



TRAFFIC COMMITTEE AGENDA

November 20, 2019 – 7:30 P.M.

Lower Level Conference Room – Troy City Hall, 500 West Big Beaver Road

1. Roll Call
2. Minutes – September 18, 2019

PUBLIC HEARINGS

3. Request for Sidewalk Waiver – 370 McKinley (Sidwell #88-20-09-254-015)

REGULAR BUSINESS

4. Request for Traffic Control – Drake Drive and Tucker Drive at Standish Drive
5. Request for Traffic Control – Hartland Drive at Kilmer Drive
6. 2019 Meeting Schedule
7. Public Comment
8. Other Business
9. Adjourn

cc: Item 4: Mary Ortmann, 5298 Standish
 Properties within 300'

 Item 5: Marci Curtis, 343 Vanderpool
 Properties within 300'

Traffic Committee Members
Sgt. Justin Novak, Police Department;
Lt. Eric Caloia, Fire Department;

TRAFFIC COMMITTEE

MESSAGE TO VISITORS, DELEGATIONS AND CITIZENS

The Traffic Committee is composed of seven Troy citizens who have volunteered their time to the City to be involved in traffic and safety concerns. The stated role of this Committee is:

- a. To give first hearing to citizens' requests and obtain their input.
- b. To make recommendations to the City Council based on technical considerations, traffic surveys, established standards, and evaluation of citizen input.
- c. To identify hazardous locations and recommend improvements to reduce the potential for traffic crashes.

Final decisions on sidewalk waivers will be made by the Committee at this meeting.

The recommendations and conclusions arrived at on regular items this evening will be forwarded to the City Council for their final action. Any citizen can discuss these recommendations before City Council. The items discussed at the Traffic Committee meeting will be placed on the City Council Agenda by the City Manager. The earliest date these items might be considered by City Council would normally be 10 days to 2 weeks from the Traffic Committee meeting. If you are interested, you may wish to contact the City Manager's Office in order to determine when a particular item is on the Agenda.

Persons wishing to speak before this Committee should attempt to hold their remarks to no more than 5 minutes. Please try to keep your remarks relevant to the subject at hand. Please speak only when recognized by the Chair. These comments are made to keep this meeting moving along. Anyone wishing to be heard will be heard; we are here to listen and help in solving or resolving your particular concerns.

PUBLIC HEARING**3. Request for Sidewalk Waiver – 370 McKinley (Sidwell #88-20-09-254-015)**

Pat Bismack of 2742 Powderhorn (Rochester Hills), requests a sidewalk waiver for the sidewalk at 370 McKinley (Sidwell #88-20-09-254-015). Mr. Bismack states “*I would be the only one with a sidewalk in the whole sub*”.

The Department of Public Works (DPW) recommends approving the waiver request and not requiring the installation of sidewalk “*due to the lack of sidewalk on the surrounding parcels*”, contingent upon the submission of a cash deposit for future construction and to assure consent and participation in any future sidewalk installation.

Mr. Bismack has already paid the sidewalk waiver fee in lieu of constructing the sidewalk. This was done due to the time of year and the need to have final grade approval issued to allow for the closing of the house. (See attached email)

SUGGESTED RESOLUTIONS:

1. WHEREAS, City of Troy Ordinances, Chapter 34, allows the Traffic Committee to grant waivers of the City of Troy Design Standards for Sidewalks upon a demonstration of necessity; and

WHEREAS, Pat Bismack has requested a waiver of the requirement to construct sidewalk based on lack of sidewalk on surrounding parcels; and

WHEREAS, the Traffic Committee has determined the following:

- a. A waiver will not impair the public health, safety or general welfare of the inhabitants of the City and will not unreasonably diminish or impair established property values within the surrounding area, and
- b. A strict application of the requirements to construct a sidewalk would result in practical difficulties to, or undue hardship upon, the owners, and
- c. The construction of a new sidewalk would lead nowhere and connect to no other walk, and thus will not serve the purpose of a pedestrian travel-way.

NOW THEREFORE, BE IT RESOLVED, that the Traffic Committee **GRANTS** a waiver of the sidewalk requirement for 370 McKinley (Sidwell #88-20-09-254-015) contingent upon the receipt of a cash deposit commensurate with the cost of sidewalk construction.

2. WHEREAS, the Traffic Committee has determined, after a public hearing, that Petitioner failed to establish the standards justifying the granting of a waiver,

NOW THEREFORE, BE IT RESOLVED, that the Traffic Committee **DENIES** a waiver of the sidewalk requirement for 370 McKinley (Sidwell #88-20-09-254-015).

REGULAR BUSINESS

4. Request for Traffic Control – Drake Drive and Tucker Drive at Standish Drive

Mary Ortmann of 5298 Standish Drive states that the lack of traffic control at the intersection of Drake Drive and Tucker Drive, both at Standish Drive creates a hazardous condition.

SUGGESTED RESOLUTIONS:

- a. RESOLVED, that the intersection of Drake Drive at Standish Drive be **MODIFIED** from no traffic control to a STOP sign on the Drake Drive approach to the intersection.
- b. RESOLVED, that **NO CHANGE** be made at the intersection of Drake Drive at Standish Drive.
- c. RESOLVED, that the intersection of Tucker Drive at Standish Drive be **MODIFIED** from no traffic control to YIELD signs on both Tucker Drive approaches to the intersection.
- d. RESOLVED, that **NO CHANGE** be made at the intersection of Tucker Drive at Standish Drive.

5. Request for Traffic Control – Hartland Drive at Kilmer Drive

Marci Curtis of 343 Vanderpool states that the lack of ALL-WAY STOP control at the intersection of Hartland Drive at Kilmer Drive creates a hazardous condition. A new home at the corner has exacerbated the condition and reduced the sight lines.

SUGGESTED RESOLUTIONS:

- a. RESOLVED, that the intersection of Hartland Drive at Kilmer West Drive be **MODIFIED** from STOP control on the Kilmer Drive approaches to the intersection to ALL-WAY STOP control at the intersection of Hartland Drive and Kilmer Drive.
- b. RESOLVED, that **NO CHANGE** be made at the intersection of Hartland Drive at Kilmer Drive.

6. 2020 Meeting Schedule

According to City of Troy Traffic Committee By-Laws, Article IV – Meetings:

“Regular meetings will be held on the third Wednesday of each month at 7:30 p.m. at the Troy City Hall, 500 West Big Beaver Road, Troy, Michigan.”

There are no other by-laws or procedures that establish the actual dates of the meetings, but an annual calendar of meetings is published by the City so meeting dates need to be set for this purpose.

SUGGESTED RESOLUTION:

- a. RESOLVED, that the Traffic Committee **SHALL HOLD** Regular Meetings in 2020 according to the following schedule at 7:30 PM:

- Wednesday, January 15
- Wednesday, February 19
- Wednesday, March 18
- Wednesday, April 15
- Wednesday, May 20
- Wednesday, June 17
- Wednesday, July 15
- August – NO MEETING
- Wednesday, September 16
- Wednesday, October 21
- Wednesday, November 18
- December – NO MEETING

7. Public Comment**8. Other Business****9. Adjourn**

A regular meeting of the Troy Traffic Committee was held Wednesday, September 18, 2019 in the Lower Level Conference Room at Troy City Hall. Pete Ziegenfelder called the meeting to order at 7:30 p.m.

1. Roll Call

Present: Don Johnson
Richard Kilmer
Cindy Nurak
Al Petrulis
Sunil Sivaraman
Cynthia Wilsher
Pete Ziegenfelder
Alankar Shende, Student Representative

Also present: Dan Mistura, 924 Banmoor
Rosetta Mistura, 924 Banmoor
Jim Heidt, 321 Hickory
Justin Kellow, 416 E. Lovell
Mohammed Malik, 268 Hickory
Sgt. Justin Novak, Police Department
Bill Huotari, City Engineer/Traffic Engineer

2. Minutes – July 17, 2019

Resolution # 2019-09-16
Moved by Kilmer
Seconded by Sivaraman

To approve the minutes as printed.

Yes: Johnson, Kilmer, Nurak, Petrulis, Sivaraman, Wilsher, Ziegenfelder
No: None

MOTION CARRIED**PUBLIC HEARINGS****3. No Public Hearings****REGULAR BUSINESS****4. Request for Traffic Control – Banmoor Drive at Emerson Drive**

Dan Mistura of 924 Banmoor states that the lack of traffic control at the intersection of Banmoor Drive at Emerson Drive creates a hazardous condition.

Mr. Mistura was in attendance at the meeting and stated that many times cars pull out without stopping for oncoming traffic. It is only about 70 yards from Crooks to Emerson and a bush obstructs visibility at the intersection. There is a truck that is frequently parked (legally) between 994 and 980 Banmoor which forces vehicles out and around.

Mr. Sivaraman asked about bus stops in this area. The intersection is the bus stop for Bemis Elementary.

Mr. Ziegenfelder stated that he supports traffic control signs at all intersections.

Mr. Petrulis stated that OHM recommended that a Stop sign be placed on the Emerson Drive approach to the intersection. He further agreed that Emerson is very close to Crooks and for eastbound Banmoor traffic, Emerson comes up on you very quickly.

Resolution # 2019-09-17

Moved by Kilmer

Seconded by Sivaraman

RESOLVED, that the intersection of Banmoor Drive at Emerson Drive be **MODIFIED** from no traffic control to a STOP sign on the Emerson Drive approach to the intersection.

Yes: Johnson, Kilmer, Nurak, Petrulis, Sivaraman, Wilsher, Ziegenfelder

No: None

MOTION CARRIED

5. Request for Traffic Control – Jamaica Drive at Key West Drive

Rick Swanquist of 1301 Key West submitted an email on September 5, 2019 (after the agenda had already been posted) requesting that the item be removed from the agenda as he was satisfied with the findings of the study and did not want to pursue the request.

The item was withdrawn from the agenda and no action was taken.

6. Request for Traffic Control – Lovell Drive at Montclair Drive

Leah Kellow of 416 E. Lovell states that the existing YIELD signs on Lovell Drive do not cause traffic to yield the right-of-way or stop at the intersection with Montclair Drive, creating a hazardous condition.

Justin Kellow of 416 E. Lovell was in attendance at the meeting and stated that there are no sidewalks in the area and many residents use the roads to walk on, ride bikes, roller blade, etc. Lovell is a cut-through route between Livernois and Rochester and traffic has increased along with the speed of traffic. His mailbox has been hit and he has reminded drivers to slow down when he or his family are in or near the road. There is a big bush on the corner and Montclair curves as it approaches the intersection which reduce visibility at the intersection. He supports ALL-WAY STOP at the intersection.

