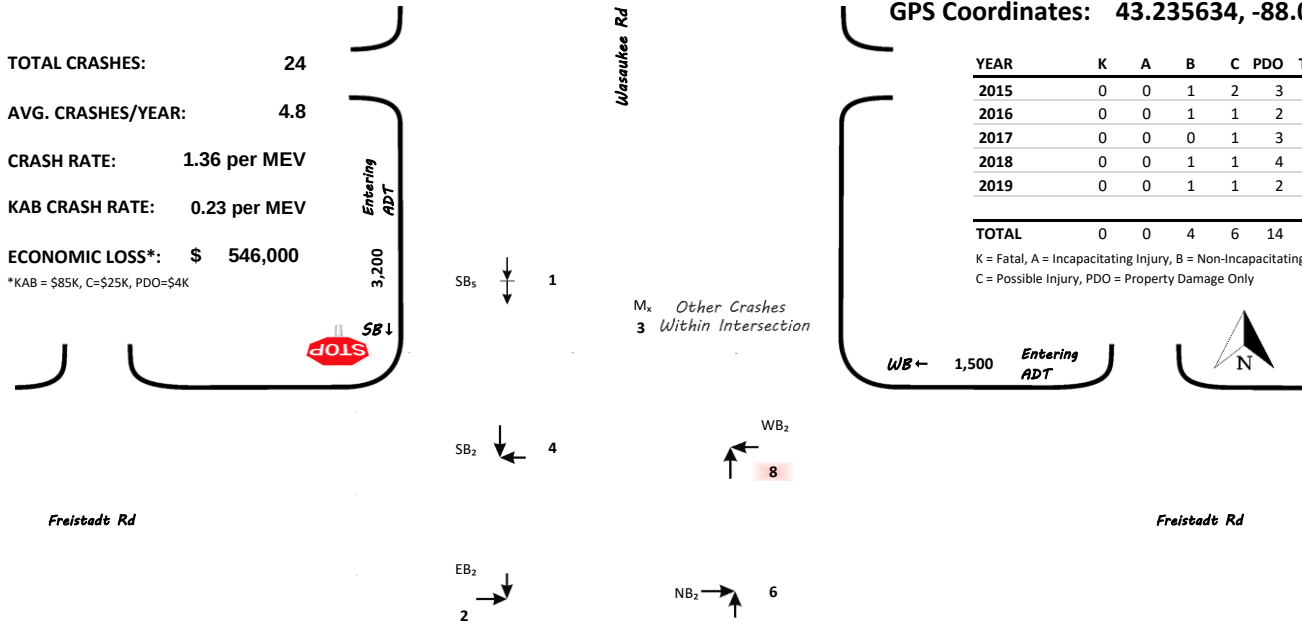
TOTAL CRASHES: 24
AVG. CRASHES/YEAR: 4.8
CRASH RATE: 1.36 per MEV
KAB CRASH RATE: 0.23 per MEV
ECONOMIC LOSS*: \$ 546,000

*KAB = \$85K, C=\$25K, PDO=\$4K

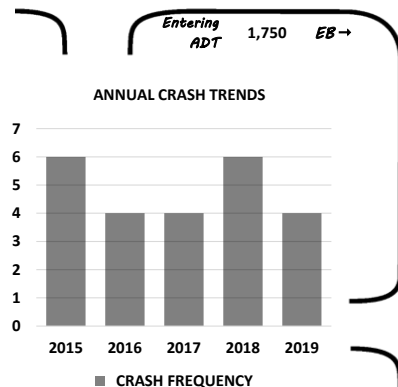
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	1	2	3	6	\$ 147,000
2016	0	0	1	1	2	4	\$ 118,000
2017	0	0	0	1	3	4	\$ 37,000
2018	0	0	1	1	4	6	\$ 126,000
2019	0	0	1	1	2	4	\$ 118,000

TOTAL 0 0 4 6 14 24 \$ 546,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
 C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
 > \$500 K
 > \$400 K
 > \$300 K
 > \$200 K
 > \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	4	6	10	20	\$ 530,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	3	3	\$ 12,000
TOTAL	0	0	4	6	14	24	\$ 546,000

ROAD CONDITIONS		
DRY	18	75%
WET	5	21%
SNOW	1	4%
ICE	0	0%
OTH.	0	0%
TOT.	24	

LIGHT CONDITIONS		
DAY	21	88%
DARK	3	13%
TOT.	24	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	5	21%
SUMMER	5	21%
FALL	8	33%
WINTER	6	25%
TOT.	24	

FAILURE TO YIELD		
NB	3	13%
SB	1	4%
EB	0	0%
WB	0	0%
TBD	13	54%
TOT.	17	71%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	4	17%
TOT.	4	17%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	1	2%
VERY MINOR	2	4%
MINOR	2	4%
MODERATE	18	40%
SEVERE	21	47%
VERY SEVERE	1	2%
TOTAL VEHICLES	45	

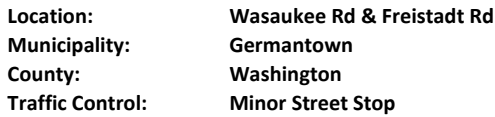
NOTES:
 Validated KAB crashes

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	6 AM						7 AM			8 AM			9 AM			10 AM			11 AM			12 PM			1 PM			2 PM			3 PM			4 PM			5 PM			6 PM			7 PM			8 PM			9 PM			10 PM			11 PM			UNK		TOT.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 9,650
Area Type: Rural

[illegible]33

A2.5 Intersection Collision Diagram



Location: STH 145/Fond du Lac Ave & Maple Rd-Holy Hill Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 5,435
Area Type: Rural
GPS Coordinates: 43.250044, -88.142956

Duration

[MAP](#)

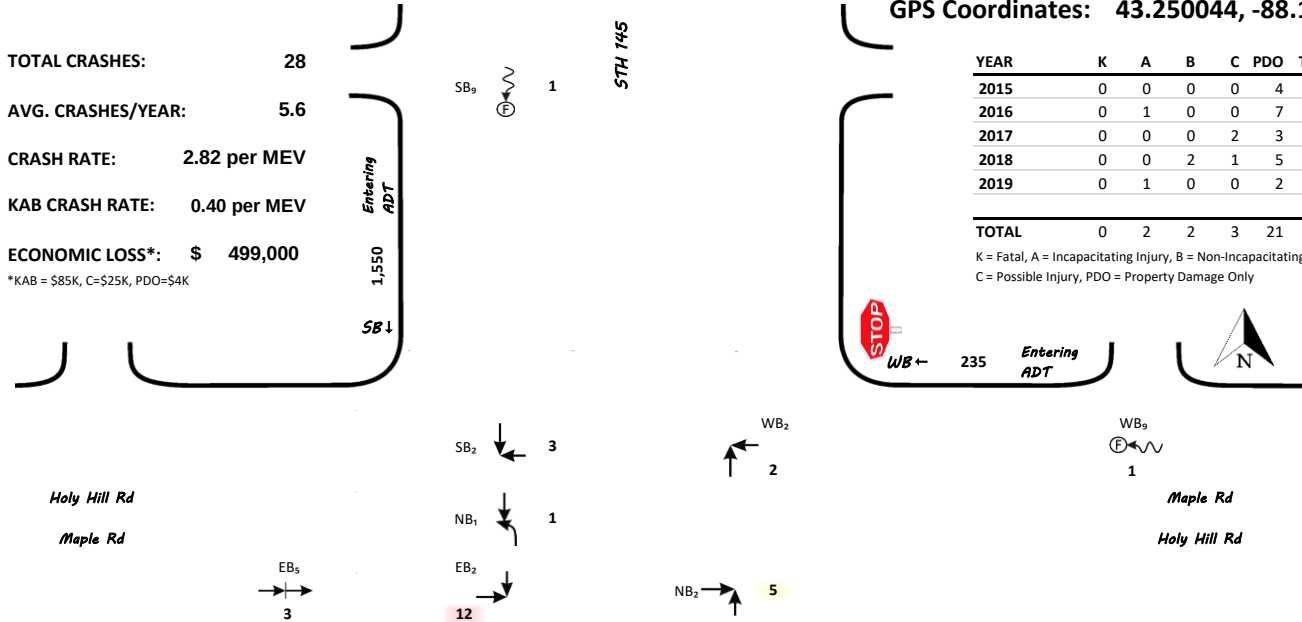
TOTAL CRASHES: 28
AVG. CRASHES/YEAR: 5.6
CRASH RATE: 2.82 per MEV
KAB CRASH RATE: 0.40 per MEV
ECONOMIC LOSS*: \$ 499,000

*KAB = \$85K, C=\$25K, PDO=\$4K

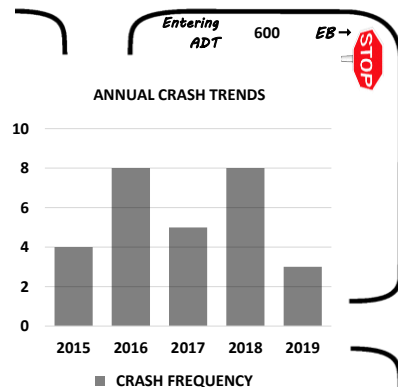
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	4	4	\$ 16,000
2016	0	1	0	0	7	8	\$ 113,000
2017	0	0	0	2	3	5	\$ 62,000
2018	0	0	2	1	5	8	\$ 215,000
2019	0	1	0	0	2	3	\$ 93,000

TOTAL 0 2 2 3 21 28 \$ 499,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
 C = Possible Injury, PDO = Property Damage Only



ECON. LOSS COLOR SCALE
 > \$500 K
 > \$400 K
 > \$300 K
 > \$200 K
 > \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	1	0	1	\$ 25,000
RT-ANGLE	0	2	2	1	17	22	\$ 433,000
PEDESTRIAN	0	0	0	0	0	0	-
RT-TURN REAR-END	0	0	0	0	0	0	-
REAR-END	0	0	0	1	2	3	\$ 33,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	-
BICYCLE-RELATED	0	0	0	0	0	0	-
PARKED-VEHICLE	0	0	0	0	0	0	-
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	-
HEAD-ON	0	0	0	0	0	0	-
MISC. OTHER	0	0	0	0	0	0	-
TOTAL	0	2	2	3	21	28	\$ 499,000

ROAD CONDITIONS

DRY	24	86%
WET	1	4%
SNOW	3	11%
ICE	0	0%
OTH.	0	0%
TOT.	28	

LIGHT CONDITIONS

DAY	22	79%
DARK	6	21%
TOT.	28	

DRIVER BEHAVIOR

ALCOHOL	2	7%
DRUGS	0	0%
SPEED	1	4%

SEASON

SPRING	6	21%
SUMMER	7	25%
FALL	9	32%
WINTER	6	21%
TOT.	28	

FAILURE TO YIELD

NB	3	11%
SB	0	0%
EB	15	54%
WB	4	14%
TBD	0	0%
TOT.	22	79%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE

OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	2	4%
MINOR	9	17%
MODERATE	22	42%
SEVERE	18	35%
VERY SEVERE	1	2%
TOTAL VEHICLES	52	

NOTES:
 6-Leg intersection: Maple Rd N-S, Holy Hill Rd E-W and STH 145 NW-SE skew
 SEE EXHIBIT A2.5 FOR CRASH PLOT ON AERIAL MAP

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	1	0	0	1	0	0	0	MON	6
TUE	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0	TUE	6
WED	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	WED	4
THU	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0	0	0	0	THU	4
FRI	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	FRI	4
SAT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	SAT	3
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	SUN	1
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	1	2	0	1	0	2	3	1	1	2	7	1	3	2	1	1	0	0	0	TOT.	28

Corresponds to Collision Diagram

[illegible]

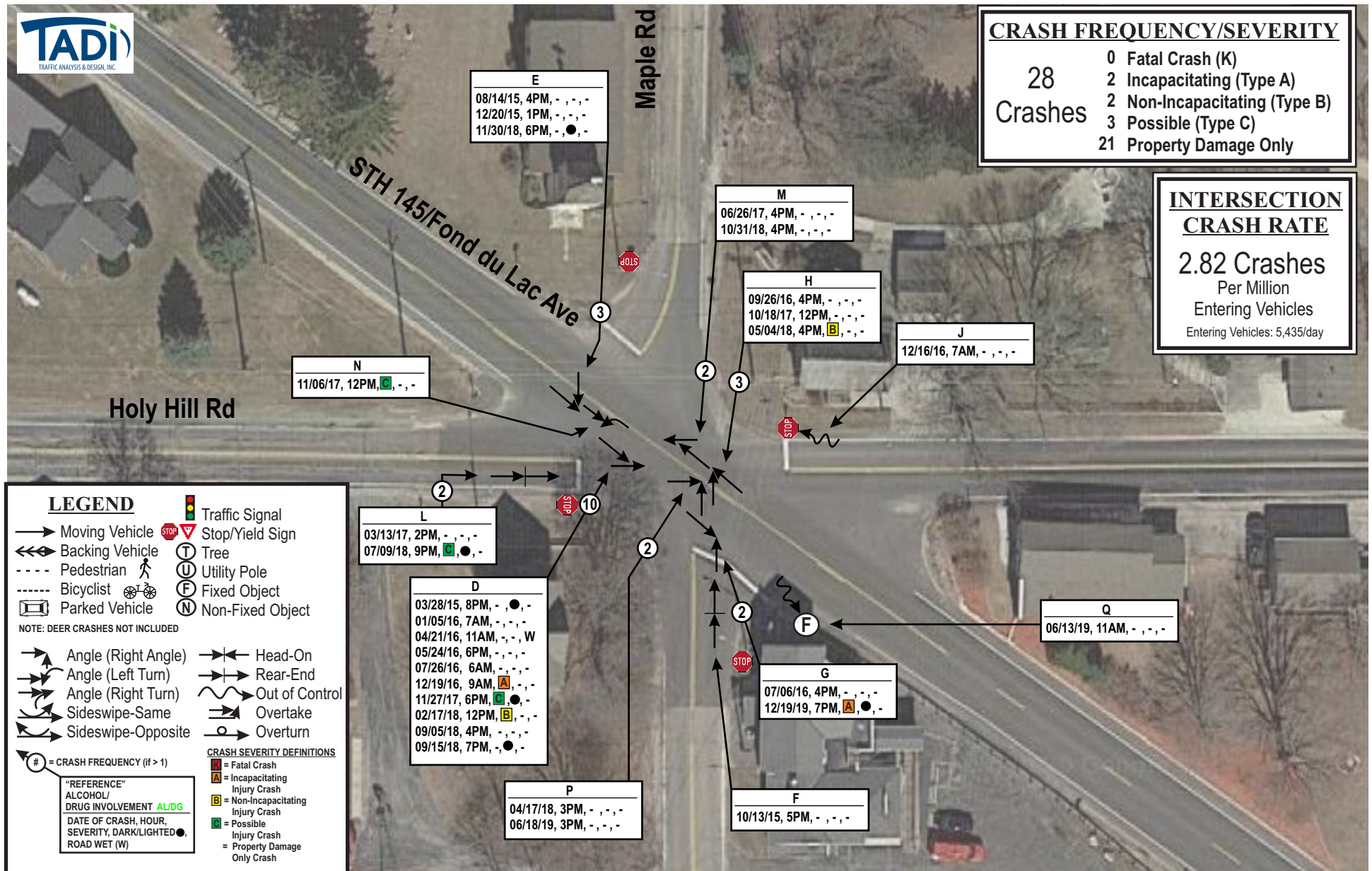
CRASH FREQUENCY/SEVERITY

28 Crashes

0 Fatal Crash (K)
2 Incapacitating (Type A)
2 Non-Incapacitating (Type B)
3 Possible (Type C)
21 Property Damage Only

**INTERSECTION
CRASH RATE**

2.82 Crashes
Per Million
Entering Vehicles
Entering Vehicles: 5,435/day



**EXHIBIT A2.5
CRASH HISTORY (2015-2019)**

**INTERSECTION OF STH 145 & MAPLE RD & HOLY HILL RD
GERMANTOWN, WISCONSIN**

A2.6 Intersection Collision Diagram

Location: Wasaukee Rd & Highland Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 8,300
Area Type: Rural
GPS Coordinates: 43.250153, -88.063882

[MAP](#)

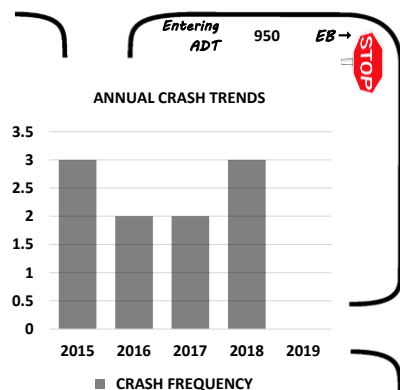
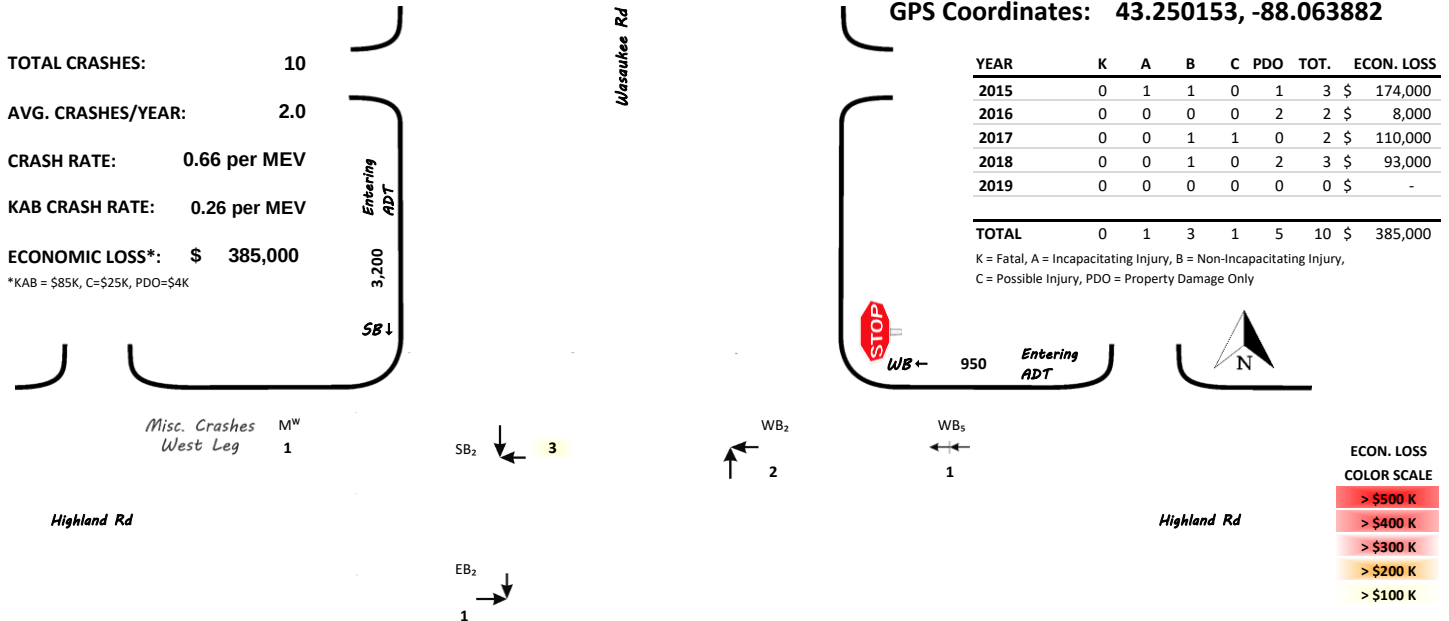
TOTAL CRASHES: 10
AVG. CRASHES/YEAR: 2.0
CRASH RATE: 0.66 per MEV
KAB CRASH RATE: 0.26 per MEV
ECONOMIC LOSS*: \$ 385,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	1	1	0	1	3	\$ 174,000
2016	0	0	0	0	2	2	\$ 8,000
2017	0	0	1	1	0	2	\$ 110,000
2018	0	0	1	0	2	3	\$ 93,000
2019	0	0	0	0	0	0	-

TOTAL 0 1 3 1 5 10 \$ 385,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ROAD CONDITIONS

DRY	6	60%
WET	2	20%
SNOW	2	20%
ICE	0	0%
OTH.	0	0%
TOT.	10	

LIGHT CONDITIONS

DAY	10	100%
DARK	0	0%
TOT.	10	

DRIVER BEHAVIOR

ALCOHOL	1	10%
DRUGS	0	0%
SPEED	5	50%

SEASON

SPRING	2	20%
SUMMER	2	20%
FALL	2	20%
WINTER	4	40%
TOT.	10	

FAILURE TO YIELD

NB	0	0%
SB	0	0%
EB	0	0%
WB	3	30%
TBD	0	0%
TOT.	3	30%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	1	10%
WB	3	30%
TBD	0	0%
TOT.	4	40%

VEHICLE DAMAGE

OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	4	22%
MODERATE	3	17%
SEVERE	10	56%
VERY SEVERE	1	6%
TOTAL VEHICLES	18	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	Daily Time Tables																									TOT.	
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	MON	2
TUE	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	WED	3
THU	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	1
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	SUN	1
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	2	1	0	1	0	2	1	1	0	2	0	0	0	0	0	0	0	TOT.	10

From:	1/1/2015	
To:	12/31/2019	Duration
AADT:	8,300	5 Years
Area Type:	Rural	0 Months

[illegible]

A2.7 Intersection Collision Diagram



Location: Pilgrim Rd & Sylvan Circle
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 10,250
Area Type: Urban
GPS Coordinates: 43.223739, -88.103199

Duration

[MAP](#)

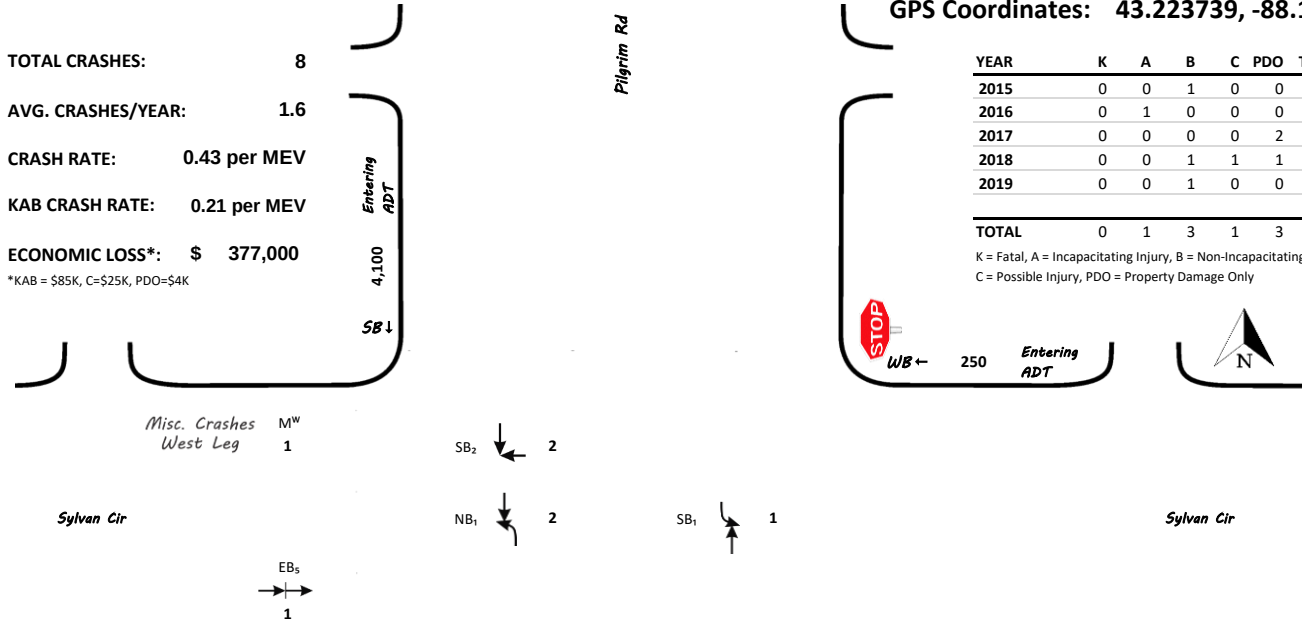
TOTAL CRASHES: 8
AVG. CRASHES/YEAR: 1.6
CRASH RATE: 0.43 per MEV
KAB CRASH RATE: 0.21 per MEV
ECONOMIC LOSS*: \$ 377,000

*KAB = \$85K, C=\$25K, PDO=\$4K

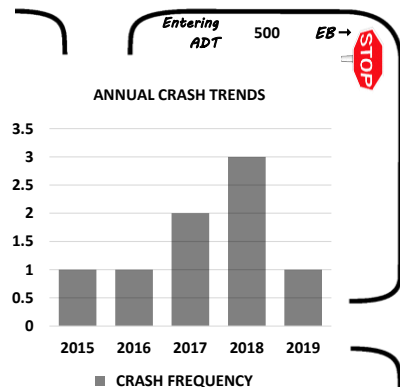
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	1	0	0	1	\$ 85,000
2016	0	1	0	0	0	1	\$ 85,000
2017	0	0	0	0	2	2	\$ 8,000
2018	0	0	1	1	1	3	\$ 114,000
2019	0	0	1	0	0	1	\$ 85,000

TOTAL 0 1 3 1 3 8 \$ 377,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



ROAD CONDITIONS

DRY	5	63%
WET	3	38%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	8	

LIGHT CONDITIONS

DAY	6	75%
DARK	2	25%
TOT.	8	

DRIVER BEHAVIOR

ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON

SPRING	4	50%
SUMMER	2	25%
FALL	1	13%
WINTER	1	13%
TOT.	8	

FAILURE TO YIELD

NB	2	25%
SB	1	13%
EB	0	0%
WB	2	25%
TBD	0	0%
TOT.	5	63%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE

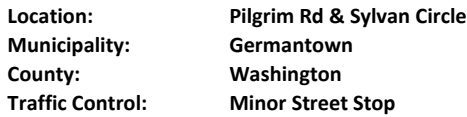
OTHER/UNK.	0	0%
NONE	1	7%
VERY MINOR	0	0%
MINOR	4	27%
MODERATE	5	33%
SEVERE	4	27%
VERY SEVERE	1	7%
TOTAL VEHICLES	15	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	WED	4
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	THU	2
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	1	2	0	0	0	1	0	0	0	TOT.	8

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 10,250
Area Type: Urban

#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	EB _i	C9L09FKHL1	11/18/2017	REAR-END	10 AM		WET					
2	M*	LFFDM3	3/4/2015	MISC. OTHER	3 PM	B						Swerved for SBL
3	NB _i	C9L09CGFB9	2/10/2017	LT-ANGLE	5 PM			DARK				
4	NB _i	C9L09WHWVD	3/8/2018	LT-ANGLE	4 PM	C						
5	NB _i	C9L09FXHP4	5/8/2019	REAR-END	9 PM	B	WET	DARK				NBL
6	SB _i	C9L09VBVS8	7/11/2018	LT-ANGLE	2 PM	B						
7	SB _i	LLHL5ZC	5/11/2016	RT-ANGLE	8 AM	A	WET					
8	SB _i	C9L09CGFF2	8/23/2018	RT-ANGLE	5 PM							
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[illegible]

A2.8 Intersection Collision Diagram



Location: STH 145/Fond du Lac Ave & Mequon Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 13,600
Area Type: Urban
GPS Coordinates: 43.221034, -88.097062

[MAP](#)

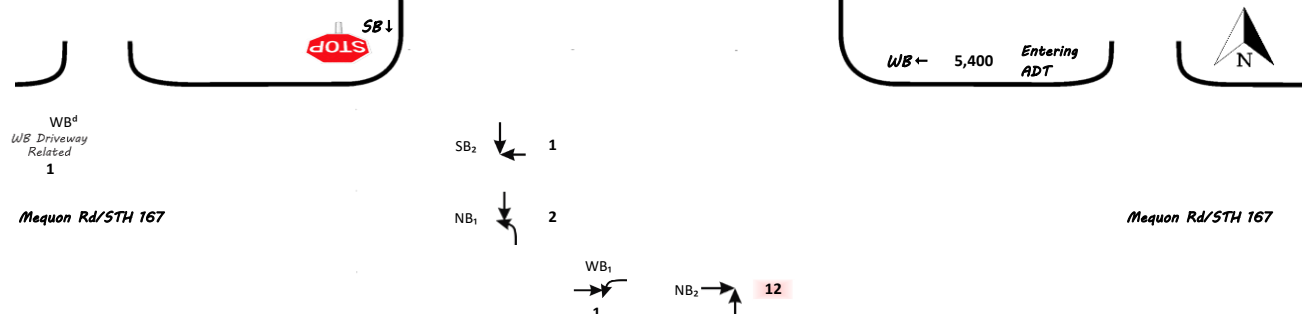
TOTAL CRASHES: 21
AVG. CRASHES/YEAR: 4.2
CRASH RATE: 0.85 per MEV
KAB CRASH RATE: 0.12 per MEV
ECONOMIC LOSS*: \$ 369,000

*KAB = \$85K, C=\$25K, PDO=\$4K

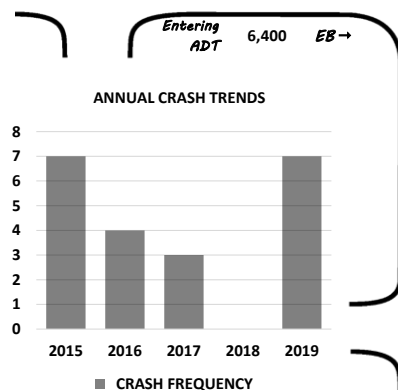
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	1	1	5	7	\$ 130,000
2016	0	0	0	0	4	4	\$ 16,000
2017	0	0	0	0	3	3	\$ 12,000
2018	0	0	0	0	0	0	\$ -
2019	0	0	2	1	4	7	\$ 211,000

TOTAL 0 0 3 2 16 21 \$ 369,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



Misc. Crashes South Leg Ms 2

CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	3	3	\$ 12,000
RT-ANGLE	0	0	3	2	8	13	\$ 337,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	2	2	\$ 8,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	1	1	\$ 4,000
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	2	2	\$ 8,000
TOTAL	0	0	3	2	16	21	\$ 369,000

ROAD CONDITIONS		
DRY	17	81%
WET	4	19%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	21	

LIGHT CONDITIONS		
DAY	17	81%
DARK	4	19%
TOT.	21	

DRIVER BEHAVIOR		
ALCOHOL	1	5%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	6	29%
SUMMER	5	24%
FALL	6	29%
WINTER	4	19%
TOT.	21	

FAILURE TO YIELD		
NB	14	67%
SB	1	5%
EB	0	0%
WB	1	5%
TBD	0	0%
TOT.	16	76%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	1	3%
VERY MINOR	1	3%
MINOR	6	15%
MODERATE	14	36%
SEVERE	16	41%
VERY SEVERE	1	3%
TOTAL VEHICLES	39	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	Daily Time Ranges																									TOT.	
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM			UNK
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	MON	2
TUE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	TUE	2
WED	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	WED	6
THU	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	THU	3
FRI	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	FRI	5
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	SUN	2
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	1	0	0	1	4	0	1	1	1	0	1	2	3	2	1	0	1	1	1	0	0	0	TOT.	21

A2.8 Crash Data

Corresponds to Collision Diagram



Location: STH 145/Fond du Lac Ave & Mequon Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015
To: 12/31/2019
AADT: 13,600
Area Type: Urban
Duration: 5 Years
0 Months

Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	WB	C9U9CGFJ5	6/6/2019	LT-ANGLE	3 PM							
2	WB	LLFH7D0	8/5/2015	DRIVEWAY-RELATED	11 AM							
3	NB	LLG7FTW	7/1/2015	LT-ANGLE	7 AM							
4	NB	C9U987D9C	12/30/2017	LT-ANGLE	2 PM							
5	NB	LLFGH30	4/28/2015	RT-ANGLE	3 PM							
6	NB	LLFFONC	7/8/2015	RT-ANGLE	9 AM	C						
7	NB	LLG7FVT	10/26/2015	RT-ANGLE	2 PM							
8	NB	LLFH7DN	10/30/2015	RT-ANGLE	4 PM							
9	NB	LLHCHZF	11/16/2015	RT-ANGLE	5 PM	B		DARK				View obscured by EBR
10	NB	LLHGGVR	5/4/2016	RT-ANGLE	7 PM							
11	NB	C9U987D75	3/22/2017	RT-ANGLE	9 PM			DARK				
12	NB	C9U0F7HWSG	2/26/2019	RT-ANGLE	6 AM	B		WET				
13	NB	C9U09DPGJ5	5/24/2019	RT-ANGLE	7 AM	C		WET				
14	NB	C9U09DPGJB	9/13/2019	RT-ANGLE	10 AM	B						EB semi in near lane
15	NB	C9U09DPGIW	12/13/2019	RT-ANGLE	7 AM			WET				
16	NB	C9U09H5JVT	12/13/2019	RT-ANGLE	1 PM							
17	NB	LLHGGV5	5/5/2016	REAR-END	4 PM							
18	NB	C9U0F80005	6/2/2019	REAR-END	3 PM				Y			
19	MS	LLHMMNG5	11/27/2016	MISC. OTHER	3 AM			DARK				EBR curb
20	MS	C9U09XQZ04	11/15/2017	MISC. OTHER	8 PM			DARK				EBR angle w-NB
21	SB	LLHFQ7	3/24/2016	RT-ANGLE	7 AM			WET				
22												
23												
24												
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#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
101												
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A2.9 Intersection Collision Diagram

Location: STH 145/Fond du Lac Ave & Freistadt Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 8,100
Area Type: Rural
GPS Coordinates: 43.235552, -88.116742

Duration

[MAP](#)

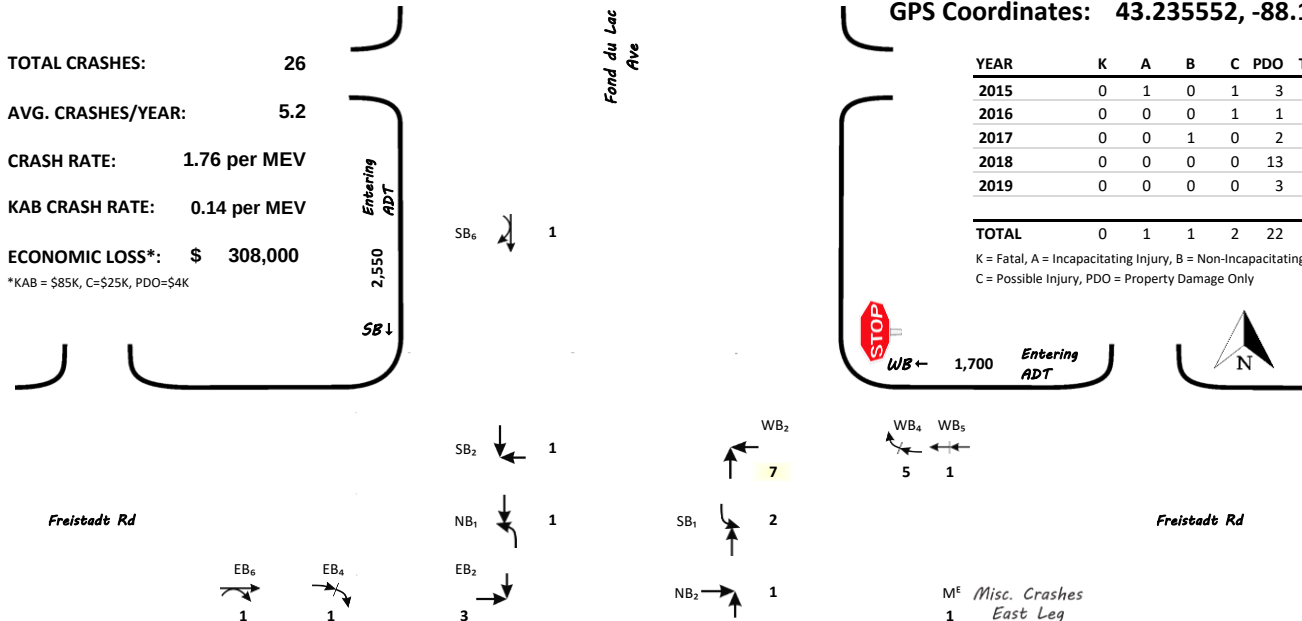
TOTAL CRASHES: 26
AVG. CRASHES/YEAR: 5.2
CRASH RATE: 1.76 per MEV
KAB CRASH RATE: 0.14 per MEV
ECONOMIC LOSS*: \$ 308,000

*KAB = \$85K, C=\$25K, PDO=\$4K

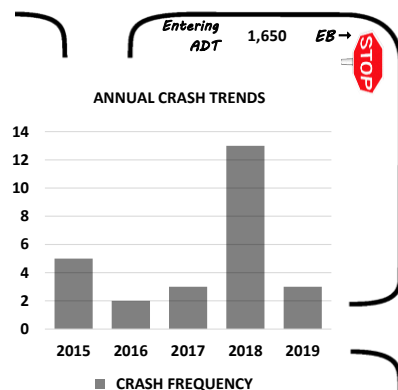
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	1	0	1	3	5	\$ 122,000
2016	0	0	0	1	1	2	\$ 29,000
2017	0	0	1	0	2	3	\$ 93,000
2018	0	0	0	0	13	13	\$ 52,000
2019	0	0	0	0	3	3	\$ 12,000

TOTAL 0 1 1 2 22 26 \$ 308,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



**ECON. LOSS
COLOR SCALE**
 > \$500 K
 > \$400 K
 > \$300 K
 > \$200 K
 > \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	1	0	2	3	\$ 93,000
RT-ANGLE	0	1	0	2	9	12	\$ 171,000
PEDESTRIAN	0	0	0	0	0	0	-
RT-TURN REAR-END	0	0	0	0	6	6	\$ 24,000
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	2	2	\$ 8,000
BICYCLE-RELATED	0	0	0	0	0	0	-
PARKED-VEHICLE	0	0	0	0	0	0	-
FIXED-OBJECT	0	0	0	0	1	1	\$ 4,000
DRIVEWAY-RELATED	0	0	0	0	0	0	-
HEAD-ON	0	0	0	0	0	0	-
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	1	1	2	22	26	\$ 308,000

ROAD CONDITIONS		
DRY	22	85%
WET	4	15%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	26	

LIGHT CONDITIONS		
DAY	24	92%
DARK	2	8%
TOT.	26	

DRIVER BEHAVIOR		
ALCOHOL	1	4%
DRUGS	1	4%
SPEED	1	4%

SEASON		
SPRING	8	31%
SUMMER	9	35%
FALL	2	8%
WINTER	7	27%
TOT.	26	

FAILURE TO YIELD		
NB	1	4%
SB	1	4%
EB	4	15%
WB	9	35%
TBD	0	0%
TOT.	15	58%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	1	2%
NONE	4	8%
VERY MINOR	2	4%
MINOR	13	25%
MODERATE	16	31%
SEVERE	15	29%
VERY SEVERE	0	0%
TOTAL VEHICLES	51	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

DAY/TIME TRENDS																											
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	MON	3
TUE	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	TUE	2
WED	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	1	1	1	0	0	0	0	0	0	0	WED	8
THU	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	3	1	0	0	0	0	1	0	0	THU	8
FRI	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	FRI	4
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	1	0	0	0	0	2	1	0	0	3	2	1	5	3	4	3	0	0	0	0	1	0	0	TOT.	26

A2.9 Crash Data

Corresponds to Collision Diagram



Location: STH 145/Fond du Lac Ave & Freistadt Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015
To: 12/31/2019
AADT: 8,100
Area Type: Rural

Duration
5 Years
0 Months

Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	EB ₂	LLFH7BI	2/27/2015	RT-ANGLE	8 AM	C						
2	EB ₂	LLGN1KW	3/7/2016	RT-ANGLE	12 PM							
3	EB ₂	C9L09XQZ2G	4/12/2018	RT-ANGLE	4 PM							
4	EB ₄	C9L09XQZ3H	7/25/2018	RT-TURN REAR-END	2 PM							Thought pulled out
5	EB ₄	C9L09JDKVG	11/3/2018	SIDE-SWIPE-SAME	2 PM							Start EBR turned EBL
6	WB ₂	LLFH7BN	3/13/2015	RT-ANGLE	3 PM							
7	WB ₂	LLG3QV6	7/20/2015	RT-ANGLE	11 AM							
8	WB ₂	LLFPW50	10/15/2015	RT-ANGLE	7 AM	A	WET					
9	WB ₂	LLHMF6	6/30/2016	RT-ANGLE	2 PM	C				Y		
10	WB ₂	C9L09HSJN4	2/8/2017	RT-ANGLE	11 AM							
11	WB ₂	C9L09HSJSL	2/6/2019	RT-ANGLE	5 PM			DAY				
12	WB ₂	C9L0F7HWSN	3/13/2019	RT-ANGLE	2 PM							
13	WB ₄	C9L09XQZ1P	2/1/2018	RT-TURN REAR-END	4 PM							
14	WB ₄	C9L09KMLWP	2/16/2018	RT-TURN REAR-END	3 PM							
15	WB ₄	C9L09JDKSZ	5/22/2018	RT-TURN REAR-END	5 PM							Moved ahead, stopped
16	WB ₄	C9L09KMLXG	8/29/2018	RT-TURN REAR-END	3 PM							Moved ahead, stopped
17	WB ₄	C9L09LVN1G	8/30/2018	RT-TURN REAR-END	4 PM							Moved ahead, stopped
18	WB ₄	C9L09VBVS8	7/5/2018	REAR-END	10 PM			DARK				
19	M [†]	C9L09XQZ2J	4/17/2018	MISC. OTHER	2 AM		WET	DARK	Y		Y	
20	NB ₁	C9L09FKHK7	6/23/2017	LT-ANGLE	7 AM	B	WET					View obscured by SBL
21	NB ₂	C9L09CGFD6	2/14/2018	RT-ANGLE	2 PM							
22	NB ₄	C9L09QKR8L	6/11/2018	FIXED-OBJECT	11 AM							Avoid WB in int
23	SB ₁	C9L09CGFD1	12/13/2017	LT-ANGLE	1 PM		WET					Icy road
24	SB ₁	C9L09XQZ2L	4/26/2018	LT-ANGLE	5 PM							View obscured by NBL
25	SB ₂	C9L09HSJTR	5/1/2019	RT-ANGLE	4 PM							View obscured by WBR
26	SB ₄	LLG3QVD	7/30/2015	SIDE-SWIPE-SAME	12 PM							

Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
201												
202												
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A2.10 Intersection Collision Diagram

Location: STH 175/Appleton Ave & Meeker Hill Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

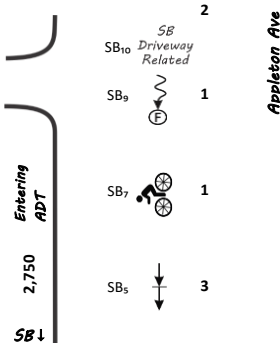
From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 5,950
Area Type: Rural
GPS Coordinates: 43.222817, -88.175674

Duration

[MAP](#)

TOTAL CRASHES: 8
AVG. CRASHES/YEAR: 1.6
CRASH RATE: 0.74 per MEV
KAB CRASH RATE: 0.18 per MEV
ECONOMIC LOSS*: \$ 215,000

*KAB = \$85K, C=\$25K, PDO=\$4K

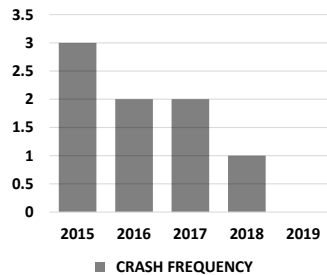


YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	1	0	0	1	1	3	\$ 114,000
2016	0	0	0	0	2	2	\$ 8,000
2017	0	0	1	0	1	2	\$ 89,000
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	0	0	-

TOTAL 1 0 1 1 5 8 \$ 215,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only

ANNUAL CRASH TRENDS



ECON. LOSS COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K

CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	1	2	3	\$ 33,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	1	0	0	0	0	1	\$ 85,000
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	1	0	1	2	\$ 89,000
DRIVEWAY-RELATED	0	0	0	0	2	2	\$ 8,000
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	1	0	1	1	5	8	\$ 215,000

ROAD CONDITIONS		
DRY	6	75%
WET	2	25%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	8	

LIGHT CONDITIONS		
DAY	6	75%
DARK	2	25%
TOT.	8	

DRIVER BEHAVIOR		
ALCOHOL	1	13%
DRUGS	0	0%
SPEED	1	13%

SEASON		
SPRING	4	50%
SUMMER	1	13%
FALL	1	13%
WINTER	2	25%
TOT.	8	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	1	13%
WB	0	0%
TBD	0	0%
TOT.	1	13%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	1	7%
VERY MINOR	1	7%
MINOR	2	14%
MODERATE	6	43%
SEVERE	3	21%
VERY SEVERE	1	7%
TOTAL VEHICLES	14	

NOTES:

Bicycle crash was Fatal hit and run

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

Daily Time Tables																											
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	1
WED	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	1
THU	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	THU	2
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	FRI	2
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	SUN	1
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	1	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	2	0	0	0	1	0	0	0	0	TOT.	8

Corresponds to Collision Diagram

A2.11 Intersection Collision Diagram



Location: STH 175/Appleton Ave & Amy Belle Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **Duration:** 5 Years
To: 12/31/2019 **0 Months**
AADT: 6,155 [MAP](#)
Area Type: Rural
GPS Coordinates: 43.228587, -88.181937

TOTAL CRASHES: 3
AVG. CRASHES/YEAR: 0.6
CRASH RATE: 0.27 per MEV
KAB CRASH RATE: 0.18 per MEV
ECONOMIC LOSS*: \$ 174,000
*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	1	1	0	0	2	\$ 170,000
2016	0	0	0	0	1	1	\$ 4,000
2017	0	0	0	0	0	0	\$ -
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	0	0	\$ -

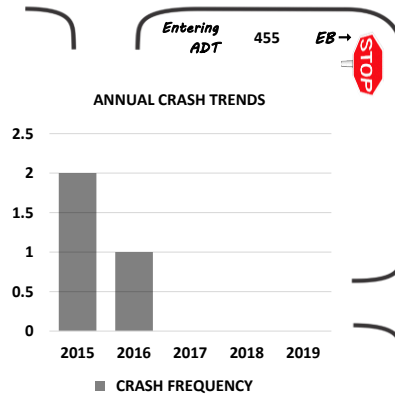
TOTAL	0	1	1	0	1	3	\$ 174,000
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K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ECON. LOSS COLOR SCALE
 > \$500 K
 > \$400 K
 > \$300 K
 > \$200 K
 > \$100 K

Misc. Crashes M^w
 West Leg 1



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	1	1	0	1	3	\$ 174,000
TOTAL	0	1	1	0	1	3	\$ 174,000

ROAD CONDITIONS

DRY	3	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS

DAY	2	67%
DARK	1	33%
TOT.	3	

DRIVER BEHAVIOR

ALCOHOL	0	0%
DRUGS	0	0%
SPEED	1	33%

SEASON

SPRING	1	33%
SUMMER	0	0%
FALL	2	67%
WINTER	0	0%
TOT.	3	

FAILURE TO YIELD

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE

OTHER/UNK.	0	0%
NONE	1	25%
VERY MINOR	0	0%
MINOR	1	25%
MODERATE	2	50%
SEVERE	0	0%
VERY SEVERE	0	0%
TOTAL VEHICLES	4	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK	TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 6,155
Area Type: Rural

Duration
5 Years
0 Months

[illegible]

A2.12 Intersection Collision Diagram



Location: Maple Rd & Mequon Rd
Municipality: Germantown
County: Washington
Traffic Control: All-Way Stop

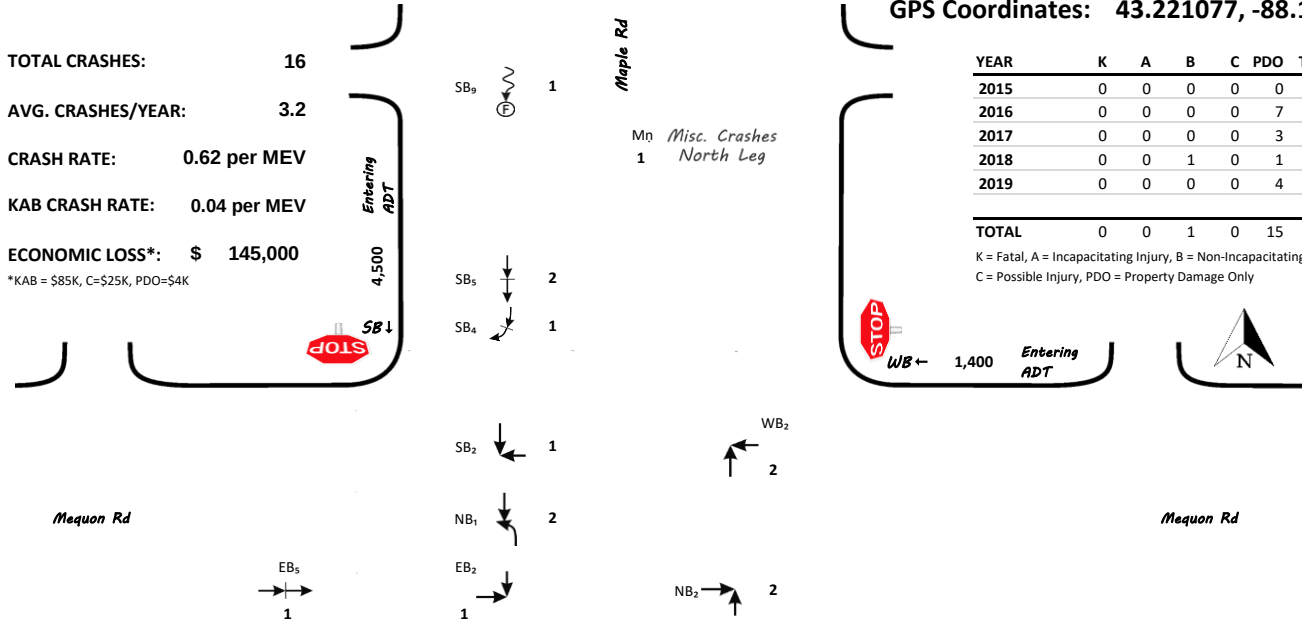
From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 14,100
Area Type: Urban
GPS Coordinates: 43.221077, -88.142354

[MAP](#)

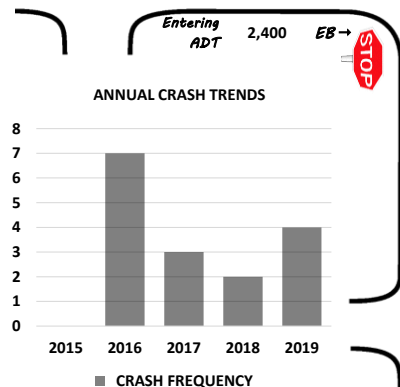
TOTAL CRASHES: 16
AVG. CRASHES/YEAR: 3.2
CRASH RATE: 0.62 per MEV
KAB CRASH RATE: 0.04 per MEV
ECONOMIC LOSS*: \$ 145,000
*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	7	7	\$ 28,000
2017	0	0	0	0	3	3	\$ 12,000
2018	0	0	1	0	1	2	\$ 89,000
2019	0	0	0	0	4	4	\$ 16,000

TOTAL 0 0 1 0 15 16 \$ 145,000
 K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
 C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
 > \$500 K
 > \$400 K
 > \$300 K
 > \$200 K
 > \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	2	2	\$ 8,000
RT-ANGLE	0	0	1	0	5	6	\$ 105,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	1	1	\$ 4,000
REAR-END	0	0	0	0	3	3	\$ 12,000
SIDE-SWIPE-SAME	0	0	0	0	1	1	\$ 4,000
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	0	1	0	15	16	\$ 145,000

ROAD CONDITIONS		
DRY	12	75%
WET	2	13%
SNOW	2	13%
ICE	0	0%
OTH.	0	0%
TOT.	16	

LIGHT CONDITIONS		
DAY	15	94%
DARK	1	6%
TOT.	16	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	1	6%

SEASON		
SPRING	3	19%
SUMMER	5	31%
FALL	3	19%
WINTER	5	31%
TOT.	16	

FAILURE TO YIELD		
NB	3	19%
SB	2	13%
EB	0	0%
WB	1	6%
TBD	0	0%
TOT.	6	38%

DISRGRD. CONTROL		
NB	1	6%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	1	6%

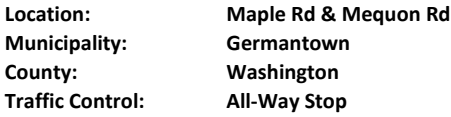
VEHICLE DAMAGE		
OTHER/UNK.	3	10%
NONE	1	3%
VERY MINOR	4	13%
MINOR	10	33%
MODERATE	9	30%
SEVERE	3	10%
VERY SEVERE	0	0%
TOTAL VEHICLES	30	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	MON	2
TUE	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	TUE	2
WED	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	WED	4
THU	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	THU	3
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	FRI	2
SAT	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	SUN	2
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	1	2	1	1	1	1	1	0	4	0	2	2	0	0	0	0	0	0	0	TOT.	16

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 14,100
Area Type: Urban

[illegible]50

A2.13 Intersection Collision Diagram

Location: Division Rd & Lilac Ln
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 6,500
Area Type: Urban
GPS Coordinates: 43.213724, -88.122929

[MAP](#)

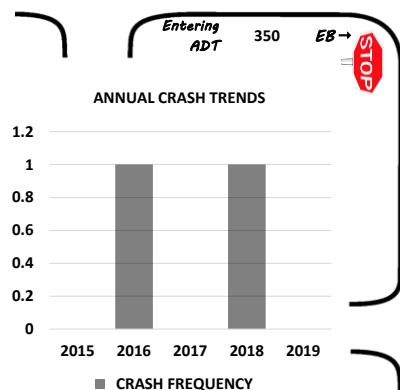
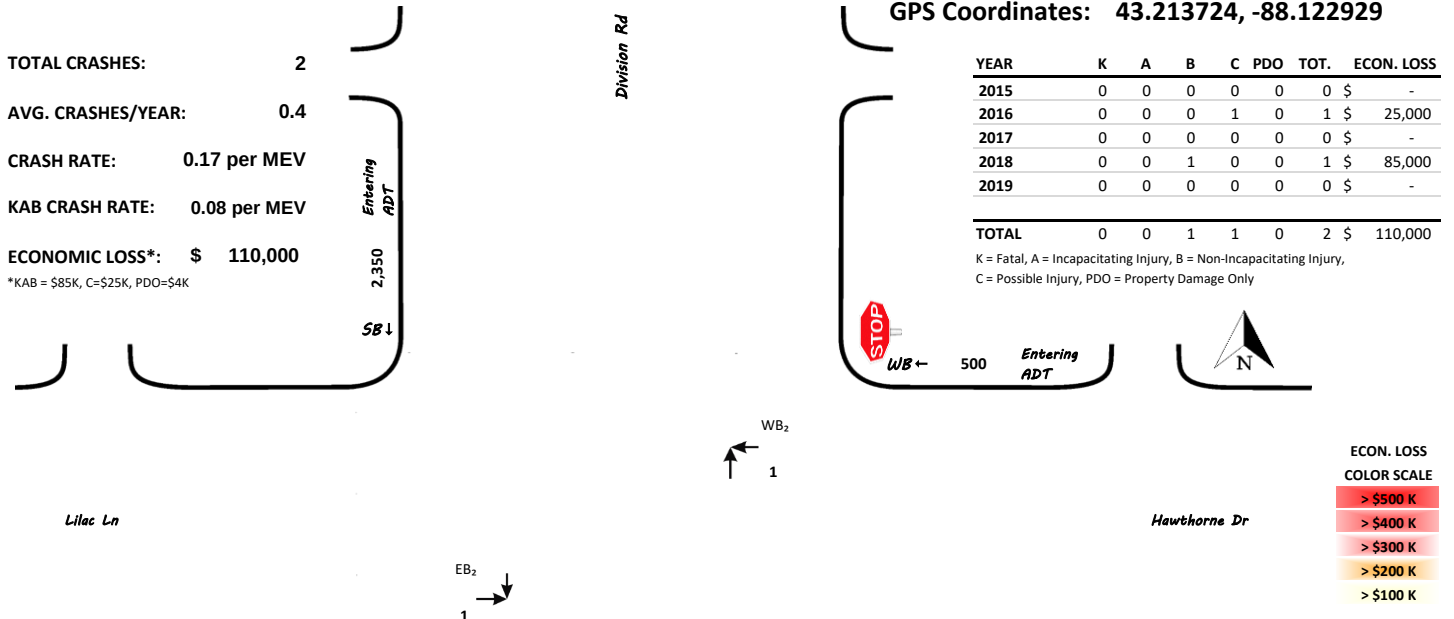
TOTAL CRASHES: 2
AVG. CRASHES/YEAR: 0.4
CRASH RATE: 0.17 per MEV
KAB CRASH RATE: 0.08 per MEV
ECONOMIC LOSS*: \$ 110,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	1	0	1	\$ 25,000
2017	0	0	0	0	0	0	\$ -
2018	0	0	1	0	0	1	\$ 85,000
2019	0	0	0	0	0	0	\$ -

TOTAL 0 0 1 1 0 2 \$ 110,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	1	1	0	2	\$ 110,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	0	0	1	1	0	2	\$ 110,000

ROAD CONDITIONS	
DRY	2 100%
WET	0 0%
SNOW	0 0%
ICE	0 0%
OTH.	0 0%
TOT.	2

LIGHT CONDITIONS	
DAY	1 50%
DARK	1 50%
TOT.	2

DRIVER BEHAVIOR	
ALCOHOL	0 0%
DRUGS	0 0%
SPEED	0 0%

SEASON	
SPRING	0 0%
SUMMER	0 0%
FALL	2 100%
WINTER	0 0%
TOT.	2

FAILURE TO YIELD	
NB	0 0%
SB	0 0%
EB	0 0%
WB	1 50%
TBD	0 0%
TOT.	1 50%

DISRGRD. CONTROL	
NB	0 0%
SB	0 0%
EB	0 0%
WB	0 0%
TBD	1 50%
TOT.	1 50%

VEHICLE DAMAGE	
OTHER/UNK.	0 0%
NONE	0 0%
VERY MINOR	0 0%
MINOR	1 25%
MODERATE	1 25%
SEVERE	2 50%
VERY SEVERE	0 0%
TOTAL VEHICLES	4

NOTES:
Based on electronic data and not validated with hardcopies.

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

DAY/TIME TRENDS																											
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	FRI	2
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	TOT.	2

A2.13 Crash Data

Corresponds to Collision Diagram



Location: Division Rd & Lilac Ln
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015
To: 12/31/2019
AADT: 6,500
Area Type: Urban

Duration
5 Years
0 Months

Ref	#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	EB ₂	LLHFOGS	9/16/2016	RT-ANGLE	11 AM	C							
2	WB ₂	C9LOF1BQGT	10/12/2018	RT-ANGLE	10 PM	B							
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#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
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A2.14 Intersection Collision Diagram



Location: STH 175/Appleton Ave & Willow Creek Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 9,050
Area Type: Rural
GPS Coordinates: 43.207155, -88.158945

Duration

[MAP](#)

TOTAL CRASHES: 4
AVG. CRASHES/YEAR: 0.8
CRASH RATE: 0.24 per MEV
KAB CRASH RATE: 0.06 per MEV
ECONOMIC LOSS*: \$ 97,000

*KAB = \$85K, C=\$25K, PDO=\$4K

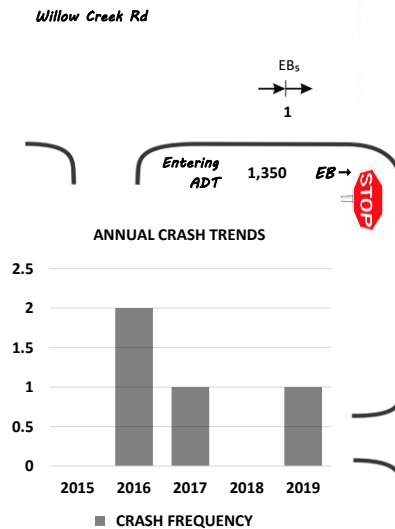
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	1	0	0	0	1	2	\$ 89,000
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	1	1	\$ 4,000

TOTAL 1 0 0 0 3 4 \$ 97,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	1	0	0	0	0	1	\$ 85,000
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	1	0	0	0	3	4	\$ 97,000

ROAD CONDITIONS		
DRY	4	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	4	

LIGHT CONDITIONS		
DAY	3	75%
DARK	1	25%
TOT.	4	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	0	0%
SUMMER	1	25%
FALL	1	25%
WINTER	2	50%
TOT.	4	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	0	0%
MODERATE	2	33%
SEVERE	3	50%
VERY SEVERE	1	17%
TOTAL VEHICLES	6	

NOTES:

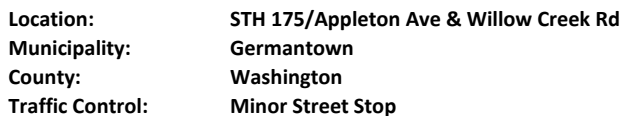
Validated KAB crashes; NB Head-On was a fatal crash. NB crossed centerline.

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	SUN	1
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0	TOT.	4

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 9,050
Area Type: Rural

Duration
5 Years
0 Months

[illegible][illegible]

A2.15 Intersection Collision Diagram



Location: STH 175/Appleton Ave & Hilltop Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 6,550
Area Type: Rural
GPS Coordinates: 43.208505, -88.162486

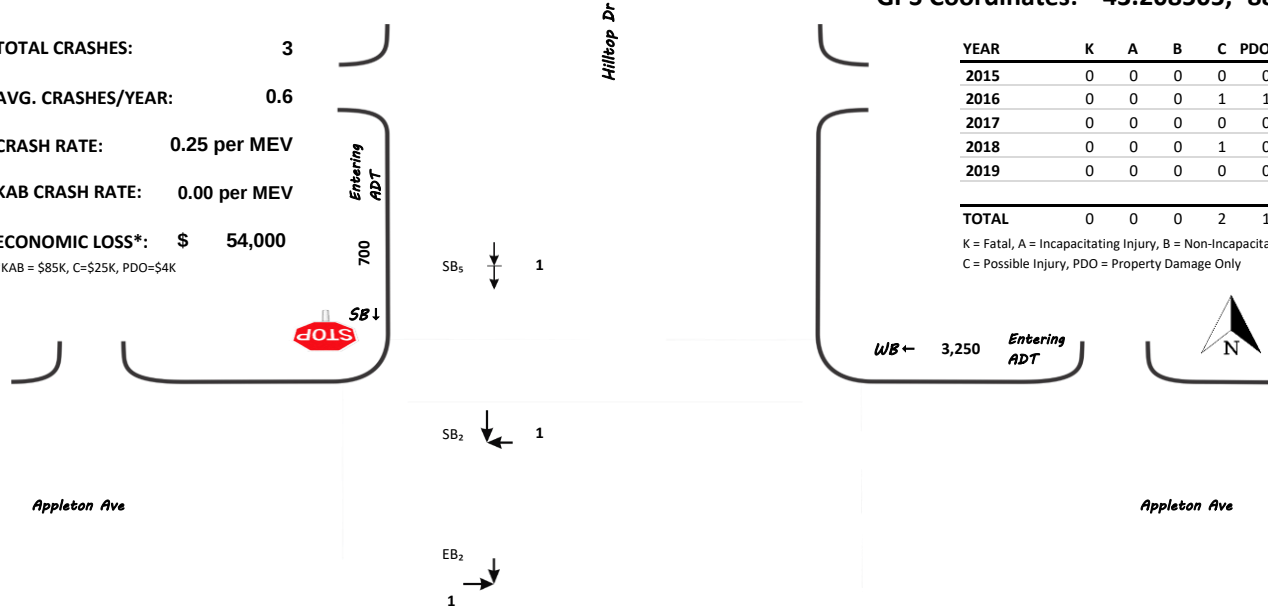
[MAP](#)

TOTAL CRASHES: 3
AVG. CRASHES/YEAR: 0.6
CRASH RATE: 0.25 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 54,000
*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	-
2016	0	0	0	1	1	2	\$ 29,000
2017	0	0	0	0	0	0	-
2018	0	0	0	1	0	1	\$ 25,000
2019	0	0	0	0	0	0	-

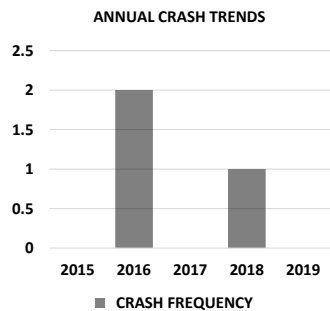
TOTAL	0	0	0	2	1	3	\$ 54,000
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K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE

> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	-
RT-ANGLE	0	0	0	1	1	2	\$ 29,000
PEDESTRIAN	0	0	0	0	0	0	-
RT-TURN REAR-END	0	0	0	0	0	0	-
REAR-END	0	0	0	1	0	1	\$ 25,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	-
BICYCLE-RELATED	0	0	0	0	0	0	-
PARKED-VEHICLE	0	0	0	0	0	0	-
FIXED-OBJECT	0	0	0	0	0	0	-
DRIVEWAY-RELATED	0	0	0	0	0	0	-
HEAD-ON	0	0	0	0	0	0	-
MISC. OTHER	0	0	0	0	0	0	-
TOTAL	0	0	0	2	1	3	\$ 54,000

ROAD CONDITIONS

DRY	2	67%
WET	1	33%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS

DAY	3	100%
DARK	0	0%
TOT.	3	

DRIVER BEHAVIOR

ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON

SPRING	1	33%
SUMMER	1	33%
FALL	0	0%
WINTER	1	33%
TOT.	3	

FAILURE TO YIELD

NB	0	0%
SB	2	67%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	2	67%

DISRGRD. CONTROL

NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE

OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	2	33%
MINOR	1	17%
MODERATE	0	0%
SEVERE	3	50%
VERY SEVERE	0	0%
TOTAL VEHICLES	6	

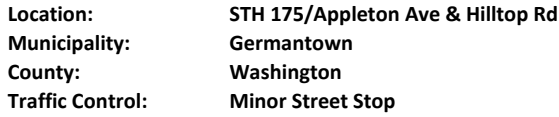
NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

Activity	Daily Time Ranges																									TOT.	
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM			UNK
MON	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	TOT.	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 6,550
Area Type: Rural

[illegible]56

A2.16 Intersection Collision Diagram



Location: STH 145/Fond du Lac Ave & Main St
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 5,600
Area Type: Rural
GPS Coordinates: 43.228267, -88.105097

Duration

[MAP](#)

TOTAL CRASHES: 5
AVG. CRASHES/YEAR: 1.0
CRASH RATE: 0.49 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 41,000

*KAB = \$85K, C=\$25K, PDO=\$4K

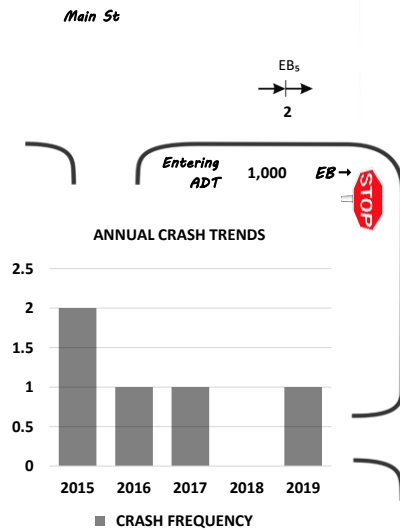
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	2	2	\$ 8,000
2016	0	0	0	1	0	1	\$ 25,000
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	-
2019	0	0	0	0	1	1	\$ 4,000

TOTAL 0 0 0 1 4 5 \$ 41,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



ROAD CONDITIONS		
DRY	4	80%
WET	0	0%
SNOW	0	0%
ICE	1	20%
OTH.	0	0%
TOT.	5	

LIGHT CONDITIONS		
DAY	4	80%
DARK	1	20%
TOT.	5	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	1	20%
SUMMER	2	40%
FALL	1	20%
WINTER	1	20%
TOT.	5	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	1	20%
WB	0	0%
TBD	0	0%
TOT.	1	20%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

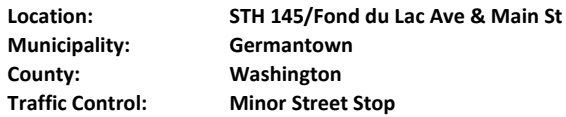
VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	2	20%
MINOR	4	40%
MODERATE	2	20%
SEVERE	2	20%
VERY SEVERE	0	0%
TOTAL VEHICLES	10	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	WED	2
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	SAT	2
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	TOT.	5

Corresponds to Collision Diagram



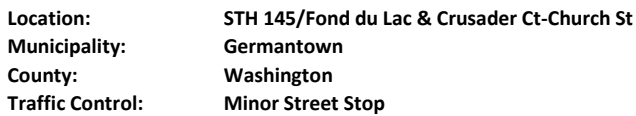
From: 1/1/2015
To: 12/31/2019
AADT: 5,600
Area Type: Rural

Duration
5 Years
0 Months

[illegible]

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	WED	4
THU	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	1
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	FRI	2
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	1	1	0	0	0	2	0	TOT.	8

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 5,500
Area Type: Urban

Duration
5 Years
0 Months

[illegible]

A2.18 Intersection Collision Diagram

Location: Pilgrim Rd & STH 145/Fond du Lac Ave
Municipality: Germantown
County: Washington
Traffic Control: All-Way Stop

From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 8,250
Area Type: Urban
GPS Coordinates: 43.227156, -88.103259

Duration

[MAP](#)

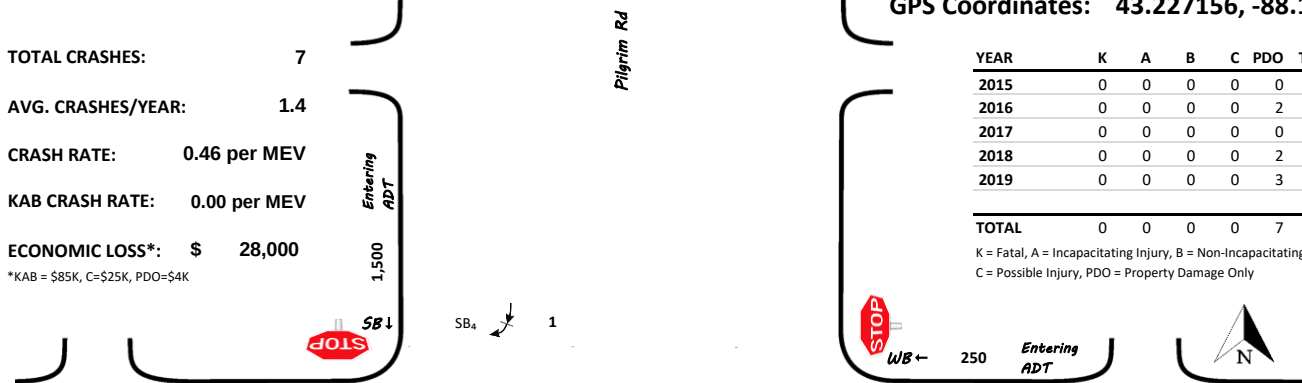
TOTAL CRASHES: 7
AVG. CRASHES/YEAR: 1.4
CRASH RATE: 0.46 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 28,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	-
2016	0	0	0	0	2	2	\$ 8,000
2017	0	0	0	0	0	0	-
2018	0	0	0	0	2	2	\$ 8,000
2019	0	0	0	0	3	3	\$ 12,000

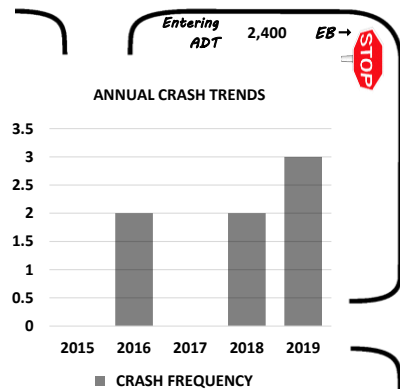
TOTAL 0 0 0 0 7 7 \$ 28,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



Fond du Lac Ave

Fond du Lac Ave



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	1	1	\$ 4,000
RT-ANGLE	0	0	0	0	1	1	\$ 4,000
PEDESTRIAN	0	0	0	0	0	0	-
RT-TURN REAR-END	0	0	0	0	1	1	\$ 4,000
REAR-END	0	0	0	0	2	2	\$ 8,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	-
BICYCLE-RELATED	0	0	0	0	0	0	-
PARKED-VEHICLE	0	0	0	0	0	0	-
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	-
HEAD-ON	0	0	0	0	0	0	-
MISC. OTHER	0	0	0	0	0	0	-
TOTAL	0	0	0	0	7	7	\$ 28,000

ROAD CONDITIONS		
DRY	7	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	7	

LIGHT CONDITIONS		
DAY	6	86%
DARK	1	14%
TOT.	7	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	4	57%
SUMMER	0	0%
FALL	2	29%
WINTER	1	14%
TOT.	7	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	1	14%
EB	1	14%
WB	0	0%
TBD	0	0%
TOT.	2	29%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	1	8%
VERY MINOR	1	8%
MINOR	4	33%
MODERATE	4	33%
SEVERE	2	17%
VERY SEVERE	0	0%
TOTAL VEHICLES	12	

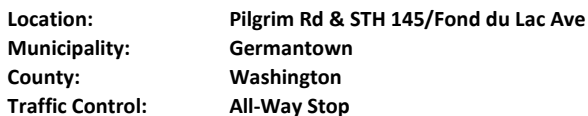
NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	THU	1
FRI	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	FRI	3
SAT	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	SUN	1
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
TOT.	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	1	0	0	1	0	0	0	1	0	0	TOT.	7

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 8,250
Area Type: Urban

Duration
5 Years
0 Months

[illegible]

A2.19 Intersection Collision Diagram



Location: STH 145/Fond du Lac Ave & Country Aire Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 4,100
Area Type: Rural
GPS Coordinates: 43.212259, -88.083575

Duration

[MAP](#)

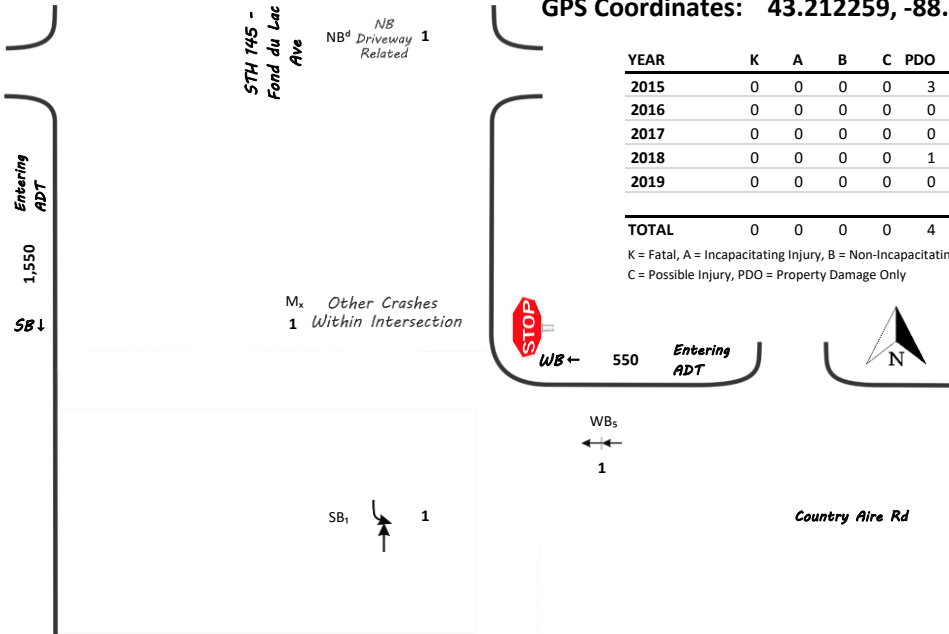
TOTAL CRASHES: 4
AVG. CRASHES/YEAR: 0.8
CRASH RATE: 0.53 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 16,000

*KAB = \$85K, C=\$25K, PDO=\$4K

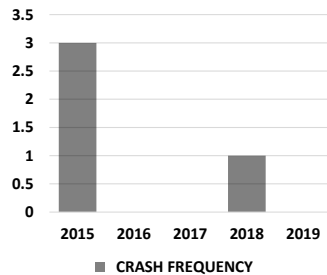
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	3	3	\$ 12,000
2016	0	0	0	0	0	0	\$ -
2017	0	0	0	0	0	0	\$ -
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	0	0	\$ -

TOTAL 0 0 0 0 4 4 \$ 16,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ANNUAL CRASH TRENDS



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	1	1	\$ 4,000
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	1	1	\$ 4,000
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	0	0	0	4	4	\$ 16,000

ROAD CONDITIONS		
DRY	2	50%
WET	2	50%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	4	

LIGHT CONDITIONS		
DAY	4	100%
DARK	0	0%
TOT.	4	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	2	50%
SUMMER	0	0%
FALL	1	25%
WINTER	1	25%
TOT.	4	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	1	25%
TOT.	1	25%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	2	29%
VERY MINOR	0	0%
MINOR	3	43%
MODERATE	1	14%
SEVERE	1	14%
VERY SEVERE	0	0%
TOTAL VEHICLES	7	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK	TOT.
MON	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TUE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT.	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4

Corresponds to Collision Diagram

[illegible]

A2.20 Intersection Collision Diagram



Location: Pilgrim Rd & Freistadt Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 5,550
Area Type: Rural
GPS Coordinates: 43.235521, -88.103323

Duration

[MAP](#)