Traffic Engineering received emails from Elizabeth Williams at 561 E. Lovell and Dave Meinhard of 550 E. Lovell along with one phone call from Orazio Vettraino of 6748 Montclair in support of ALL-WAY STOP at the intersection.

Mr. Sivaraman asked if there are any bus stops in this area. Bus stop locations were not known.

Mr. Petrulis discussed replacing the existing Yield signs with Stop signs.

Mr. Johnson stated that all of the neighbors who attended the meeting and/or contacted Traffic Engineering support ALL-WAY STOP at the intersection.

Resolution # 2019-09-18

Moved by Sivaraman

Seconded by Wilsher

RESOLVED, that the intersection of Lovell Drive at Montclair Drive be **MODIFIED** from YIELD signs on the Lovell Drive approaches to ALL-WAY STOP at the intersection of Lovell Drive at Montclair Drive.

Yes: Johnson, Kilmer, Nurak, Petrulis, Sivaraman, Wilsher, Ziegenfelder

No: None

MOTION CARRIED

7. Request for Traffic Control – Plum Drive at Hickory Drive

Traffic Committee member Richard Kilmer of 62 Hickory requested at the July 17, 2019 Traffic Committee meeting that the intersection of Plum Drive at Hickory Drive be reviewed for purposes of an ALL-WAY STOP. Mr. Kilmer states that STOP signs on the Plum Drive approaches only do not provide adequate traffic control at the intersection.

Jim Heidt of 321 Hickory was in attendance at the meeting and has lived in this area for 44 years. He stated that traffic has increased exponentially over that time and Hickory is used as a cut-through. Troy Police have sat in his driveway over the years. Livernois traffic has increased and will only become heavier with the apartment complexes being built north and south of Maple Road. Starr at Plum and Cherry at Hartshorn were recently revised to have Stop signs and traffic has been using Plum and Hickory to avoid those stop signs.

Mr. Heidt continued that Morris Elementary is now an international school so morning arrival and evening dismissal has created more traffic as more students are dropped off and picked up by their parents. There are no stop signs on Hickory. Many new families have moved in so there are many new children in the area. Traffic is very heavy in the AM and PM peak hours. Mr. Heidt supports ALL-WAY STOP at the intersection.

Mohammed Malik of 268 supported the statements made by Mr. Heidt and also supports ALL-WAY STOP at the intersection. Mr. Malik reiterated that traffic has increased significantly and especially during the AM and PM peak hours. There are no stop signs on Hickory.

Mr. Kilmer has lived in this area since 1969 and agrees that traffic has increased significantly and vehicles drive fast to avoid backups on Livernois and Maple. There are a lot of pedestrians that use the roads as there are no sidewalks in the area. He supports ALL-WAY STOP at the intersection.

Mr. Petrulis stated that this is one of the most chaotic areas of the city he has observed during the PM peak hour. With all the construction and extra traffic it is difficult to drive through this area.

Ms. Wilsher is very familiar with this area as she drives it daily to and from her home on Maple Road. She agrees that ALL-WAY STOP is needed at this intersection.

Resolution # 2019-09-19

Moved by Sivaraman

Seconded by Wilsher

RESOLVED, that the intersection of Plum Drive at Hickory Drive be **MODIFIED** from STOP signs on the Plum Drive approaches to ALL-WAY STOP control at the intersection of Plum Drive at Hickory Drive

Yes: Johnson, Kilmer, Nurak, Petrulis, Sivaraman, Wilsher, Ziegenfelder

No: None

MOTION CARRIED

8. Public Comment

There was no public comment at the meeting.

9. Other Business

Ms. Wilsher provided information to Sgt. Novak regarding a parking concern in the Redwood/Wacon/Jamaica/Kenyon area. Sgt. Novak will review the concern and report back.

Mr. Kilmer reported that the arrow board on northbound Livernois for the lane closure, south of I75, does not work during the early morning hours, between 5:00 AM and 5:30 AM. Traffic Engineering will contact MDOT for their review.

Sgt. Justin Novak was introduced as the police liaison to the Traffic Committee.

Alankar Shende was introduced as the student representative to the Traffic Committee.

Discussion of a previous recommendation at Alfred Drive at Edith Street was brought forth as information as the resident originally wanted the Traffic Committee to reconsider their recommendation but ultimately withdrew the request.

Traffic Engineering reported that I75 would be closed this weekend from I696 to Square Lake

for bridge demolition and repair work on the existing pavement.

10. Adjourn

The meeting adjourned at 8:28 p.m.

Pete Ziegenfelder, Chairperson

Bill Huotari, City Engineer/Traffic Engineer



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DEPARTMENT OF PUBLIC WORKS
4693 Rochester Road
Troy, MI 48085
troymi.gov

October 2, 2019

TO: The City of Troy Traffic Committee

FROM: Kurt Bovensiep, Public Works Director 
Scott Carruthers, Streets and Drains Operations Manager 

SUBJECT: Request for Waiver of Sidewalk Requirement
Sidwell Number 20-09-254-015

Per the attached waiver form, Pat Bismack, is requesting a waiver for the sidewalk on the property located at 370 McKinley, 20-09-254-015 in the Houghten Acres Sub Plat.

Chapter 34 City of Troy Sidewalks and Driveway Approaches Ordinance # 34-07 specifies that all owners of lots and premises abutting dedicated streets open to the public shall be required to construct sidewalks and driveway approaches at the time of construction of any new buildings or structures, or additions to buildings or structures, or at the time a nonconforming use changes to a permitted use in the Zoning District. No occupancy permit shall be issued until such time as the owners of said property have complied with the requirements of this provision provided only that the Director of Building and Zoning may extend the time for completion of the required sidewalks and driveway approaches in accordance with established procedure.

City of Troy Sidewalks and Driveway Approaches Ordinance # 34.07.01 also requires that a sidewalk be installed in conjunction with the development of a parcel due to a recent lot split, combination of parcels or a re-platting.

Please be advised that McKinley does not have a sidewalk on either the north or south sides of the street, and neither Daniels nor Houghten have any sidewalk on the east or west sides of the street. Due to the lack of sidewalk on the surrounding parcels, we recommend that the sidewalk not be installed at 370 McKinley as per ordinance #34.07.

If the sidewalk requirements were to be waived, we recommend the approval be subject to the submission of a cash deposit for future construction to assure consent and participation in any future sidewalk installation.



City of Troy
Mr. Kurt Bovensiep
Public Works Director
4693 Rochester Road
Troy, MI 48098

Mr. Bovensiep,

I am/we are the owner(s) of the property at 370 MC KINLEY

Lot number LOT 65B & 66B

Subdivision Name HOUGHTEN ACRES

Sidewell Number 20-09-254-015

I/we would like to request a sidewalk variance for the following reasons:

I WOULD BE THE ONLY ONE WITH
A SIDEWALK IN THE WHOLE SUB

See attached plan/sketch.

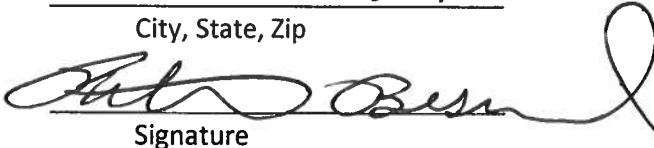
I/We can be contacted at 810 397 5327
Phone Number

BISMACK@SBGLOBAL.NET
Email Address

PAT BISMACK
Name

2742 POWDERHORN
Address

ROCK HILLS MI 48309
City, State, Zip


Signature

370 McKinley

RECEIVED

OCT 3 2018

PLOT PLAN FOR LOT 65B/66B

"HOUGHTEN ACRES"

#370 MCKINLEY ROAD
SIDWELL #88-20-09-254-015

LOT 41
#5541 WRIGHT ST.
88-20-09-254-010

LOT 50
#5511 WRIGHT ST.
88-20-09-254-011

LOT 49
#5501 WRIGHT ST.
88-20-09-254-012

BENCHMARK:

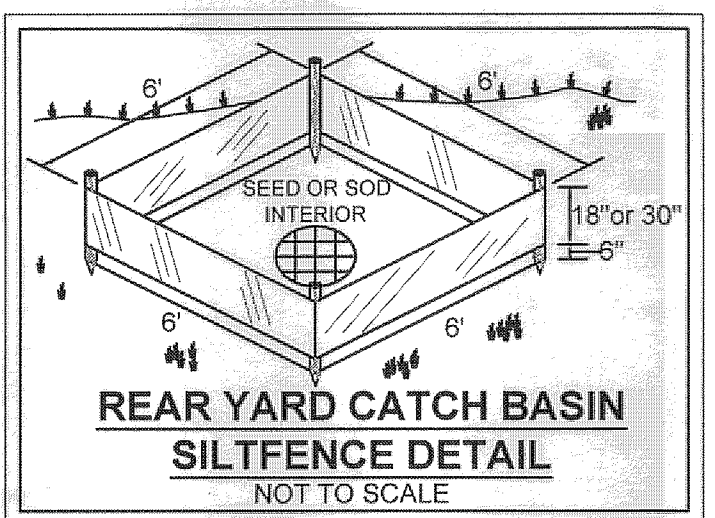
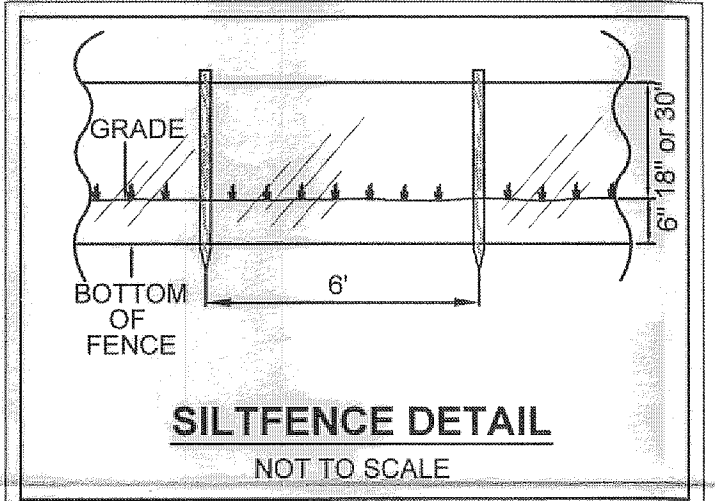
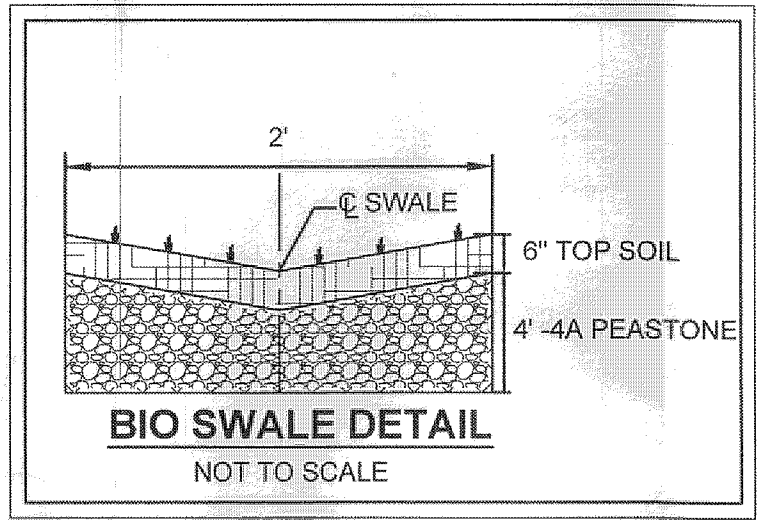
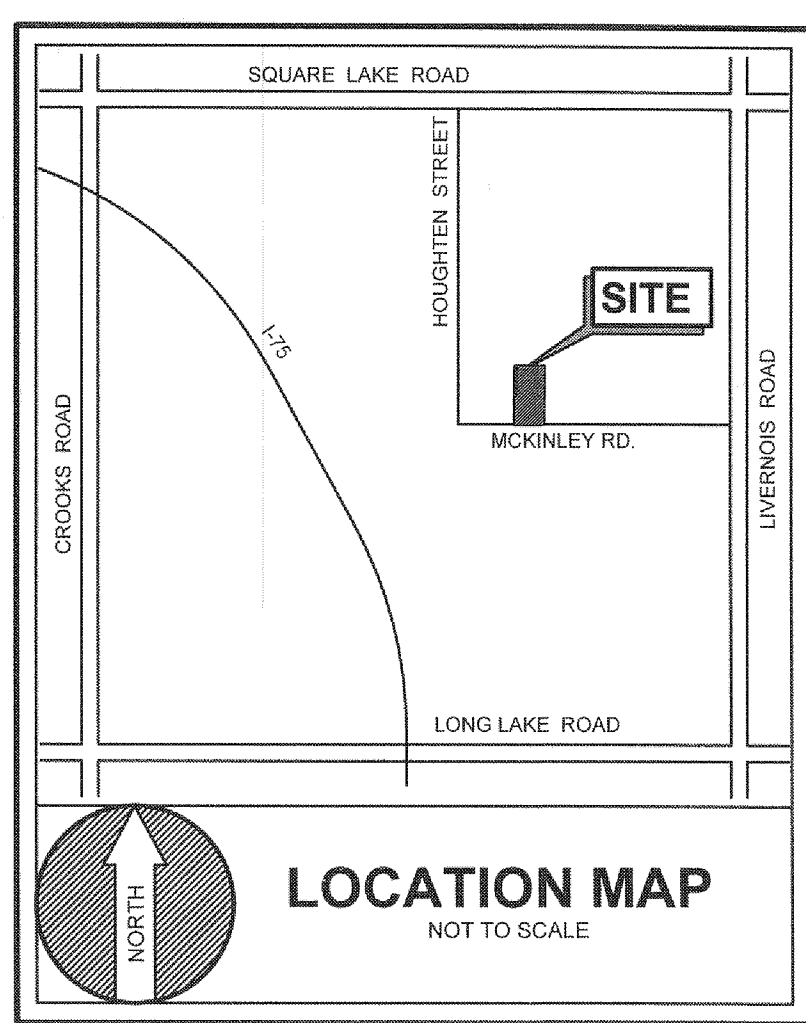
#1) TOP OF HYDRANT
LOCATED JUST WEST
OF PROPERTY
ELEV. 758.10

#1692) ARROW ON HYD#8-22
@ HOUSE #5550 HOUGHTEN
ELEV. 760.878

#1705) N-RIM OF GV&W AT
NORTH SIDE OF MCKINLEY @
WEST PROP-LINE OF HOUSE
#5501 WRIGHT ST.
ELEV. 754.44

APPROVED

AS NOTED:
CITY OF TROY LAND SURVEYOR
DATE: 10/04/2018



STORM WATER DETENTION ANALYSIS

AREA OF DRIVEWAY AND SIDEWALK	=	1,473
AREA OF HOUSE AND GARAGE	=	2,923
		4,396
STORE 1" OF RAIN WITH 0.8 RUN OFF	=	282 C.F.
4,396 X 0.8 X 0.08	=	
VOLUME PROVIDED		
88 L.F. X 2' WIDE X 4' DEEP X 0.40 VOID RATIO	=	282 C.F.



NOTE: SIDEWALK IS SHOWN PENDING APPEAL TO THE TOWNSHIP

NOTE: ONSITE SOILS CONSISTS OF 11B

CONTACT NAME:
BISMACK DESIGNS INC.
(248) 705-6988
2742 POWDERHORN RIDGE
ROCHESTER HILLS, MI 48309

DESCRIPTION OF PROPERTY

PART OF LOT 65 AND 66 OF "HOUGHTEN ACRES" OF SECTION 9, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 65 ON PAGE 24, OAKLAND COUNTY RECORDS AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF LOT 66 OF SAID "HOUGHTEN ACRES"; THENCE S88°49'10"E 199.99 FEET ALONG THE SOUTH LINE OF LOT 66 TO THE POINT OF BEGINNING; THENCE EXTENDING S88°49'10"E 100.00 FEET ALONG THE SOUTH LINE OF SAID LOT 66; THENCE N01°46'40"E 204.10 FEET ALONG THE EAST LINE OF LOT 66; THENCE N89°00'40"W 100.00 FEET ALONG THE NORTH LINE OF LOT 65; THENCE S01°46'40"W 203.77 FEET TO THE POINT OF BEGINNING. CONTAINING 0.469 ACRES OF LAND.

NOTE: FAZAL KHAN & ASSOCIATES ASSUMES NO RESPONSIBILITY FOR BUILDING DIMENSIONS PROVIDED BY CLIENT. OWNER/BUILDER MUST VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

NOTE: DRIVEWAY PLACEMENT AS SHOWN IS FOR CONCEPTUAL PURPOSES ONLY. SEE BUILDER SPECIFICATIONS FOR FINAL DRIVEWAY LAYOUT.

NOTE: FAZAL KHAN & ASSOCIATES ASSUMES NO RESPONSIBILITY FOR BUILDING DIMENSIONS PROVIDED BY CLIENT. OWNER/BUILDER MUST VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

NOTE: THIS PLOT PLAN WAS PREPARED WITH PLANS FROM THE CITY. FIELD WORK WAS PERFORMED. APPROVAL OF THIS PLAN DOES NOT RELIEVE THE OWNER/BUILDER OF COMPLIANCE WITH ALL APPLICABLE CODES AND/OR ORDINANCES.

NOTE: DRIVEWAY PLACEMENT AS SHOWN IS FOR CONCEPTUAL PURPOSES ONLY. SEE BUILDER SPECIFICATIONS FOR FINAL DRIVEWAY LAYOUT.

NOTE: SUMP PUMP DISCHARGE, WATER SERVICE LEAD, AND SANITARY SEWER LEAD SHALL REMAIN THE SAME.

- EROSION CONTROL MEASURES & SEQUENCE OF CONSTRUCTION
1. INSTALL CRUSHED CONCRETE ACCESS DRIVE.
 2. INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES AND SILT FENCE AS INDICATED ON PLAN AND AT ADDITIONAL AREAS AS NECESSARY.
 3. INSTALL GEOTEXTILE FILTER FENCE ON EXISTING REAR YARD CATCH BASINS.
 4. MAINTAIN A 15 FT. BUFFER OF VEGETATION WHERE POSSIBLE AROUND PERIMETER OF SITE.
 5. STRIP AND STOCKPILE TOPSOIL FROM PROPOSED PAVED AREAS. STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE COURSES AND SHALL BE GRADED AND SEEDDED.
 6. INSTALL UTILITIES.
 7. CONSTRUCT BUILDING.
 8. FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND/OR LANDSCAPE ALL DISTURBED AREAS NOT BUILT OR PAVED UPON.
 9. CLEAN PAVEMENT AND REMOVE ALL TEMPORARY EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS NECESSARY.
 10. ALL DIRT AND MUD TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED DAILY.

CITY OF TROY STANDARD NOTES:

-NOTIFY THE CITY OF TROY ENGINEERING DEPARTMENT AND SEWER AND WATER DEPARTMENT A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

-ALL CONSTRUCTION MUST BE CONFORMING TO THE CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY CITY OF TROY.

-CALL MISS DIG (1-800-482-7171) A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.

-ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ON SITE.

-ALL EXCAVATION UNDER OR WITHIN 3 FT. OF PUBLIC PAVEMENT, EXISTING OR PROPOSED SHALL BE BACKFILLED AND COMPACTED WITH SAND (CLASS II MDOT MINIMUM).

-THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.

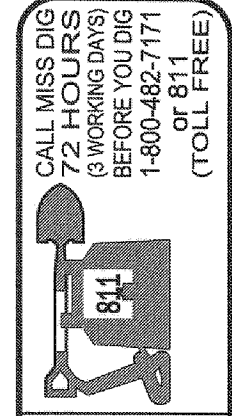
-THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CITY OF TROY PERMITS INCLUDING A PERMIT TO OCCUPY PUBLIC UTILITY EASEMENTS OR PUBLIC RIGHTS-OF-WAY.

-TRENCH BACKFILL IN COUNTY R.O.W. SHALL CONFORM TO R.C.O.C. REQUIREMENTS AND BE SUBJECT TO THE APPROVAL OF THE R.C.O.C. ENGINEER.