TOTAL CRASHES: 4

AVG. CRASHES/YEAR: 0.8

CRASH RATE: 0.39 per MEV

KAB CRASH RATE: 0.00 per MEV

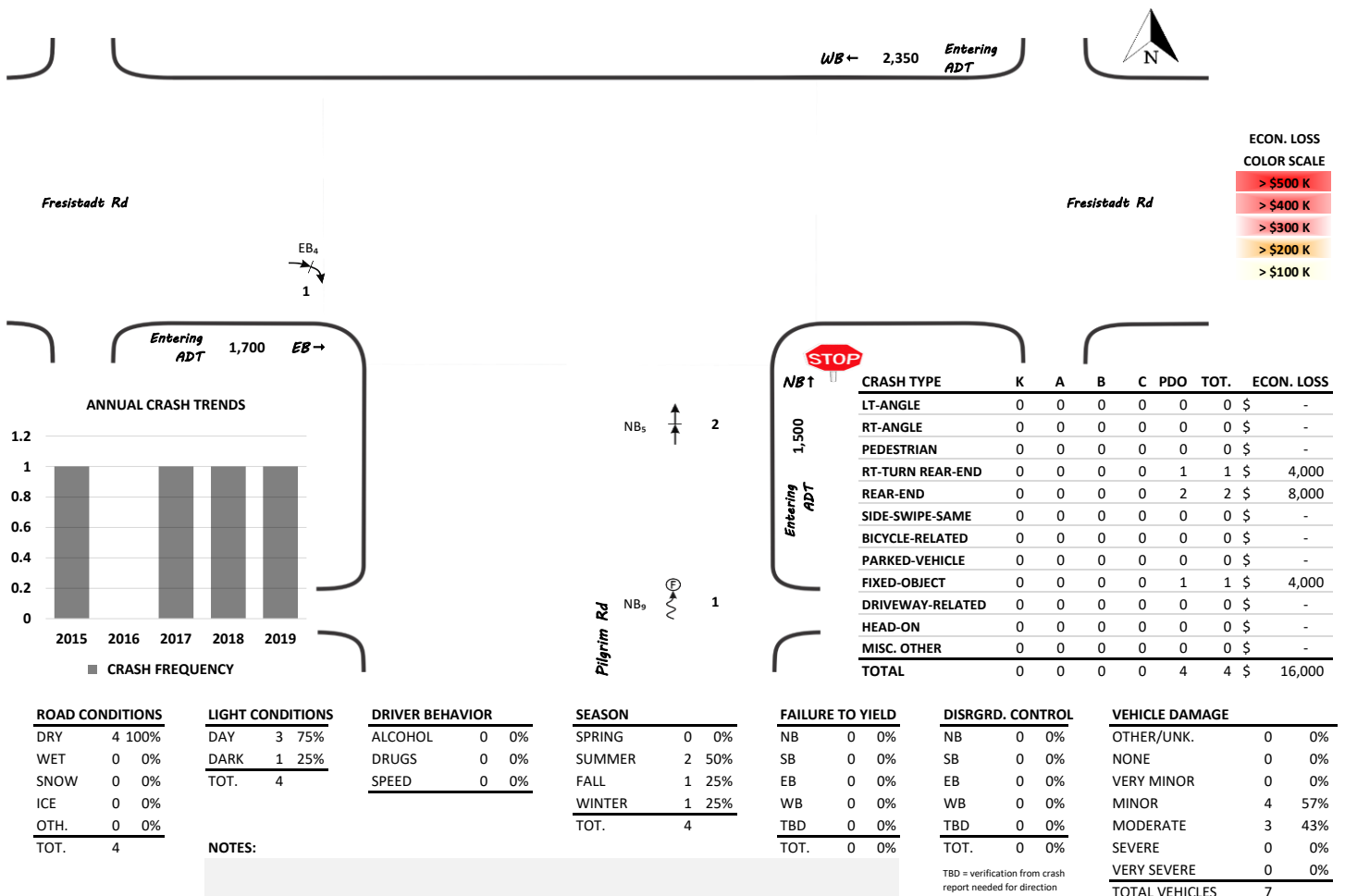
ECONOMIC LOSS*: \$ 16,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	1	1	\$ 4,000
2016	0	0	0	0	0	0	-
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	1	1	\$ 4,000

TOTAL 0 0 0 0 4 4 \$ 16,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 5,550
Area Type: Rural

[illegible][illegible]

A2.21 Intersection Collision Diagram



Location: Division Rd & Wendy Ln
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 6,850
Area Type: Urban
GPS Coordinates: 43.195188, -88.122898

Duration

[MAP](#)

TOTAL CRASHES: 3
AVG. CRASHES/YEAR: 0.6
CRASH RATE: 0.24 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 12,000

*KAB = \$85K, C=\$25K, PDO=\$4K

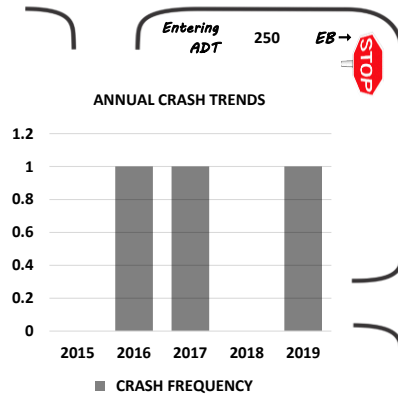
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	1	1	\$ 4,000
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	1	1	\$ 4,000

TOTAL 0 0 0 0 3 3 \$ 12,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



Misc. Crashes South Leg Ms 1

CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	2	2	\$ 8,000
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	0	0	0	3	3	\$ 12,000

ROAD CONDITIONS		
DRY	0	0%
WET	1	33%
SNOW	2	67%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS		
DAY	1	33%
DARK	2	67%
TOT.	3	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	3	100%

SEASON		
SPRING	1	33%
SUMMER	0	0%
FALL	0	0%
WINTER	2	67%
TOT.	3	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

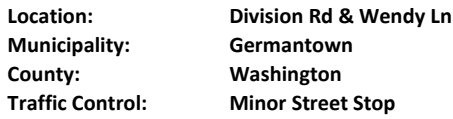
VEHICLE DAMAGE		
OTHER/UNK.	1	25%
NONE	0	0%
VERY MINOR	0	0%
MINOR	2	50%
MODERATE	0	0%
SEVERE	1	25%
VERY SEVERE	0	0%
TOTAL VEHICLES	4	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	TOT.	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 6,850
Area Type: Urban

[illegible]68

A2.22 Intersection Collision Diagram



Location: Country Aire Dr & CTH M/Pioneer Rd
Municipality: Germantown
County: Washington
Traffic Control: All-Way Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 2,610
Area Type: Rural
GPS Coordinates: 43.279248, -88.083323

Duration

[MAP](#)

TOTAL CRASHES: 3

AVG. CRASHES/YEAR: 0.6

CRASH RATE: 0.63 per MEV

KAB CRASH RATE: 0.00 per MEV

ECONOMIC LOSS*: \$ 12,000

*KAB = \$85K, C=\$25K, PDO=\$4K



YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	0	0	\$ -
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	1	1	\$ 4,000

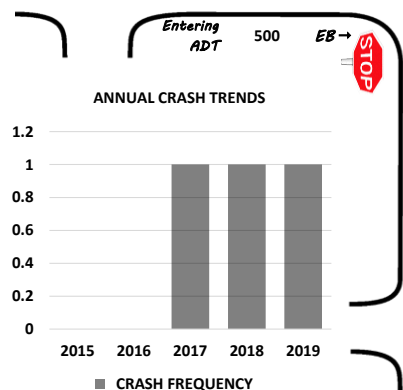
TOTAL 0 0 0 0 3 3 \$ 12,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only

Pioneer Rd

Pioneer Rd

ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	1	1	\$ 4,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	1	1	\$ 4,000
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	0	0	0	0	3	3	\$ 12,000

ROAD CONDITIONS		
DRY	2	67%
WET	1	33%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS		
DAY	3	100%
DARK	0	0%
TOT.	3	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	1	33%

SEASON		
SPRING	0	0%
SUMMER	2	67%
FALL	1	33%
WINTER	0	0%
TOT.	3	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	1	33%
TOT.	1	33%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	1	20%
NONE	0	0%
VERY MINOR	0	0%
MINOR	0	0%
MODERATE	4	80%
SEVERE	0	0%
VERY SEVERE	0	0%
TOTAL VEHICLES	5	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

Work Time Matrix																											
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT
MON	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	WED	2
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT
TOT.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	TOT.	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 2,610
Area Type: Rural

Duration
5 Years
0 Months

A2.23 Intersection Collision Diagram



Location: STH 145/Fond du Lac Ave & Park Ave
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

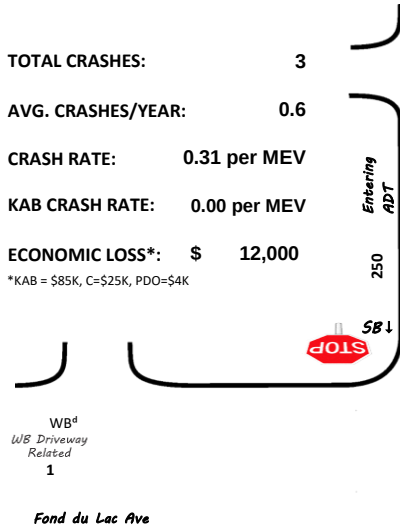
From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 5,250
Area Type: Urban
GPS Coordinates: 43.231739, -88.110593

Duration

[MAP](#)

TOTAL CRASHES: 3
AVG. CRASHES/YEAR: 0.6
CRASH RATE: 0.31 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 12,000

*KAB = \$85K, C=\$25K, PDO=\$4K



YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	1	1	\$ 4,000
2016	0	0	0	0	0	0	-
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	-
2019	0	0	0	0	1	1	\$ 4,000

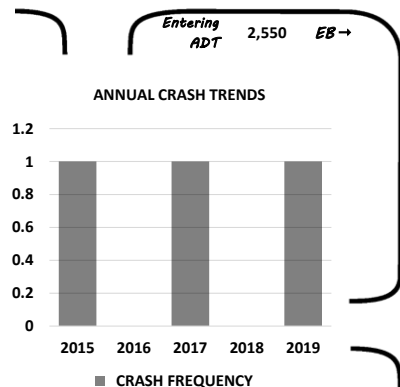
TOTAL 0 0 0 0 3 3 \$ 12,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only

WB^d
WB Driveway
Related
1

WB₆
1

ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



ROAD CONDITIONS		
DRY	2	67%
WET	0	0%
SNOW	1	33%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS		
DAY	2	67%
DARK	1	33%
TOT.	3	

DRIVER BEHAVIOR		
ALCOHOL	1	33%
DRUGS	0	0%
SPEED	2	67%

SEASON		
SPRING	2	67%
SUMMER	0	0%
FALL	0	0%
WINTER	1	33%
TOT.	3	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	1	25%
MODERATE	2	50%
SEVERE	1	25%
VERY SEVERE	0	0%
TOTAL VEHICLES	4	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	1
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	TOT.	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 5,250
Area Type: Urban

Duration
5 Years
0 Months

[illegible][illegible]

A2.24 Intersection Collision Diagram



Location: Maple Rd & Rockfield Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 3,000
Area Type: Rural
GPS Coordinates: 43.257290, -88.143000

[MAP](#)

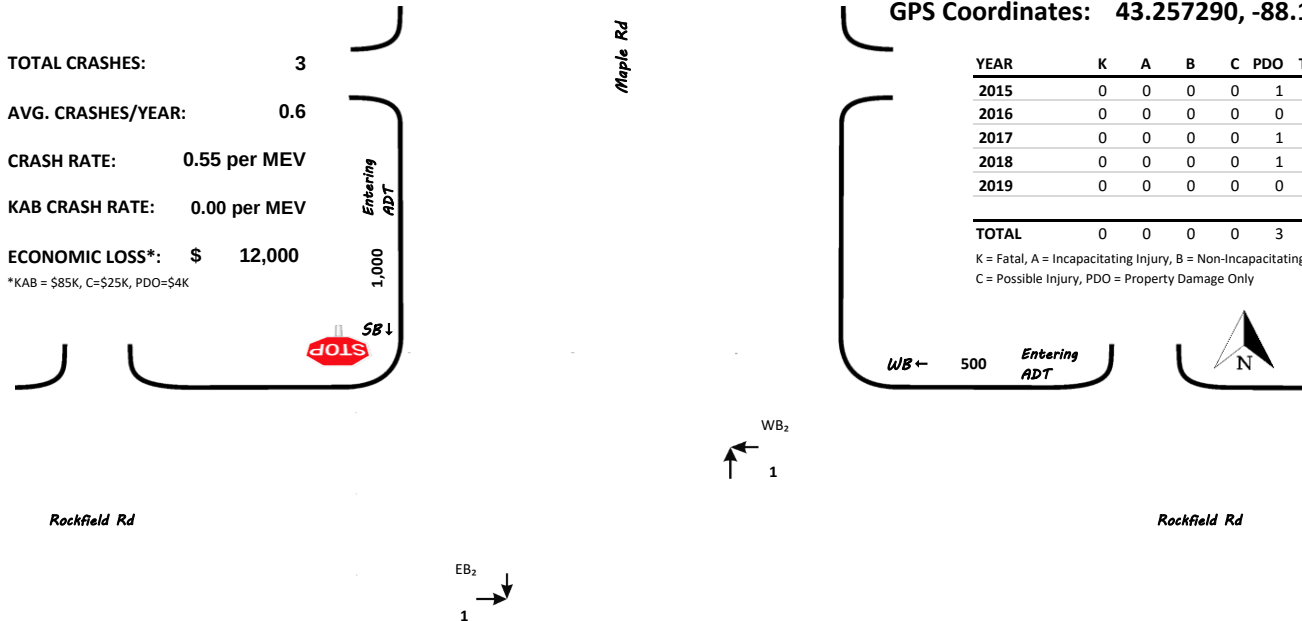
TOTAL CRASHES: 3
AVG. CRASHES/YEAR: 0.6
CRASH RATE: 0.55 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 12,000

*KAB = \$85K, C=\$25K, PDO=\$4K

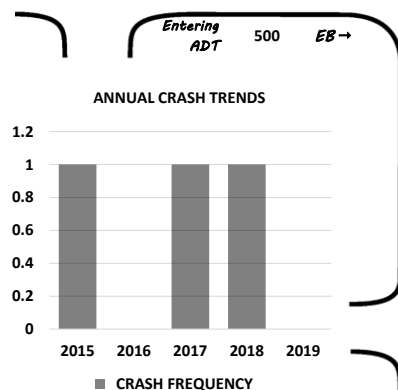
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	1	1	\$ 4,000
2016	0	0	0	0	0	0	-
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	0	0	-

TOTAL 0 0 0 0 3 3 \$ 12,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



EB₂
1

CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	2	2	\$ 8,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	0	0	0	3	3	\$ 12,000

ROAD CONDITIONS		
DRY	2	67%
WET	1	33%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	3	

LIGHT CONDITIONS		
DAY	3	100%
DARK	0	0%
TOT.	3	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	0	0%
SUMMER	2	67%
FALL	1	33%
WINTER	0	0%
TOT.	3	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	2	67%
TOT.	2	67%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

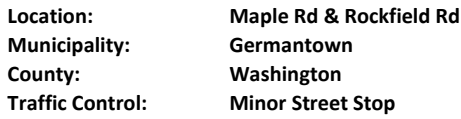
VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	3	50%
MODERATE	3	50%
SEVERE	0	0%
VERY SEVERE	0	0%
TOTAL VEHICLES	6	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	SAT	2
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	TOT.	3

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 3,000
Area Type: Rural

[illegible]74

A2.25 Intersection Collision Diagram



Location: Division Rd & Cedar Ln
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 5,250
Area Type: Rural
GPS Coordinates: 43.272167, -88.123075

Duration

[MAP](#)

TOTAL CRASHES: 2
AVG. CRASHES/YEAR: 0.4
CRASH RATE: 0.21 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 8,000

*KAB = \$85K, C=\$25K, PDO=\$4K

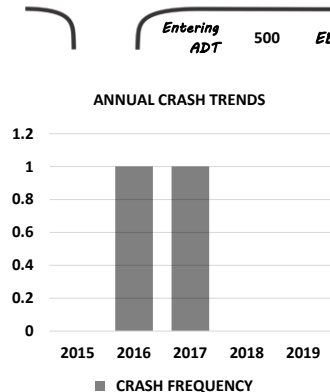
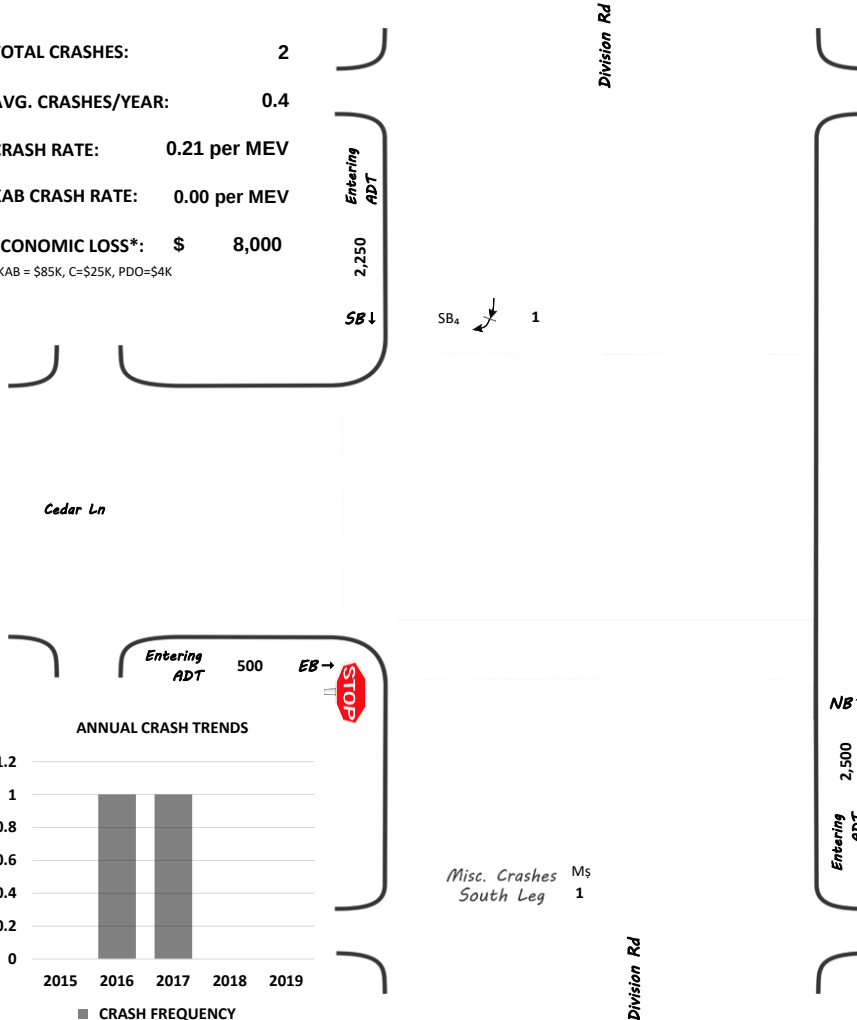
YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	1	1	\$ 4,000
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	0	0	\$ -

TOTAL 0 0 0 0 2 2 \$ 8,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	1	1	\$ 4,000
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	1	1	\$ 4,000
TOTAL	0	0	0	0	2	2	\$ 8,000

ROAD CONDITIONS		
DRY	1	50%
WET	1	50%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	2	

LIGHT CONDITIONS		
DAY	2	100%
DARK	0	0%
TOT.	2	

DRIVER BEHAVIOR		
ALCOHOL	1	50%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	2	100%
SUMMER	0	0%
FALL	0	0%
WINTER	0	0%
TOT.	2	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	1	33%
MINOR	1	33%
MODERATE	0	0%
SEVERE	1	33%
VERY SEVERE	0	0%
TOTAL VEHICLES	3	

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	WED	1
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	SUN	1
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	TOT.	2

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 5,250
Area Type: Rural

Duration
5 Years
0 Months

A2.26 Intersection Collision Diagram



Location: Division Rd & Donges Bay Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 6,700
Area Type: Urban
GPS Coordinates: 43.206463, -88.122917

Duration

[MAP](#)

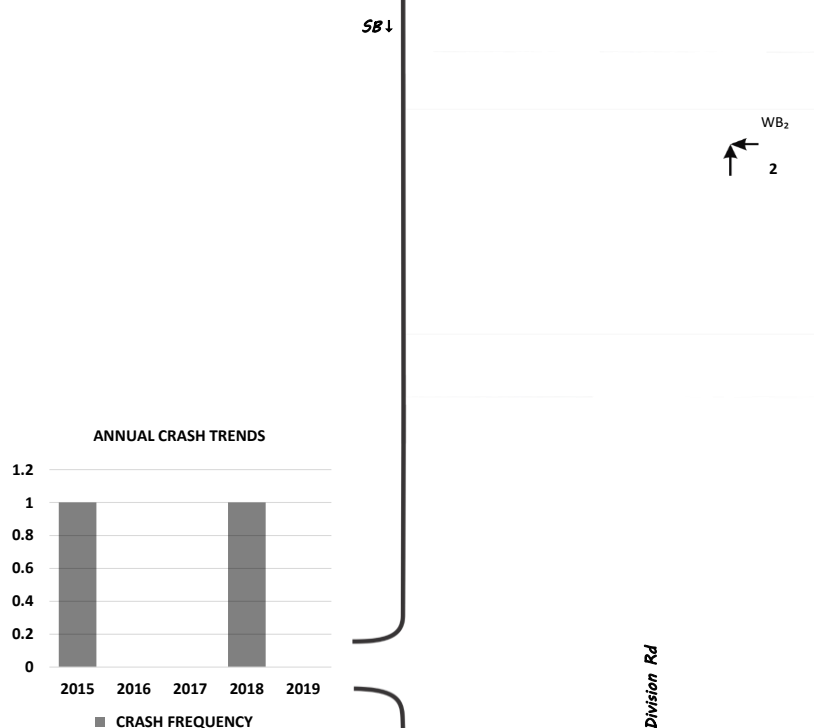
TOTAL CRASHES: 2
AVG. CRASHES/YEAR: 0.4
CRASH RATE: 0.16 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 8,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	1	1	\$ 4,000
2016	0	0	0	0	0	0	\$ -
2017	0	0	0	0	0	0	\$ -
2018	0	0	0	0	1	1	\$ 4,000
2019	0	0	0	0	0	0	\$ -

TOTAL 0 0 0 0 2 2 \$ 8,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,
C = Possible Injury, PDO = Property Damage Only



ECON. LOSS
COLOR SCALE

- > \$500 K
- > \$400 K
- > \$300 K
- > \$200 K
- > \$100 K

CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	2	2	\$ 8,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	0	0	0	0	2	2	\$ 8,000

ROAD CONDITIONS		
DRY	2	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	2	

LIGHT CONDITIONS		
DAY	2	100%
DARK	0	0%
TOT.	2	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	1	50%

SEASON		
SPRING	0	0%
SUMMER	1	50%
FALL	1	50%
WINTER	0	0%
TOT.	2	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	1	50%
TOT.	1	50%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	2	50%
MODERATE	2	50%
SEVERE	0	0%
VERY SEVERE	0	0%
TOTAL VEHICLES	4	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.																								
MON	0	1	AM	2	AM	3	AM	4	AM	5	AM	6	AM	7	AM	8	AM	9	AM	10	AM	11	AM	12	PM	1	PM	2	PM	3	PM	4	PM	5	PM	6	PM	7	PM	8	PM	9	PM	10	PM	11	PM	UNK		MON	0
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0	
WED	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	1	
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0	
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0	
SAT	0	0	0	0	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1	
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0	
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.																								
TOT.	0	0	0	0	3	AM	0	0	1		0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOT.	2	

A2.26 Crash Data

Corresponds to Collision Diagram



Location: Division Rd & Donges Bay Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015
To: 12/31/2019
AADT: 6,700
Area Type: Urban

Duration
5 Years
0 Months

Ref	#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	WB ₂	LLFRCP		10/14/2015	RT-ANGLE	7 AM							
2	WB ₂	C9L09HSJRL		8/11/2018	RT-ANGLE	11 AM					Y		NBR lost control
3													
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#	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
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A2.27 Intersection Collision Diagram



Location: Country Aire Dr & CTH F/Freistadt Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 22,750
Area Type: Rural
GPS Coordinates: 43.235558, -88.083939

Duration

[MAP](#)

TOTAL CRASHES: 1

AVG. CRASHES/YEAR: 0.2

CRASH RATE: 0.02 per MEV

KAB CRASH RATE: 0.00 per MEV

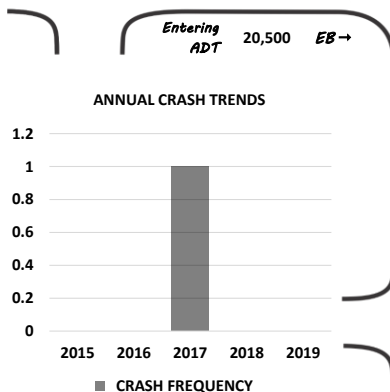
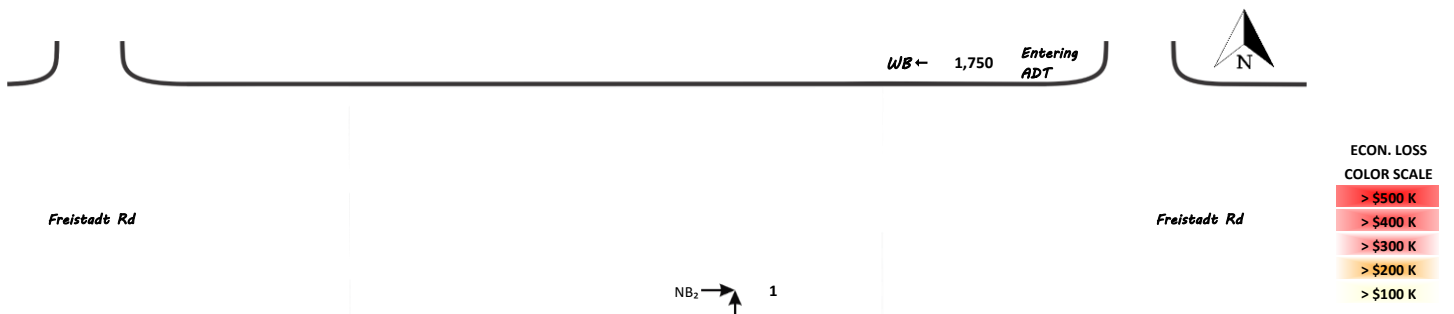
ECONOMIC LOSS*: \$ 4,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	0	0	\$ -
2017	0	0	0	0	1	1	\$ 4,000
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	0	0	\$ -

TOTAL 0 0 0 0 1 1 \$ 4,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	1	1	\$ 4,000
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	0	0	\$ -
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	0	0	0	0	1	1	\$ 4,000

ROAD CONDITIONS		
DRY	1	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	1	

LIGHT CONDITIONS		
DAY	1	100%
DARK	0	0%
TOT.	1	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	0	0%
SUMMER	0	0%
FALL	0	0%
WINTER	1	100%
TOT.	1	

FAILURE TO YIELD		
NB	1	100%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	1	100%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	0	0%
MODERATE	1	50%
SEVERE	1	50%
VERY SEVERE	0	0%
TOTAL VEHICLES	2	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0
TUE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	1
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.
TOT.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOT.	1

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 22,750
Area Type: Rural

[illegible][illegible]

A2.28 Intersection Collision Diagram



Location: Heritage Hills Pkwy & Dongs Bay Rd
Municipality: Germantown
County: Washington
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 2,450
Area Type: Urban
GPS Coordinates: 43.206486, -88.092099

Duration

[MAP](#)

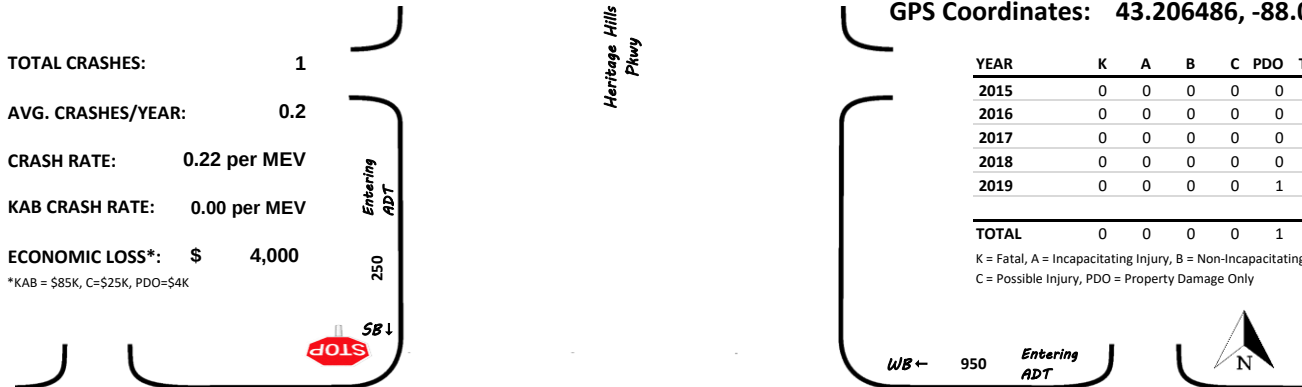
TOTAL CRASHES: 1
AVG. CRASHES/YEAR: 0.2
CRASH RATE: 0.22 per MEV
KAB CRASH RATE: 0.00 per MEV
ECONOMIC LOSS*: \$ 4,000

*KAB = \$85K, C=\$25K, PDO=\$4K

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	0	0	0	0	\$ -
2016	0	0	0	0	0	0	\$ -
2017	0	0	0	0	0	0	\$ -
2018	0	0	0	0	0	0	\$ -
2019	0	0	0	0	1	1	\$ 4,000

TOTAL 0 0 0 0 1 1 \$ 4,000

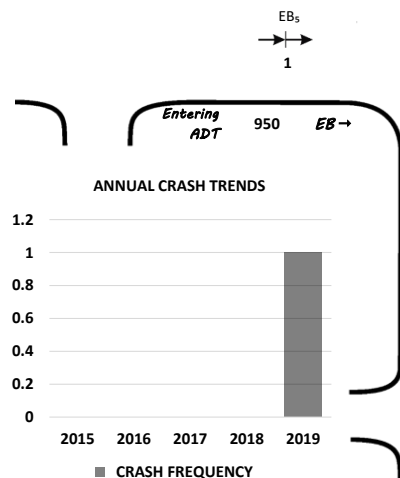
K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



Dongs Bay Rd

Dongs Bay Rd

ECON. LOSS
COLOR SCALE
> \$500 K
> \$400 K
> \$300 K
> \$200 K
> \$100 K



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	0	0	\$ -
RT-ANGLE	0	0	0	0	0	0	\$ -
PEDESTRIAN	0	0	0	0	0	0	\$ -
RT-TURN REAR-END	0	0	0	0	0	0	\$ -
REAR-END	0	0	0	0	1	1	\$ 4,000
SIDE-SWIPE-SAME	0	0	0	0	0	0	\$ -
BICYCLE-RELATED	0	0	0	0	0	0	\$ -
PARKED-VEHICLE	0	0	0	0	0	0	\$ -
FIXED-OBJECT	0	0	0	0	0	0	\$ -
DRIVEWAY-RELATED	0	0	0	0	0	0	\$ -
HEAD-ON	0	0	0	0	0	0	\$ -
MISC. OTHER	0	0	0	0	0	0	\$ -
TOTAL	0	0	0	0	1	1	\$ 4,000

ROAD CONDITIONS		
DRY	1	100%
WET	0	0%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	1	

LIGHT CONDITIONS		
DAY	0	0%
DARK	1	100%
TOT.	1	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	0	0%
SUMMER	0	0%
FALL	0	0%
WINTER	1	100%
TOT.	1	

FAILURE TO YIELD		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

DISRGRD. CONTROL		
NB	0	0%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	0	0%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	0	0%
VERY MINOR	0	0%
MINOR	0	0%
MODERATE	0	0%
SEVERE	2	100%
VERY SEVERE	0	0%
TOTAL VEHICLES	2	

NOTES:

TBD = verification from crash report needed for direction

DAY/TIME TRENDS

	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.	
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MON	0	
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TUE	0	
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	WED	1	
THU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	THU	0	
FRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	0	
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	0	
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0	
	12 AM 1 AM 2 AM 3 AM 4 AM 5 AM						6 AM 7 AM 8 AM			9 AM 10 AM 11 AM			12 PM 1 PM 2 PM			3 PM 4 PM 5 PM			6 PM 7 PM 8 PM			9 PM 10 PM 11 PM			UNK		TOT.	
TOT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	TOT.	1

Corresponds to Collision Diagram



From: 1/1/2015
To: 12/31/2019
AADT: 2,450
Area Type: Urban

[illegible][illegible]

APPENDIX B

- ▶ APPENDIX B - CORRIDORS
 - ▶ B1 - Corridor Safety Analysis

APPENDIX B1

CORRIDOR SAFETY ANALYSIS

- ▶ B1.1 Pilgrim Road/STH 145 (Francesse Dr to Fond du Lac Ave)

B1.1 Corridor Safety Analysis



Location: Pilgrim Road (Francesse Dr to Fond du Lac Ave)
Municipality: Germantown
County: Washington
Length of Corridor: 0.3 miles
GPS Coordinates (Start): 43.222432, -88.103192

Duration
From: 1/1/2015 **5 Years**
To: 12/31/2019 **0 Months**
AADT: 8,200
Peer Group: Urban Streets
GPS Coordinates (End): 43.226849, -88.103246

[MAP](#)

TOTAL CRASHES 22

AVG. CRASHES/YEAR: 4.4

CRASH RATE: 490.0 per 100MVM

Orange = Higher than average, Red = Higher than Upper Control Limit (UCL)

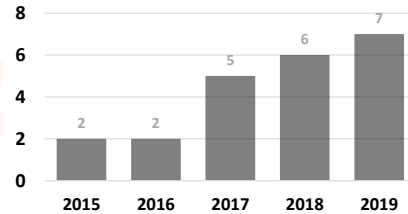
KAB CRASH RATE: 111.4 per 100MVM

Orange = Higher than average, Red = Higher than Upper Control Limit (UCL)

ECONOMIC LOSS*: \$ 514,000

*KAB = \$85K, C=\$25K, PDO=\$4K

ANNUAL CRASH TRENDS



■ CRASH FREQUENCY

YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2015	0	0	1	0	1	2	\$ 89,000
2016	0	1	0	0	1	2	\$ 89,000
2017	0	0	0	0	5	5	\$ 20,000
2018	0	1	1	1	3	6	\$ 207,000
2019	0	0	1	0	6	7	\$ 109,000

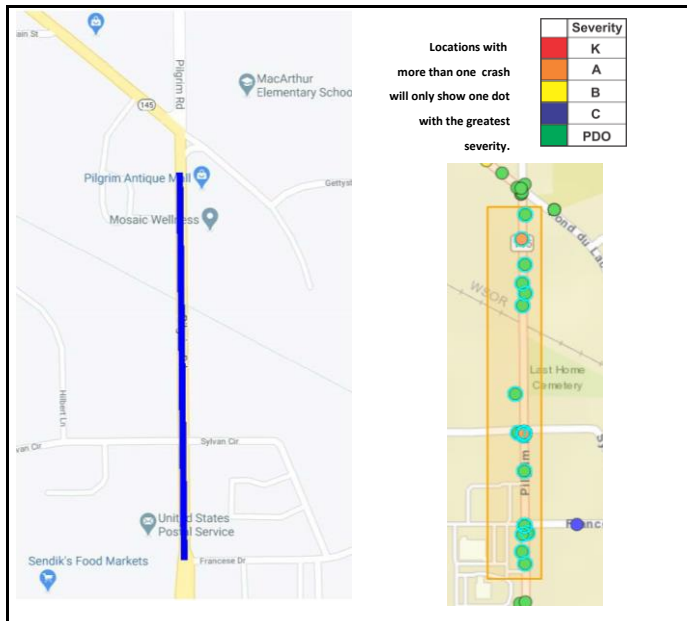
TOTAL 0 2 3 1 16 22 \$ 514,000

K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury,

C = Possible Injury, PDO = Property Damage Only

WI AVG. CRASH RATE & (UCL): 349.89, (438.17)

WI AVG. KAB CRASH RATE & (UCL): 39.9, (69.71)



RUN-OFF-ROAD CRASH TYPES	K	A	B	C	PDO	TOT.	ECON. LOSS
Fixed-Object	0	0	0	0	1	1	\$ 4,000
Other	0	0	0	0	1	1	\$ 4,000
Tree	0	0	0	0	0	0	\$ -
Ditch	0	0	0	0	0	0	\$ -
Overturn	0	0	0	0	0	0	\$ -
Guardrail	0	0	0	0	0	0	\$ -
Median Barrier	0	0	0	0	0	0	\$ -
Fence	0	0	0	0	0	0	\$ -
Bridge	0	0	0	0	0	0	\$ -
Immersion	0	0	0	0	0	0	\$ -

MULTI-VEHICLE CRASH TYPES	K	A	B	C	PDO	TOT.	ECON. LOSS
Rear-End	0	1	1	0	5	7	\$ 190,000
Right-Angle	0	1	1	0	4	6	\$ 186,000
Left-Turn Angle	0	0	1	1	0	2	\$ 110,000
Side-Swipe-Same	0	0	0	0	5	5	\$ 20,000
Other	0	0	0	0	0	0	\$ -
Head-On	0	0	0	0	0	0	\$ -
Side-Swipe-Opposite	0	0	0	0	0	0	\$ -

MULTI-MODAL CRASH TYPES	K	A	B	C	PDO	TOT.	ECON. LOSS
Pedestrian	0	0	0	0	0	0	\$ -
Bicycle	0	0	0	0	0	0	\$ -

ALL CRASH TYPES 0 2 3 1 16 22 \$ 514,000

ROAD CONDITIONS		
DRY	18	82%
WET	4	18%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	22	

LIGHT CONDITIONS		
DAY	17	77%
DARK	5	23%
TOT.	22	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	8	36%
SUMMER	6	27%
FALL	5	23%
WINTER	3	14%
TOT.	22	

CURVE TYPE		
HORZ	0	0%
VERT	0	0%

INTERSECTION		
INT	11	50%

CAUSATION		
ROR	2	9%
FTY	7	32%
DTC	0	0%

ROR = RUN-OFF-ROAD
 FTY = FAILURE TO YIELD
 DTC = DISREGARDED TRAFFIC CONTROL

VEHICLE DAMAGE		
OTHER/UNK.	0	
NONE	2	
VERY MINOR	1	
MINOR	13	
MODERATE	14	
SEVERE	9	
VERY SEVERE	1	
TOTAL VEHICLES	40	

NOTES:

Based on electronic data and not validated with hardcopies. Crashes occurring at Sylvan Circle have been validated.

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	UNK		TOT.
MON	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	MON	3
TUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	TUE	2
WED	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	WED	4
THU	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	2	0	1	0	0	0	1	0	THU	8
FRI	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	FRI	4
SAT	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	0
TOT.	0	0	0	0	0	0	1	0	2	0	3	0	0	1	1	1	4	3	2	2	0	1	0	1	0	TOT.	22

AGREEMENT FOR ENGINEERING SERVICES

THIS AGREEMENT is entered into between **Village of Germantown** (Client) and **Traffic Analysis & Design, Inc.** (Engineer), based upon Client's intention to conduct a safety screening analysis in the Village of Germantown, Wisconsin (the Project) and Client's requirement for certain engineering services in connection with the Project (the Services) which Engineer is prepared to provide.

1. Engineer shall provide the Services described in Attachment A, "Scope of Services", according to Attachment A, "Schedule".
2. Client shall pay Engineer in accordance with Attachment A, "Compensation". Invoices shall be due and payable upon receipt. Invoice amounts not paid within 30 days after receipt shall accrue interest at the rate of 1.5% per month (or the maximum rate permitted by law, if less), with payments applied first to accrued interest and then to unpaid principal.
3. The same degree of care, skill, and diligence shall be exercised in the performance of the Services as is ordinarily possessed and exercised by a member of the same profession, currently practicing, under similar circumstances. No other warranty, express or implied, is included in this Agreement or in any drawing, specification, report, opinion, or other instrument of service, in any form or media, produced in connection with the Services.
4. Engineer shall not be liable to Client for any consequential damages resulting in any way from the performance of the Services. To the fullest extent permitted by law, Engineer's liability under this Agreement shall not exceed Engineer's total compensation actually received under this Agreement.
5. Engineer and Client waive all rights against each other for damages covered by property insurance during and after the completion of the Services.
6. Notwithstanding anything to the contrary in any Attachments hereto, Engineer has no responsibility for (a) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project; or (b) the failure of any contractor, subcontractor, vendor, or other Project participant, not under contract to Engineer, to fulfill contractual responsibilities to Client or to comply with federal, state, or local laws, regulations, and codes.
7. Engineer does not guarantee that proposals, bids, or actual Project costs will not vary from Engineer's cost estimates or that actual schedules will not vary from Engineer's projected schedules.
8. This Agreement may be terminated upon written notice at Client's convenience or by either party in the event of substantial failure by the other party to perform in accordance with the terms of this Agreement. Engineer shall terminate performance of Services on a schedule acceptable to Client, and Client shall pay Engineer for all Services performed and reasonable termination expenses. Paragraphs 4 and 5 shall survive any termination or completion of this Agreement.
9. All documents prepared by Engineer pursuant to this Agreement are instruments of service in respect to the Project. Any use except for the specific purpose intended by this Agreement will be at the user's sole risk and without liability or legal exposure to Engineer. Engineer shall retain its ownership in its data bases, computer software, and other proprietary property. Intellectual property developed, utilized, or modified in the performance of the Services shall remain the property of Engineer.
10. The Services provided for in this Agreement are for the sole use and benefit of Client and Engineer. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than Client and Engineer.
11. Any notice required by this Agreement shall be made in writing to the address specified below:

Client: Village of Germantown
N112W17001 Mequon Road
Germantown, WI 53022
Attn: Kevin R. Driscoll, P.E., Village Engineer

Engineer: Traffic Analysis & Design, Inc.
PO Box 128
Cedarburg, WI 53012
Attn: John A. Bieberitz, P.E., PTOE

IN WITNESS WHEREOF, Client and Engineer have executed this Agreement, effective as of December 24, 2024.

Village of Germantown (Client)

By: _____

Title: _____

Date: _____

Traffic Analysis & Design, Inc. (Engineer)

By:  _____
John A. Bieberitz, P.E., PTOE

Date: 12/24/24

ATTACHMENT A

SCOPE OF SERVICES

Engineer will prepare a Safety Screening Analysis technical memorandum to document the crash history of intersections within the Village of Germantown. If there are intersections that have crash histories and improvement options that may be eligible for Highway Safety Improvement Program (HSIP) funding, those locations will be identified, and safety improvement options provided. Accepted projects in the HSIP program are eligible for a 90 percent Federal contribution with a 10 percent local match.

Task 1 – Data Retrieval and Analysis

Data Retrieval

Engineer will retrieve the last five complete years of electronic crash data (2020-2024) from the Wisconsin Department of Transportation (WisDOT) via the WisTransPortal for the Village of Germantown.

Sorting and Evaluation of Crash Data

Engineer will do an initial screening of intersections to share with the CLIENT for discussion.

Crash Statistics & Analysis

Engineer will compile crash statistics, analysis, collision diagrams, and a Google Map for up to 30 intersections and note if there are improvement options potentially eligible for the HSIP program. The analysis will be based on the electronic crash data provided through the WisTransPortal. Validation of crashes by reviewing their narratives is considered additional work and is not included in this contract.

Task 2 – Meetings

The Engineer will participate in one virtual meeting and attend one in-person meeting as part of this contract.

1. Meet virtually with CLIENT's engineering staff and if available, a representative from law enforcement, to discuss safety issues that the CLIENT is aware of in the Village of Germantown. Engineer will provide an initial data screening to help with the discussion. Jurisdictional boundaries and ownership of intersections will be discussed as well.
2. Meet in-person to present the results of the Safety Screening Analysis to the CLIENT and discuss recommendations, if applicable, for pursuing HSIP funding. If the potential for pursuing a HSIP project exists, Engineer will work with the CLIENT to devise a strategy for pursuing HSIP funding.

Task 3 – Technical Memorandum

Engineer will prepare a report summarizing the findings of the analysis in a technical memorandum which will include a table summarizing the potential for pursuing HSIP applications, potential improvements to consider, crash statistics, collision diagrams, and recommendations for the next steps.

ADDITIONAL WORK

The Safety Screening Analysis is a pre-cursor to the actual preparation of a HSIP application, which would need to be covered under an additional contract or amendment. The preparation of HSIP applications is not covered in this scope.

SCHEDULE

Engineer will complete the Safety Screening Analysis within six weeks of authorization, or sooner if possible.

COMPENSATION

Compensation for the services described above, CLIENT shall pay Engineer a time and materials fee not to exceed Fourteen-Thousand Nine Hundred and Eighty-Two Dollars (\$14,982.00). The Engineers fee schedule is shown below. All services not cited in Attachment A, Scope of Services, will be conducted as additional services under an Amendment to this Agreement.

TADI 2025 Staff Rates

Position Title	Hourly Rate*
Project Manager	\$211.05
Senior Planning Specialist	\$236.25
Senior Traffic Operations Engineer	\$204.75
Senior Traffic Safety Engineer	\$154.35
Traffic Safety Engineer	\$110.25
Administrative Assistant	\$121.28

Mileage Rate (2024)	\$0.67	per mile
Mileage Rate (2025)	\$0.67	per mile, unless updated by the Federal Government

Printing (Black/White)	\$0.10	per page
Printing (Color)	\$0.50	per page

* Rates are averages that may vary depending upon the staff assigned to the project.
Updated 12-24-24

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Approval to purchase a replacement all in one gate valve turner/Power Vac from Envirotech Equipment in the amount not to exceed \$89,595.00.

SUBMITTED BY: Paul Haugen, Water Superintendent

SUMMARY EXPLANATION:

The Water Utility is requesting authorization to purchase a replacement, trailer mounted gas-powered gate valve turner with vacuum collection. Our existing unit is over 15 years old and is at the end of service its life. This is a specialized tool with little competition.

Three companies were looked at:

1. Pacific Tek from Phoenix Arizona, a manufacture of valve turners and vacuum equipment but not built into a trailer mount or as a combination with a vac and trailer.
2. Incline-Vac Utility Excavator, from Industrial Systems, Inc. Chickamauga, Georgia. Quote attached. \$93,322.00

3. Envirotech Equipment 19750 W. Edgewood Drive Lannon WI 53046 \$89,595.00

ATTACHMENT:

1. QUOTE Model 350 Incline-Vac Valve Exerciser Germantown WI_ (003)
2. Standard LX Valve Maintenance Trailer Datasheet
3. Wachs LX Trailer Gas Powered

STAFF RECOMMENDATION:

Staff recommends authorizing water utility staff to purchase the Standard LX VMT Valve Maintenance Trailer by Wachs Utility Products from Envirotech Equipment in the amount not to exceed \$89,595.00.

ACTION BY Committee:

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.

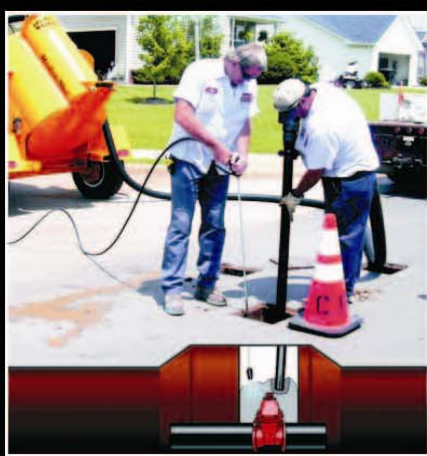
Patented

WWW.INCLINE-VAC.COM

Incline-Vac

UTILITY

Excavator



**Jetter • Hydraulic Tools • Air Tools • Electric Tools
Welder • Powered Boom • Remote Control**

**CLEAN VALVE
AND METER BOXES**

423.413.7823

Incline-Vac

UTILITY

Excavator

Patented



Lynn A. Buckner
423.413.7823



U.S. Patent # 7,644,523 & 7,604,023 &
7,503,134 & 6,988,568 & 6,453,584
Pending App. # 61/277,201 & 12/592,142 &
12/653,871 & 11/809,957 & 12/584,441
& 10/810,908 & 10/624,868

Experience the Incline-Vac ! An efficient, user friendly design with a simple clean appearance; which is a sign that attention to detail and craftsmanship is a major priority.

The Incline-Vac design places a high priority on insuring that an operator has easy access to all features, controls and tools. The Incline-Vac has a tool for each job and has a user-friendly place for each tool.

For example:

- ✓ The Incline-Vac has a compact design with its weight concentrated over the axle. The vacuum tank and water tank are both inclined to reduce the surface area of the stored liquids. This feature reduces slosh during travel. In short, the Incline-Vac is compact, safer, more stable and easy to transport to and from a worksite.
- ✓ A transporting vehicle or trailer can be smaller because of compactness of the Incline-Vac, which makes access to a work area easier.
- ✓ The self cleaning vacuum air filters are mounted on an incline slope and are vibrated to remove dirt.
- ✓ The remote controlled, powered access door allows the vacuum tank and the filter housing to simultaneously empty by gravity. With the vacuum container door open the operator has easy access for washing the air filters and vacuum tank.
- ✓ The Incline-Vac features a non-clogging vacuum wand specially designed to avoid rock or debris clogging of the vacuum hose. It also features an ultra high velocity suction nozzle.
- ✓ The fast digging, custom designed rotary pulse hydro-excavator system makes pot holing and valve box cleaning faster and easier.



See our **Video** at: Incline-Vac.com





Industrial Systems, Inc

P. O. Box 609

Chickamauga, Ga. 30707

Email lynn@incline-vac.com

Mobile: 423-413-7823

incline-vac.com

PROPOSAL- CONTRACT

DATE: 9-Jan-25

QUOTE # 350IV

SHEET 1 OF 3

TO:

Germantown Water Utility
W130N10200 Town 9 PKWY
Germantown, WI 53022

See our **Video** at Incline-Vac.com

ATTENTION:

Paul Haugen 262-253-8254
phaugen@germantownwi.gov

YOUR INQUIRY:

Model 350 Incline-Vac
Quotation good for 30 days

PRICES:

(f.o.b. Flintstone, Ga.)

TERMS:

35% Down with purchase order
Balance to ship

SHIPPING SCHEDULE :

Four to twelve weeks after receipt of your written
purchase order and down payment.





SPECIFICATION SHEET

incline-vac.com

423-413-7823

U.S. Patent # 7,644,523 & 7,604,023 &
7,503,134 & 6,988,568 & 6,453,584
Pending App. # 61/277,201 & 12/592,142 &
12/653,871 & 11/809,957 & 12/584,441
& 10/910,908 & 10/624,868

Germantown Water Utility
W130N10200 Town 9 PKWY
Germantown, WI 53022

DATE: 9-Jun-25

QUOTE # 350IV

SHEET 2 OF 3

ITEM	SPECIFICATIONS	UNIT PRICE	TOTAL COST
1	<u>Model 350 Incline-Vac to include:</u> 37 Hp Kohler air cooled gas engine with 12 volt electric start. The Kohler engine is positioned so that its drive shaft is positioned directly between the water pump and vacuum blower so that the belt drive force is counter balanced left to right between the water pump and the vacuum blower. A 300 gallon vacuum tank positioned at a fixed 45 degree angle (not requiring a tilt to dump mechanism). The vacuum tank is welded directly to and above the 250 gallon water storage tank. This arrangement places the vacuum tank and the water tank directly over the center of the trailer axle; thus providing increased trailer towing safety. The sloped vacuum tank and sloped water tank also reduces slosh during highway travel because of the reduced surface area of the liquid, thus improving safety while towing. A .1875" thick UHMW coating is positioned on the inside bottom of the vacuum tank for protection of the vacuum tank and two rotary pulse wash down turbo nozzles are positioned inside the vacuum tank for the purpose of assisting in the process of removing and washing dirt from inside of the vacuum tank. The vacuum tank unloading door is powered and remote operated (not requiring an operator to manually unlock or manually open the access door). and includes a mud removal drag bar for the purpose of assisting in the unloading of dirt from within the vacuum tank and a 3" drain valve is positioned on the vacuum tank door. A 6" stainless steel ball float system is used to insure positive shutoff of the vacuum when the vacuum tank is full. A 500 cfm @ 16" Hg - belt drive - positive displacement rotary lobe - wet / dry - vacuum / blower, 12VDC belt drive clutch for powering the Vacuum Blower and an on/off switch on the curb side control panel and an exit muffler positioned below the blower for the purpose of reducing noise and for directing the residual sound in the direction of the ground below the trailer. Control switches are on the curb side and include an hour meter, water pressure gauge, anti-freeze selector valve, water tank fill with a 3" air gap and a 1.5" water fill valve and supply line, switches for water pump on/off, hydraulics on/off, vac door open/close, work lights on/off. The strobe light turn on when engine switch is on. 81 sq. ft. of .5 micron wet/dry vacuum filtration with a vibrating self-cleaning design. Opening the vacuum tank door will also open access for the filters to be easily washed each time the vacuum tank is opened for unloading debris from the vacuum tank. 30 ft. of 3" vacuum hose connected to a 4" vacuum tank inlet to reduce hose clogging at the vac tank attachment. The vacuum inlet is positioned so as to load the rear of the vac tank first. A 250 gallon water tank positioned so as to have a fixed 45 degree angle under the vacuum tank, thus concentrating the weight over the trailer axles. The sloped water tank reduces slosh during highway travel because of the reduced surface area of the liquid, thus improving safety while towing. The water tank includes a low level water switch, a 3" valved water fill, a 1.5" water fill supply line with a 3" air gap, a 1.5" valved drain and a ¾" spigot for hand washing and a water level sight tube. A 5 gpm at 3,000 psi. belt driven, clutch operated, tri-plex water pump having a low water level switch positioned in the water tank which will disengage the clutch under a condition of low water level. A water hose reel with a locking mechanism and 50 feet of 3/8" 4,000 psi hose. A 5' long water wand with a 5 GPM rotary pulse turbo digging nozzle and 3' long water wand with a wash down nozzle. A 5' long x 3" dia. non-conductive vacuum wand with an anti-clogging ultra-high velocity suction end designed so as not to stop inlet flow to the vacuum hose while stopping flow to the entry end of the vacuum wand. This design substantially reduces rocks from clogging the vacuum hose. A 7,000 lb. GVWR rated trailer with a single 7,000lb. torsion axle, 8 lug 16" wheels with 235/75R16 tires, 12V electric brakes, 2 5/16" ball hitch, and Bulldog Jack Stand with a 15" lift and a drop leg jack An aluminum tool box 36"W x 20"D x 17"H Two halogen work lights and a strobe light are positioned above the vacuum tanks for the purpose of providing night lights to both front and rear of the work area. All lights are DOT compliant The vacuum trailer assembly has a baked on powder coat paint		\$59,962.00
2	Add a 12VDC Clutch to the Vacuum Blower for easy ON-OFF control		\$964.00

3	<u>A Hydraulic powered Valve Exerciser on a 13' reach articulated Boom Arm having:</u> Two elbows in order to reach around obstructions, 320 degree of horizontal travel, 13 ft. of horizontal reach, a powered telescoping In and OUT arm for extending or retracing its horizontal reach and 60 degrees of boom arm travel up and down for the purpose of accessing utility valves on a hill or in a ditch and also for the purpose of using the powered boom arm to support a vacuum hose, water hose and/or a hydraulic hose for the purpose of hydro-vacuum excavation and/or operating a 300 GPM Hydraulic driven water pump. The articulated boom arm includes a powered tilt for the exerciser head forward or back up to 30 degrees for the purpose of easy positioning of the exerciser head onto a utility valve nut that is not vertically aligned. A 5' to 9' telescoping valve key for connecting the valve exerciser head to the 2" square valve stem The valve exerciser is powered by an 8 GPM at 2,000 PSI hydraulic pump system and the valve exerciser is a hydraulically driven head rated for a maximum torque of 500 ft. per pound of torque and a variable rpm range of 0-30 rpm and a rotation counting accuracy of 1/10th of a revolution. The maximum available torque to the valve stem is presentable to the required foot pounds of torque rating for the valve being opened or closed. The valve exerciser head will rotated up to 90 degrees in order to position it onto a water valve that is not installed in a vertical position or to also be able to couple to a fire hydrant cap and to loosen and remove the cap. The valve exerciser head will easily disconnect from the boom arm and in order to use the valve exerciser as a hand held portable exerciser. The valve exerciser head is fitted with a female fire hydrant receiver coupling so that it may quickly open a fire hydrant and or exercise an in ground utility valve without adding or changing adapters. The valve exerciser head is quick coupled to the articulated boom arm so that the hydraulics may be quickly disconnected from the valve exerciser and then be coupled to other hand held hydraulic tools such as a hydraulic driven submersible water pump. The boom arm can then be used to lower a 300 GPM hydraulic derived water pump into a pool of water which needs to be emptied.	\$21,985.00
4	Upgrade to a 1,000 ft.-lb.of torque valve exerciser & a powered telescoping boom arm	\$2,485.00
5	Valve exercising automated data collection The Valve-X™ Electronic data gathering system is a fully automated data gathering and storage system, which only requires the operator to log in with an RFID tag and punch in an identifying number for the valve that is being exercised. The Valve-X™ Electronic data gathering system uses the RFID tag to identify who the operator is and start the data gathering function. The GPS documents the date, starting time, latitude, longitude, elevation, & valve exercising completion time; sensors log the torque and count the rotations with an accuracy of 1 tenth of a revolution. The GPS accuracy is about 1 meter, which verifies which valve is being exercised. All data is stored on a thumb drive. At the end of each day's work the thumb drive can be used for transferring the valve exercising data to a centralized GIS utility mapping system. The operating data is also displayed on a color graph chart for easy visual understanding of the valve exercising performance. WARRANTY: 1 year on parts	\$3,964.00





SPECIFICATION SHEET

incline-vac.com

423-413-7823



U.S. Patent # 7,644,523 & 7,604,023 &
7,503,134 & 6,988,568 & 6,453,584
Pending App. # 61/277,201 & 12/592,142 &
12/653,871 & 11/809,957 & 12/584,441
& 10/810,908 & 10/624,868

DATE: 9-Jan-25

QUOTE # IN Options

SHEET 3 OF 3
Germantown Water Utility
W130N10200 Town 9 PKWY
Germantown, WI 53022

ITEM	SPECIFICATIONS	UNIT PRICE	TOTAL COST
6	Add a Hydraulic Hose Reel with 30 ft. of hydraulic hose and quick connects		\$2,940.00
7	Add a 70 lb class Hydraulic Driven Jack hammer with a user friendly jack hammer stand; 1- 1.125 x 14 Chisel;		\$3,986.00
8	Add a 300gpm submersible water pump with a user friendly mounting stand Hyd. Driven submersible pump, S.S. vortex impeller, Handles 2.5" solids, 300gpm		\$3,884.00
9	ADD a Arrow light board with controller		\$1,986.00
10	Add a fire hydrant tester with diffuser, hoses, psi gauge and De-Chlorinator		\$3,240.00
11	Add a powered remote control system for the water ON-OFF, vacuum ON-OFF Hydraulics ON-OFF, Boom arm UP-DOWN, IN-OUT		\$2,868.00
12	Add a powered jetter hose reel with 250 ft. Of .5" jetter hose		\$3,888.00
13	Add a Vacuum hose reel with 100 feet of 3" vacuum hose		\$3,960.00
14	Add a Boom arm Hydro- Vacuum excavation system		\$2,950.00
15	Add an articulated boom arm man hole cover lifting & removal tool		\$1,985.00
16	ADD a Hot water boiler system. Diesel powered, 5 gallon / min. at 3,500 PSI		\$6,880.00

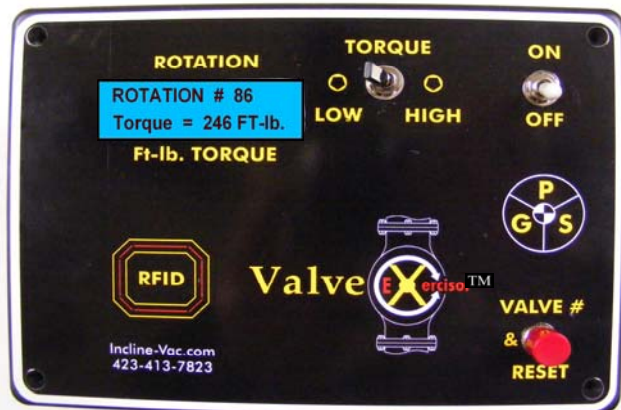


Incline-VacTM

UTILITY Excavator

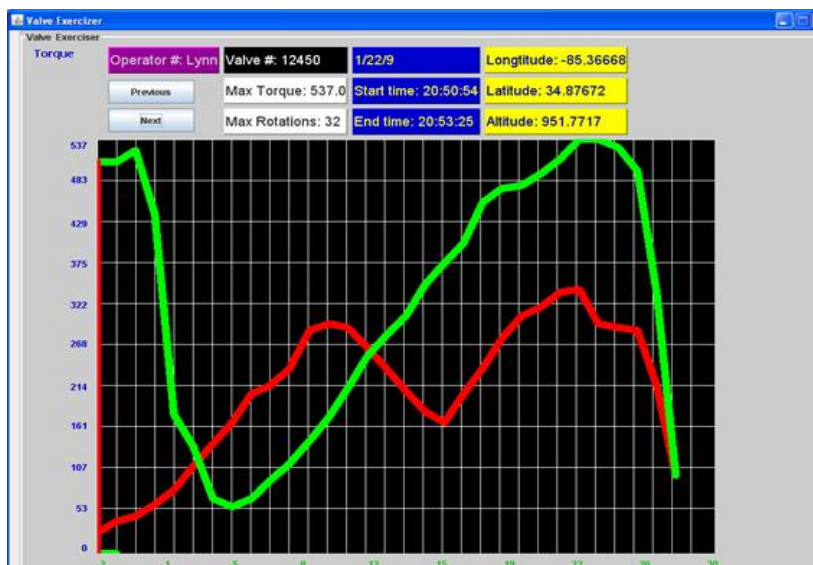
Lynn A. Buckner
423.413.7823

Patented



U.S. Patent # 7,644,523 & 7,604,023 &
7,503,134 & 6,988,568 & 6,453,584
Pending App. # 61/277,201 & 12/592,142 &
12/653,871 & 11/809,957 & 12/584,441
& 10/810,908 & 10/624,868

See our Video at: Incline-Vac.com



Incline-Vac

UTILITY

Excavator

Patented



Lynn A. Buckner
423.413.7823

U.S. Patent # 7,644,523 & 7,604,023 &
7,503,134 & 6,988,568 & 6,453,584
Pending App. # 61/277,201 & 12/592,142 &
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& 10/810,908 & 10/624,868



Valve Exerciser-Vac

See our **Video** at: Incline-Vac.com

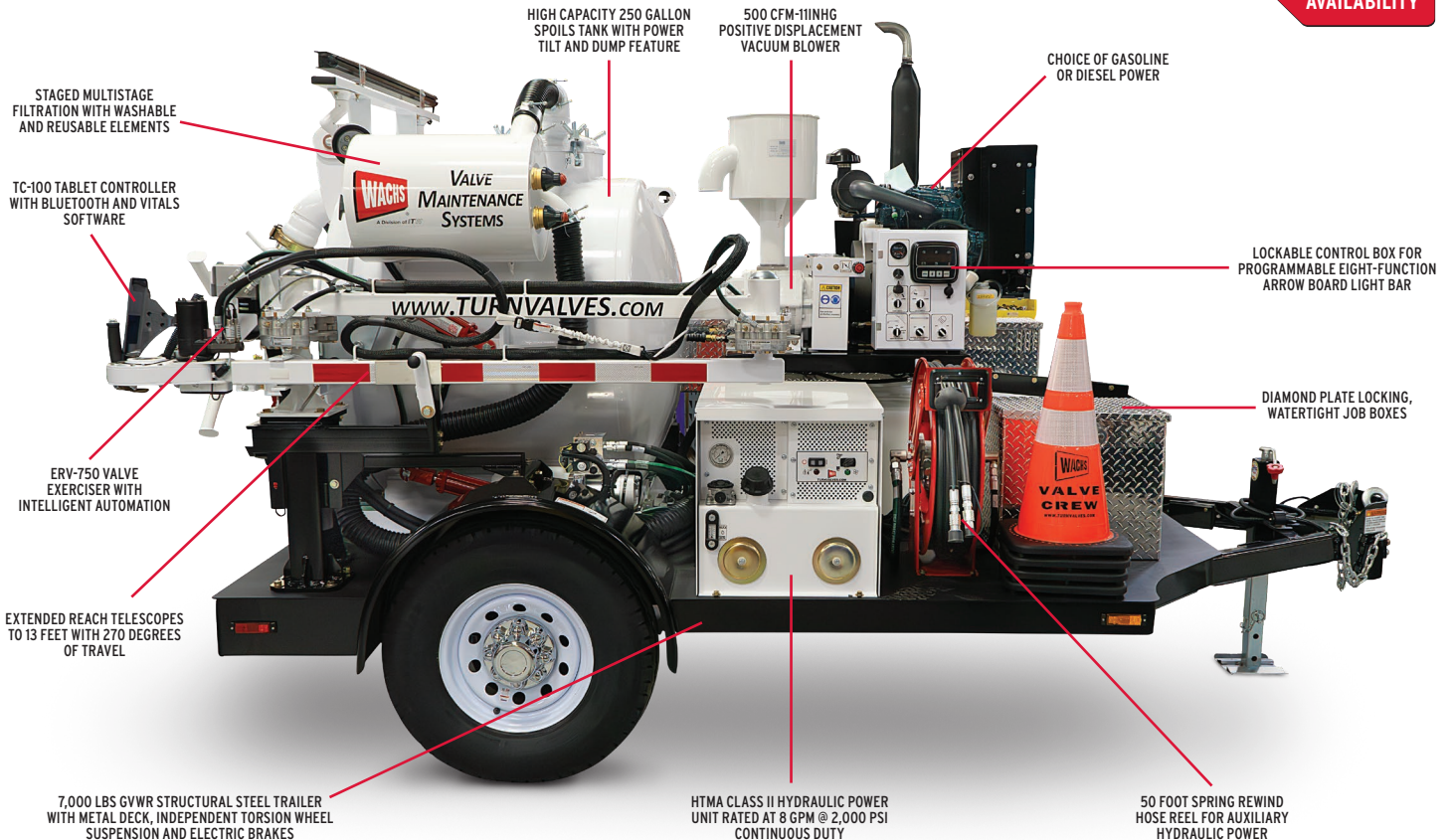
The Incline-Vac with its options can:

- Clean a valve box or meter box by using its hydro-vacuum excavation system;
- Excavate, replace or reset a damaged valve box or meter box;
- Remove asphalt or concrete from above and around a valve box using the hydraulic jack hammer or concrete saw;
- Exercise 4" - 60" utility valves using the hydraulic driven valve exerciser torque wrench;
- A remote controlled, articulated, powered boom with 13 feet of reach is used to position the valve exerciser torque wrench on to the utility valve;
- For those hard to reach places on the other side of the fence or ditch; The hydraulic powered torque wrench can reach and exercise valves up to 40 feet from the Incline-Vac;
- The Valve exerciser will count the number of rotations with an accuracy of 1 tenth of a rotation and measure the torque required for each tenth of a rotation while opening and closing the utility valve;
- The Valve-X™ Electronic data gathering system is a fully automated data gathering and storage system, which only requires the operator to log in with an RFID tag and punch in an identifying number for the valve that is being exercised.
- The Valve-X™ Electronic data gathering system uses the RFID tag to identify who the operator is and start the data gathering function. The GPS documents the date, starting time, latitude, longitude, elevation, & valve exercising completion time; sensors log the torque and count the rotations with an accuracy of 1 tenth of a revolution. The GPS accuracy is about 1 meter, which verifies which valve is being exercised. All data is stored on a thumb drive. At the end of each day's work the thumb drive can be used for transferring the valve exercising data to a centralized GIS utility mapping system. Safely Hydro-Vacuum excavate a defective valve for replacement;
- Vacuum excavate to locate a buried utility;
- Safely excavate a utility line to do repairs or make a tie in;
- Use the 300 GPM hydraulic driven submersible pump to remove large volumes of water from a pit or meter box;
- Exercise a fire hydrant and use the onboard fire hydrant diffuser to flush and test fire hydrants and de-chlorinate the water.



Complete, Portable, Self-Contained Valve Maintenance System

**RENTAL
AVAILABILITY**



**TRUE
HANDS-FREE
VALVE EXERCISING**



**FULLY
ENGINEERED
VALVE MAINTENANCE
SYSTEM**



**UNMATCHED
FUNCTIONALITY &
STORAGE**



Wachs Standard LX VMT trailer is the industry standard for a self-contained, portable system that includes all the tools needed for municipalities and water organizations to complete a valve maintenance program.

The Standard LX trailer comes equipped with our industry-leading ERV-750 extended reach valve exerciser, plus the TC-100 wireless handheld tablet controller/datalogger with GPS and VITALS®. Wachs VITALS software eliminates misdirection and over-torquing of valves, allowing you to set torque limits and record infrastructure details including

location, valve-operating direction, torque applied and more.

Other standard equipment includes a powerful 500CFM-11 inHg vacuum, with a 250 gallon spoils tank that features a hydraulic slide, tilt & dump and power latching rear discharge door. Configured with large, watertight and lockable diamond plate storage boxes, it includes the Valve Box Buddy portable vault cover magnetic lifting tool, making it more versatile than ever. For those preferring a truck mounted system the Standard LX is also available as a VMS valve maintenance skid.



Standard LX comes complete with TC-100 tablet controller with VITALS® software preloaded

Trailer:	7000 lb. (3175 Kg) GVWR single axle trailer, frame structural steel with metal deck, torsion wheel suspension, electric brakes, LED lighting, Pintle hitch w/ safety chains
Gasoline Engine:	27 HP Kohler Command Pro, electronic ignition, v-twin 4 stroke, air cooled
Diesel Engine:	26 HP Kubota Tier 4 compliant, 1.1 liter 4 stroke I-3 liquid cooled IDI
Fuel Tank:	10 gallon (38 liter) DOT approved aluminum tank, formed end caps, fuel gauge
Valve Exerciser:	ERV-750 extended reach, 750 ft-lb articulating arm valve exerciser
Controller:	TC-100 tablet controller and datalogger with VITALS software & Bluetooth
Vacuum:	500 CFM-11 inHg positive displacement vacuum blower
Spoils Tank:	250 gallon (946 liter) tank with hydraulic powered slide, tilt, dump feature
Spoils Handling:	Heavy duty 20 foot x 3 inch diameter flex hose with 3 steel suction wands
Washer System:	High pressure system with 95 gallon (360 liter) fresh water tank
Washer Reel:	50 foot (15.2M) retractable washer hose reel with short and long wands
Washer Pump:	Clutch operated, dual belt drive, 2.5 GPM @ 3,000 PSI
Hydraulic Power Unit:	HTMA Class II circuit, fan cooled heat exchanger, 8 GPM @ 2000 PSI
Hydraulic System:	10 gallon (38 liter) hydraulic reservoir, 50 foot (15.2M) hydraulic hose reel
Light Package:	LED spotlights and programable arrow board with locking control panel
Job Boxes:	Heavy duty, locking, watertight diamond plate aluminum, with gas springs
Cover Lifter:	Valve Box Buddy lifter for removal of cast iron or steel valve box covers



Expanded storage with locking diamond plate watertight job boxes for added security



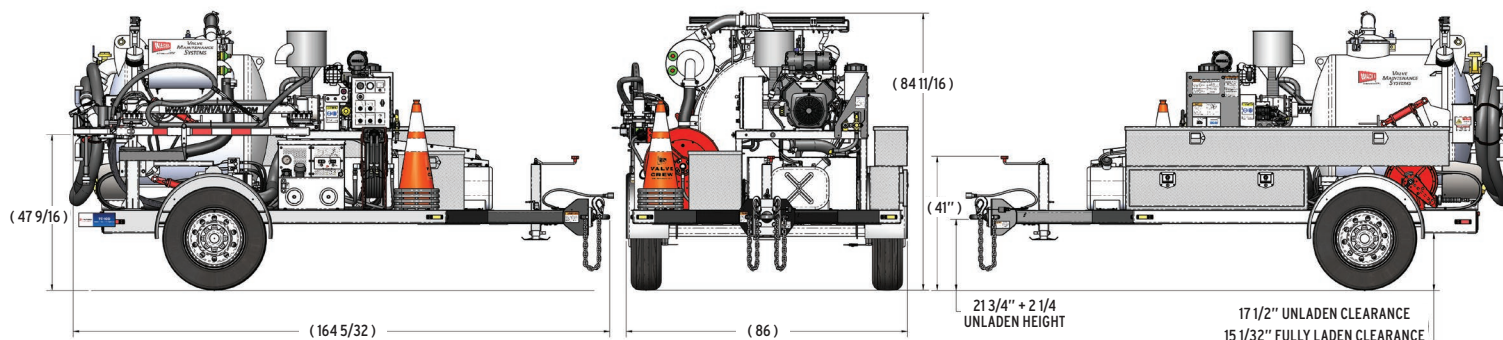
ERV-750 uses unique disk brake system for rigidity, and hydraulic sensors for true hands-free operation



All major systems and operating controls are located curbside for operator safety

OPTIONAL EQUIPMENT

- Additional telescoping valve keys and extensions
- 45 lb. hydraulic breaker and attachments
- Trimble R2 GNSS receiver, with centimeter accuracy
- Valve Nut Rx replacement valve nut kit
- Hydraulic powered dewatering pumps
- Diamond Wire Guillotine pipe saw





Quote No. 121124-2A

19750 W. Edgewood Drive
Lannon WI 53046
Phone # 800-381-9134

Quotation

Customer

Germantown Water Utility
Attn: Paul Haugen
N112 W17001 Mequon Rd
Germantown, WI 53022

Date: 12/11/2024

Terms: Net 30

Delivery 4 Weeks

FOB Lannon, WI

Item	Qty	Description	Unit Price	Total
.	1	Standard LX (GASOLINE) – VMT (RH): Single turner valve maintenance trailer Includes: Wachs 750 Ft/lb (1020 Nm) Extended Reach Valve operator for those preventive maintenance activities Telescoping valve key and Wachs Ruggedized TC-100 with Ruggedized controller/datalogger A 27 HP (20 kW) gasoline powered Kohler overhead cam air cooled engine Auxiliary HTMA Class II circuit; 10 gallon (38 L) reservoir, fan cooled heat exchanger, continuous duty rated for 8 GPM (30.3 LPM) @ 2,000 PSI (140 bar). A positive displacement blower provides 500 CFM (14.2 cmm)-11" (280mm) Hg vacuum Spoils containment provided by a 250 (950 L) gallon tank with power hydraulic dump (rear discharge) and latching rear door. 2.5 GPM (9.5 LPM) @ 3000 PSI (210 bar) pressure washer system 3 gallon (11.4 L) RV anti-freeze tank 95 gallon (360 L) water tank Including 2-1/2" (63.5mm), 1-1/4" (31.75mm) & 7/8" (22mm) suction wands and one each short and long wash-down guns	89,350.00	89,350.00

***Providing Customer Satisfaction
Through Trusted Partnerships***

Subtotal

Sales Tax ()

Total

Note: Any and all shipping and sales tax will be added to this invoice.



Quote No. 121124-2A

19750 W. Edgewood Drive
Lannon WI 53046
Phone # 800-381-9134

Quotation

Customer

Germantown Water Utility
Attn: Paul Haugen
N112 W17001 Mequon Rd
Germantown, WI 53022

Date: 12/11/2024

Terms: Net 30

Delivery 4 Weeks

FOB Lannon, WI

Item	Qty	Description	Unit Price	Total
		The LX package bundles the service light bar with arrow board, 45' (14 M) auxiliary hydraulic hose reel for operation of hydraulic power tools & Bluetooth tethering module (installed in ERV-750) for wireless communication between the exerciser, Controller/Data Logger and 24" (61cm) X 18" (46cm) x 18" (46cm) aluminum job box, and Pintle Hitch		
		Option:		
	1	Add On Extension - 36" Extends the Telescoping Key to Reach All Valves	245.00	245.00
		Note: Includes Delivery and Training		

*Providing Customer Satisfaction
Through Trusted Partnerships*

Subtotal	\$89,595.00
Sales Tax ()	\$0.00
Total	\$89,595.00

Note: Any and all shipping and sales tax will be added to this invoice.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Approval of center and edge-line striping services with Washington County for approximately \$65,000.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

Annually the Village performs center and edge-line striping on main throughfares. This service has been provided by Washington County because the Village does not own the equipment necessary to complete the task. This season the cost from Washington County is estimated to be \$1300.00 per mile of painting. This year we intend to paint approximately 50 miles of roadway for an approximate cost of \$65,000.

ATTACHMENT:

1. CENTERLINE PROGRAM UPDATE 08
2. County Striping Map 7-22-2024 (1) (2)

STAFF RECOMMENDATION:

Approval center and edge-line striping with Washington County for approximately \$65,000.