NOTE:
LOT COVERAGE = 14.3%
MAX COVERAGE = 30%

AREA OF DISTURBANCE
±0.469 ACRES

DISTANCE TO THE STURGIS DRAIN
± 2400'



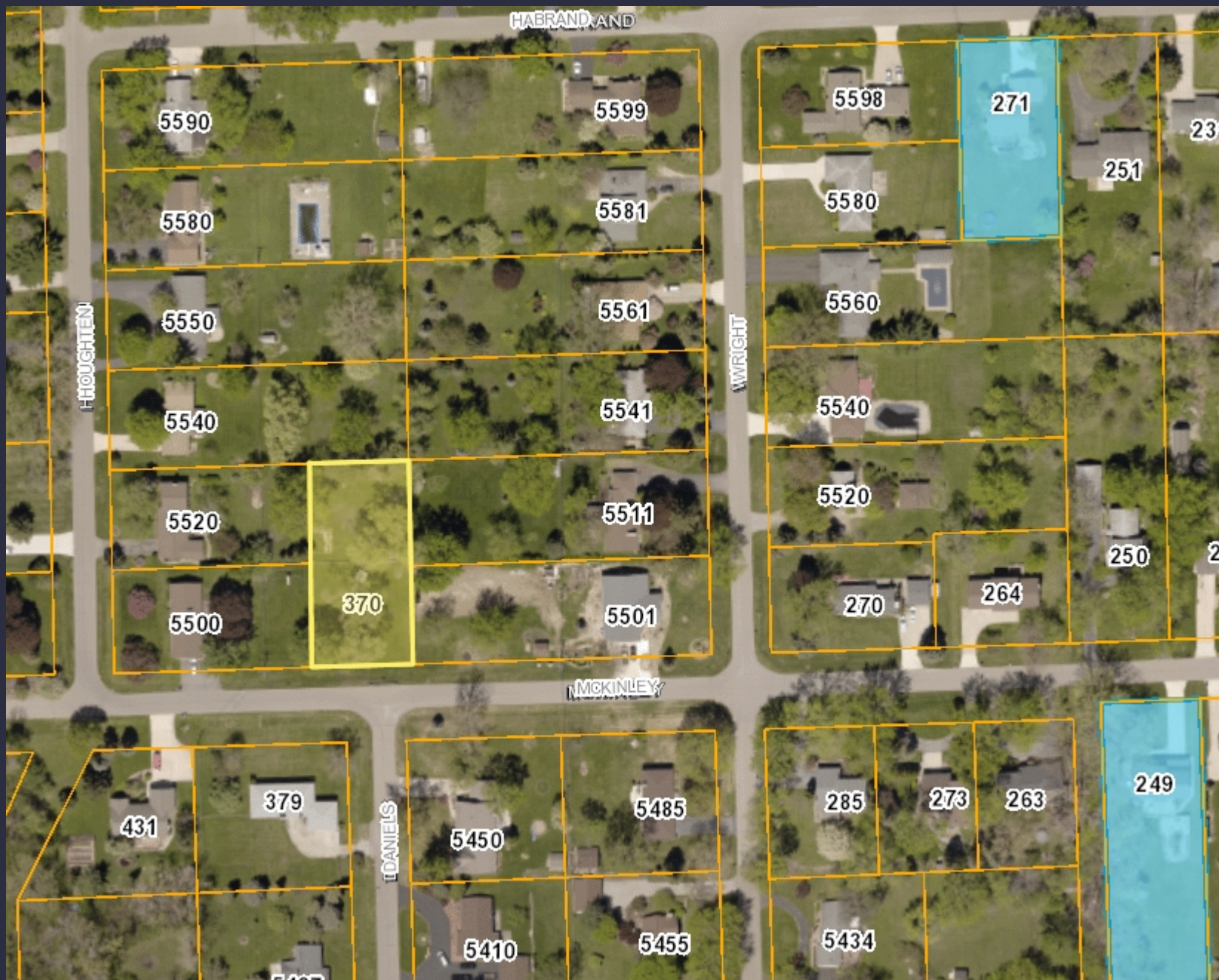
LOT 65B/66B "HOUGHTEN ACRES"

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4279 SCHENCK ST. STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

PROJECT NO.	18-0086C1	FIELD BOOK	XXX
DATE	09-21-2018	CHECKED BY	O.P.
CLIENT	PAT BISMACK	DRAWN BY	T.F.
SCALE	1" = 20'		
PRELIMINARY	<input checked="" type="checkbox"/>	CONSTRUCTION	<input type="checkbox"/>
AS BUILT	<input type="checkbox"/>		
SHEET NO.	1		

Legend:

- Sidewalk Waiver
- Road Centerline Text



Notes:





William J Huotari

From: William J Huotari
Sent: Wednesday, October 2, 2019 11:49 AM
To: 'bismack@sbcglobal.net'
Cc: George J Ballard; Kurt Bovensiep
Subject: 370 McKinley - Sidewalk Waiver

Pat, per our discussion, the sidewalk waiver fee will be:

$(100-16) \times 5 \times \$4.33 = \underline{\underline{\$1,818.60}}$

This amount must be paid prior to final grade being issued as the 5' sidewalk is included on the approved plot plan.

The sidewalk waiver is still contingent on Traffic Committee approval of the same at the November 20, 2019 meeting as staff does not have the authority to grant a waiver.

Staff will recommend that the sidewalk waiver be granted contingent upon the receipt of a cash deposit commensurate with the cost of sidewalk construction (which you will already have posted).

Should the Traffic Committee deny the waiver, the funds would be refunded and the sidewalk would need to be constructed per the approved plot plan.

You would still be expected to attend the November 20, 2019 Traffic Committee meeting at Troy City Hall, Lower Level Conference Room, at 7:30 PM to discuss the sidewalk waiver request.

Any questions, please let me know.

Thanks, Bill



William J. Huotari, PE
City Engineer | Traffic Engineer
City of Troy
248.524.3387



From: [BRAD Niederquell](#)
To: [William J Huotari](#)
Subject: Public Hearing for Sidewalk waiver for 370 McKinley
Date: Friday, November 1, 2019 9:58:06 AM

ttn:
Engineering Department
City of Troy
M. Aileen Dickson

I received a notice for a public hearing to consider the request of waiver of sidewalk requirements for the property located at 370 McKinley (Sidwell #88-20-09-254-015).

I will not be able to attend the public hearing. However, I am writing this in support of the waiver. There are no sidewalks in the subdivisions outlined by I-75, Long Lake, Square Lake and Livernois. Since this property falls within this zone there is no logical sense to require a sidewalk. Obviously, my opinion would be much different if this subdivision had sidewalks.

I would like to point out that the restoration of McKinley after the contractor ran utilities for this property was done to a very poor standard. It should be improved.

Thank you,

Brad Niederquell
5370 Wright Dr
248 670 8338



TRAFFIC COMMITTEE REPORT

October 21, 2019

TO: Traffic Committee

FROM: Bill Huotari, City Engineer/ Traffic Engineer

SUBJECT: Request for Traffic Control
Drake Drive and Tucker Drive at Standish Drive

Background:

Mary Ortmann of 5298 Standish Drive states that the lack of traffic control at the intersection of Drake Drive and Tucker Drive, both at Standish Drive creates a hazardous condition.

There was a single crash recorded in the past full five (5) years at the intersection of Tucker Drive at Standish Drive. No crashes occurred at the intersection of Drake Drive and Standish Drive.

The posted speed limit on both streets is 25 mph.

Standish Drive is presumed to be the major roadway at both intersections as it continues through each intersection and connects to numerous side streets. Both intersections are uncontrolled on every approach.

The major potential sight distance obstructions at the intersection of Drake Drive at Standish Drive is an evergreen tree at the northwest quadrant of the intersection and the northeast house corner at the southwest quadrant of the intersection. The major potential sight distance obstructions at the intersection of Tucker Drive at Standish Drive are the house corners on each quadrant of the intersection.

The safe approach speed was found to be 8.3 mph for a vehicle traveling on eastbound Drake Drive as a result of the sight obstruction from the evergreen tree at the northwest quadrant of the intersection, therefore a STOP sign is the recommended treatment on the Drake Drive approach to Standish Drive.

The safe approach speed was found to be 19.3 mph for a vehicle traveling on eastbound Tucker Drive as a result of the house corner at the southwest quadrant of the intersection, and 17.4 mph for a vehicle traveling westbound Tucker Drive as a result of the house corner at the southeast quadrant, therefore a YIELD sign is the recommended treatment on the Tucker Drive approaches to Standish Drive.

The city requested that OHM review the intersection and provide their findings and recommendations (copy attached).

October 3, 2019

Mr. William Huotari, PE
City Engineer
City of Troy
500 W. Big Beaver Rd
Troy, MI 48084

RE: Traffic Control Recommendation for
Drake Drive at Standish Drive and Tucker Drive at Standish Drive
OHM JN: 0128-19-0240

Dear Mr. Huotari:

As requested, we have reviewed the intersections of Drake Drive at Standish Drive and Tucker Drive to determine the proper traffic control. Drake Drive at Standish Drive is a 3-legged intersection located approximately 1,500 feet east of John R Road and 1,730 feet north of Long Lake Road. The intersection of Tucker Drive and Standish Drive is a 4-legged intersection located approximately 600' south of Drake Drive. The speed limit on all streets under investigation is 25 mph. The intersections are uncontrolled on every approach. Reference the attachments for aerial and intersection photos.

Types of Roadways

Tucker Drive, Drake Drive, and Standish Drive are all considered local streets. Standish Drive runs north / south near the intersections and provides local access to John R Road (minor arterial) via Drake Drive and Mayflower Drive. Standish Drive terminates to the south at Radcliffe Drive, which has no outlet. Tucker Drive provides access to /from the local neighborhood and Long Lake Road (principal arterial) via Saffron Drive, and to / from John R Road via Standish Drive. Tucker Drive is closed for emergency vehicle access only approximately 300 feet to the west of Standish Drive.

The surrounding land use is entirely single-family residential. On-street parking is permitted on the east side of Standish Drive, the north side of Drake Drive, and on the south side of Tucker Drive in the vicinity of the intersections. Standish Drive is currently uncontrolled and would be considered the major road as it continues through the intersections, while Drake Drive and Tucker Drive would be considered the minor roads as they terminate at or just past Standish Drive.

The ensuing traffic control analysis adheres to the requirements presented in the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), which are considered mandates of state law. A reference document explaining the background behind the analysis is attached to this memo.



Crash Analysis

Based on information obtained through the Traffic Improvement Association of Michigan, there was a single crash recorded in the past full five (5) years at the intersection of Tucker Drive and Standish Drive. The single crash occurred between 11:30 PM December 9, 2015 and December 10, 2015 1:00 AM, and involved a car parked legally on the east side of Standish Drive that was struck by an unknown vehicle that fled the scene. No crashes occurred at the intersection of Drake Drive and Standish Drive. The crash data does not constitute a compelling case for modifying the existing controls.