ACTION BY Committee:

CENTER/EDGE LINE
2004

[illegible]

CENTER/EDGE LINE
2004

CENTERLINE/EDGELINE
2004

[illegible]

CENTERLINE/EDGE LINE
2004

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH
Pioneer	Country Aire to Jurisdiction	yes	yes	1mile
Cedar	wasaukee to Counrty aire	yes	yes	1 mile
Cedar	Division to Maple	yes	yes	1 mile
Bonniwell	jurisdiction to Goldendale	yes	yes	1.25 mile
Bonniwell	Division to Country Aire	yes	yes	2 miles
Rockfield	Division to Pleasant View	yes	yes	1.5 mile
Holy Hill	41/45 to Division	yes	yes	3 mile
Lovers	Maple t 145	yes	yes	.75 mile
Lovers	Pleasant View to Mary buth	y	yes	1 mile
Highland	Mary Buth to Wasaukee	y	yes	.5 mile
Freistadt	Townline to 145	y	yes	3.25 mile
Mequon Rd	175 to Montgomery	y	yes	4.25 miles
Lilac	Maple to Division	y	yes	1 mile
Willow Creek	Amy Belle to 175	y	yes	1.25 mile
Donges Bay	Division to wasaukee	y	yes	3 miles
Maple	Cedar to 175	y	yes	5.25 mile
Division	145 to Freistadt	y	yes	.25 mile
Division	Main to County line	y	yes	2.5 mile
River	Freistadt to Mequon	y	yes	1 mile
Western	Main to Mequon	y	yes	.5 mile
Main	Western to 145	y	yes	.5 mile
Pligrim	Frestadt to County line	y	yes	3 mile
Pleasant View	Bonniwell to Freistadt	y	yes	2 miles
Country Aire	Pioneer to Bonniwell	y	yes	1 mile
Counrty Aire	Frestadt to 145	y	yes	1.5 mile
Mary Buth	Highland to Frestadt	y	yes	1 mile

Wasaukee	Frestadt to jursidiction	y	yes	

2006 CENTERLINE STRIPING

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH (MILES)
FREISTADT	145 TO TOWN LINE RD	Y	Y	3.5
WESTERN	MEQUON TO MAIN	Y	Y	0.5
MAIN	145 TO DIVISION	Y	Y	1
PILGRIM	145 TO COUNTY LINE	Y	Y	2.5
MEQUON	MONGOMERY TO MAPLE	Y	Y	2
MAPLE	APPLETON TO CEDAR	Y	Y	5.25
HOLY HILL	41/45 TO DIVISION	Y	Y	3
WASAUKEE	FREISTADT TO TRILLIUM WAY	Y	Y	1
MARY BUTH	HIGHLAND TO FREISTADT	Y	Y	3
OAK LANE	175 TO WILLOW CREEK	Y	Y	1
APPLETON AVE	COUNTY LINE TO LANNON	Y	Y	2.5
TOTAL				25.25

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH
Pioneer	Country Aire to Jurisdiction	yes	yes	1mile
Cedar	wasaukee to Counrty aire	yes	yes	1 mile
Cedar	Division to Maple	yes	yes	1 mile
Bonniwell	jurisdiction to Goldendale	yes	yes	1.25 mile
Bonniwell	Division to Country Aire	yes	yes	2 miles
Rockfield	Division to Pleasant View	yes	yes	1.5 mile
Holy Hill	41/45 to Division	yes	yes	3 mile
Lovers	Maple t 145	yes	yes	.75 mile
Lovers	Pleasant View to Mary buth	y	yes	1 mile
Highland	Mary Buth to Wasaukee	y	yes	.5 mile
Freistadt	Townline to 145	y	yes	3.25 mile
Mequon Rd	175 to Montgomery	y	yes	4.25 miles
Lilac	Maple to Division	y	yes	1 mile
Willow Creek	Amy Belle to 175	y	yes	1.25 mile
Donges Bay	Division to wasaukee	y	yes	3 miles
Maple	Cedar to 175	y	yes	5.25 mile
Division	145 to Freistadt	y	yes	.25 mile
Division	Main to County line	y	yes	2.5 mile
River	Freistadt to Mequon	y	yes	1 mile
Western	Main to Mequon	y	yes	.5 mile
Main	Western to 145	y	yes	.5 mile
Pligrim	Frestadt to County line	y	yes	3 mile
Pleasant View	Bonniwell to Freistadt	y	yes	2 miles
Country Aire	Pioneer to Bonniwell	y	yes	1 mile
Counrty Aire	Frestadt to 145	y	yes	1.5 mile
Mary Buth	Highland to Frestadt	y	yes	1 mile

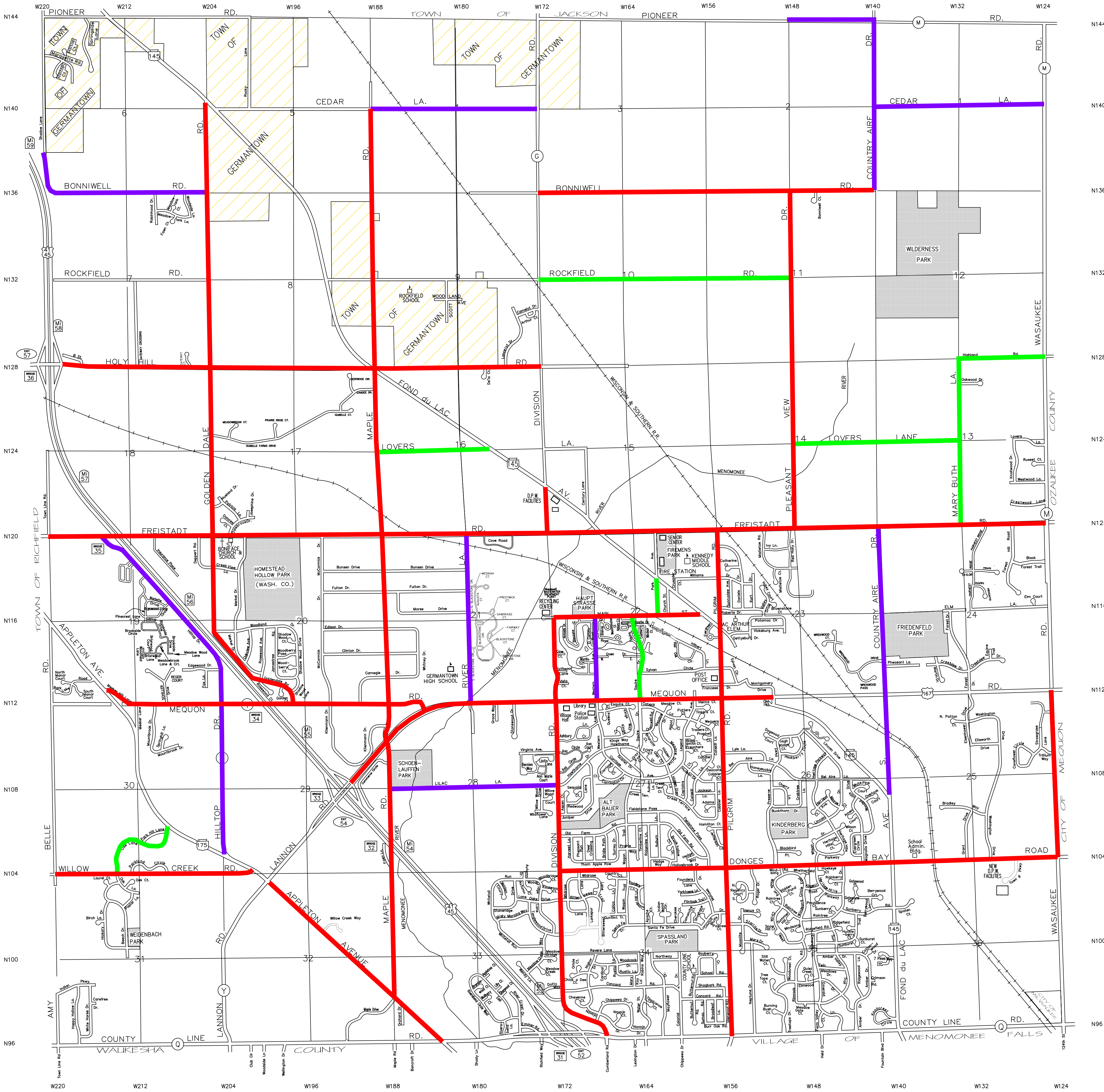
Wasaukee	Frestadt to jursidiction	y	yes	
Oak Lane	175 to Willow Creek	y	yes	1 mile
Hilltop	Mequon to 175	y	yes	1 mile

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH (MILES)
FREISTADT	145 TO TOWN LINE RD	Y	Y	3.5
MAIN	145 TO DIVISION	Y	Y	1
PILGRIM	145 TO COUNTY LINE	Y	Y	2.5
MEQUON	MONGOMERY TO MAPLE	Y	Y	2
MAPLE	APPLETON TO CEDAR	Y	Y	5.25
WASAUKEE	FREISTADT TO TRILLIUM WAY	Y	Y	1
OAK LANE	175 TO WILLOW CREEK	Y	Y	1
APPLETON AVE	COUNTY LINE TO LANNON	Y	Y	1.5
WILLOW CREEK	175 TO AMY BELLE	Y	Y	1
DONGES BAY	WASAUKEE TO DIVISION	Y	Y	3
DIVISION	MEQUON TO COUNTY LINE	Y	Y	2
TOTAL				23.75

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH
FREISTADT ROAD	TOWN LINE RD TO WASAUKEE	Y	Y	6
HOLY HILL ROAD	41/45 TO DIVISION	Y	Y	3
MAIN STREET	145 TO DIVISION	Y	Y	1
PILGRIM ROAD	FREISTADT TO COUNTY LINE	Y	Y	3
MEQUON ROAD (HWY 167)	MONGOMERY TO 41/45	Y	Y	4.25
MAPLE ROAD	APPLETON TO CEDAR	Y	Y	5.25
WASAUKEE ROAD	MEQUON ROAD TO TRILLIUM WAY	Y	Y	0.5
GOLDENDALE ROAD	145 TO MEQUON	Y	Y	3.5
APPLETON AVENUE	COUNTY LINE TO LANNON	Y	Y	1.5
WILLOW CREEK ROAD	175 TO AMY BELLE	Y	Y	1
DONGES BAY ROAD	WASAUKEE TO DIVISION	Y	Y	3
BONNIWELL ROAD	DIVISION TO COUNTRY AIRE	Y	Y	2
MEQUON ROAD	175 TO LANNON	Y	Y	2
DIVISION ROAD	MAIN TO COUNTY LINE	Y	Y	2.5
DIVISION ROAD	FREISTADT TO 145	Y	Y	0.25
PLEASANT VIEW DRIVE	FREISTADT TO BONNIWELL	Y	Y	2
LOVERS LANE	PLEASANT VIEW TO MARY BUTH	Y	Y	1
MARY BUTH LANE	FREISTADT TO HIGHLAND	Y	Y	1
OAK LANE	175 TO WILLOW CREEK	Y	Y	1
SQUIRE DRIVE	MEQUON TO MAIN STREET	Y	N	0.5
HIGHLAND ROAD	MARY BUTH TO WASAUKEE	Y	Y	0.5
ROCKFIELD ROAD	DIVISION TO PLESANT VIEW	Y	Y	1.5
LOVERS LANE	MAPLE TO 145	Y	Y	0.75
PARK AVENUE	145 TO MAIN	Y	N	0.25
TOTAL				47.25
		TOTAL COST:	\$61,425.00	

STREET NAME	LOCATION DESCRIPTION	CENTER	EDGE	LENGTH
FREISTADT ROAD	TOWN LINE RD TO WASAUKEE	Y	Y	6
HOLY HILL ROAD	41/45 TO DIVISION	Y	Y	3
MAIN STREET	145 TO DIVISION	Y	Y	1
PILGRIM ROAD	FREISTADT TO COUNTY LINE	Y	Y	3
MEQUON ROAD (HWY 167)	MONGOMERY TO 41/45	Y	Y	4.25
MAPLE ROAD	APPLETON TO CEDAR	Y	Y	5.25
WASAUKEE ROAD	MEQUON ROAD TO TRILLIUM WAY	Y	Y	0.5
GOLDENDALE ROAD	145 TO MEQUON	Y	Y	3.5
APPLETON AVENUE	COUNTY LINE TO LANNON	Y	Y	1.5
WILLOW CREEK ROAD	175 TO AMY BELLE	Y	Y	1
DONGES BAY ROAD	WASAUKEE TO DIVISION	Y	Y	3
BONNIWELL ROAD	DIVISION TO COUNTRY AIRE	Y	Y	2
MEQUON ROAD	175 TO LANNON	Y	Y	2
DIVISION ROAD	MAIN TO COUNTY LINE	Y	Y	2.5
DIVISION ROAD	FREISTADT TO 145	Y	Y	0.25
2025 ARIP - PLEASANT VIEW DRIVE	FREISTADT TO BONNIWELL	Y	Y	0
PIONEER ROAD	COUNTRY AIRE TO JURISDICTION	Y	Y	1
CEDAR LANE	MAPLE TO DIVISION	Y	Y	1
CEDAR LANE	COUNTRY AIRE TO WASAUKEE	1	1	1
HILLTOP DRIVE	175 TO FREISTADT	Y	Y	2
COUNTRY AIRE DRIVE	PIONEER TO BONNIWELL	Y	Y	1
COUNTRY AIRE DRIVE	FREISTADT TO FOND DU LAC	Y	Y	1.5
RIVER LANE	FREISTADT TO (S) OF MEQUON	Y	Y	1
WESTERN AVENUE	MAIN TO MEQUON	Y	Y	0.5
LILAC LANE	MAPLE TO DIVISION	Y	Y	1
BONNIWELL ROAD	SHADOW BRIDGE TO GOLDENDALE	Y	Y	1.25
TOTAL				50
		TOTAL COST: \$65,000.00		

VILLAGE OF GERMANTOWN



EVERY YEAR

ODD YEAR

EVEN YEAR

VILLAGE OF GERMANTOWN
ROADWAY STRIPING
JULY 2024

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Approval of 2025 mastic purchase from Sherwin Industries for \$24,324.00.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

Each year staff self performs crack sealing on Village roadways, as needed to improve longevity by minimizing water intrusion in cracks. A large portion of this work is completed in conjunction with and ahead of the seal-coating project. As part of the 2025 Highway Department operating budget, funds were allocated for the purchase of asphalt sealant and mastic. The product is purchased locally through Sherwin Industries Inc. and the cost is listed below for review. Sherwin Industries is the sole provider of this product in our region.

*Please note that no tarring took place last fall due to the move to our new facility. The Village has enough tar product on hand to complete the necessary work in 2025. That said, mastic will be our only purchase request in 2025. The need for tar and mastic will be evaluated again for the 2026 construction season.

Crafco Mastic One: \$24,324.00

ATTACHMENT:

STAFF RECOMMENDATION:

Approval of the 2025 mastic purchase from Sherwin Industries for \$24,324.00.

ACTION BY Committee:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Authorization for a blanket purchase order for Adaptor, Inc. for internal/external manhole chimney seals and extensions not to exceed \$20,000.00.

SUBMITTED BY: Timothy Zimmerman, Superintendent

SUMMARY EXPLANATION:

Staff is seeking authorization to execute a blanket purchase order to Adaptor, Inc. for internal/external manhole chimney seals and extensions as required in the amount not to exceed \$20,000. Adaptor, Inc. is the manufacturer of the seals and gives the Village distributor pricing because we are a legacy customer. Seals will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT:

1. Blanket PO Adaptor Inc25

STAFF RECOMMENDATION:

It is staff's recommendation to approve a Blanket PO to Adaptor, Inc. for the amount not to exceed \$20,000 for the purchase of chimney seals and extensions and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System Maintenance.

ACTION BY Committee:

The 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.

**BUSINESS OF THE PUBLIC WORKS COMMITTEE & VILLAGE BOARD
GERMANTOWN, WI**

MEETING DATE: February 5, 2025

AGENDA ITEM: New Business

ITEM TITLE: Authorization for a Blanket Purchase Order for Adaptor, Inc.

SUBMITTED BY: Timothy K. Zimmerman – Wastewater Superintendent

SUMMARY EXPLANATION:

I am seeking authorization to execute a blanket purchase order to Adaptor, Inc. for internal/external manhole chimney seals and extensions as required in the amount not to exceed \$20,000. Adaptor, Inc. is the manufacturer of the seals and gives the Village distributor pricing because we are a legacy customer. Seals will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT: ORDINANCE_____ RESOLUTION_____ OTHER_____

RECOMMENDATION:

It is staff's recommendation to approve a Blanket PO to Adaptor, Inc. for the amount not to exceed \$20,000 for the purchase of chimney seals and extensions and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System Maintenance.

COMMITTEE ACTION:

The 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.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Authorization for a blanket purchase order for Core and Main. to purchase manhole adjusting rings and miscellaneous materials not to exceed \$20,000.00.

SUBMITTED BY: Timothy Zimmerman, Superintendent

SUMMARY EXPLANATION:

Staff is seeking authorization to execute a blanket purchase order to Core and Main for the purchase of Ladtech HDPE manhole adjusting rings and other miscellaneous materials in the amount not to exceed \$20,000. Rings will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT:

1. Blanket PO Core & Main25

STAFF RECOMMENDATION:

It is staff's recommendation to approve the Blanket PO to Core and Main for the amount not to exceed \$20,000.00 for the purchase of Ladtech HDPE manhole adjusting rings and other miscellaneous materials and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System maintenance.

ACTION BY Committee:

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.

**BUSINESS OF THE PUBLIC WORKS COMMITTEE & VILLAGE BOARD
GERMANTOWN, WI**

MEETING DATE: February 5, 2025

AGENDA ITEM: New Business

ITEM TITLE: Authorization for a Blanket Purchase Order for Core and Main

SUBMITTED BY: Timothy K. Zimmerman – Wastewater Superintendent

SUMMARY EXPLANATION:

I am seeking authorization to execute a blanket purchase order to Core and Main for the purchase of Ladtech HDPE manhole adjusting rings and other miscellaneous materials in the amount not to exceed \$20,000. Rings will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT: ORDINANCE_____ RESOLUTION_____ OTHER _____

RECOMMENDATION:

It is staff's recommendation to approve the Blanket PO to Core and Main for the amount not to exceed \$20,000.00 for the purchase of Ladtech HDPE manhole adjusting rings and other miscellaneous materials and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System maintenance.

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.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Authorization for a blanket purchase order for Ferguson Waterworks for miscellaneous manhole repair materials not to exceed \$24,999.00.

SUBMITTED BY: Timothy Zimmerman, Superintendent

SUMMARY EXPLANATION:

Staff is seeking authorization to execute a blanket purchase order to Ferguson Waterworks for miscellaneous manhole repair materials to include Neenah R-1661 castings, lids, and pavement adjusting rings, Cretex Pro Ring PPE adjusting rings, Gun grade butyl sealant, and M-1 polymer construction adhesive in the amount not to exceed \$25,000. Materials will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT:

1. Blanket PO Ferguson25

STAFF RECOMMENDATION:

It is staff's recommendation to approve a Blanket PO to Ferguson Waterworks for the amount not to exceed \$24,999.00 for the purchase of miscellaneous manhole repair materials and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System maintenance.

ACTION BY Committee:

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.

**BUSINESS OF THE PUBLIC WORKS COMMITTEE & VILLAGE BOARD
GERMANTOWN, WI**

MEETING DATE: February 5, 2025

AGENDA ITEM: New Business

ITEM TITLE: Authorization for a Blanket Purchase Order for Ferguson Waterworks

SUBMITTED BY: Timothy K. Zimmerman – Wastewater Superintendent

SUMMARY EXPLANATION:

I am seeking authorization to execute a blanket purchase order to Ferguson Waterworks for miscellaneous manhole repair materials to include Neenah R-1661 castings, lids, and pavement adjusting rings, Cretex Pro Ring PPE adjusting rings, Gun grade butyl sealant, and M-1 polymer construction adhesive in the amount not to exceed \$25,000. Materials will be utilized for the 2025 road projects and other areas throughout the system.

ATTACHMENT: ORDINANCE_____ RESOLUTION_____ OTHER

RECOMMENDATION:

It is staff's recommendation to approve a Blanket PO to Ferguson Waterworks for the amount not to exceed \$25,000.00 for the purchase of miscellaneous manhole repair materials and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from 60720000-531960 Collection System maintenance.

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.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Authorization of a blanket purchase order to Enercon for material processing at the Residential Yard Waste Facility in an amount not to exceed \$30,400.00.

SUBMITTED BY: Timothy Zimmerman, Superintendent

SUMMARY EXPLANATION:

Staff is seeking authorization to execute a blanket purchase order to Enercon for material processing for the Residential Yard Waste Facility for 2025, in the amount not to exceed \$30,400. This amount will cover 8 days of wood and yard waste material processing at the facility.

ATTACHMENT:

1. Blanket PO Grinding25

STAFF RECOMMENDATION:

It is staff's recommendation to approve the Blanket PO to Enercon for the amount not to exceed \$30,400.00 for material processing at the Residential Yard Waste Facility and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from Recycling Budget line item - 10565000-532700.

ACTION BY Committee:

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.

**BUSINESS OF THE PUBLIC WORKS COMMITTEE & VILLAGE BOARD
GERMANTOWN, WI**

MEETING DATE: February 5, 2025

AGENDA ITEM: New Business

ITEM TITLE: Authorization of a Blanket Purchase Order for the Residential Yard Waste Facility for Material Processing

SUBMITTED BY: Timothy K. Zimmerman – Wastewater Superintendent

SUMMARY EXPLANATION:

I am seeking authorization to execute a blanket purchase order to Enercon for material processing for the Residential Yard Waste Facility for 2025, in the amount not to exceed \$30,400. This amount will cover 8 days of wood and yard waste material processing at the facility.

ATTACHMENT: ORDINANCE_____ RESOLUTION_____ OTHER _____

RECOMMENDATION:

It is staff's recommendation to approve the Blanket PO to Enercon for the amount not to exceed \$30,400.00 for material processing at the Residential Yard Waste Facility and forward this request onto the Village Board with a positive recommendation. Funds to be allocated from Recycling Budget line item - 10565000-532700.

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.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Approval of an ordinance to create Municipal Code Section 1.331 regarding a Tree Advisory Board and Amend Section 1.215 related to Village Forester Duties.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The adoption of the Comprehensive Tree Plan in 2024 creates the need for a Tree Advisory Board to review the annual forestry plan and make a recommendation to the Public Works and Highway Committee and Village Board. The Tree Advisory Board is also responsible for hearing forestry related appeals from residents.

The Village Forester works closely with the Department of Public Works. This modification cleans up reporting lines and eliminates inconsistency in how the tree plan is referred to in the municipal code.

ATTACHMENT:

1. Ordinance to Amend Code re Tree Board and Forester

STAFF RECOMMENDATION:

Recommendation to the Village Board of the ordinance to create municipal code section 1.331 regarding the Tree Advisory Board and amend section 1.215 related to the Village Forester.

ACTION BY Committee:

ORDINANCE NO. ____-2025

AN ORDINANCE TO CREATE SECTION 1.331 OF THE GERMANTOWN MUNICIPAL
CODE CREATING THE TREE ADVISORY BOARD AND AMEND SECTION 1.215 OF
THE MUNICIPAL CODE RELATING TO THE VILLAGE FORESTER

WHEREAS, the Village Board previously adopted Section 17.60 of the Germantown Municipal Code which assigns certain duties to the Tree Board; and

WHEREAS, the Village Board also adopted Subchapter II of Chapter 1 of the Germantown Municipal Code relating to the various Boards and Commissions of the Village; and

WHEREAS, the Village Board also adopted Section 1.215 of the Germantown Municipal Code relating to the Village Forester; and

WHEREAS, the Village Board recently adopted a Comprehensive Tree Plan; and

WHEREAS, the Village Board wishes to incorporate provisions of the Comprehensive Tree Plan into the municipal code;

NOW, THEREFORE, the Village Board of the Village of Germantown, Wisconsin, do ordain as follows:

SECTION I

Section 1.331 of the Germantown Municipal Code is created to read as follows:

- (1) **CREATION.** There is hereby created a Tree Advisory Board of the Village of Germantown.
- (2) **MEMBERSHIP.** The Tree Advisory Board shall consist of 3 regular members. The membership shall consist of a Village Trustee, one citizen, and the Village Forester. The Village Trustee and citizen members shall be appointed by the Village President and confirmed by the Village Board.
- (3) **TERM.** The Village Trustee and citizen members shall be appointed for staggered two-year terms. The initial appointment of the Village Trustee shall be for one year, and the initial appointment of the citizen member shall be for two years. In the event that the term of the Village Trustee member extends beyond that person's term of office on the Village Board, a vacancy shall be deemed to exist which shall be filled for the residue of the term in the manner provided for in sub. (2). The Village Forester shall hold office conterminous with their appointment as the Forester.

(4) **CHAIR.** The Village Trustee member shall be the chairperson of the Tree Advisory Board.

(5) **MEETINGS.** Meetings of the Tree Advisory Board shall occur at the call of the chairman or a majority of the members of the Board.

(6) **DUTIES AND AUTHORITY.**

(a) The Board shall render such advice and recommendations as it deems appropriate with respect to the Comprehensive Tree Plan.

(b) The Board shall annually render advice and recommendation to the Public Works and Highways Committee with respect to the Village's annual operation plan, communication plan, and 5-year plan. The Board shall also render such advice, recommendation, or report as may be requested by the Plan Commission, Public Works and Highways Committee, and/or Village Board.

(c) The Board shall hear and decide appeals under sec. 17.60(9).

SECTION II

Section 1.215 of the Germantown Municipal Code is amended to read as follows (NOTE: Deleted text is ~~struck through~~; Added text is double underlined):

1.215 - VILLAGE FORESTER.

There is hereby established a Village Forester for the Village of Germantown. The position shall be appointed by the Village President and confirmed by the Village Board. The Village Forester shall be a person skilled and trained in the arts and sciences of municipal arboriculture.

(1) **DUTIES.** The Village Forester shall have the authority to promulgate the rules and regulations of the Arboricultural Specifications and Standards of Practice governing the planting, maintenance, removal, fertilization, pruning and bracing of trees on the streets or other public sites in the municipality, and shall direct, regulate, and control the planting, maintenance, and removal of all trees growing now or hereafter in any public area of the Village of Germantown.

The Village Forester shall cause the provision of this Ordinance to be enforced. In their absence, these duties shall be the responsibility of a qualified alternate designated by the municipality.

The Village Forester shall have the authority and jurisdiction of regulating the planting, maintenance, and removal of trees on streets and other publicly owned property to insure safety or preserve the aesthetics of such public sites.

(2) **SUPERVISION.** The Village Forester reports to the Director of Public Works ~~Village Administrator~~ and shall have the authority to supervise or inspect all work done under a permit issued in accordance with the terms of this section.

(3) **CONDITION OF PERMIT.** The Village Forester shall have the authority to affix reasonable conditions to the granting of a permit in accordance with the terms of this section.

(4) **~~MASTER STREET COMPREHENSIVE TREE PLAN.~~** The Village Forester shall have the authority to formulate and amend from time-to-time the Village's Comprehensive a Master Street Tree Plan with the advice and recommendation of the Tree Board, ~~a hearing,~~ and approval of the Village Board.

SECTION III

The terms and provisions of this ordinance are severable. Should any term or provision of this ordinance be found to be invalid by a court of competent jurisdiction, the remaining terms and provisions shall remain in full force and effect.

SECTION IV

All ordinances or parts of ordinances contravening the terms of this ordinance are hereby to that extent repealed.

SECTION V

This ordinance shall take effect and be in full force upon its passage and the day after publication.

Adopted:

Vote: Ayes:

Nays:

Absent:

Dean Wolter, Village President

ATTEST:

Donna Ott, Village Clerk

Approved as to form:

Brian C. Sajdak, Village Attorney

Published:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Approval of a revised sanitary sewer service area.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

In 2024 the Utility Advisory Committee, Public Works and Highway Committee, and the Village Board approved a proposed modification to the Sanitary Sewer Service Area (SSSA) that required staff undergo a preliminary evaluation of the proposed area with the DNR. See attachment A for a depiction of the proposed area. The DNR conducted the preliminary review in the late fall and determined that the proposed SSSA amendment, specifically as it relates to lines drawn around the Isabelle Farms subdivision, would not be approved without modification. The DNR considers SSSA's drawn as we proposed to constitute the creation of a "hole". A "hole" is a feature they feel is poor planning and they have administrative rules that do not allow their creation in new SSSAs.

This topic was discussed at the 11/18/24 Utility Advisory Committee meeting along with cost implications of revisions to the SSSA, planning considerations, etc. The Utility Advisory Committee referred the item back to staff for further consideration.

Since then, staff has had additional meetings with SEWRPC to consider alternatives. Attachment B to the agenda depicts 3 options for the committee to consider. The options focus on correcting the "hole" in and around the Isabelle Farms subdivision.

Option 1 simply fills in the "hole" and incorporates it into the new SSSA. After consultation with SEWRPC, they indicate this option would likely receive their support as well as DNR support.

Option 2 keeps the Isabelle Farms subdivision out of the SSSA in addition to some wetland and parcels generally south of WIS 145 / Fond du Lac. It includes parcels on either side of the former DPW site. After consultation with SEWRPC, they indicate this option would likely receive their support as well as DNR support.

Option 3 more narrowly removes Isabelle Farms and some wetland that is not likely to develop. After consultation with SEWRPC they were concerned this option created a "peninsula", which, like a "hole", is contrary to DNR planning rules. The greater number of parcels that could open up the peninsula would lead to a greater likelihood it would receive approval. That opinion resulted in staff modifying this option and became what is proposed in Option 2.

As previously discussed, parcels being added to SSSA does not mean there are plans

or budgets for bringing sewer service to newly incorporated areas, only that it would be allowable to do so. The Village has also never compelled connection when new sewer is constructed. Municipal Code section 13.29(2) indicates that connection may be deferred until failure of a parcels private system. Upon failure of a private system after sewer becomes available, connection would be required for newly served parcels.

After approval by the PWHC and Village Board SEWRPC will work on the full amendment. The new area will need their approval as well as MMSD and DNR. Once fully approved the area will be considered amended. We anticipate this process to take approximately 6-9 months.

ATTACHMENT:

1. B- SSSA Options for UAC - 012725
2. A - Map_1_GermantownSSA

STAFF RECOMMENDATION:

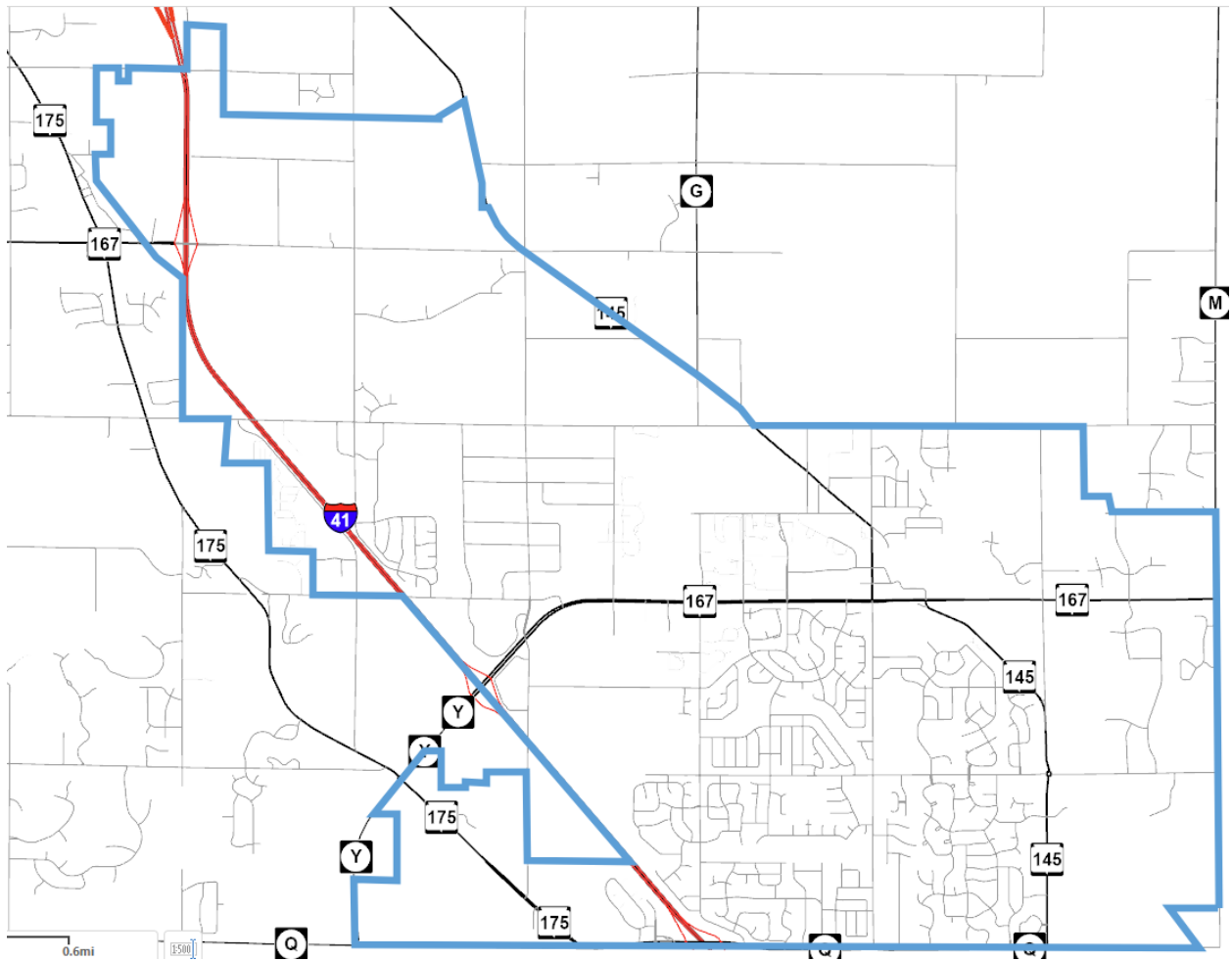
Make a recommendation to the Village Board regarding the proposed revision to the sanitary sewer service area.

ACTION BY Committee:

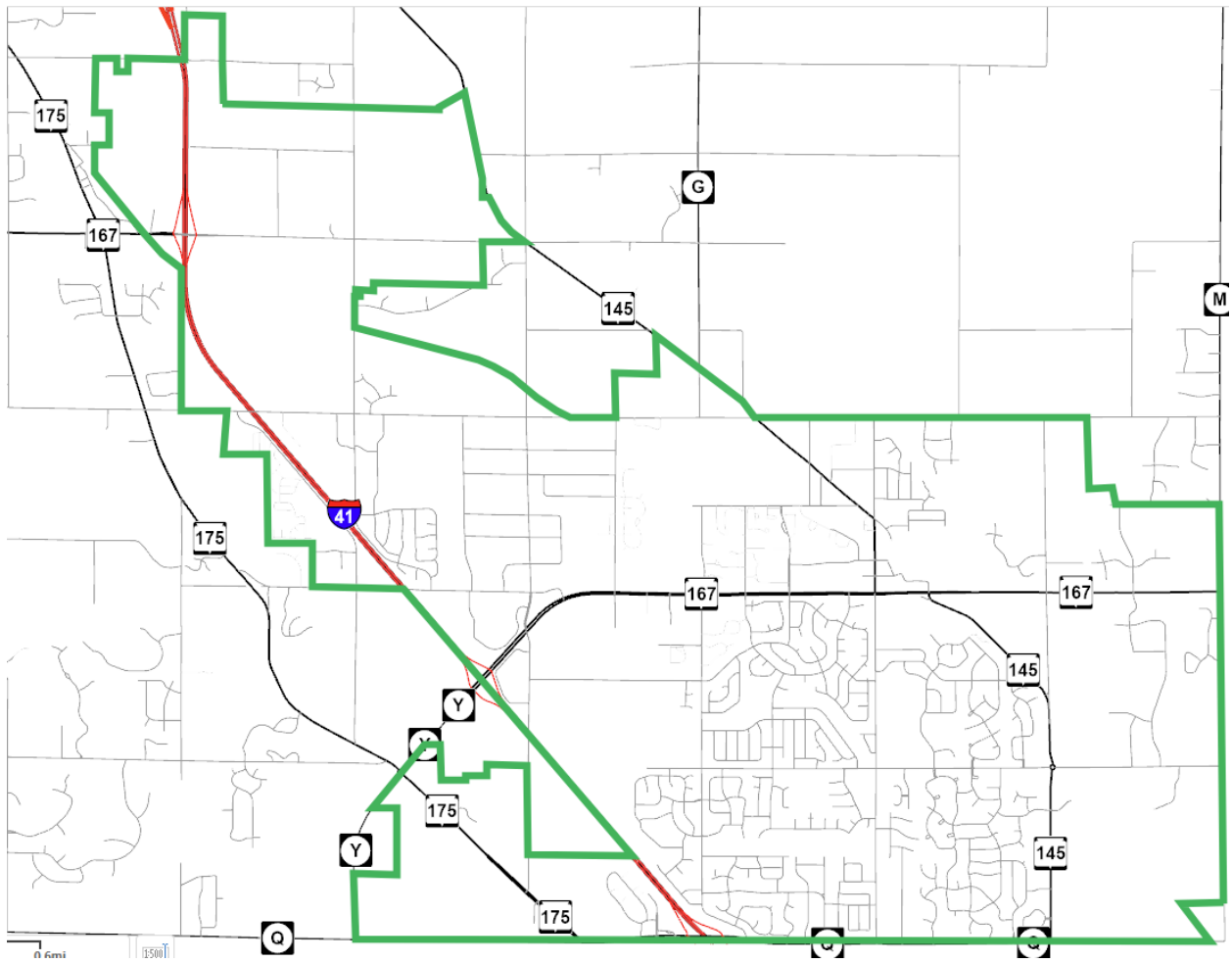
The Utility Advisory Committee (UAC) unanimously approved option 2 as presented.

Proposed Sanitary Sewer Service Area Amendments

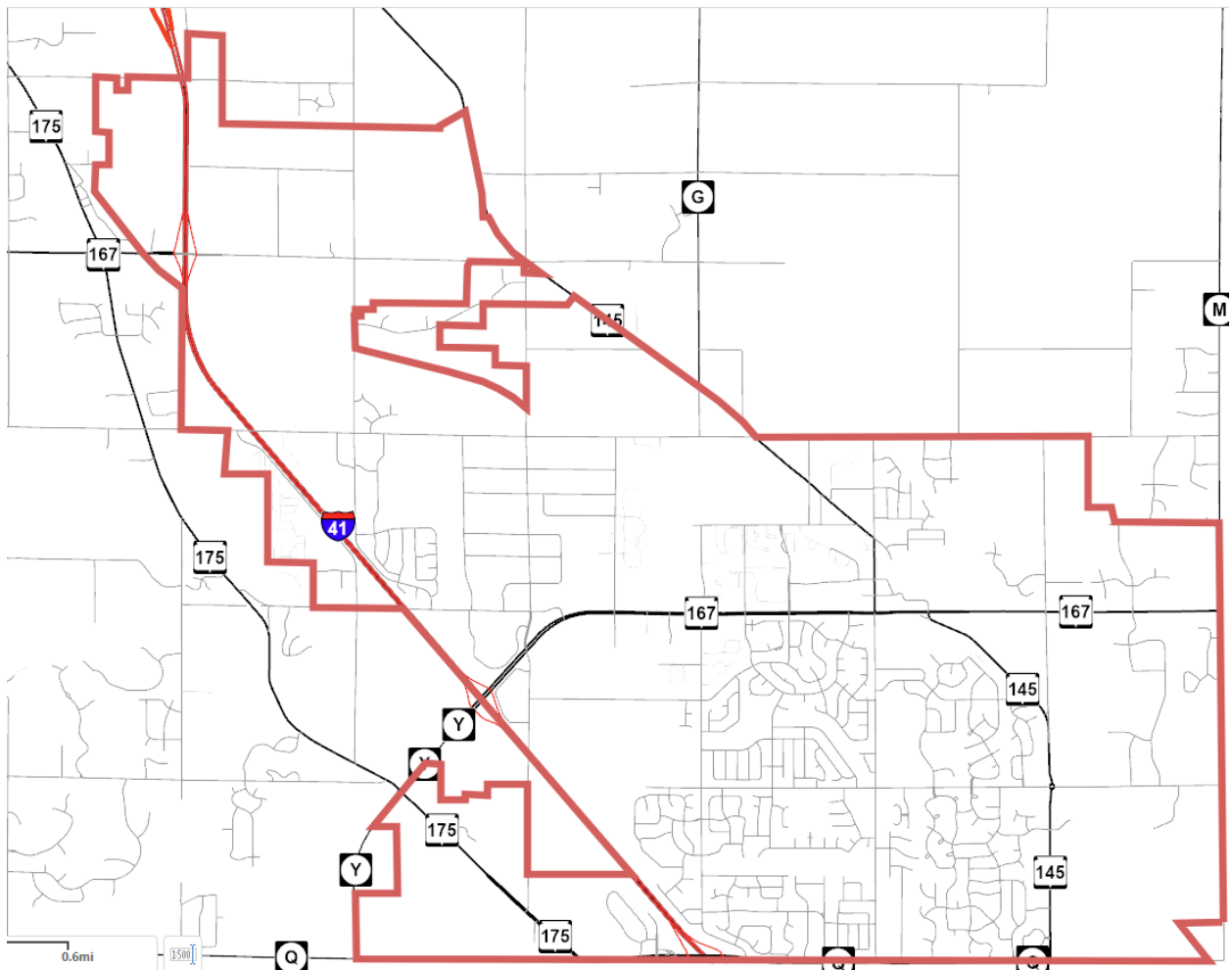
Option 1 -



Option 2



Option 3 –



Option 1 – Blue Line

This is the most comprehensive approach. It includes Isabelle Farms which does include a capital cost to rate payers. SEWRPC indicated this option would likely be supported by SEWRPC and DNR.