Traffic Volumes

Traffic counts were conducted on southbound Standish Drive north of Drake Drive and on westbound Tucker Drive east of Standish Drive on Wednesday, September 18, 2019. The total daily entering traffic observed on the southbound Standish Drive approach was 364 vehicles, with a maximum hourly volume of 40 vehicles occurring between 7:00 to 8:00 AM and 6:00 to 7:00 PM. The total daily entering traffic observed on the westbound Tucker Drive approach was 1042 vehicles, with a maximum hourly volume of 119 vehicles between 7:00 to 8:00 AM.

Standish Drive is presumed to be the major roadway at both intersections as it continues through each intersection and connects to numerous side streets. The observation that westbound Tucker Drive carried almost three times the traffic volume on southbound Standish Drive is likely explained by road construction on John R Road during the traffic count, leading to increased cut-through traffic on Tucker Drive.

Given the vehicle volumes observed, one can reasonably ascertain that Standish Drive (considered major roadway) fails to meet and / or sustain the 300 vehicles per hour threshold required for all-way STOP-control for even one hour, let alone the minimum of 8 hours. Additionally, the combined entering vehicular, pedestrian, and bicycle volumes on Tucker Drive or Drake Drive (considered minor roadways) are highly unlikely to average at least 200 units for any 8 hours.

Since the posted speed limit is only 25 mph on Standish Drive, it is reasonable to assume that the 85th percentile approach speed does not exceed 40 mph. Thus, the minimum vehicular volume warrants on any study road cannot be discounted to 70 percent of the values described previously. Finally, the study intersections fall significantly shy of even the reduced 80 percent volumes, based on the count data collected. Therefore, the minimum volume criteria for an all-way STOP has not been met. The summary reports for the traffic counts are attached to this memo.

Approach Speeds

The approach speed limit on all study streets is 25 mph. Speed limits alone cannot be used in this case to determine which direction of traffic should be assigned the right-of-way.

Sight Distance

The major potential sight distance obstructions at the intersection of Drake Drive at Standish Drive is an evergreen tree at the northwest quadrant of the intersection and the northeast house corner at the southwest quadrant of the intersection. The major potential sight distance obstructions at the intersection of Tucker Drive at Standish Drive are the house corners on each quadrant of the intersection. Reference the attachments for intersection photos. These obstructions come into play when determining the safe approach speeds for the intersection. The safe approach speed is the speed at



which a vehicle can approach an intersection and still stop in time to avoid a collision with a vehicle on the cross street. Safe approach speeds are determined through calculations.

When the safe approach speed is found to be less than 10 mph, a STOP sign is recommended. When the safe approach speed is found to be more than 10 mph, a YIELD sign is recommended. In this case, the safe approach speed was found to be 8.3 mph for a vehicle traveling on eastbound Drake Drive as a result of the sight obstruction from the evergreen tree at the northwest quadrant of the intersection, therefore a STOP sign is the recommended treatment on Drake Drive.

The safe approach speed was found to be 19.3 mph for a vehicle traveling on eastbound Tucker Drive as a result of the house corner at the southwest quadrant of the intersection, and 17.4 mph for a vehicle traveling on westbound Tucker Drive as a result of the house corner at the southeast quadrant. Given that the safe approach speed is greater than 10 mph, a YIELD sign is the recommended treatment on each approach. The safe approach speed calculation spreadsheets for each intersection are attached for your reference.

Recommendation

OHM recommends that the City install a STOP sign on the Drake Drive approach and a YIELD sign on both Tucker Drive approaches to Standish Drive. The intersections should be reevaluated if traffic volumes increase or more crashes begin to occur.

Sincerely,
Orchard, Hiltz & McCliment, Inc.

Matt Clark, EIT
Engineer

Sara Merrill, PE, PTOE
Traffic Project Manager

Attachments:

- Aerial Photo
- Safe Approach Speed Calculation Spreadsheets
- Intersection Photos
- UD-10 Crash Report
- Traffic Count Summaries
- Traffic Control Determination Reference Guide

Legend:

Notes:



Safe Approach Speed Calculation

Standish Dr and Drake Dr
City of Troy

Date: 9/17/2019
Analyst: Matt Clark

Measured:

Width of Roads	
Road 1 =	28 (ft)
Road 2 =	28 (ft)
Distance to Obstruction	
a =	17 (ft)
b =	58 (ft)
c =	45 (ft)
d =	46 (ft)
Angle of Intersection	
Delta =	90 (degrees, measure counterclockwise)
Road 1 Posted	
Speed Limit =	25 (mph)

Assumed:

Speed of Vehicle A = Speed of Vehicle C
= Posted Speed Limit on Road 1
+ 5 (mph)
 $V_1 = 30$ (mph)
Perception / Reaction Time (AASHTO)
 $t = 2.5$ (sec)
Deceleration rate (AASHTO)
 $A = 11.20$
Clearance distance in excess of safe stopping distance (AAA)
 $EC = 0$ (ft)

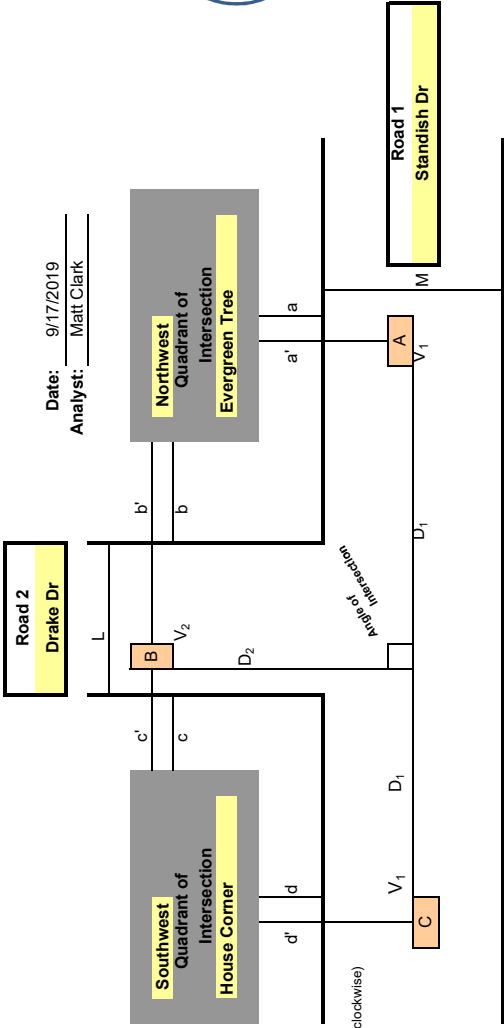
Calculated Safe Approach Speed for Vehicle B

Approaching on Road 2

$V_2 = 8.3$ (mph) [Based on Veh. A]
or $V_2 = 14.7$ (mph) [Based on Veh. C]

Threshold of Safe Approach Speed (AAA, FHWA & NSC)

to Recommend STOP Control 10.0 (mph)
to Recommend YIELD Control 25.0 (mph)
Otherwise Recommends NO CONTROL.



Based On $D_1 = (1.075 V_1^2 / A) + 1.4667 V_1 t + EC$
 $D_{2A} = \frac{a' \cdot D_1}{(D_1 - b')}$ or $D_{2C} = \frac{c' \cdot D_1}{(D_1 - d')}$

Intermediate Calculations:	
$D_1 =$	196
$D_{2A} =$	36.9
$D_{2C} =$	74.5
$a' =$	23
$b' =$	74
$c' =$	51
$d' =$	62

Notes:

Enter field measurements in yellow highlighted area.
Blue fields are std. default values; change only for cause.
Calculated by spreadsheet

Recommended ROW control for Road 2
based on safe approach speed

STOP Sign

Safe Approach Speed Calculation

Standish Dr and Tucker Dr
Troy, MI

Measured:

Width of Roads
Road 1 = 28 (ft)
Road 2 = 28 (ft)

Distance to Obstructions

a =	66 (ft)	e =	48 (ft)
b =	67 (ft)	f =	66 (ft)
c =	67 (ft)	g =	68 (ft)
d =	46 (ft)	h =	48 (ft)

Angle of Intersection
Delta = 90 (degrees, measure counterclockwise)

Road 1 Posted
Speed Limit = 25 (mph)

Assumed:

Speed of Vehicle A = Speed of Vehicle C
= Posted Speed Limit on Road 1
+ 5 (mph)
 $V_1 = 30$ (mph)

Perception / Reaction Time (AASHTO)
 $t = 2.5$ (sec)

Deceleration rate (AASHTO)
 $A = 11.20$

Clearance distance in excess of safe stopping distance (AAA)
 $EC = 0$ (ft)

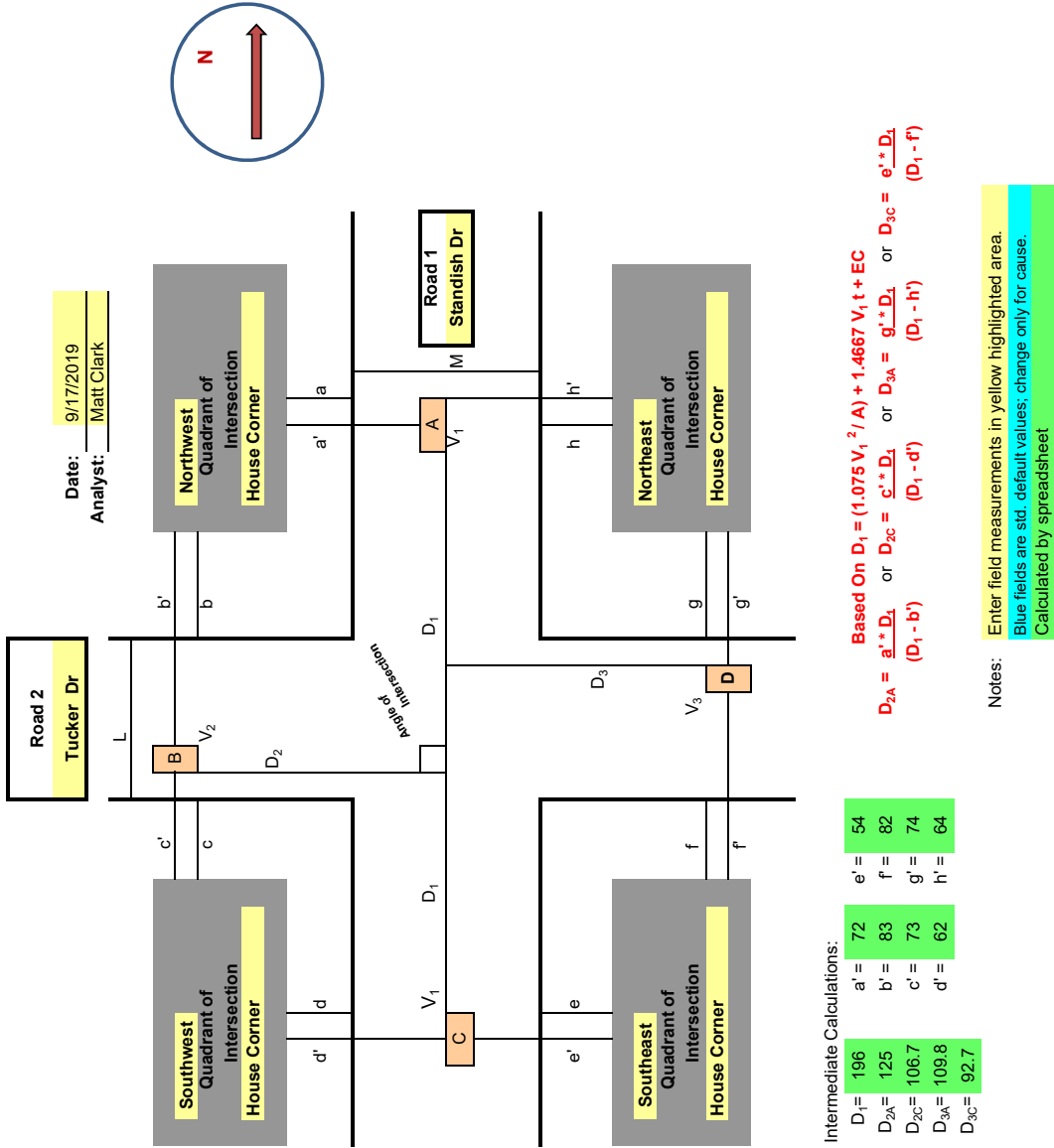
Calculated Safe Approach Speed for Vehicle B
Approaching on Road 2

$V_2 = 21.7$ (mph) [Based on Veh. A]
or $V_2 = 19.3$ (mph) [Based on Veh. C]

Calculated Safe Approach Speed for Vehicle D
Approaching on Road 2

$V_3 = 19.7$ (mph) [Based on Veh. A]
or $V_3 = 17.4$ (mph) [Based on Veh. C]

Threshold of Safe Approach Speed (AAA, FHWA & NSC)
to Recommend STOP Control 10.0 (mph),
to Recommend YIELD Control 25.0 (mph),
Otherwise Recommends NO CONTROL.





Photograph No. 1: Drake Drive – Heading East
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 2: Drake Drive - Heading East and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 3: Drake Drive - Heading East and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 4: Drake Drive - Looking West
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 5: Standish Drive at Drake Drive – Heading South
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 6: Standish Drive at Drake Drive – Heading South and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 7: Standish Drive at Drake Drive - Heading North
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 8: Standish Drive at Drake Drive - Heading North and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 9: Tucker Drive - Heading East
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Tucker Drive - Heading East and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Tucker Drive - Heading East and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Standish Drive at Tucker Drive- Heading South
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Standish Drive at Tucker Drive - Heading South and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Standish Drive at Tucker Drive- Heading South and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Tucker Drive - Heading West
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Tucker Drive – Heading West and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Tucker Drive - Heading West and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Standish Drive at Tucker Drive- Heading North
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Standish Drive at Tucker Drive - Heading North and Looking Right
Date: 9/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Standish Drive at Tucker Drive- Heading North and Looking Left
Date: 9/17/2019 **Photographer:** Matt Clark

Authority: 1949 PA 300, Sec.257 622
Compliance: Required MSP UD-10E
Penalty: \$100 and/or 90 days (Rev 11/2006)

External # 0613040
Crash ID 9468133

Page 01 of 01
Incident # 150040260 File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI: MI 6378400		Department Name Troy Police Department		Special Checks <input type="radio"/> Fatal <input type="radio"/> Non-Traffic Area <input type="radio"/> ORV/Snowmobile	
Crash Date 12/10/2015	Crash Time 02:00	No. of Units 02	Crash Type Other/Unknown	Special Circumstances <input type="radio"/> School Bus <input checked="" type="radio"/> None <input type="radio"/> Hit and Run <input type="radio"/> Deer <input type="radio"/> Fleeing Police	
County 63 - Oakland	Traffic Control None	Relation to Roadway On Road	Special Study	Weather Clear	Area 10 - NON-FRWY Straight roadway
City/Twsp 84 - Troy	Construction Zone (if applicable) Type Lane Closed Activity		Light Dark-Unlighted	Road Condition Dry	Total Lanes 02 Speed Limit 25 Posted Yes

LOCATION	Prefix	Road Name STANDISH	Road Type	Suffix	Divided Roadway
	Distance 475 Feet S	Traffic Way 01 - Not physically divided		Access Control 01 - No access control	
	Prefix	Intersecting Road DRAKE	Road Type	Suffix	Divided Roadway

UNIT/DRIVER	Unit Number 01	Unit Known No	State Driver License Number #####	Date of Birth (Age) ##/##/####	License Type <input type="radio"/> Operator <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex	Total Occupants	Hazardous Action 14 - Unknown	
	Unit Type MV	Driver Information ##### ##### (###) ###-####			Injury	Position	Restraint 09	Hospital NONE		
	Driver Condition <input type="radio"/> 01 <input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04 <input type="radio"/> 05 <input type="radio"/> 06 <input type="radio"/> 07 <input type="radio"/> 08 <input type="radio"/> 09 <input type="radio"/> 99			Interlock No	Ejected	Trapped	Airbag Deployed Not Equipped	Ambulance NONE		
	Alcohol <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Refused <input type="radio"/> Not offered Test Type <input type="radio"/> Field <input type="radio"/> PBT <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine			Test Results		Drugs <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Blood <input type="radio"/> Urine	Test Results		Citation Issued <input type="radio"/> Hazardous <input type="radio"/> Other	
	Vehicle Registration #####		State	Insurance / Policy # #####		Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####		Vehicle Description		Make	Model	Color	Year	Vehicle Type Passenger Car	
	Location of Greatest Damage 12		First Impact 12	Extent of Damage 0	Driveable Yes	Vehicle Direction	Vehicle Use		Action Prior 36 - Unknown	

Sequence of Events (● indicates MOST harmful event)	First ● 17 - Motor veh in transport	Second	Third	Fourth
--	--	--------	-------	--------

PASSENGERS	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information		Date of Birth (Age)	Sex	Position	Restraint	Hospital
			Injury	Airbag Deployed	Ejected	Trapped	Ambulance

TRUCK/BUS	Carrier Information		Carrier Source	GVWR	ICCMC	USDOT	MPSC
	Driver's CDL Type		Endorsements <input type="radio"/> H <input type="radio"/> P <input type="radio"/> T <input type="radio"/> N <input type="radio"/> S <input type="radio"/> X		CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other	CDL Restrictions <input type="radio"/> 28 <input type="radio"/> 29 <input type="radio"/> 30 <input type="radio"/> 35 <input type="radio"/> 36	
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth	Cargo Body Type	Medical Card	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill	ID #

OWNERS	Owner Information		Owner Information	

Person Advised of Damaged Traffic Control Contact Name: Contact Date: Contact Time:		Damaged Property	Public
		Owner & Phone	

UNIT / DRIVER	Unit Number 02	Unit Known No	State MI	Driver License Number #####	Date of Birth (Age) ##/##/####	License Type <input type="radio"/> Operator <input type="radio"/> Chauffeur <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex	Total Occupants 00	Hazardous Action	
	Unit Type MV	Driver Information ##### (###) ###-####				Injury	Position	Restraint 09	Hospital NONE		
	Driver Condition 01 02 03 04 05 06 07 08 09 099				Interlock No	Ejected	Trapped	Airbag Deployed Not Equipped	Ambulance NONE		
	Alcohol 0 Yes <input checked="" type="radio"/> No <input type="radio"/> Refused <input type="radio"/> Not offered <input type="radio"/> PBT <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine				Test Results		Drugs 0 Yes <input type="radio"/> No <input type="radio"/> Test Type <input type="radio"/> Blood <input type="radio"/> Urine		Citation Issued <input type="radio"/> Hazardous <input type="radio"/> Other		
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Towed To/By			Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####	Vehicle Description CHEVROLET		Make IMPALA	Model	Color GRAY	Year 2010	Vehicle Type Passenger Car			
	Location of Greatest Damage 08	First Impact 08	Extent of Damage 3	Driveable No	Vehicle Direction N	Vehicle Use 01 - Private		Action Prior 23 - Parked			
	Sequence of Events ● 17 - Motor veh in transport (● indicates MOST harmful event)										
PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
	Injury				Airbag Deployed	Ejected	Trapped	Ambulance			
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
	Injury				Airbag Deployed	Ejected	Trapped	Ambulance			
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
	Injury				Airbag Deployed	Ejected	Trapped	Ambulance			
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
	Injury				Airbag Deployed	Ejected	Trapped	Ambulance			
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
	Injury				Airbag Deployed	Ejected	Trapped	Ambulance			
TRUCK / BUS	Carrier Information					Carrier Source GVWR	ICCMC	USDOT	MPSC		
	Driver's CDL Type					Endorsements OH OP OT ON OS OX	CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other	CDL Restrictions 028 029 030 035 036			
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth			Cargo Body Type	Medical Card	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill		ID # Class #	
OWNERS	Owner Information ##### ##### #####, ## ####-#### (###) ###-####					Owner Information					
	Witness Information					Witness Information					
WITNESS	Investigated at Scene Yes					Reported Date (Time) 12/10/2015 (13:26)	1st Investigator Name (Badge) S.MORSE (91)		2nd Investigator Name (Badge)		Photos By
	Narrative UNIT 2 WAS PARKED LEGALLY AND UNOCCUPIED WHEN IT WAS STRUCK BY UNKNOWN VEHICLE IN AN UNKNOWN DIRECTION. INTIME OF OCCURENCE IS ALSO UNKNOWN BETWEEN 12/9/15 2230 AND 12/10/15 1300					Diagram 					