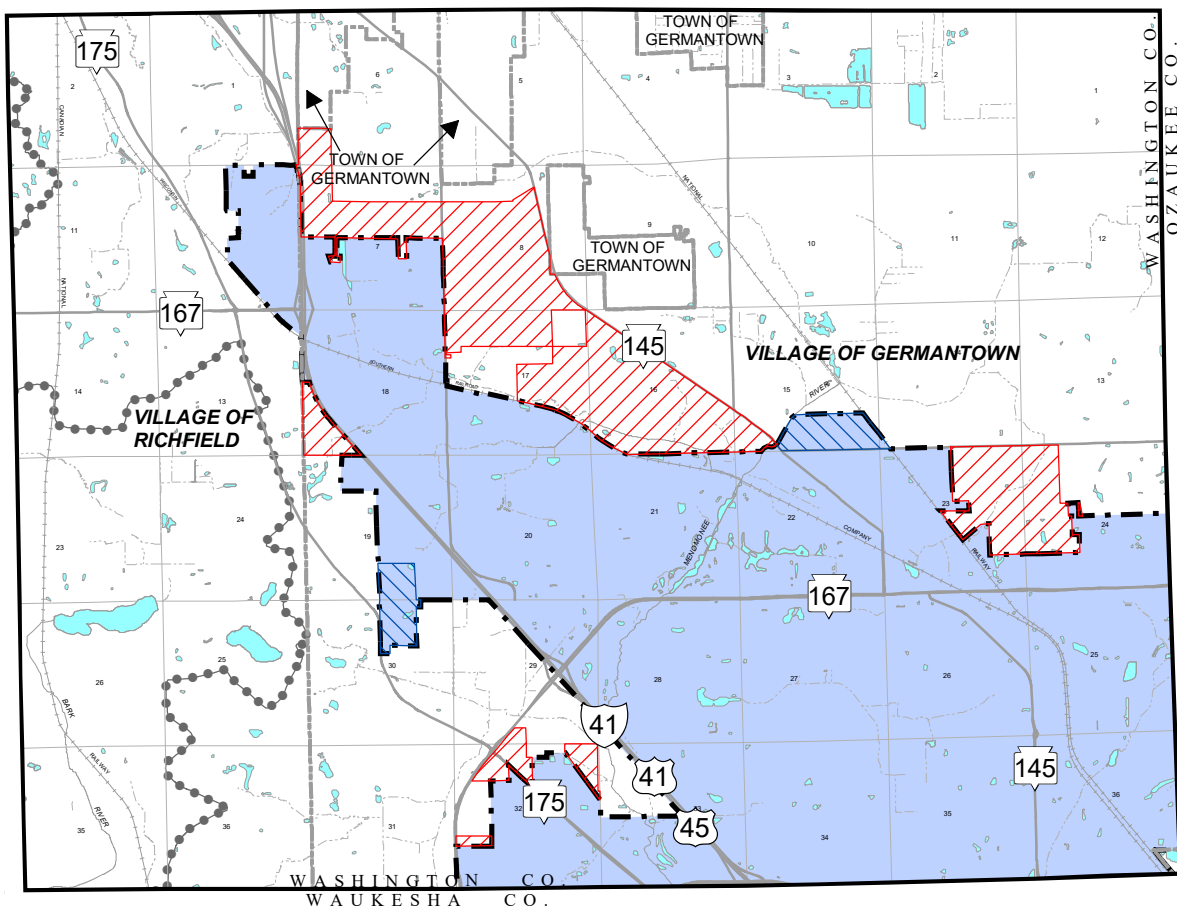
Option 2 – Green Line

This option would exclude Isabelle Farms and enough additional parcels to avoid creating a “peninsula”. It includes land on either side of Division Road should the former DPW site be developed, and sewer extended. SEWRPC indicated this option would likely be supported by SEWRPC and DNR.

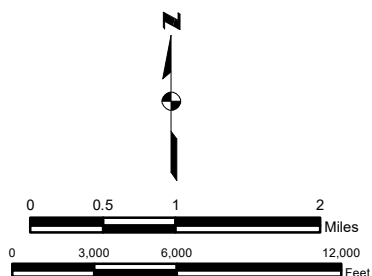
Option 3 – Red Line

This would carve out Isabelle Farms and some wetland. SEWRPC indicated that this plan creates a “peninsula” that would likely not be approved by themselves or the DNR.

Map 2.1 Proposed Changes to the Village of Germantown Sanitary Sewer Service Area



- VILLAGE OF GERMANTOWN PLANNED SANITARY SEWER SERVICE AREA
- PLANNED SANITARY SEWER SERVICE AREA BOUNDARY
- AREA TO BE ADDED TO THE VILLAGE OF GERMANTOWN SEWER SERVICE AREA
- AREA TO BE REMOVED FROM THE VILLAGE OF GERMANTOWN SEWER SERVICE AREA
- EXISTING MUNICIPAL BOUNDARIES: 2023
- SUBCONTINENTAL DIVIDE



Source: Southeastern Wisconsin
Regional Planning Commission

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Discussion regarding the updated FEMA flood insurance rate maps.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The Village received updated floodplain maps as part of a process with FEMA, the DNR, and Washington County. Changes from the previous maps include water surface elevations increasing by 5-feet, extended flood plains, and flood areas extending 4000 feet from a waterway with vertical elevation changes of greater than 30 feet. The result of these updates for developed properties could mean higher insurance costs. For land yet to be developed the extended flood zones would introduce new restrictions on development, as outlined in municipal code Chapter 23.

Preliminary analysis shows the hydrologic calculations increased the flows by up to 10 times. Staff is seeking recommendation from the Public Works and Highway Committee and Village Board on whether to pursue additional analysis by a Certified Floodplain Manager through a request for proposal process. Village staff has drafted an RFP for consideration (attached), however funding source needs to be verified prior to award. Alternatively, the Village could allow residents to follow an appeal process on their own.

ATTACHMENT:

1. 2025-01-17_RFP for Floodplain Analysis (DRAFT)_cover
2. Exhibit A - 2025-01-17_RFP for Floodplain Analysis

STAFF RECOMMENDATION:

ACTION BY Committee:



Department of Public Works

Matt Mortwedt, Director
Kevin Driscoll, Village Engineer
N112 W17001 Mequon Rd, PO Box 337
engineering@germantownwi.gov
262-250-4721

January 17, 2025

The Village of Germantown is seeking proposals from Certified Floodplain Managers (CFM) for an independent review of the hydrologic and hydraulic analysis including mapping, data input, calculations and modeling that was completed as part of the updated floodplain maps for the Village of Germantown. Proposals should include:

- Statement of Qualifications
- Proposed Schedule
- Cost of services based upon the scope listed below

The Village of Germantown will provide the following data and information:

- Current and Proposed FIRM Maps
- Technical Data - Flood Insurance Study (FIS) report, hydrologic and hydraulic data, and any other digital technical documentation used to create the new map.
<https://www.germantownwi.gov/731/Floodplain-Mapping-Update---FIRM-Panels>
- GIS data related to this project that was created or acquired by the Village.

Background

The Village of Germantown is planning to approve an Ordinance that adopts the 2024 Flood Insurance Rate Maps (FIRM), with an effective date of December 31, 2024. During the adoption process, staff identified several issues related to the modeling that was performed to create the maps and the impact of the new maps on the residents of Mequon. In particular, the primary areas of concern are outlined:

1. The regulatory flow rate used for the Menomonee River and FIS profile compared to the historical profile and flow based on data gage at Pilgrim Road in Menomonee Falls.
2. Panel 376 – Tributary 2 – Crown Court Area. The increase to the Base Flood Elevation along the Trib No 2. at Western Avenue. It appears the flow calculation went from 60 cfs to 600 cfs.
3. Panel 378 – Tributary 1 - The expansion of the Floodplain of an unnamed creek to Concord Drive in the Glenwood Park subdivision near County Line Road, over 1 mile south of Jefferson Ditch and 40ft in elevation above the confluence with Tributary 1B, near Hamilton Court/Pilgrim Road.
4. Panels 378 & 376 – Tributary 1A (open ditch south of Lilac along w/s of Division Rd to Jefferson Ditch) at Division Road, Hawthorne Drive and Carriage Drive modeling and delineation

Scope of Services

Proposals shall include an itemized cost per scope item as listed below. Please be sure to detail any additional efforts that may be required so that staff may evaluate those efforts as compared to other proposals.

1. Mapping Process

- Review the FIS reports that provide detailed information on the methodology and data used for the areas and key points discussed above.
- Review the hydrologic and hydraulic models, topographic data, and any assumptions made in the modeling process.

2. Compare with Local Knowledge and Data

- Historical Flood Data: Compare the new maps with historical flood events and records. Ensure the map aligns with known flood patterns. Review Pioneer Gauge Data
- Topographic Changes: Check if recent changes in topography (e.g., new developments, land alterations) are reflected in the new maps. Verify proper conversion has been used for datum.
- Aerial Photographs and Satellite Images: Use these tools to compare physical features and water flow paths with what's shown on the maps.

3. Field Verification

- Site Visits: Conduct field visits to key areas, especially those where discrepancies are suspected.

4. Technical Analysis

- Cross-Section Verification: Check the cross-sections used in the hydraulic models against the latest lidar data from the Village.
- Flow Data: Verify the stream flow data and flood frequency analysis used in the hydrologic models. Make sure the hydrology aligns with the FIRM data.
- Elevation Data: Compare the map's Base Flood Elevations (BFEs) with the latest lidar or survey data provided by FEMA.
- Boundary Accuracy: Check if the floodplain boundaries accurately follow natural and man-made features (rivers, creeks, levees, roads).

5. Identify and Document Discrepancies

- List Issues: Search for errors or anomalies in the floodplain map, such as misplaced boundaries, incorrect elevations, outdated information, and recent land use changes that may affect the floodplain boundaries.
- Provide Evidence: Collect supporting evidence, such as photographs, GIS survey data, and historical records, to support findings.

6. Draft a Report

- Prepare a report that documents findings, including discrepancies and supporting data. If anomalies are discovered, provide a recommendation on the next steps to correct such

issues. Discuss report and findings with Village of Germantown staff and make a presentation of the findings to the Village Board.

Proposed Schedule

Issue Request for Proposal	February 13, 2025
Proposals due to the Village of Germantown	February 27, 2025
Contract Recommendation by PWHC	March 5, 2025
Contract Award by VB	March 17, 2025
Report due to Village Staff	July 1, 2025
Presentation to the PWHC	August 6, 2025
If Authorized, Presentation to the Village Board	August 18, 2025

Proposal Format

Consultants' proposals should include a brief resume of the firms' qualifications and recently completed similar projects. Consultants must submit their proposals to the Zoning Administrator of the Village of Germantown, Community Development Department by 4:00 P.M. on February 27, 2024. Please provide 3 proposal copies. Electronic copies are also acceptable and may be submitted to jretzlauf@germantownwi.gov, with the same deadline. Electronic copies require acknowledgment of receipt by the Village to be considered. Consultant selection will be based on quality of proposal, qualifications of the design team, and fee to complete the work.

Task	Task Description	Hours	Costs
1	Mapping Process		
2	Compare with Local Knowledge and Data		
3	Field Verification		
4	Technical Analysis		
5	Identify Document Discrepancies		
6	Draft Report		
	Total		

The Village reserves the right to reject any and all proposals. The Village reserves the right to negotiate the terms of the contract, including the award amount, with the selected proposer prior to entering into a contract. If contract negotiations cannot be concluded successfully with the preferred proposer, the Village may negotiate a contract with the next preferred proposer.



Department of Public Works

Matt Mortwedt, Director
Kevin Driscoll, Village Engineer
N112 W17001 Mequon Rd, PO Box 337
engineering@germantownwi.gov
262-250-4721

January 17, 2025

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- Proposed Schedule
- Cost of services based upon the scope listed below

The Village of Germantown will provide the following data and information:

- Current and Proposed FIRM Maps
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4. Panels 378 & 376 – Tributary 1A (open ditch south of Lilac along w/s of Division Rd to Jefferson Ditch) at Division Road, Hawthorne Drive and Carriage Drive modeling and delineation

Scope of Services

Proposals shall include an itemized cost per scope item as listed below. Please be sure to detail any additional efforts that may be required so that staff may evaluate those efforts as compared to other proposals.

1. Mapping Process

- Review the FIS reports that provide detailed information on the methodology and data used for the areas and key points discussed above.
- Review the hydrologic and hydraulic models, topographic data, and any assumptions made in the modeling process.

2. Compare with Local Knowledge and Data

- Historical Flood Data: Compare the new maps with historical flood events and records. Ensure the map aligns with known flood patterns. Review Pioneer Gauge Data
- Topographic Changes: Check if recent changes in topography (e.g., new developments, land alterations) are reflected in the new maps. Verify proper conversion has been used for datum.
- Aerial Photographs and Satellite Images: Use these tools to compare physical features and water flow paths with what's shown on the maps.

3. Field Verification

- Site Visits: Conduct field visits to key areas, especially those where discrepancies are suspected.

4. Technical Analysis

- Cross-Section Verification: Check the cross-sections used in the hydraulic models against the latest lidar data from the Village.
- Flow Data: Verify the stream flow data and flood frequency analysis used in the hydrologic models. Make sure the hydrology aligns with the FIRM data.
- Elevation Data: Compare the map's Base Flood Elevations (BFEs) with the latest lidar or survey data provided by FEMA.
- Boundary Accuracy: Check if the floodplain boundaries accurately follow natural and man-made features (rivers, creeks, levees, roads).

5. Identify and Document Discrepancies

- List Issues: Search for errors or anomalies in the floodplain map, such as misplaced boundaries, incorrect elevations, outdated information, and recent land use changes that may affect the floodplain boundaries.
- Provide Evidence: Collect supporting evidence, such as photographs, GIS survey data, and historical records, to support findings.

6. Draft a Report

- Prepare a report that documents findings, including discrepancies and supporting data. If anomalies are discovered, provide a recommendation on the next steps to correct such

issues. Discuss report and findings with Village of Germantown staff and make a presentation of the findings to the Village Board.

Proposed Schedule

Issue Request for Proposal	February 13, 2025
Proposals due to the Village of Germantown	February 27, 2025
Contract Recommendation by PWHC	March 5, 2025
Contract Award by VB	March 17, 2025
Report due to Village Staff	July 1, 2025
Presentation to the PWHC	August 6, 2025
If Authorized, Presentation to the Village Board	August 18, 2025

Proposal Format

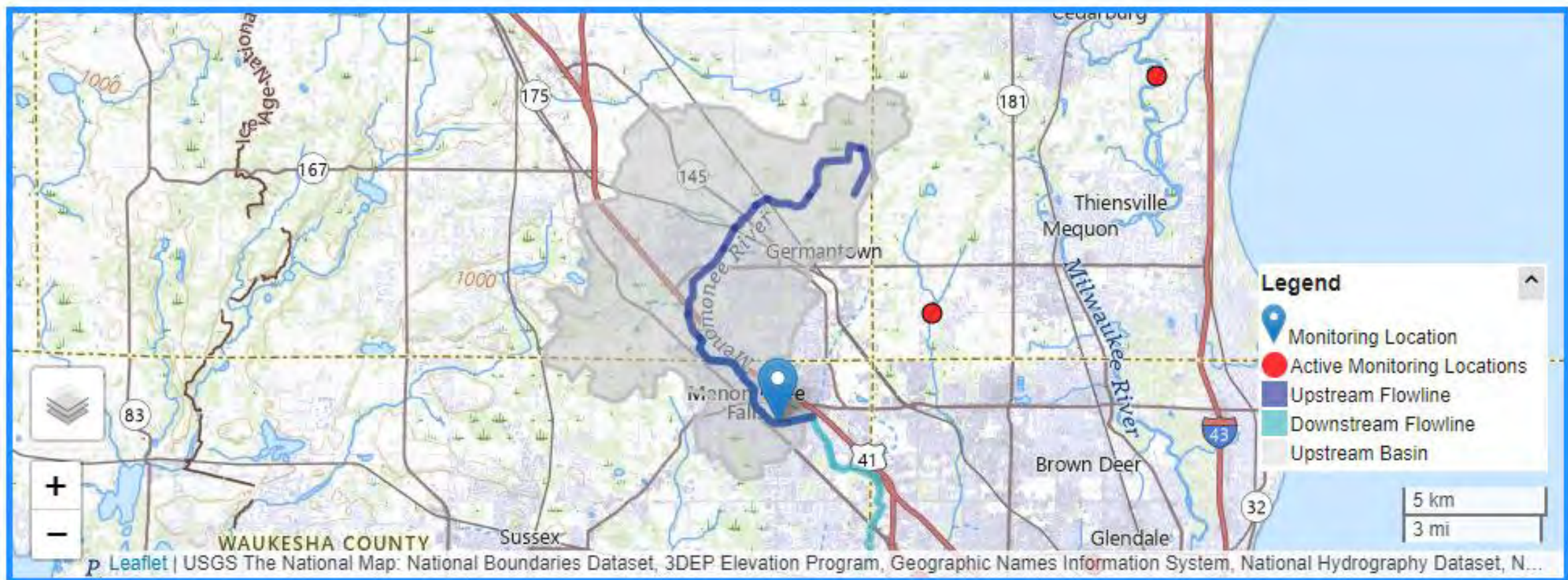
Consultants' proposals should include a brief resume of the firms' qualifications and recently completed similar projects. Consultants must submit their proposals to the Zoning Administrator of the Village of Germantown, Community Development Department by 4:00 P.M. on February 27, 2024. Please provide 3 proposal copies. Electronic copies are also acceptable and may be submitted to jretzlauf@germantownwi.gov, with the same deadline. Electronic copies require acknowledgment of receipt by the Village to be considered. Consultant selection will be based on quality of proposal, qualifications of the design team, and fee to complete the work.

Task	Task Description	Hours	Costs
1	Mapping Process		
2	Compare with Local Knowledge and Data		
3	Field Verification		
4	Technical Analysis		
5	Identify Document Discrepancies		
6	Draft Report		
	Total		

The Village reserves the right to reject any and all proposals. The Village reserves the right to negotiate the terms of the contract, including the award amount, with the selected proposer prior to entering into a contract. If contract negotiations cannot be concluded successfully with the preferred proposer, the Village may negotiate a contract with the next preferred proposer.

Exhibits

1. Menomonee River at Pilgrim Road in Menomonee Falls
2. Panel 376 – Tributary 2 – Crown Court Area from Mequon Rd to Western Avenue
3. Panel 378 – Tributary 1 - Concord Drive in the Glenwood Park
4. Panels 378 & 376 – Tributary 1A - Division Rd – Lilac / Jefferson Ditch



IMPORTANT [Legacy real-time page](#) 

☒ 7 days ☐ 30 days ☐ 1 year

Scale Linear

Log

Menomonee River at Menomonee Falls, WI - 04087030

January 2, 2025 - January 9, 2025

Gage height, feet

3.06 ft - Jan 09, 2025 01:30:00 PM CST



IMPORTANT Data may be [provisional](#)

Show legend ▾

Hide graph details ^

	Value	Status
Latest Jan 09, 2025 13:30:00 PM CST	3.06	Provisional
Selected Jan 09, 2025 01:30:00 PM CST	3.06	Provisional
Compare		

Add last year's data to graph



● Median



No median data for this data type

[Hide graph details ^](#)

[Hide today's statistics ^](#)

Statistics are not available at this monitoring location for the data type: Gage height, ft

[Hide today's statistics ^](#)

[Change time span](#)

[Subscribe to WaterAlert](#)

[View related graphs](#)

[Download data](#)

[View data records](#)

Continuous collection data types

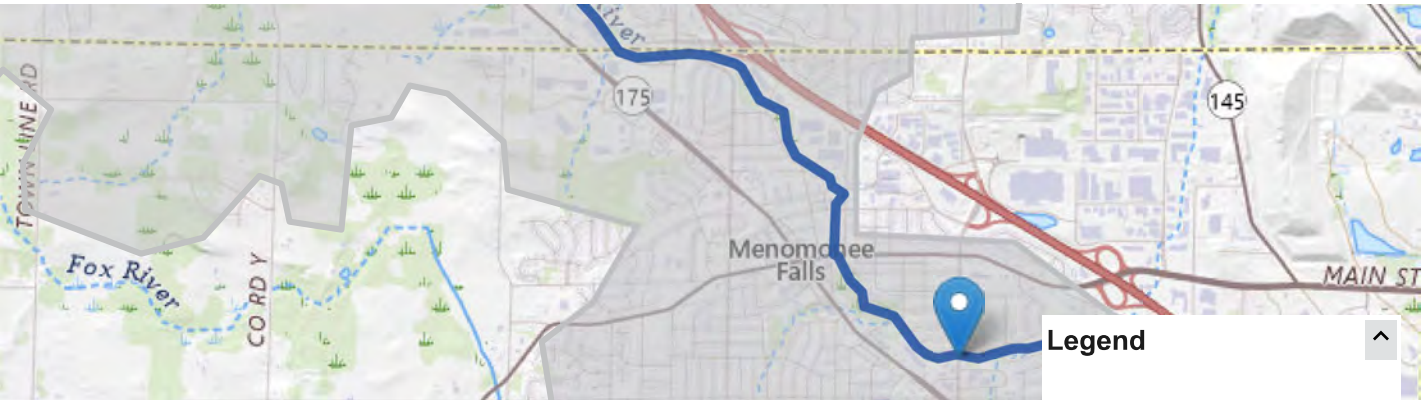
3 data types available - data from 1986-10-01 to 2025-01-09

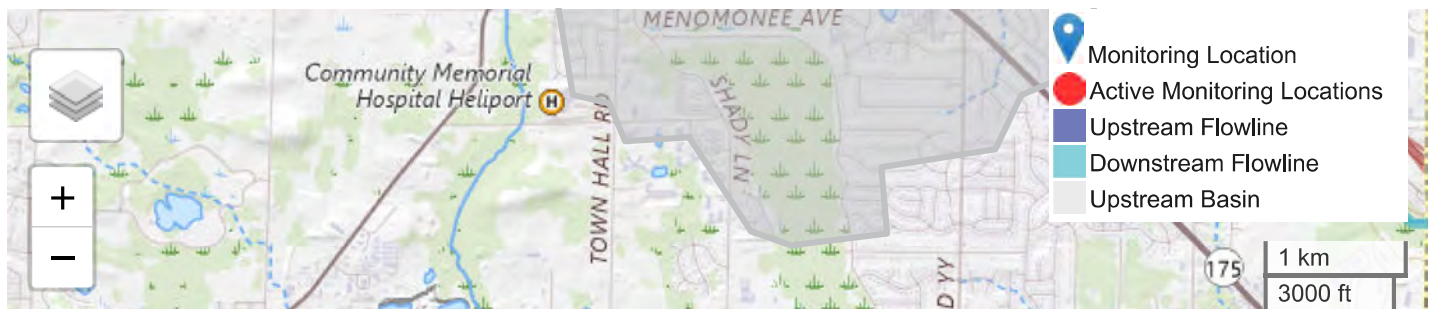
[Hide continuous data types ^](#)

Data for these data types are collected by automated processes on a regular basis, often every 15 minutes.

Data type	Data date range
☒ Gage height, feet	2017-10-01 2025-01-09
☐ Select data to graph on second y-axis	
☐ Discharge, cubic feet per second	1986-10-01 2025-01-09
☐ Stream water level elevation above NAVD 1988, in feet	2022-01-10 2025-01-09

[Hide continuous data types ^](#)





Interested in understanding how to access the upstream/downstream data? [Learn about the Network-Linked Data Index \(NLDI\).](#)

Summary of sample data

Summary of all available data

Questions or Comments

Location metadata

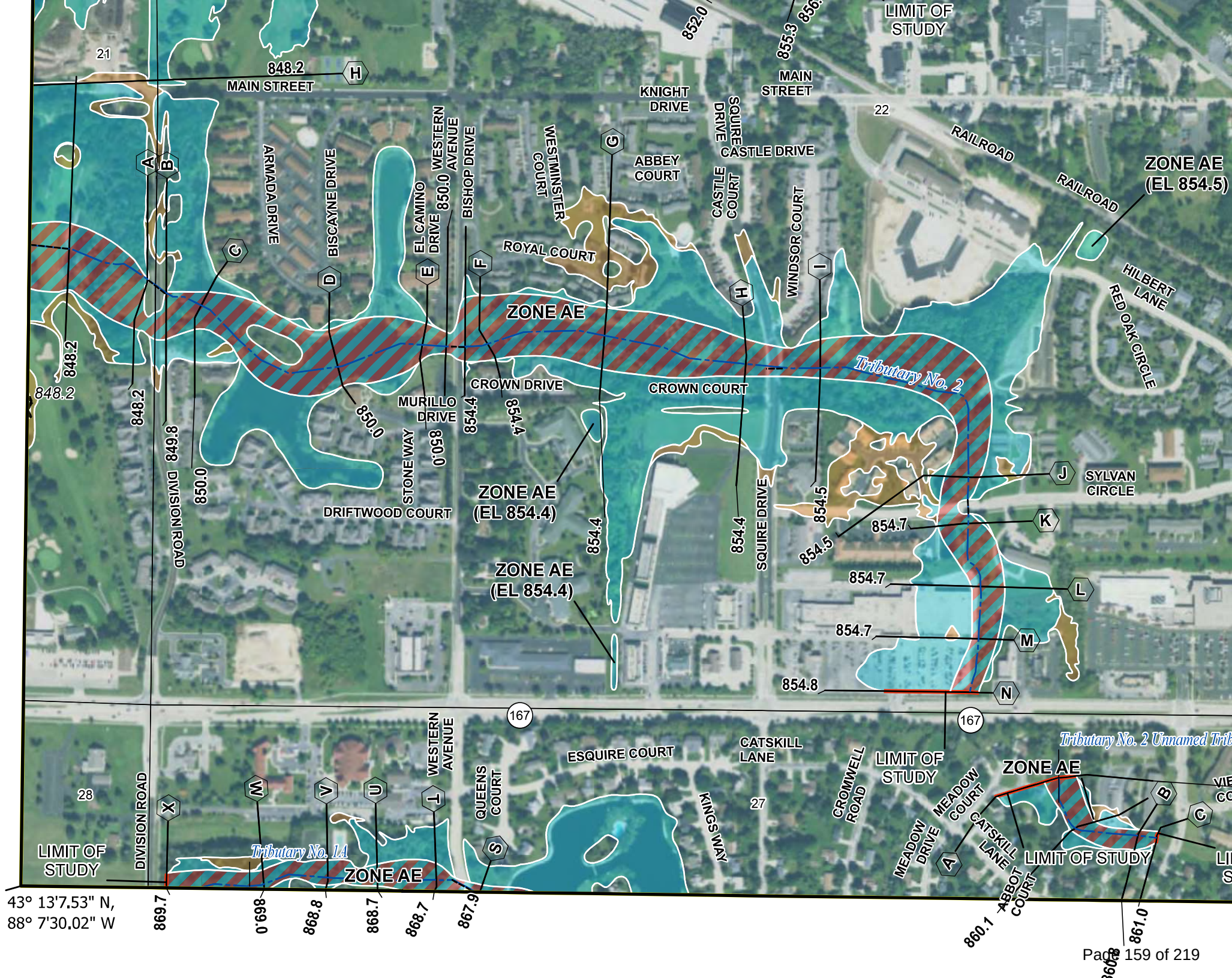
[DOI Privacy Policy](#) | [Legal](#) | [Accessibility](#) | [Site Map](#) | [Contact USGS](#)

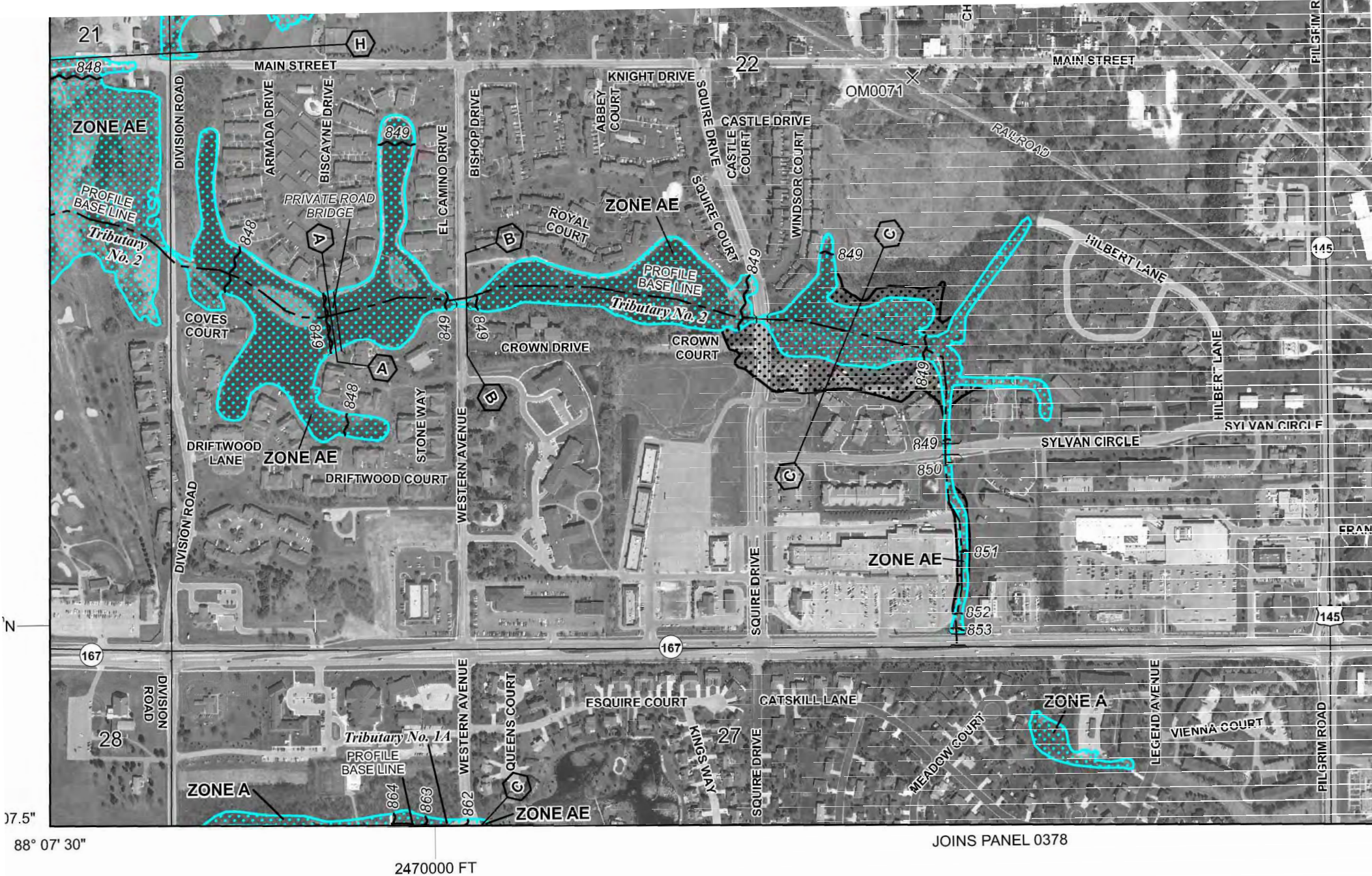
[Follow](#)

[U.S. Department of the Interior](#) | [DOI Inspector General](#) | [White House](#) | [E-gov](#) | [No Fear Act](#) | [FOIA](#)

Exhibits

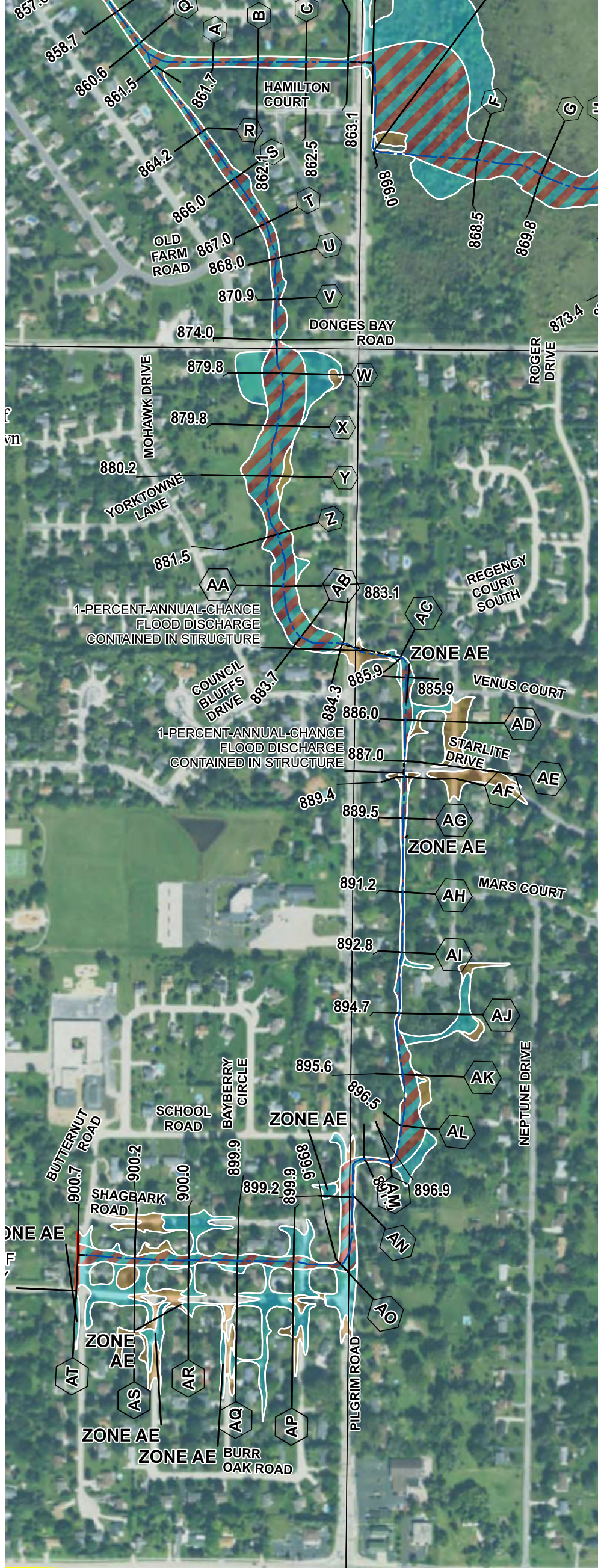
1. Menomonee River at Pilgrim Road in Menomonee Falls
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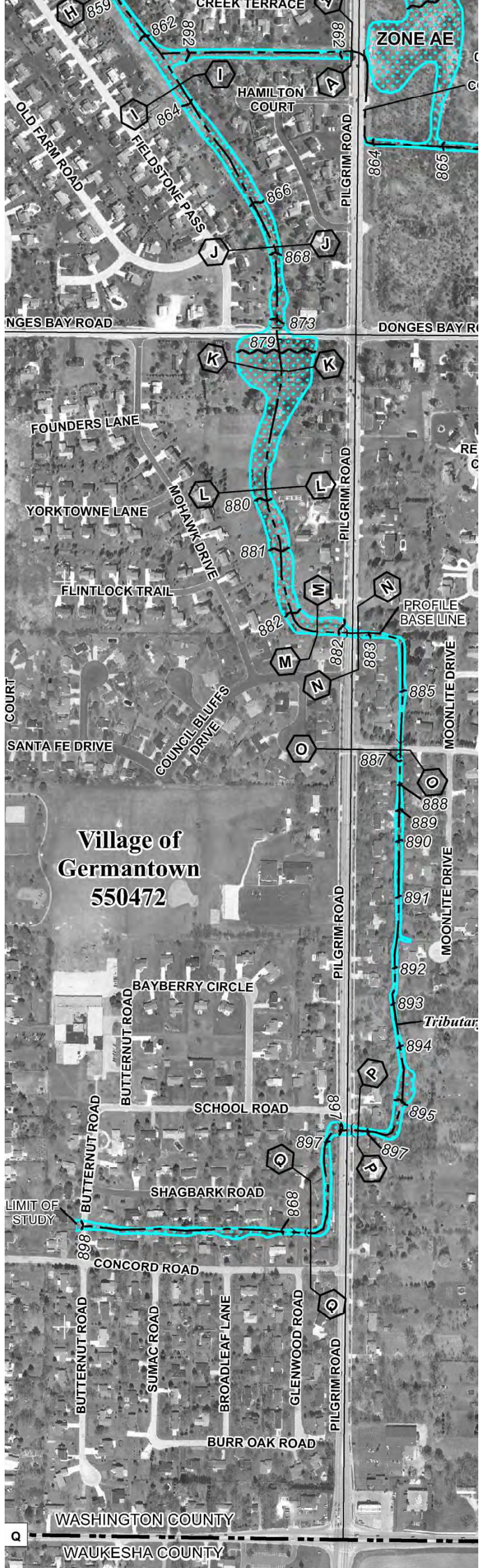




Exhibits

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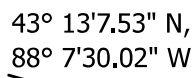




Exhibits

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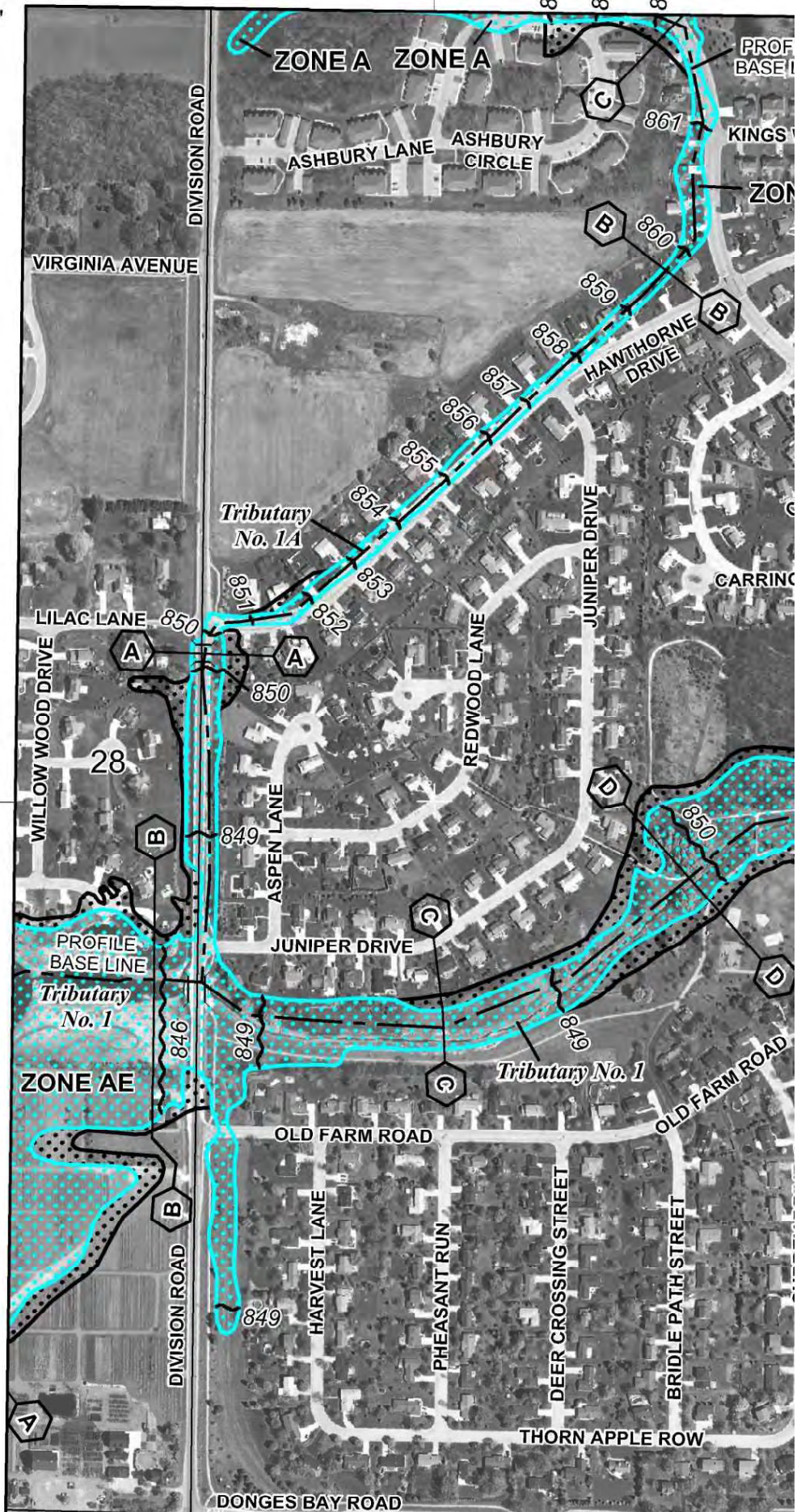
■