Weather: Various
Serial Number: 32214
Installed by: Matt Clark
Other Notes: None

Start Time	Mon 16-Sep-19	Tue 17-Sep-19	Wed 18-Sep-19	Thu 19-Sep-19	Fri 20-Sep-19	Average Day	Sat 21-Sep-19	Sun 22-Sep-19	Week Average
12:00 AM	*	*	1	*	*	1	*	*	1
01:00	*	*	0	*	*	0	*	*	0
02:00	*	*	0	*	*	0	*	*	0
03:00	*	*	0	*	*	0	*	*	0
04:00	*	*	3	*	*	3	*	*	3
05:00	*	*	3	*	*	3	*	*	3
06:00	*	*	14	*	*	14	*	*	14
07:00	*	*	40	*	*	40	*	*	40
08:00	*	*	27	*	*	27	*	*	27
09:00	*	*	14	*	*	14	*	*	14
10:00	*	*	26	*	*	26	*	*	26
11:00	*	*	11	*	*	11	*	*	11
12:00 PM	*	*	2	*	*	2	*	*	2
01:00	*	*	7	*	*	7	*	*	7
02:00	*	*	18	*	*	18	*	*	18
03:00	*	*	23	*	*	23	*	*	23
04:00	*	*	36	*	*	36	*	*	36
05:00	*	*	33	*	*	33	*	*	33
06:00	*	*	40	*	*	40	*	*	40
07:00	*	*	25	*	*	25	*	*	25
08:00	*	*	25	*	*	25	*	*	25
09:00	*	*	11	*	*	11	*	*	11
10:00	*	*	2	*	*	2	*	*	2
11:00	*	*	3	*	*	3	*	*	3
Day Total	0	0	364	0	0	364	0	0	364
% Avg. WkDay	0.0%	0.0%	100.0%	0.0%	0.0%				
% Avg. Week	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak Vol.	-	-	07:00 40	-	-	07:00 40	-	-	07:00 40
PM Peak Vol.	-	-	18:00 40	-	-	18:00 40	-	-	18:00 40
Grand Total	0	0	364	0	0	364	0	0	364
ADT		ADT 364		AADT 364					

Weather: Various
Serial Number: 32213
Installed by: Matt Clark
Other Notes: None

Start Time	Mon 16-Sep-19	Tue 17-Sep-19	Wed 18-Sep-19	Thu 19-Sep-19	Fri 20-Sep-19	Average Day	Sat 21-Sep-19	Sun 22-Sep-19	Week Average
12:00 AM	*	*	1	*	*	1	*	*	1
01:00	*	*	1	*	*	1	*	*	1
02:00	*	*	0	*	*	0	*	*	0
03:00	*	*	0	*	*	0	*	*	0
04:00	*	*	5	*	*	5	*	*	5
05:00	*	*	12	*	*	12	*	*	12
06:00	*	*	39	*	*	39	*	*	39
07:00	*	*	119	*	*	119	*	*	119
08:00	*	*	91	*	*	91	*	*	91
09:00	*	*	57	*	*	57	*	*	57
10:00	*	*	42	*	*	42	*	*	42
11:00	*	*	55	*	*	55	*	*	55
12:00 PM	*	*	58	*	*	58	*	*	58
01:00	*	*	52	*	*	52	*	*	52
02:00	*	*	62	*	*	62	*	*	62
03:00	*	*	64	*	*	64	*	*	64
04:00	*	*	82	*	*	82	*	*	82
05:00	*	*	78	*	*	78	*	*	78
06:00	*	*	74	*	*	74	*	*	74
07:00	*	*	64	*	*	64	*	*	64
08:00	*	*	49	*	*	49	*	*	49
09:00	*	*	22	*	*	22	*	*	22
10:00	*	*	8	*	*	8	*	*	8
11:00	*	*	7	*	*	7	*	*	7
Day Total	0	0	1042	0	0	1042	0	0	1042
% Avg. WkDay	0.0%	0.0%	100.0%	0.0%	0.0%				
% Avg. Week	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak Vol.	-	-	07:00 119	-	-	07:00 119	-	-	07:00 119
PM Peak Vol.	-	-	16:00 82	-	-	16:00 82	-	-	16:00 82
Grand Total	0	0	1042	0	0	1042	0	0	1042
ADT		ADT 989		AADT 989					

Reference Guide on Traffic Control Determination in the State of Michigan

Background

This document is intended to be used as a reference guide for performing intersection traffic control studies of intersections on public roadways in Michigan. The document explains the procedure and requirements necessary to implement traffic control at an intersection as stipulated by the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). Generally, the starting premise is an uncontrolled intersection. The first step would then be to verify if the intersection should remain uncontrolled or if YIELD or STOP controls on the minor street approach(es) should be provided. For locations with higher traffic volumes and /or crash issues, then an evaluation of the location for all-way STOP warrants would be performed. The appropriate analysis for each level of control described below.

YIELD Traffic Control Guidance

The use of a YIELD sign is intended to assign the right-of-way at intersections where it is not usually necessary to stop before proceeding into the intersection. Conversely, the STOP sign is intended for use where it is usually necessary to stop before proceeding into the intersection.

The following conditions should be fully evaluated to determine how the right-of-way should be assigned:

- Traffic Volumes: Normally, the heavier volume of traffic should be given the right-of-way.
- Approach Speeds: The higher speed traffic should normally be given the right-of-way.
- Types of Highways: When a minor highway intersects a major highway, it is usually desirable to control the minor highway.
- Sight Distance: Sight distance across the corners of the intersection is the most important factor and is critical in determining safe approach speeds.

STOP Traffic Control Guidance

Based on the MMUTCD there are four conditions where STOP signs may be warranted:

- At the intersection of a less important road with a main road where application of the normal right-of-way rule is unduly hazardous.
- On a street entering a through highway or street.
- At an unsignalized intersection in a signalized area.
- At other intersections where a combination of high speed, restricted view, or crash records indicate a need for control by the STOP sign.

Many times STOP signs are installed where they may not be warranted. Traffic experts agree that unnecessary STOP signs:

- Cause accidents they are designed to prevent.
- Breed contempt for other necessary STOP signs.
- Waste millions of gallons of gasoline annually.
- Create added noise and air pollution.
- Increase, rather than decrease, speeds between intersections.

There is also an explicit restriction in the MMUTCD that STOP signs are not to be used for speed control, in Section 2B.04.

Evaluation of All-Way STOP Traffic Control

Based on the MMUTCD there are four conditions where **all-way** STOP signs may be warranted:

- A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
- B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
- C. *Minimum volumes:*
 - 1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
 - 2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
 - 3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*
- D. *Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.*



TRAFFIC COMMITTEE REPORT

October 30, 2019

TO: Traffic Committee

FROM: Bill Huotari, City Engineer/ Traffic Engineer

SUBJECT: Request for Traffic Control
Hartland Drive at Kilmer Drive

Background:

Marci Curtis of 343 Vanderpool states that the lack of ALL-WAY STOP control at the intersection of Hartland Drive at Kilmer Drive creates a hazardous condition. A new home at the corner has exacerbated the condition and reduced the sight lines.

There were three (3) crashes recorded in the past full five (5) years at the intersection of Hartland Drive at Kilmer Drive.

The posted speed limit on both streets is 25 mph.

Kilmer Drive and Hartland Drive are considered local streets. Kilmer Drive runs north/south and provides access to/from Big Beaver Road. Hartland Drive runs east/west and provides local access to Rochester Road on the east side and Livernois Road on the west side. Kilmer Drive is STOP-controlled and would be considered the minor roadway at the intersection.

The major potential sight distance obstruction for a motorist traveling southbound on Kilmer Drive is the southeast house corner of the property on the northwest quadrant of the intersection. The major potential sight distance obstruction for a motorist traveling northbound on Kilmer Drive is the northeast house corner at the southwest quadrant of the intersection.

The safe approach speeds on Kilmer Drive were 13.3 mph and 13.0 mph for southbound and northbound vehicles, respectively. Therefore, YIELD-control would be the appropriate traffic control treatment on the Kilmer Drive approaches, rather than the existing STOP-control. However, OHM recommends retaining the existing STOP signs to not violate the expectations of motorists who use the intersection on a regular basis.

The city requested that OHM review the intersection and provide their findings and recommendations (copy attached).

October 30, 2019

Mr. William Huotari, PE
City Engineer
City of Troy
500 W. Big Beaver Rd
Troy, MI 48084

RE: Traffic Control Recommendation for
Kilmer Drive at Hartland Drive
OHM JN: 0128-19-0240

Dear Mr. Huotari:

As requested, we have reviewed the intersection of Kilmer Drive at Hartland Drive to determine the proper traffic control. Kilmer Drive at Hartland Drive is a 4-legged intersection located approximately 850 feet north of Big Beaver Road and about 3,050 feet west of Rochester Road. The speed limit on both streets under investigation is 25 mph. Kilmer Drive is STOP-controlled on both approaches to Hartland Drive. Attached are aerial and intersection photos.

Types of Roadways

Both Kilmer Drive and Hartland Drive are considered local streets. Kilmer Drive runs north / south at this point and provides local access to / from Big Beaver Road (principal arterial) via Langston Street, Hartland Drive, Vanderpool Drive, and Trombley Drive. Hartland Drive runs east / west and provides local access to Rochester Road (principal arterial) on the east side and Livernois Road (minor arterial) on the west side via Louis Street, Troy Street, Frankton Drive, Helena Street, Talbot Street, Kilmer Drive, and Ellenboro Drive. Hartland Drive terminates at the west end at Livernois Road. Kilmer Drive terminates to the north at Trombley Drive which only outlets to the east. Kilmer Drive terminates to the south at East Big Beaver Road.

The surrounding land use is single-family residential to the east, north and west of this intersection; the southern area is mixed residential and commercial. On-street parking is permitted in the vicinity of this intersection on the west side of Kilmer Drive and on the north side of Hartland Drive. Kilmer Drive is STOP-controlled and would be considered the minor roadway at the intersection.

Traffic Control Analyses

Traffic control analyses described herein adheres to the requirements presented in the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) that are considered mandates of state law. A reference document explaining the background behind the analyses is attached to this memo.

Crash Analysis

Based on information obtained through the Traffic Improvement Association of Michigan, there were three (3) crashes recorded in the past full five (5) years at the intersection of Kilmer Drive and Hartland



Drive. Key information on the crashes are described below. Given that less than the recommended minimum of five (5) crashes susceptible to correction by all-way STOP-control did not occur during a 12-month period, the crash data does not compel OHM Advisors to modify the existing controls.