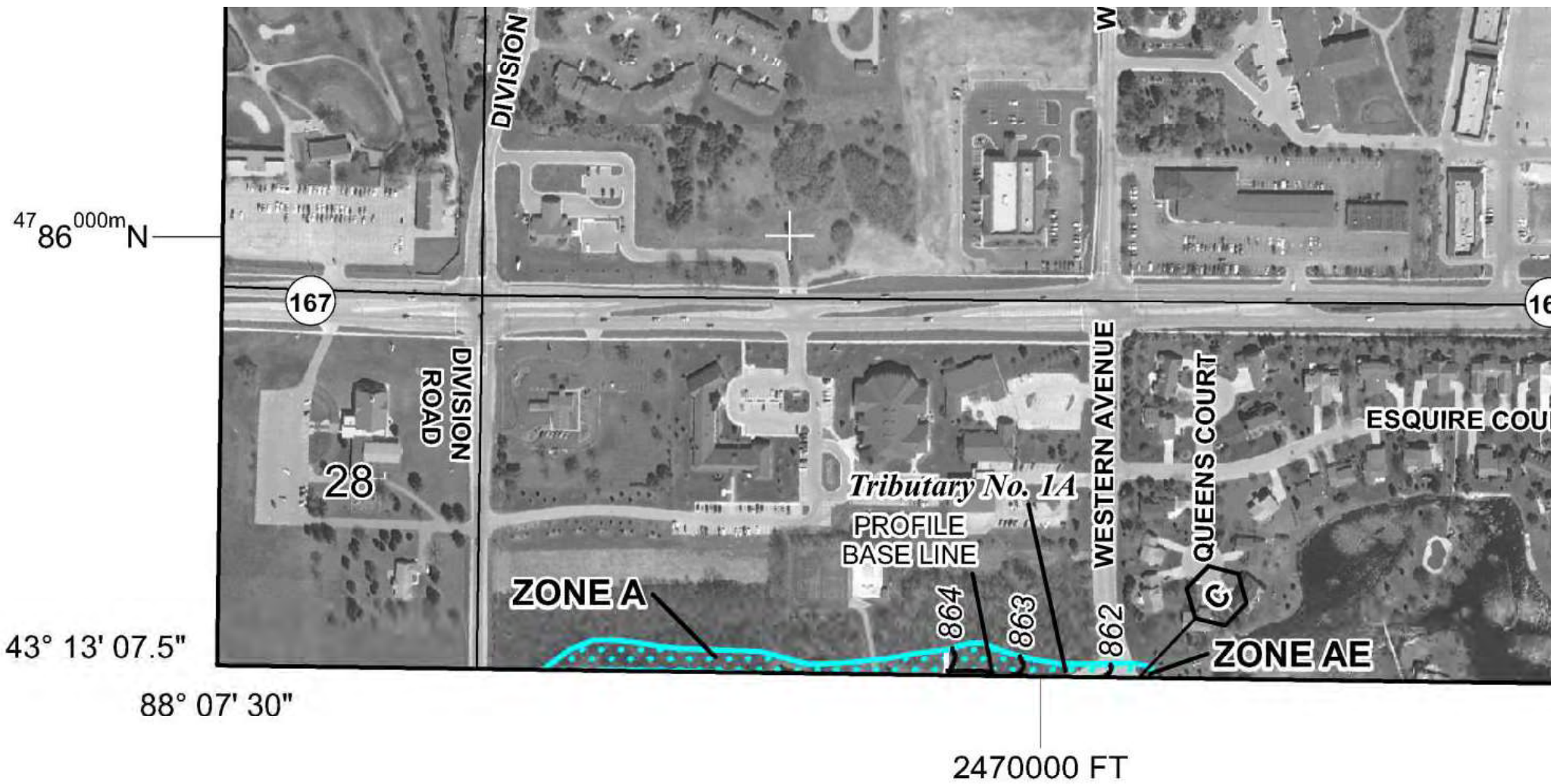


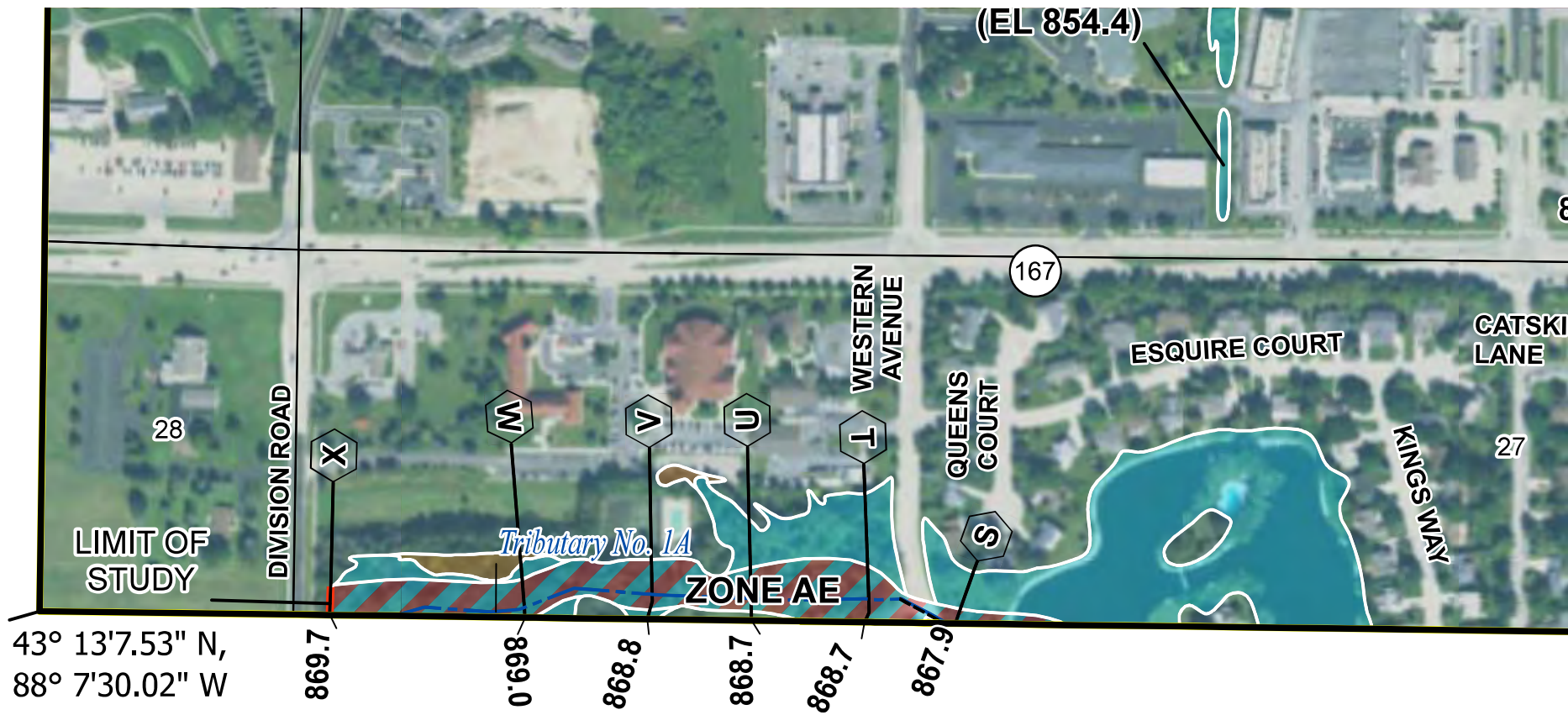
88° 07' 30"
43° 13' 07.5"

409^{000m}E

47^{85^{000m}}N







BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Award of a professional services agreement from a Certified Floodplain Manager to perform analysis and design as part of the Division Road and 2025 Road Program projects.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

In order to proceed with technical preliminary modeling and design, and to ensure compliance with flood plain and WISDOT/WIDNR regulations, Public Works issued the attached RFP for work associated with the Division Road project, ARIP project and 2025 Road Program work. In particular we are looking for analysis and preliminary design for culvert and storm sewer work in identified locations.

Below are staff recommendations for award:

Project A – Wagon Trail Culvert Extension at Jefferson Ditch (Alt Bauer Park)

Firm	Hours	Amount
raSmith	108	\$20,077
M2	158	\$21,680
Kapur	157	\$25,070

This is a straight-forward project and based on delivering the project for the lowest cost. This project is scheduled for the 2024 Road Program.

Project B – Division Road Storm Sewer at crossing near Hawthorne/Lilac to Jefferson Ditch

Firm	Hours	Amount
raSmith	129	\$23,860
M2	212	\$29,100
Kapur	240	\$34,870

This is a more complicated project where the difference in hours reflect the consultant's familiarity with the project complexity and addressing the details that factor into staff's recommendation. This project is scheduled for phase I of the Division Road phasing work.

Project C* – Pleasant View Drive at Menomonee River – Culvert Replacement

Firm	Hours	Amount
M2	138	\$19,200

raSmith	108	\$20,077
Kapur	162	\$26,495

This is a typical culvert replacement project and based on delivering the project for the lowest cost.

**Notice to proceed only issued once SMA with WisDOT finalized*

Project D – Division Road Culvert Extension near Revere Lane

Firm	Hours	Amount
raSmith	116	\$21,541
M2	190	\$25,740
Kapur	173	\$29,810

This culvert extension project is more straight forward and based on delivering the project for the lowest cost. This project is scheduled for phase II of the Division Road phasing work.

In summary:

- Contract with M2 for the Culvert Design at the Menomonee River and Pleasant View Drive in the amount of \$19,200.
- Contact with raSmith for the Culvert Design at Wagon Trail at the Jefferson Ditch (Alt Bauer Park) in the amount of \$20,077.
- Contract with Kapur for storm sewer and drainage design at Tributary to Jefferson Ditch at Hawthorne and Lilac Lane in the amount of \$34,870.
- Contact with raSmith for culvert design near Revere Lane at Division Road in the amount of \$21,541.

ATTACHMENT:

1. 2025-01-29_RFP for Stream Crossing Work_rev (with exhibits)

STAFF RECOMMENDATION:

ACTION BY Committee:



Department of Public Works

Matt Mortwedt, Director
Kevin Driscoll, Village Engineer
N112 W17001 Mequon Rd, PO Box 337
engineering@germantownwi.gov
262-250-4721

January 17, 2025; Revised 1/29/2025

The Village of Germantown is seeking proposals from Certified Floodplain Managers (CFM) to perform hydrologic and hydraulic analysis of various sites associated with culvert work as part of the Village's road program. Proposals should include:

- Statement of Qualifications
- Proposed Schedule
- Cost of services based upon the scope listed below

The Village of Germantown will provide the following data and information:

- Current and Proposed FIRM Maps
- Technical Data - Flood Insurance Study (FIS) report, hydrologic and hydraulic data, and any other digital technical documentation used to create the new map.
<https://www.germantownwi.gov/731/Floodplain-Mapping-Update---FIRM-Panels>
- GIS data related to this project that was created or acquired by the Village.
- Any available existing plans.

BACKGROUND

The Village of Germantown Department of Public Works has an annual Road Program. Part of this includes safety improvements at culvert/stream crossings. In particular, the project areas include:

- A. Wagon Trail at Alt Bauer Park
- B. Division Road at Jefferson Ditch
- C. Division Road near unnamed tributary near Revere Lane
- D. Pleasant View Drive at Menomonee River

SCOPE OF SERVICES

Proposals shall include an itemized cost per scope item as listed below for each project A, B, C, D. Please be sure to detail any additional efforts that may be required so that staff may evaluate those efforts as compared to other proposals.

Task 1

Data Collection

- Review the FIRM/FIS. See link above.
- Review the hydrologic and hydraulic models, topographic data. Village of Germantown to request models from WDNR Floodplain Section.

Task 2

Field Verification

- Site Visits: Conduct field visits to key areas, especially those where discrepancies are suspected. Use survey data to update the models as necessary.

Task 3

Model and Preliminary Design (4 projects, A,B,C,D). Consultant to Plan for two meetings with Village staff and one round of review comments by Village staff

Project A - Jefferson Ditch Culvert Extension at Wagon Trail

- i) Model and complete preliminary design to replace twin 108"x84" CMP with newly sized box culvert that does not increase water surface elevation by 0.01
- ii) Generate and deliver hydrologic report with supporting data.
- iii) Generate and deliver hydraulic report and updated HEC-RAS model with memo.
 - a. Intent is for culvert extension.
 - b. If culvert extension increases water surface elevation by greater than 0.01, then a culvert replacement would potentially be required.
 - c. In the event model shows extension is not feasible, to avoid terminating the contract, provide if authorized pricing to complete preliminary design to replace twin 108"x84" CMP, or required equivalent, with newly sized culvert that does not increase water surface elevation by 0.01
- iv) Generate and deliver preliminary drawing to submit with SSR.
- v) **If Authorized, complete final construction drawings**

Project B – Tributary 1A to Jefferson Ditch - Storm Sewer Extension to Lilac and Hawthorne Intersection

- i) Model and complete preliminary design to construct 850-feet of new 48-inch dia. Storm sewer (or larger dia, if needed) along the west side Division Road north of the Jefferson Ditch Floodplain (B-66-144) to junction with existing culvert in Lilac Ln.
- ii) Evaluate new road crossing culvert to replace twin 36" x 26" HE RCP. **Complete modeling for a new cross road culvert in the same alignment, and complete additional modeling for a new cross road culvert in a new alignment to allow phasing during construction.** Evaluate new alignment for constructability purposes to avoid bypass ~~and concrete collars with vault.~~
- iii) Evaluate extension from 'ii' to the existing 42-inch dia. Culvert extending from Hawthorne to accommodate pedestrian path above the new/proposed storm sewer extension on the east side of Division Road.
- iv) Generate and deliver hydrologic report with supporting data.
- v) Generate and deliver hydraulic report and updated HEC-RAS model with memo.
- vi) Generate and deliver preliminary drawing to submit with SSR.
- vii) **If Authorized, complete final construction drawings**

Project C - Menomonee River Culvert replacement at Pleasant View Drive

- i) Model and complete preliminary design to replace 156"x108" CMP with newly sized concrete box culvert that does not increase water surface elevation by 0.01
- ii) Generate and deliver hydrologic report with supporting data.
- iii) Generate and deliver hydraulic report and updated HEC-RAS model with memo.
- iv) Generate and deliver preliminary drawing to submit with SSR.
- v) **If Authorized, complete final construction drawings**

Project D - Division Road Culvert Extension at Unnamed Ditch crossing Division Road near Revere Lane

- i) Model and Complete preliminary design of culvert extension at unnamed ditch crossing Division Road near Revere Lane.
- ii) Generate and deliver hydrologic report with supporting data.
- iii) Generate and deliver hydraulic report and updated HEC-RAS model with memo.
 - a. Intent is for culvert extension.
 - b. If culvert extension increases water surface elevation by greater than 0.01, then a culvert replacement would potentially be required.
 - c. In the event modeling shows extension is not feasible, to avoid terminating the contract, provide if authorized pricing to complete preliminary design to replace 48" CMP, or required equivalent, with newly sized culvert that does not increase water surface elevation by 0.01
- iv) Generate and deliver preliminary drawing to submit with SSR.
- v) **If Authorized, complete final construction drawings**

Task 4

Complete Structure Survey Report for Stream Crossings for each project

- Cross-Section Verification: Check the cross-sections used in the hydraulic models. Supplement with necessary survey data for bottom of channel and embankment data.
- Flow Data: Verify the hydrologic analysis.
- Update Existing conditions hydraulic model in HEC-RAS, as needed.
- Generate proposed conditions model with corresponding preliminary design drawings
- Consultant to Plan for one round of review comments by Village staff

Task 5

Prepare Transmittal to WDNR, **including H&H Checklist**

- Send Village staff a copy of Draft documents prior to transmittal
- Consultant to Plan for one round of review comments by Village staff

Task 6

If Authorized, provide additional scope of services for the Village's 2025 Road Program complete survey and prepare hydrologic analysis and preliminary modeling efforts (existing and proposed conditions) as deemed necessary by consultant.

Task 7

If Authorized, complete construction drawings.

Proposed Schedule

Issue Request for Proposal	January 17, 2025
Issue Addendum No. 1	January 24, 2025
Issue Addendum No. 2	January 29, 2025
Proposals due to the Village of Germantown	January 31, 2025
Contract Recommendation by PWHC*	March 5, 2025
Contract Award by VB*	March 17, 2025

*If necessary

Proposal Format

Consultants' proposals should include a brief resume of the firms' qualifications and recently completed similar projects. Consultants must submit their proposals to the Village Engineer by 4:00 P.M. on January 31, 2024, or earlier. Transmit electronic copies of proposal to kdriscoll@germantownwi.gov. Electronic copies require acknowledgment of receipt by the Village to be considered. Consultant selection will be based on quality of proposal, qualifications of the design team, and fee to complete the work.

**Work is priority for 2025 paving.*

Project	Task Description	Hours	Costs
A*	Jefferson Ditch Culvert Extension at Wagon Trail (Survey, Modeling, Preliminary Design)		
A1	Data Collection		
A2	Field Verification		
A3	Model and Complete Preliminary Design to Extend Culverts		
A4	Complete Structure Survey Report for Stream Crossings		
A5	Prepare Transmittal to WDNR		
	<i>Project A (Wagon Trail Culvert Extensions) - SubTotal Items A1-A5</i>		
A6	If Authorized, T&M (Consultant to identify additional scope items for consideration)		
A7	If Authorized, complete final construction drawings		
	<i>Total (including If Authorized Tasks A1-A7)</i>		

Schedule for Wagon Trail – Project A is a priority and Village staff anticipates a quick turn around for this culvert extension to be included in the 2025 Road Program Contract.

Project	Task Description	Hours	Costs
B*	Trib 1A to Jefferson Ditch Storm Sewer Extension to Lilac and Hawthorne Intersection (Survey, Modeling, Preliminary Design)		
B1	Data Collection		
B2	Field Verification		
B3	Model and Complete Preliminary Design to Extend Culverts		
B4	Complete Structure Survey Report for Stream Crossings		
B5	Prepare Transmittal to WDNR		
	<i>Subtotal Base Items B1-B5</i>		
B6	If Authorized, T&M (Consultant to identify additional scope items consideration)		
B7	If Authorized, complete final construction drawings		
	<i>Total (including If Authorized Tasks B1-B7)</i>		

Schedule for Division Road - Project B is based on utility coordination with WE Energies. A preliminary utility coordination base map can be made available and provided upon request.

Project	Task Description	Hours	Costs
C	Menomonee River Culvert replacement at Pleasant View Drive (Survey, Modeling, Preliminary Design)		
C1	Data Collection		
C2	Field Verification		
C3	Model and Complete Preliminary Design to Extend Culverts		
C4	Complete Structure Survey Report for Stream Crossings		
C5	Prepare Transmittal to WDNR		
	<i>Subtotal Base Items C1-C5</i>		
C6	If Authorized, T&M (Consultant to identify additional scope items consideration)		
C7	If Authorized, complete final construction drawings		
	<i>Total (including If Authorized Tasks C1-C7)</i>		

Schedule for Pleasant View - Project C is based on WisDOT SMA for ARIP, and no work to proceed until that SMA is signed.

Project	Task Description	Hours	Costs
D	Division Road Culvert Extension at Unnamed stream crossing Division Road near Revere Lane (Survey, Modeling, Preliminary Design)		
D1	Data Collection		
D2	Field Verification		
D3	Model and Complete Preliminary Design to Extend Culverts		
D4	Complete Structure Survey Report for Stream Crossings		
D5	Prepare Transmittal to WDNR		
	<i>Subtotal Base Items D1-D5</i>		
D6	If Authorized, T&M (Consultant to identify additional scope items consideration)		
D7	If Authorized, complete final construction drawings		
	<i>Total (including If Authorized Tasks D1-D7)</i>		

Schedule for Division Road - Project D is based on phasing of Division Road work, where the Village staff is anticipating two phases. First construction phase north of Jefferson Ditch in spring/summer 2025, and the second construction phase south of Jefferson in 2026.

The Village reserves the right to reject any and all proposals. The Village reserves the right to award one project or all projects to one consultant. The Village reserves the right to negotiate the terms of the contract, including the award amount, with the selected proposer prior to entering into a contract. If contract negotiations cannot be concluded successfully with the preferred proposer, the Village may negotiate a contract with the next preferred proposer.

Exhibits

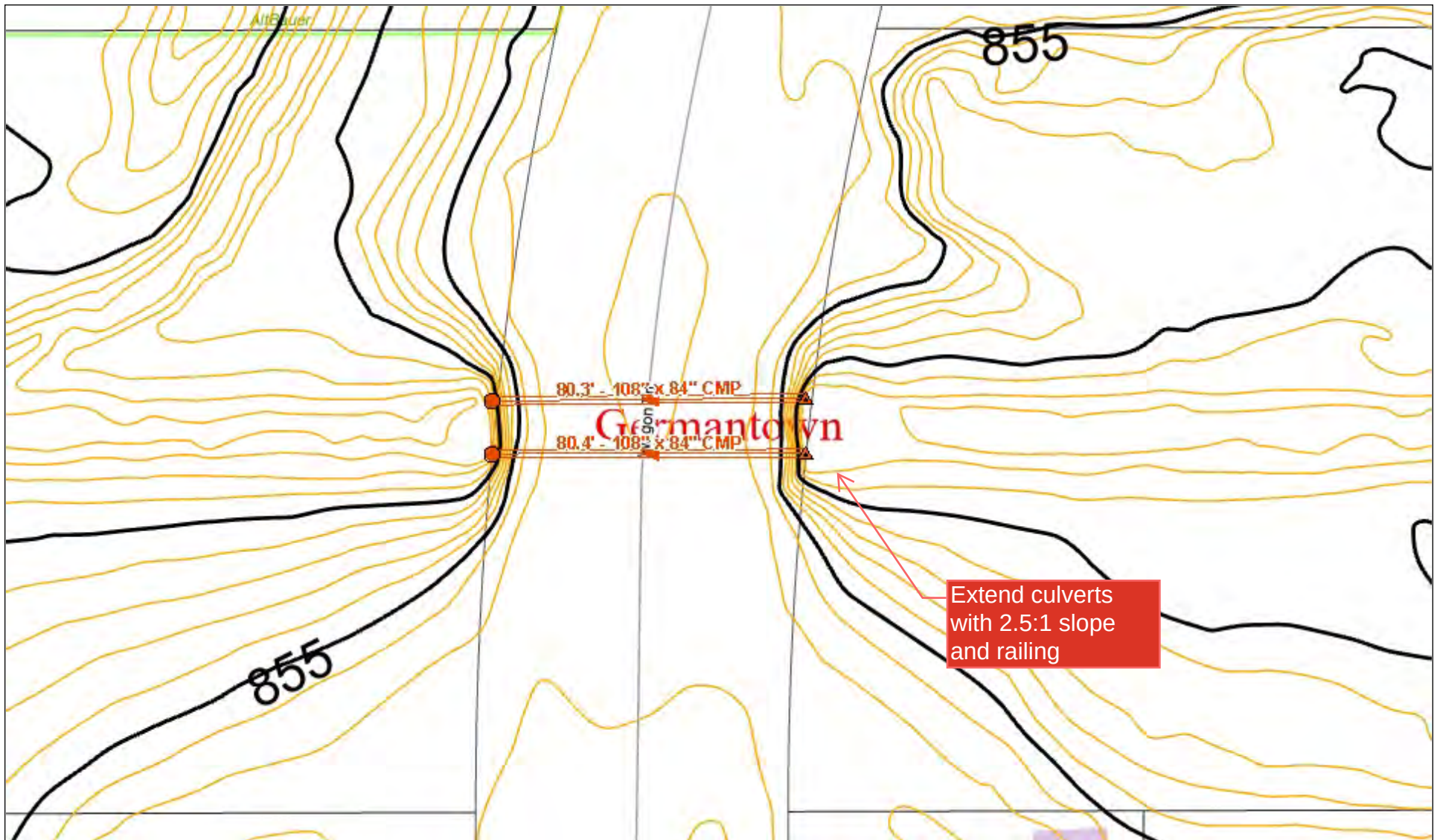
Project A – Wagon Trail Culvert Extension

Project B – Division Road Storm Sewer Extension and Twin Culvert Replacement from Jefferson Ditch to Lilac / Hawthorne Intersection for new bike facilities

Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form



Village of Germantown GIS
Jefferson Ditch Culvert at Wagon Trail

DISCLAIMER:

This map is not a survey of the actual boundary of any property this map depicts.

The Village of Germantown Does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.



Village Of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4700



SCALE: 1 = 50'

Print Date: 1/7/2025

Exhibits

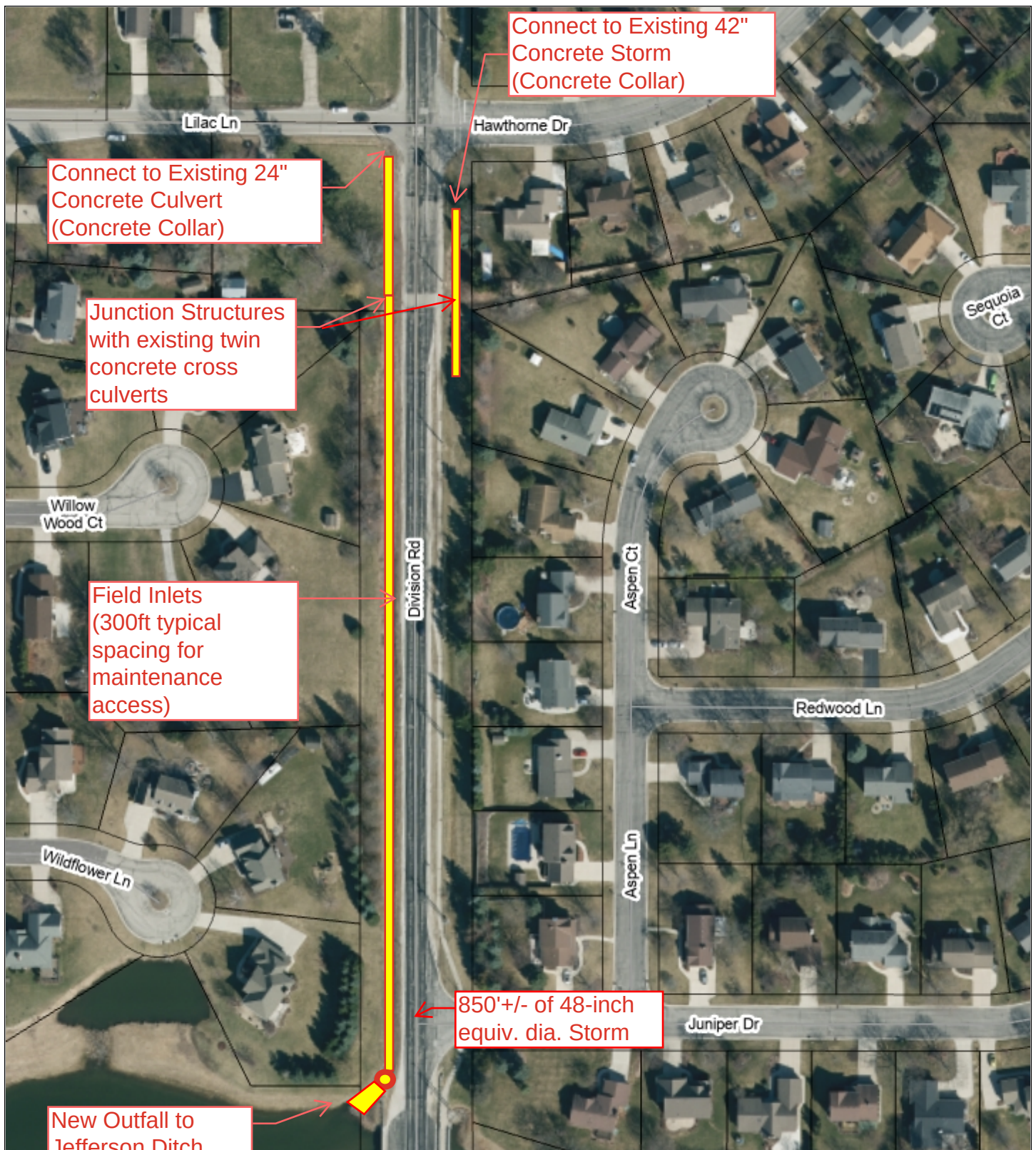
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Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form



Village of Germantown GIS
Division Road - Storm Sewer Work

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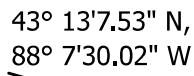


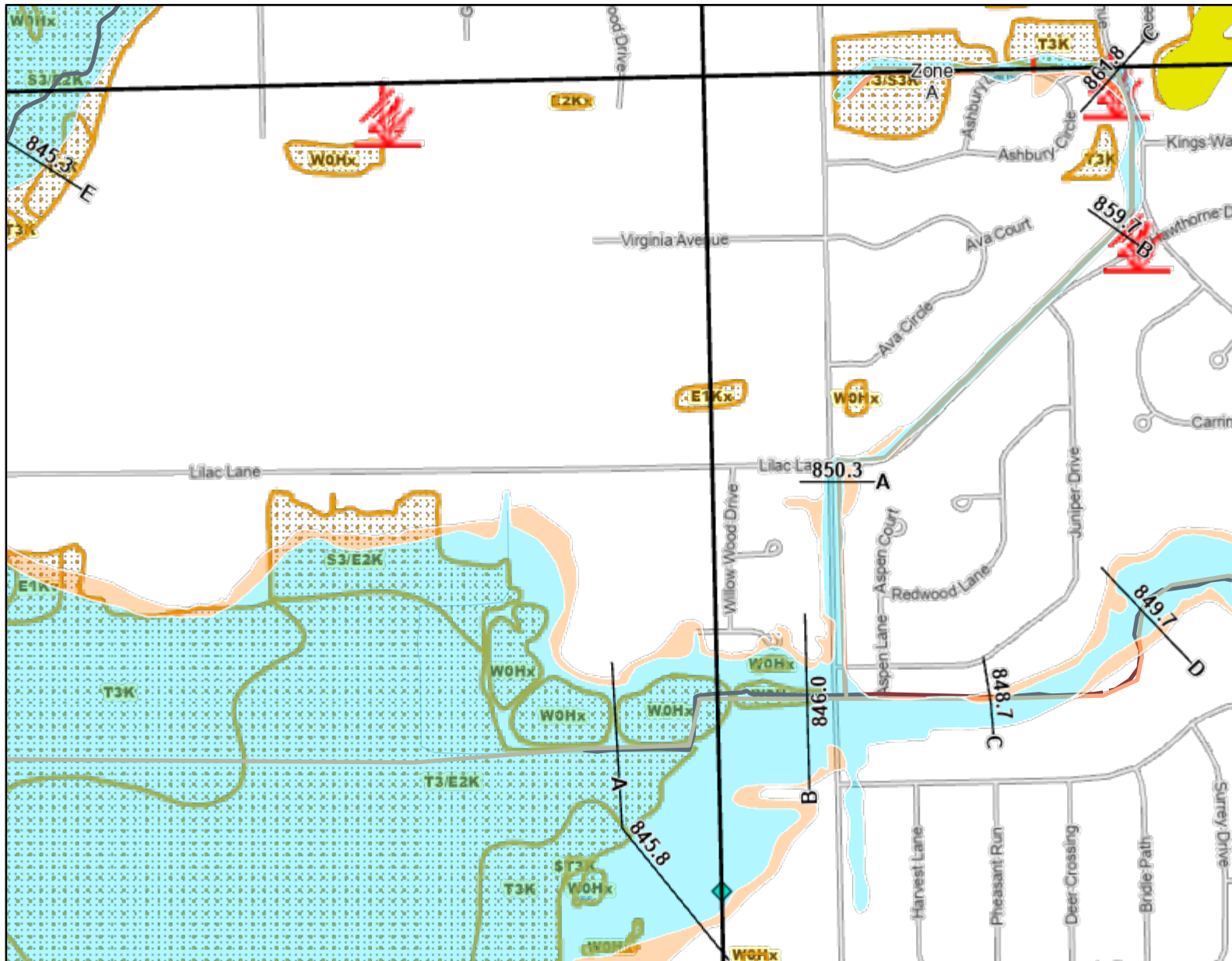
Village Of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4700



SCALE: 1 = 200'

Print Date: 1/2/2025





- Legend:** (some map layers may not be displayed)
- FIRM Panels
 - Cross-Sections
 - Flood Hazard Boundaries
 - Limit Lines
 - SFHA / Flood Zone Boundary
 - Flood Hazard Zones
 - 1% Annual Chance Flood Hazard
 - 1% Annual Chance Flood Hazard
 - 0.2% Annual Chance Flood Hazard
 - Floodplain Analysis Lines
 - Flood Insurance Study
 - Floodplain Study (Locally Funded)
 - Floodplain Analysis Upstream Catchment
 - TMDL Priority Rivers Streams
 - Multiple Priorities
 - PNW Lakes Less Than 50 Acres
 - Wetland Identifications and Confirmations

Notes:



Map: 0 640 1280 Feet
0 190 380 Meters

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: <https://dnr.wisconsin.gov/legal>

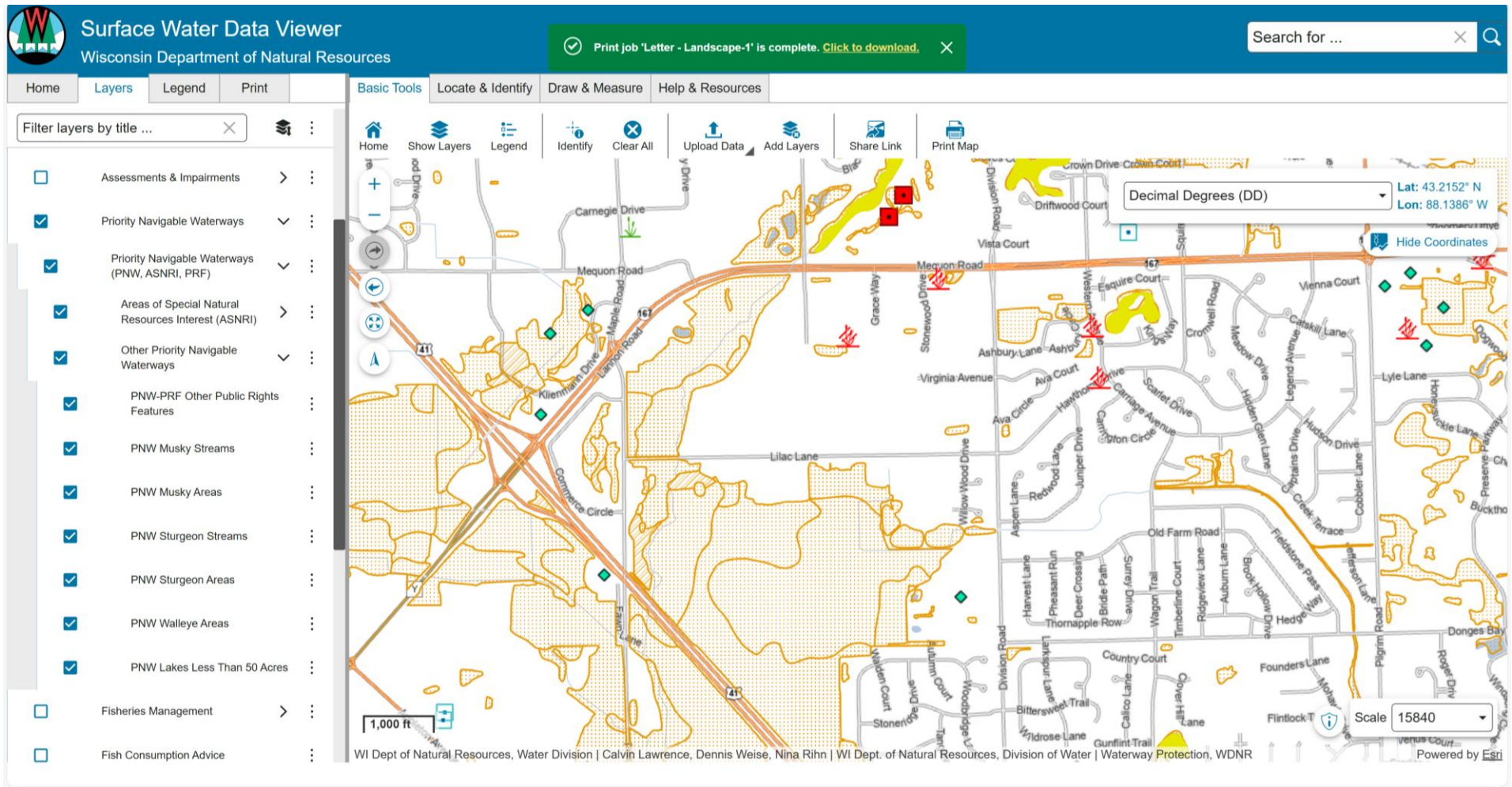
Service Layer Credits:

Wisconsin Wetland Inventory NWI (cached); EN Basic Basemap WTM Ext; Priority Navigable Waterways: Waterway Protection, WDNR, Wisconsin Wetland Inventory NWI (Dynamic); Calvin Lawrence, Dennis Weise, Nina Rihn, Paper FIRMS: Federal Emergency Management Agency, Wisconsin Department of Natural Resources, Digital FEMA Floodplains (National Flood Hazard Layer);

Map projection: NAD 1983 HARN Wisconsin TM

Date Printed: 1/30/2025 8:43 AM





30.10 Declarations of navigability.

(4) Interpretation.

(a) This section does not impair the powers granted by law to municipalities to construct highway bridges, arches, or culverts over streams.

Exhibits

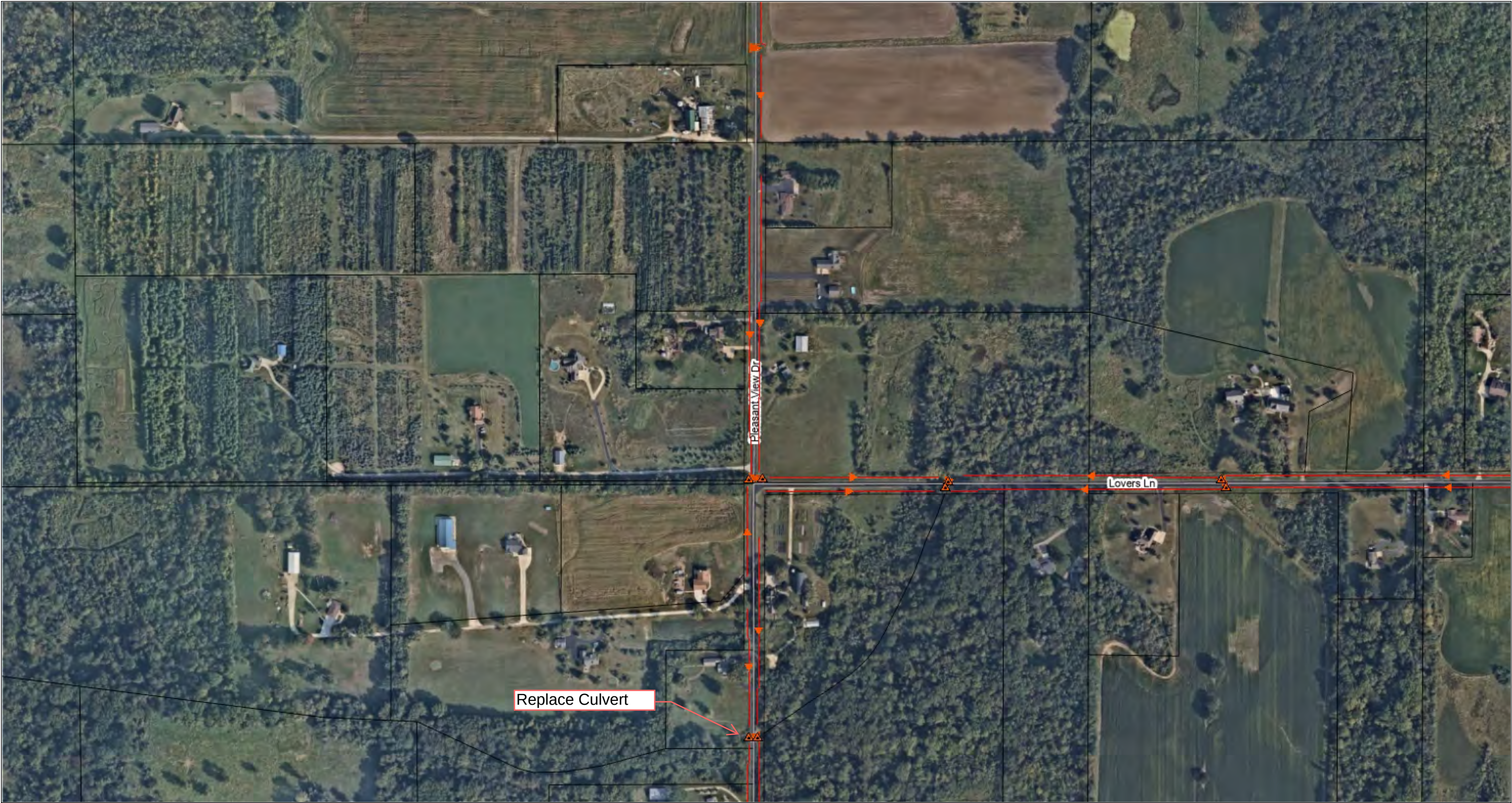
Project A – Wagon Trail Culvert Extension

Project B – Division Road Storm Sewer Extension and Twin Culvert Replacement from Jefferson Ditch to Lilac / Hawthorne Intersection for new bike facilities

Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form



Village of Germantown GIS
Pleasant View Rd - 156" Arch Culvert Replacement (ARIP)

DISCLAIMER:

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SCALE: 1 = 500'



Village Of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4700

Print Date: 1/13/2025

Exhibits

Project A – Wagon Trail Culvert Extension

Project B – Division Road Storm Sewer Extension and Twin Culvert Replacement from Jefferson Ditch to Lilac / Hawthorne Intersection for new bike facilities

Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form



Village of Germantown GIS
Division Road - 48" Dia Culvert Extension

DISCLAIMER:

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Village Of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022
262-250-4700



SCALE: 1 = 100'

Print Date: 1/13/2025

Exhibits

Project A – Wagon Trail Culvert Extension

Project B – Division Road Storm Sewer Extension and Twin Culvert Replacement from Jefferson Ditch to Lilac / Hawthorne Intersection for new bike facilities

Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form

-



STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation
DT1698 4/2017

☐ Stream Crossing ☐ Box Culvert ☐ Box Culvert Extension: ☐ Right
☐ Other: _____ ☐ Left

For guidance see: <http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/strct/survey.aspx>

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
New Structure Number	Existing Structure Number	Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		Traffic Forecast Data		
Feature On		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed mph
Feature Under ☐ Waterway:		☐ Other:		
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:		

Instructions for Structure Survey

- Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).
- Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.
- Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site:

☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4

☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure
Ft.

Cross Slope on Deck or N.C. (Normal Crown)
Ft./Ft.

Sidewalks/Multi-Use Path
☐ Yes ☐ No

Left Clear Sidewalk/Path Width
Ft.

Separation Barrier
☐ Yes ☐ No

Right Clear Sidewalk/Path Width
Ft.

Separation Barrier
☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment

Specify Clear Zone Width When Beam Guard Not Used on Culvert

Specify Wing Location(s) for Surface Drain Anchors

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES NO

- ☐ ☐ Project Is in Flood Hazard Area (FIS Mapped Floodplain)
- ☐ ☐ Structure Will be Constructed to Accommodate Traffic Staging
- ☐ ☐ Temporary Structure Required
- ☐ ☐ Riprap Required
- ☐ ☐ Structural Approach Slab
- ☐ ☐ Lighting Required: Bolt Circle Diameter _____ inches
- ☐ ☐ Traffic/Lighting Staff been Notified for Review
- ☐ ☐ Conduit in Parapet: Diameter _____ Number _____
- ☐ ☐ Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES NO

- ☐ ☐ Utilities will be located on the structure?
(if YES, provide the following information as well as the alignment and profile on Page 4)
- ☐ ☐ Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures?
(if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES NO

- ☐ ☐ Structure will be Removed
☐ Bid Item ☐ Later Contract ☐ Other: _____
- ☐ ☐ Structure will Remain in Service, Purpose: _____

Removal

- ☐ Normal Removal
- ☐ Removal With Minimal Debris
- ☐ Removal With Capture System

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)				
Highway, Railroad, Path, or Structure Name				
Year Built				
◊ Latitude				
◊ Longitude				
‡ Distance from Proposed Site in Miles				
Number of Spans				
Clear Span (Between Inside Faces of Substructure Units) Lengths Along C.L. Rdwy/Track				
Sidewalk: Right Side Clear Width				
Left Side Clear Width				
Roadway Width on Structure Between Curbs				
Superstructure Type				
Abutment Type(s)				
Pier Type(s) and Width(s)				
Is Structure Supported on Piles?				
Condition: Superstructure Rating (NBI)				
Substructure Rating (NBI)				
Sufficiency Rating (NBI)				
Skew: Stream				
Structure				
* Elevation	Finished Grade			
+ +	Low Chord			
Character of Material in Stream Bed				
Does Drift Pass Satisfactorily (Y/N/no record)				
Does Ice Pass Satisfactorily (Y/N/no record)				
Evidence of Damage From Floating Debris				
Streambed Scour Visible (Y/N) ⊗	Provide Additional Details on Page 5			
Streambank Scour Visible (Y/N) ⊗				
† Recorded High Water Elevation - Date				
** Observed High Water Mark Elevation ⊗				
History of Flooding over Roadway (Date or Frequency)				
Abutment Slope Washout From: Stream Flow ⊗				
Roadway Drainage ⊗				
Low Water Elevation				
° Ordinary High Water Mark				
Observed Water Elevation				
Streambed Elevation				
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡

⊗ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

° If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
<i>For Structures with Concrete Aprons:</i>			
At Beginning of Upstream Apron			
		Apron Elevation	
		Streambed	
		Top of Water	
At End of Downstream Apron			
		Apron Elevation	
		Streambed	
		Top of Water	
Condition®:	Wingwalls		
	Barrel		

Attach Sketch

® Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

For Structure Designers Use Only Proposed Box Culvert					
Aprons	Type			Elevations	
Inlet					
Outlet					
Openings - Number	Clear Span at Right Angles to Axis of Box			Inside Height of Box	
Slope of Channel at Culvert					
All Proposed Structures					
Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):			Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:			Longitude:		
Drainage Area	_____ Sq. Mi.	Q (100)	_____ cfs	<u>Existing Bridge</u>	
High Water (100)	_____ Ft.	Q (Struct.)	_____ cfs	High Water (100)	_____ Ft.
Velocity	_____ Ft/Sec.	Q (Rdwy.)	_____ cfs	<u>Regulatory High Water</u>	
Waterway Area	_____ Sq. Ft.	Q (Suple. Struct.)	_____ cfs	_____	Ft.
Scour Code	_____	Source FIS _____			
<u>Erosion Control</u>		<u>Temporary Structure</u>		<u>Overtopping Frequency (If > 100 Yrs. - NA)</u>	
Q ₂	= _____ cfs.	Q	_____ Yr.	cfs.	Q _____ Yr. _____ cfs.
HW ₂	= _____ Ft.	High Water	_____ Ft.	High Water	_____ Ft.
		Min. A (BR)	_____ Sq. Ft.		

Exhibits

Project A – Wagon Trail Culvert Extension

Project B – Division Road Storm Sewer Extension and Twin Culvert Replacement from Jefferson Ditch to Lilac / Hawthorne Intersection for new bike facilities

Project C – Pleasant View Drive Culvert Replacement at the Menomonee River

Project D – Division Road Culvert Extension near Revere Ln

SSR Form & HH Study Checklist

Checklist for Submitting a Floodplain Study

Wisconsin Department of Natural Resources



This outline for department review of floodplain studies may not contain all of the requirements of the administrative code. It is a general outline and detailed examination of the codes should be done to be assured that a submittal may meet department approval. Appropriate areas should be filled in by the engineer submitting the study for WDNR review.

Community/Zoning Authority:_____

Official Stream Name:_____

County:_____

Study Author:_____

Submission Date:_____

Submitted to:_____

Legal Description:

Upstream Limit ____1/4(QQ), ____1/4(Q), Section(s)_____, Township_____, Range_____

Downstream Limit ____1/4(QQ), ____1/4(Q), Section(s)_____, Township_____, Range_____

Study Type (circle): Bridge/Culvert Channel Realignment Enclosure Filling/Grading BFE determination

Other _____

I) General Documentation

- _____ Contact (Telephone Conservation) Reports
- _____ Meeting Minutes/Reports
- _____ General Correspondence
- _____ Submittal letter or e-mail from zoning authority requesting review

II) Narrative Report

- _____ Purpose of the study
- _____ Geographic location of the study
- _____ Detailed description of the methodology used for hydrology, hydraulics and any special applications used in the study
- _____ Description of the project location related to model river stations
- _____ Documentation of the changes made between each model run
- _____ Floodway Data Table
Note: Include at least one table with the following output variables:
‘River Sta’ ‘Q Total’ ‘W.S. Elev’ ‘Top Wdth Act’ ‘Flow Area’ ‘Vel Total’
- _____ Previous studies on the same watercourse – date/author/source of study
- _____ Data collection methods
- _____ Past flooding
- _____ Benchmark identification and location
- _____ Coordination with other agencies
- _____ Other supporting documentation provided
(circle) Soils Maps Watershed Maps Photographs Stream Flow Records
Other: _____

III) Engineering Analyses

1) Hydrologic Analysis (electronic input/output files)

_____ Is there an existing model?

Existing model input file name: _____

The *two* techniques used to determine the regional flood flow discharges:

_____ Log-Pearson Type III, described in Technical Bulletin #17B

_____ Regional Regression Equations (i.e. Congers)

_____ Synthetic hydrographs (i.e. HEC-HMS)

_____ Was floodplain storage explicitly taken into account to attenuate flood peak flow?

_____ If yes, have flood storage district maps been created for the community to adopt?

_____ Which rainfall distribution was used?

_____ If a distribution other than NRCS's MSE3/MSE4 was used, what duration was the critical duration when the critical duration analysis was performed to identify the peak storm duration?

_____ Technical Release No. 55 (TR-55)

_____ Comparison of similar drainage basins at gaged sites

_____ Historic flood data

_____ Other methods with department approval (comment on what method)

Input file name: _____

_____ New peak flows tie in with upstream and downstream published flows

2) Hydraulic Analyses (electronic input/output files)

Note: The same model must be used for both existing and proposed conditions for relative consistency

_____ Is there an existing model?

Existing model input file name: _____

_____ Existing model was not truncated from its original study reach

New hydraulic model type (i.e. HEC-RAS) _____

New input file name (project model name that has one or multiple runs):

Model plan descriptions: _____

(ex. p.01 = effective, p.02 = corrected effective, p.03 = pre-project, p.04 = post-project...)

What is the vertical datum of the survey/geometric data (NAVD88, NGVD29...) _____

_____ Is there a dam with operable gates in the study reach?

_____ If yes, does the modeled operation represent the DNR approved Inspection, Operations, and Maintenance Plan (IOM)? The dam operator then assumes liability that the gates will be operated as outlined in the IOM.

If not, explain _____

_____ Is there a detailed study upstream of the submitted reach? (Y/N)

_____ If yes, do the profiles match within 0.5' at the boundary? (Y/N)

_____ Is there a detailed study downstream of the submitted reach? (Y/N)

_____ If yes, do the profiles match exactly at the boundary? (Y/N)

_____ Model shows increases due to development (proper legal arrangements required)

3) Miscellaneous

_____ Supporting hand calculations, sketches and figures used in analyses

_____ Key to Cross-Section Labeling

_____ Key to Transect Labeling (coastal study only)

IV) Mapping information

_____ Workmaps including floodway, floodfringe, cross sections, and stream centerlines

_____ Floodway Data Table

Note: Include at least one table with the following output variables:

‘River Sta’ ‘Q Total’ ‘W.S. Elev’ ‘Top Wdth Act’ ‘Flow Area’ ‘Vel Total’

Digital mapping data provided: _____
(Circle) ESRI shapefile(s)/database CAD data Other

Horizontal coordinate system used: _____

V) Certification

_____ Signed, stamped, and submitted by a Professional Engineer registered in Wisconsin

Name _____ Registration # _____

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Award of the library access control project to O&W
Communications for an amount not to exceed \$64,640.00.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

As reflected in the 2025 Buildings & Grounds capital budget, \$55,000.00 was allocated to install an access control system at the library. The proposed system would match the access control installed at the new DPW facility, and most recently Village Hall. Since the project budget was put together, additional interior doors were added to the scope, which are safety enhancements, primarily in the office area. These additional costs have raised the project budget beyond the original budgetary figure by \$9,640.00. Staff has worked through the shortfall by identifying operating budget line items as listed below.

This access system will continue replacement of the antiquated key systems currently used within village buildings. The system will offer far greater security benefits to the library, while monitoring and recording access to sensitive areas within the building. System users will be identified and allowed access by using their smart phones. The remote access system can be conveniently updated to grant and remove access within the system software. This will eliminate future expenditures related to missing keys. During the DPW construction process, great discussion took place around using the Bosch system that was specified. The police and fire departments were included in these discussions to ensure that the needs of those facilities were considerations as the village scales the system to other facilities. In order to remain consistent with installation and maintenance practices, staff will continue to utilize O&W Communications as discussed during the approval of past projects.

Buildings & Grounds Capital Budget – 40563000-591800:	\$55,000.00
Buildings & Grounds Library Operating Budget – 10563000-591800:	\$4820.00
Library General Supplies & Expenses – 10570000-531010:	\$4820.00

ATTACHMENT:

1. Germantown Library AC Proposal 1.30.25

STAFF RECOMMENDATION:

Recommend award of the library access control project to O&W Communications for an amount not to exceed \$64,640.00.

ACTION BY Committee:

Date: 1/30/2025

To: Katie Rodger
Project Manager
Village of Germantown Highways, Parks, Buildings & Grounds
krodger@germantownwi.gov

RE: Germantown Library Access Control Proposal
N112W16879 Mequon Road

Scope: Access Control/Keyless Entry System:

Extend the Bosch Mobile Access system that was installed at DPW. The controllers will be housed in an enclosure located in the Server Room (room 119). Provide necessary power supplies for the Electric Locks. Bluetooth readers will be mounted on the side of the door handle. The readers will recognize authorized credentials from a smartphone (or a fob if desired). Three readers will have a built-in keypad for alternate means of access.

Doors to Have Access Control/Keyless Entry:

3 - Exterior Access Control Doors

Vestibule 100: **Not Doing**

Vestibule 114a (Bluetooth Reader with Keypad, Electric Latch, REX, (2) DPS)

Stairs 116a (Bluetooth Reader with Keypad, Electric Strike, REX, DPS)

Children 123c (Bluetooth Reader, Electric Strike, REX, DPS)

1 - Interior Access Control Door

Server 119a (Bluetooth Reader, Electric Strike, REX, DPS)

13 - Interior Access Control Doors

Meeting Room 102a (Bluetooth Rdr, Maglock, REX, Em Egress Btn, Fire Integration)

Meeting Room 103a (Bluetooth Rdr, (2) Maglocks, REX, Em Egress Btn, Fire Intgrtn)

Storage 104a (Bluetooth Reader, (2) Maglocks, Em Egress Button, Fire Integration)

Janitor 107a Bluetooth (Reader & Electric Strike)

Staff 108a (Bluetooth Reader, (2) Maglocks, REX, Em Egress Button, Fire Integration)

Staff 108b (Bluetooth Reader & Electric Strike)

Chase 111a (Bluetooth Reader & Electric Strike)

Vestibule 114b (Bluetooth Reader with Keypad & existing strike to be reused)

Stairs 116b (Bluetooth Reader (office side) & Electric Strike)

Director 118 (Bluetooth Reader & Electric Strike)

Reading 131(Bluetooth Reader & Electric Strike)

Office 137a (Bluetooth Reader & Electric Strike)

Office 138a (Bluetooth Reader & Electric Strike)

Doors: 114A & 114B

(1) Power supply (located in Server 119)

(1) Relay board

(1) Electric power transfer hinge (114A)

(1) Electric strike (114A)

Doors 114A & 114B: add electric strike and electric transfer hinge to 114A to match existing on 114B.

Notes:

1. Security System will not be upgraded at this time – separate system/no integration provided
2. Exterior Doors will have Door Position Switches Added so that you can monitor forced and doors left open with your Bosch AC System.
3. **Meeting Rm 102 and 103 – the electric latch/crash-bars will be “dogged open”, and you will rely on the maglock/access control for the locking schedule.**
4. Meeting Rm 102 and 103, Storage 104 and Staff 108 will have fire alarm integration (release the magnetic lock in the event of a fire) – relays are included in the fire alarm upgrade proposal.
5. All Plenum Cable used for Access Control System
6. Lift Included

Our proposal includes materials, submittal, installation, programming, check-out and training.

Total Cost: \$62,335.00 plus tax

Option: Doors: 102A & 103A

In lieu of using magnetic locks use motorized electric latches. Remove the REX & Emergency Egress Button.

- (1) Power supply (located in Chase 111)
- (1) Relay board
- (2) Motorized electric latch retraction kits
- (2) Latch case head assemblies
- (2) Electric power transfer hinges
- (1) End cap with cover screws (102A)

Doors 102A & 103A: replace the exit device case head to accept the latch motor retract kit and plan on using the electric power transfer hinge. Door 102A is missing the end cap on the exit device, this will be replaced as well.

Additional: \$2,305.00

Clarifications:

- Existing Strike to be reused (providing Power Supply). If any problems are exposed or identified and it needs to be replaced, then this would be extra.
- Work completed during normal business hours 8AM to 5PM, Monday through Friday.
- Quotation does not include tax. If tax exempt, please provide tax exempt certificate with purchase order.
- Quotation is valid for (90) days.
- One-Year Warranty Included

Excludes the following:

- Demo Work, including patching and painting.
- 110Volts to be provided by Germantown Electrician

If you have any questions, please call me.

2040 North Avenue
Sheboygan, WI 53083
Phoned: 920-457-8640
Fax: 920-457-8645

www.owcommunications.com



Sincerely,

Natalie Cyr

Sales Director
O & W Communications
ncyr@owcommunications.com
Office: 920-457-8640
Mobile: 920-371-1220

If approved, please sign below and e-mail or fax back the entire quote. If required, please forward a purchase order with the signed quote. Purchase Orders must reference our quote.

Signature:

This proposal is hereby accepted, and O & W is authorized to proceed with the work.

Signature

Date

Name of Company

PO #

This proposal is governed by and subject to O&W Communications' [Standard Terms and Conditions](#) which are incorporated herein by reference.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Award of the library fire alarm system upgrade project to O&W Communications for an amount not to exceed \$17,735.00.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

As reflected in the 2025 Buildings & Grounds capital budget, \$18,000.00 was allocated to install a fire alarm system panel at the library. The proposed project is taking place because the original building hardware is past its useful service life and is starting to show signs of failure. The project would begin to standardize fire alarm panels within the Village, and match what was installed at the new DPW facility.

Staff intends to standardize on the Simplex Notifier panel which was introduced at the new DPW and continues to be the recommendation to achieve standardization. There are significant benefits in utilizing the same manufacturer, installation practices and contractor for these projects. In order to remain consistent with these installation and maintenance practices, staff recommends continued use of O&W Communications as discussed during the approval of past projects.

ATTACHMENT:

1. Germantown Library FA Proposal 1.30.25

STAFF RECOMMENDATION:

Award of the library fire alarm panel upgrade project to O&W Communications for an amount not to exceed \$17,735.00.

ACTION BY Committee:

Date: 1/30/2025

To: Katie Rodger
Project Manager
Village of Germantown Highways, Parks, Buildings & Grounds
krodger@germantownwi.gov

RE: Germantown Library Fire Alarm Proposal
N112W16879 Mequon Road

Scope: Fire Alarm

Upgrade the obsolete Simplex 4010 Fire Alarm Panel to the existing Notifier NFW-50X Fire Alarm System. Upgrade the existing Fire Alarm Annunciator Panel to be compatible with the Notifier System. **Maintain/Reconnect the existing NAC Power Supply and Notification Devices** – provide a relay module to trip the Power Supply. Provide a one for one replacement of the Initiation Devices.

- Replace 9 existing Pull Stations with new Notifier Pull Stations
- Replace 1 Heat Detectors with new Notifier Heat Detectors
- Replace 7 Smoke Detectors with new Notifier Smoke Detectors
- Replace 4 Duct Detectors with new Notifier Duct Detectors
- Replace 7 Monitor Modules with new Notifier Monitor Modules (flow/tamper & low-pressure switches)
- Add 2 Relay Modules for the ACM Power Supply to release the Access Control Magnetic Locked Doors

Notes:

1. Device counts are from the inspection report dates 8/1/2023
2. All existing wiring to be reused
3. Re-use existing system Notifier CLSS communicator

Our proposal includes materials, submittal, installation, programming, check-out and training.

Total Estimate: \$17,735.00 plus tax

Clarifications:

- The scope of work for this project includes reusing existing wiring/devices. If any problems are exposed or identified and devices and/or cabling needs to be replaced, then this would be extra.
- Work completed during normal business hours 8AM to 5PM, Monday through Friday.
- Quotation does not include tax. If tax exempt, please provide tax exempt certificate with purchase order.
- Quotation is valid for (90) days.
- One-Year Warranty Included

Excludes the following:

- Demo Work, including patching and painting.
- Lift included with the Access Control Installation,

2040 North Avenue
Sheboygan, WI 53083
Phoned: 920-457-8640
Fax: 920-457-8645

www.owcommunications.com



If you have any questions, please call me.

Sincerely,

Natalie Cyr

Sales Director
O & W Communications
ncyr@owcommunications.com
Office: 920-457-8640 x330
Mobile: 920-371-1220

If approved, please sign below and e-mail or fax back the entire quote. If required, please forward a purchase order with the signed quote. Purchase Orders must reference our quote.

Signature:

This proposal is hereby accepted, and O & W is authorized to proceed with the work.

Signature

Date

Name of Company

PO #

This proposal is governed by and subject to O&W Communications' [Standard Terms and Conditions](#) which are incorporated herein by reference.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Award of the Village Hall fire alarm system upgrade project to O&W Communications for an amount not to exceed \$29,055.00.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

As reflected in the 2025 Buildings & Grounds capital budget, \$30,000 was allocated to upgrade the fire alarm system at Village Hall. The proposed project is taking place because the original building hardware is past its useful service life and is starting to show signs of failure. The project would begin to standardize fire alarm panels within the Village, and match what was installed at the new DPW facility.

Staff intends to standardize on the Simplex Notifier panel which was introduced at the new DPW and continues to be the recommendation to achieve standardization. There are significant benefits in utilizing the same manufacturer, installation practices and contractor for these projects. In order to remain consistent with these installation and maintenance practices, staff recommends continued use of O&W Communications as discussed during the approval of past projects.

ATTACHMENT:

1. Germantown Village Hall FA Budget Proposal 1.30.25

STAFF RECOMMENDATION:

Recommend award of the Village Hall fire alarm system upgrade project to O&W Communications for an amount not to exceed \$29,055.00.

ACTION BY Committee:

Date: 1/30/2025

To: Katie Rodger
Project Manager
Village of Germantown Highways, Parks, Buildings & Grounds
krodger@germantownwi.gov

**RE: Germantown Village Hall Fire Alarm Proposal
N112W17001 Mequon Road**

Scope:

Upgrade the obsolete Edwards EST1 Fire Alarm Panel and zone devices to an addressable Notifier NFW-100X Fire Alarm System. Fire Alarm Control Panel is located in Vestibule 145, there is no existing Fire Alarm Annunciator that needs to be replaced. Maintain/Reconnect the existing Power Supply and Notification Devices – provide a relay module to trip the Power Supply. Provide a one for one replacement of the Initiation Devices.

- Replace 4 existing Pull Stations with new addressable Pull Stations
- Replace 2 Heat Detectors with new addressable Heat Detectors
- Replace 59 Heat Detectors with new addressable Smoke Detectors
 - Heat detectors are typically only utilized in dirty environments or janitor closets where dirt or steam will cause a smoke detector to false alarm. Typically, in the office environment, a smoke detector would be utilized. Recommendation to replace the existing heat detector with a smoke detector.
 - Please know that Heat detectors are intended to minimize property damage by reacting to the change in temperature caused by a fire. Smoke detectors are intended to protect people and property by generating an alarm earlier in the development of a fire.
- Replace 15 Smoke Detectors with new addressable Smoke Detectors
- Replace 3 Monitor Modules with new addressable Monitor Modules (flow/tamper switches)
- Replace 3 Relay Modules with new addressable Relay Modules (pre-action system)
- Add 1 Relay Module for the ACM Power Supply to release the Access Control Magnetic Locked Door

Notes:

1. Device counts are from the inspection report dates 8/1/2023
2. All existing wiring to be reused
3. Re-use existing system Notifier CLSS communicator

Our proposal includes materials, submittal, installation, programming, check-out and training.

Total Estimate: \$29,055.00 plus tax

Clarifications:

- The scope of work for this project includes reusing existing wiring/devices. If any problems are exposed or identified and devices and/or cabling needs to be replaced, then this would be extra.
- Work completed during normal business hours 8AM to 5PM, Monday through Friday.

2040 North Avenue
Sheboygan, WI 53083
Phoned: 920-457-8640
Fax: 920-457-8645

www.owcommunications.com



- Quotation does not include tax. If tax exempt, please provide tax exempt certificate with purchase order.
- Quotation is valid for (90) days.
- One-Year Warranty Included

Excludes the following:

- Demo Work, including patching and painting.

If you have any questions, please call me.

Sincerely,

Natalie Cyr

Sales Director
O & W Communications
ncyr@owcommunications.com
Office: 920-457-8640 x330
Mobile: 920-371-1220

If approved, please sign below and e-mail or fax back the entire quote. If required, please forward a purchase order with the signed quote. Purchase Orders must reference our quote.

Signature:

This proposal is hereby accepted, and O & W is authorized to proceed with the work.

Signature

Date

Name of Company

PO #

This proposal is governed by and subject to O&W Communications' [Standard Terms and Conditions](#) which are incorporated herein by reference.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: February 5, 2025

PLACEMENT: Action Item

ITEM TITLE: Award of the Goldendale Booster Station security system installation to O&W Communications for \$23,255.00.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

This is a non-budgeted item that was not included in the scope of the booster station construction contract. Staff feel that having a functioning system on the booster station is important enough to proceed with this out of cycle request. The proposed system would match the access control system installed at the new DPW facility, and most recently Village Hall. This project also includes security cameras for the perimeter of the station.

During the DPW construction process, great discussion took place around using the Bosch system that was specified. The police and fire departments were included in these discussions to ensure that the needs of those facilities were considerations as the village scales the system to other facilities. In order to remain consistent with installation and maintenance practices, staff will continue to utilize O&W Communications as discussed during the approval of past projects.

ATTACHMENT:

1. Germantown Booster Station Proposal 1.30.25

STAFF RECOMMENDATION:

Award of the Goldendale Booster Station security system to O&W Communications for \$23,255.00.

ACTION BY Committee:

Date: 1/30/2025

To: Paul Haugen
Water Superintendent
Germantown Water Utility
N122W17177 Fond du Lac Ave.
Germantown, WI 53022
262-808-7464
phaugen@village.germantown.wi.us

RE: Security Cameras and Keyless Entry – Goldendale Booster Station located at W204 N12333 Goldendale Rd.

Camera System:

O&W will furnish, install, and program a complete AXIS camera system to provide exterior coverage of the building perimeter. This will be accomplished with three multi-directional, four channel dome-style cameras mounted on the Northwest, Southeast and Southwest corners. With 5 Megapixels per channel, these cameras provide excellent image quality even in low light. The system will also include one bullet-style camera positioned near the Northeast corner to identify vehicles as they enter the property and read their license plates. Data from all cameras will be recorded with an onsite AXIS camera station. The station provides POE power to all cameras and will store approximately 30 days of data. The system will be connected to a port on your network (provided by others), making remote access available as desired.

Locating Equipment inside the Existing Allen Bradley Rack

- 4 – AMGOOD G807698377 16" Wide Stainless Steel Shelves for Camera Station, Monitor, Keyboard/Mouse and UPS
 - 1 – AXIS S2208 MK II - AXIS Camera Station S2208 Appliance is an all-in-one recording solution with integrated, manageable PoE switch designed to deliver reliable high-definition surveillance with up to 4K resolution.
4TB Storage Capacity.
 - 1 – Wall Mount Camera Surge Protector - outdoor cameras (located in the cabinet)
 - 1 – APC BE650G1 Back-UPS, 650VA, 120V, NEMA 5-15R (located in the cabinet)
 - 1 – Monitor & Mouse & Keypad (located inside the cabinet)
 - 1 – Axis P1468-LE Bullet Camera, Fully Featured, all-around 4K Surveillance
 - 1 – Axis Liscence Plate Verifier
 - 3 – Axis P3737-PLP Panoramic Camera 4*5 Multidirectional w/deep learning
- Necessary corner/wall mounts for cameras

Providing Shielded Cable, given all the Mechanical Equipment -- helps prevent interference with the Camera Views.

O&W's scope includes furnishing, installing, and programming the Axis Camera system.

Excludes the following:

- Any necessary Permits are the responsibility of the electrical contractor.
- Conduit/Raceway including back boxes.

- Recommend locating the (3) Panoramic Cameras in each corner. Please have EC provide conduit raceway/seal tight right next to the corner for a corner-mount. Also provide seal tight for bullet camera.
- Fire Stopping: Fire rated caulking to be provided and installed by others.
- 120-volt outlet (by others) must be located in the Allen Bradely Rack for the UPS.

Total: \$16,585.00 plus Tax

Access Control/Keyless Entry System:

Based on the recommendations, we are proposing the same Bosch Mobile Access system as will be installed at DPW. The controller will be housed in an enclosure located in the MCC Room. Bluetooth reader will be mounted on the exterior wall next to the single service door. The reader will recognize authorized credentials from a smartphone (or a fob if desired). The one reader provided will have a built-in keypad for an alternate means of activation.

The system will be connected to a port on your network (provided by others), allowing for easy credential management and tracking for outside contractors, service providers and suppliers.

Single Passage Door: Keyless Entry on Right Side (w/Door Handle), DPS by others, connected to owners SCADA System

Double Passage Door: DPS by others, connected to owners SCADA System

Adding on to the DPW Software "Plus" Liscense – Building must be on the same network to be able to utilize the DPW License

Locating Equipment inside the Existing Allen Bradley Rack

- 1 – TPE-TG82E 8GIG/POE+/EDGESMART/64WAT
- 1 – APC-AMC2-4R4CF Bosch RS485 Card Reader Interfaces (Door Controller)
- 1 – AL1024ULXB2 Altronix 10A 24V Power Supply in Cabinet
- 1 – ACM4 Altronix Access Power Controller, 4 Fused Relay Outputs Board
- 2 – 12V7AH Batteries
- 1 – ARD-Select-BOMK Bosch Bluetooth Reader with Keypad
- 1 – ARA-SELECT-WWA Wall Mount Box Lectus Select

O&W's scope includes furnishing, installing, and programming the Bosch Mobile Access system.

Excludes the following

- 24V Electric Strikes to be provided and installed by Block Iron/Others.
- Any necessary Permits are the responsibility of the electrical contractor.
- Cable/Conduit/Raceway including back boxes.
- 120-volt outlet (by others) must be located in the Allen Bradley Cabinet for he Power Supply.

Total: \$6,670.00 plus Tax

Package Total: \$23,255.00 plus Tax

Overall Clarifications:

- Network Connection by others. If there is no network, then we'll need to provide the Bosch Lite License and this will be a stand-alone system.
- We will need one port on the existing Allen Bradley 1783-US8T Switch for our 8-port switch, however, please know that we will only be using 2 ports on this 8 port switch.
- Work completed during normal business hours 8AM to 5PM, Monday through Friday.
- Quotation does not include tax. If tax exempt, please provide tax exempt certificate with purchase order.
- Quotation is valid for (30) days.
- One-Year Warranty Included

Please note that we are not providing a Door Position Switch and Request to Exit Motion Sensor on the single passage door connected to AC Head-End. If this was part of the Access Control System, it would monitor if a door has been left open or forced open. We assume that the double doors as well as the single door will be connected to the SCADA system – this will only allow you to identify if a door has been opened and/or left open.

Please reference the following supporting documents that will be sent with this proposal:

- Germantown Booster Station Camera layout1
- Germantown Booster Station AC & CCTV Locations 8.8.24

If you have any questions, please let me know.

Sincerely,

Natalie Cyr

Sales Director
O & W Communications
ncyr@owcommunications.com
Office: 920-457-8640
Mobile: 920-371-1220

If approved, please sign below and e-mail or fax back the entire quote. If required, please forward a purchase order with the signed quote. Purchase Orders must reference our quote.

Signature:

This proposal is hereby accepted, and O & W is authorized to proceed with the work.

Signature

Date

2040 North Avenue
Sheboygan, WI 53083
Phoned: 920-457-8640
Fax: 920-457-8645
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Name of Company

PO #

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Director's Report - February 2025

Staff Top 3 Projects

Village Engineer

1	2025 Road and sidewalk program planning	Establishing a priority list for sidewalk improvements/additions and repairs.
2	High Point Pass Design	Working with raSmith on HPP Design. Design is currently at 75%. Anticipating a February Bid, March award.
3	Rockfield Rd and Pleasant View Road ARIP Planning	Begin planning and approval for Rockfield Road and Pleasant View Road reconstruction.

Civil Engineer

1	Division Road Design	Removal plans, typical sections, locates, etc.
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Engineering Techs

1	Road Program survey and data	Assist Civil Engineer and Village Engineer with data collection for 2025 Road Program
2	PSC CPR Inventory	Working to identify discrepancies between system data and annual reports.
3	Sidewalk program.	Prioritizing sidewalk repairs for the 2025 sidewalk program.

Water Superintendant

1	Well 7 and 2 generator replacement.	Contract signed, awaiting pre-con.
2	Well 4 Generator Design RFP.	Working with the Village Engineer on the development of a design services RFP.
3	Valve turner and vac purchase	Obtained competitive pricing. February PWHC approval anticipated.

Wastewater Superintendant

1	Proposals on condition assessment and coding.	Preliminary research on AI based condition assessment and coding.
2	Ruekert-Mielke Main St and Old Farm study.	Site walkthroughs conducted.
3	2024 Cured in Place Sewer Lining	Lining anticipated this week.

Highway, Parks , Buildings & Grounds Superintendant

1	Rural Tree Pruning and Removal	Project continuing.
2	Security projects.	Village Hall security project proceeding. Anticipating the start of additional projects.
3	Winter operations	Conducting research on brine distribution.

Director's Report - February 2025, cont.

Director

1	SSSA Amendment	Anticipate 2/5 PWHC and 2/17 VB approval.
2	Asset Manager Hiring	Hired Sharon Lu. Start date was 1/20/25.
3	Equipment and Safety WG's	Initial meetings for each group took place.

Richfield IGA Update

No updates.

Work By Other Agencies

WISDOT - Lannon & Maple Intersection - Substantial completion
ATC Transmission Line - 2025
WISDOT - WIS 167/Mequon Rd - Wasaukee east (in Mequon) Resurfacing - 2025
ANR Pipeline - Reline through Village - Spring/Summer 2025
WISDOT - WIS 145/Fond du Lac - Division Rd Roundabout - 2026
WISDOT - WIS 145/Fond du Lac - Mequon Rd to Brown Deer Rd Resurfacing - 2027
WISDOT - WIS 145/Fond du Lac - Division Road to Pilgrim Rd Resurfacing - 2028
WISDOT - WIS 167/Mequon Rd - I-41 to WIS 145 Resurfacing - 2028
WISDOT - WIS 167/Mequon Rd - Fond du Lac to Wasaukee - 2029

Compliance Milestones

1	PSC CPR Report Development - submitted a progress report along with an extension request.
2	DNR Storm Water Pollution Prevention Plan (SWPPP) for new DPW
3	MS4 Draft Permit Application submitted, working through changes after DNR review.
4	NR854 Water Supply Service Area Planning.

Letters of Credit on File

	Development	Bank	Amount	Expiration
1	Kinderberg Estates	Lexon Insurance	\$40,000	NA
2	Wrenwood North / Wrenwood	Midland States Bank	\$396,500	9/13/2025
3	Murphy/Golden Pet	Cash	\$10,000	NA
4	Heritage Park North	United Casualty and Surety	\$174,375.25	NA

Department Update

1	Asset Manager hired - Sharon Lu.
2	Residential Yard Waste Facility hours change - 2nd Saturday only.
3	Safety WG and Equipment WG contuning.
4	Water Rate Step II Increase and Sewer Rate Increase to be effective Q1 2025.
5	Material usage report (salt, brine and fuel)

Director's Report - February 2025, cont.

Complaint Log - 1/1 - 1/31

Garbage - Damaged Cart	8
Garbage - RequestNew Cart	7
Other - Tree Pickup	7
Other - Other Agency	5
Buildings - Miscellaneous	2
Garbage - General Complaint	2
Parks - Miscellaneous	2
Snow - Mailbox Down/Damage	2
Snow - Plow Damage (Not Mai	2
Snow - Road Icy	2
Street -Miscellaneous	2
Street - Street Light Out	2
Engineering - Drainage	1
Engineering - Permit follow up	1
Garbage - General Inquiry	1
Other - Miscellaneous	1
Other - Political Sign Complai	1
Street - Dead Animal	1
Street - Sign Down/Damaged	1
Tree - Branch Down Not Blocki	1
Water - Color	1
Water - Meter	1
Water - Taste	1
Total	54