- 1) The most recent crash date was September 8, 2015 at 3:35 PM. The crash involved two vehicles in which a vehicle backing out of a driveway on Kilmer Drive near Big Beaver Road struck a southbound vehicle on Kilmer Drive after the former driver failed to yield.
- 2) Another crash took place on February 19, 2015 at 9:43 AM. This impact involved a vehicle turning south on Kilmer Drive from eastbound Hartland Drive. The driver claims that the sun got in her eyes and she took a wide turn southbound onto Kilmer Drive resulting in her striking a vehicle that was stopped at the stop sign travelling northbound on Kilmer Drive.
- 3) The remaining crash occurred on August 20, 2014 at 5:02 PM. This impact involved a driver travelling eastbound on Hartland Drive who was struck by a vehicle travelling northbound on Kilmer Drive whom thought that Hartland Drive was STOP-controlled. The driver travelling northbound struck the traveler heading eastbound after failing to yield.

Traffic Volumes

Traffic counts were taken on Hartland Drive east of Kilmer Drive on October 22, 2019. The average daily traffic (ADT) observed travelling on Hartland Drive was 1,302 vehicles. The maximum observed afternoon hourly volume, and the daily peak hour, was 172 vehicles occurring between 5:00 to 6:00 PM. The maximum observed morning hourly volume was 121 vehicles occurring between 8:00 and 9:00 AM.

Traffic counts were also collected at Kilmer Drive south of Hartland Drive through October 16 – 17, 2019. The ADT observed travelling on Kilmer Drive was 926 vehicles. The maximum afternoon hourly volume observed was 84 vehicles between 4:00 and 5:00 PM on October 17, 2019. The observed maximum morning hourly volume, and also the daily peak hour, was 117 vehicles between 8:00 AM and 9:00 AM on October 17, 2019.

Given the vehicle volumes observed, Hartland Drive (considered the major roadway) fails to meet the 300 vehicles per hour minimum required for all-way STOP-control. This intersection did not meet this metric for a single one-hour period, much less sustain it across an 8-hour period. Further, the combined entering vehicular, pedestrian, and bicycle volumes on Kilmer Drive (considered the minor roadway) does not average 200 units or more per hour for any 8-hour period.

Vehicle speed data was also collected on both Hartland Drive and Kilmer Drive. The 85th percentile approach speed on Hartland Drive was observed to be 28 mph in both the westbound and eastbound directions. The 85th percentile approach speed on Kilmer Drive was observed to be 28 mph in the southbound direction and 27 mph in the northbound direction. Thus, the observed 85th percentile speeds were found to be less than 40 mph on all approaches, so the minimum vehicular volume warrants for an all-way STOP cannot be discounted to 70 percent of the values described previously. Therefore, the minimum volume criteria for an all-way STOP has not been met. The summary reports for the traffic counts are attached to this memo.



Approach Speed Limits

The approach speed limit on all study streets is 25 mph. Speed limits alone cannot be used in this case to determine which direction of traffic should be assigned the right-of-way.

Sight Distance

The major potential sight distance obstruction at the intersection of Kilmer Drive at Hartland Drive for a motorist traveling southbound on Kilmer Drive is the southeast house corner of the property on the northwest quadrant of the intersection. The major potential sight distance obstruction for a motorist traveling northbound on Kilmer Drive is the northeast house corner at the southwest quadrant of the intersection. Reference the attachments for intersection photos. These obstructions impact calculating the safe approach speeds for the intersection. The safe approach speed is the speed at which a vehicle can approach an intersection and still stop in time to avoid a collision with a vehicle seen on the cross street.

When the safe approach speed is found to be less than 10 mph, a STOP sign is recommended. When the safe approach speed is found to be more than 10 mph, a YIELD sign is recommended. In this case, the safe approach speeds on Kilmer Drive were 13.3 mph and 13.0 mph for southbound and northbound vehicles, respectively. Thus, based on the safe approach speed calculations, YIELD-control would be considered on the Kilmer Drive approaches. The safe approach speed calculation spreadsheets for each intersection are attached for your reference.

Recommendation

The preceding analyses did not determine that any criteria were met for all-way STOP-control. Additionally, the safe approach speed approach calculations determined that YIELD-control would be the appropriate traffic control treatment on the Kilmer Drive approaches, rather than the existing STOP-control. However, OHM recommends retaining the existing STOP signs to not violate the expectations of motorists who use the intersection a regular basis. The intersection should be reevaluated if traffic volumes increase or more crashes begin to occur.

Sincerely,
OHM Advisors

Matt Clark, EIT
Engineer

Cara Kennedy, P.E.
Engineer

Stephen Dearing, PE, PTOE
Practice Leader - Traffic

Attachments:

- Aerial Photo
- Safe Approach Speed Calculation Spreadsheets
- Intersection Photos
- UD-10 Crash Reports (3)
- Traffic Count Summaries
- Traffic Control Determination Reference Guide

OHM Advisors

34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150

T 734.522.6711
F 734.522.6427

OHM-Advisors.com



GIS Online

Legend:

Road Centerline Text



Notes:

Map Scale: 1=212

Created: October 10, 2019



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

Safe Approach Speed Calculation

Kilmer Drive and Hartland Drive
City of Troy

Date: 10/15/2019
Analyst: MC & CVMK

Measured:

Width of Roads

Road 1 = 22 (ft)
Road 2 = 22 (ft)

Distance to Obstructions

a = 43 (ft) e = 48 (ft)
b = 40 (ft) f = 28 (ft)
c = 42 (ft) g = 37 (ft)
d = 39 (ft) h = 87 (ft)

Angle of Intersection

Delta = 90 (degrees, measure counterclockwise)

Road 1 Posted

Speed Limit = 25 (mph)

Assumed:

Speed of Vehicle A = Speed of Vehicle C
= Posted Speed Limit on Road 1

+ 5 (mph)

V₁ = 30 (mph)

Perception / Reaction Time (AASHTO)

t = 2.5 (sec)

Deceleration rate (AASHTO)

A = 11.20

Clearance distance in excess of safe stopping distance (AAA)

EC = 0 (ft)

Calculated Safe Approach Speed for Vehicle B

Approaching on Road 2

V₂ = 13.3 (mph) [Based on Veh. A]

or V₂ = 13.0 (mph) [Based on Veh. C]

Calculated Safe Approach Speed for Vehicle D

Approaching on Road 2

V₃ = 16.3 (mph) [Based on Veh. A]

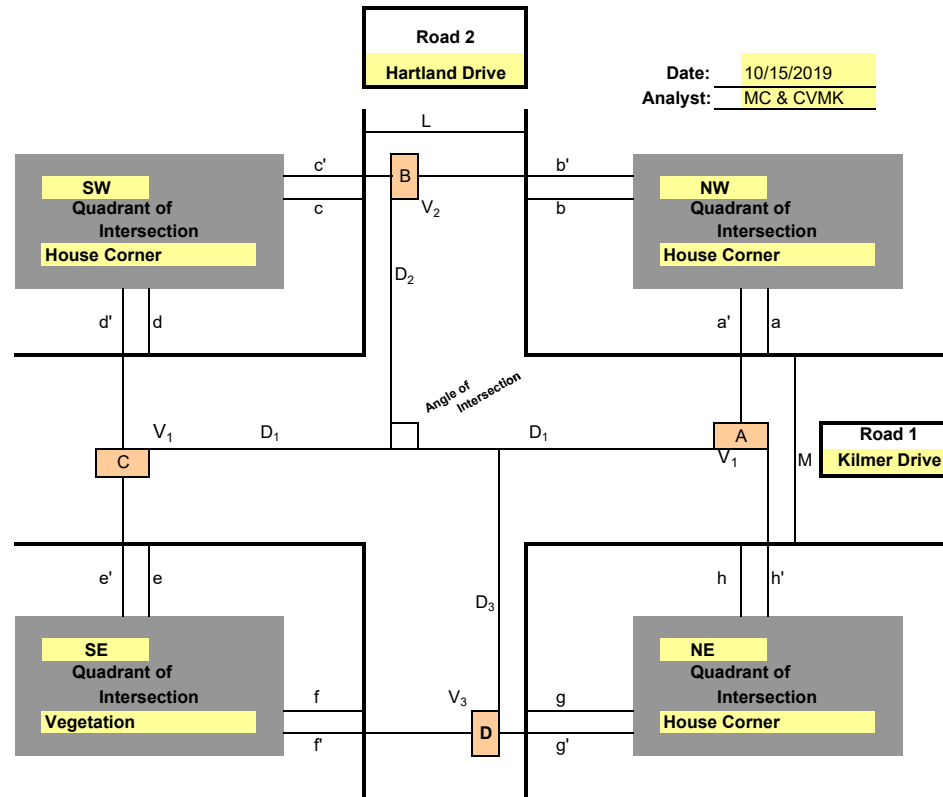
or V₃ = 13.5 (mph) [Based on Veh. C]

Threshold of Safe Approach Speed (AAA, FHWA & NSC)

to Recommend STOP Control 10.0 (mph),

to Recommend YIELD Control 25.0 (mph),

Otherwise Recommends NO CONTROL.



Intermediate Calculations:

D₁ = 196 a' = 49 e' = 54
D_{2A} = 65.7 b' = 50 f' = 38
D_{2C} = 64.0 c' = 48 g' = 43
D_{3A} = 85.0 d' = 49 h' = 97
D_{3C} = 67

Based On $D_1 = (1.075 V_1^2 / A) + 1.4667 V_1 t + EC$
 $D_{2A} = \frac{a' * D_1}{(D_1 - b')}$ or $D_{2C} = \frac{c' * D_1}{(D_1 - d')}$ or $D_{3A} = \frac{g' * D_1}{(D_1 - h')}$ or $D_{3C} = \frac{e' * D_1}{(D_1 - f')}$

Notes: Enter field measurements in yellow highlighted area.

Blue fields are std. default values; change only for cause.

Calculated by spreadsheet

Recommended ROW control for Road 2

based on safe approach speed :

YIELD SIGN



Photograph No. 1: Hartland Drive – Heading East
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 2: Hartland Drive - Heading East and Looking Left
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 3: Hartland Drive - Heading East and Looking Right
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 4: Hartland Drive - Heading West
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 5: Hartland Drive - Heading West and Looking Left
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 6: Hartland Drive - Heading West and Looking Right
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 7: Kilmer Drive – Heading South
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 8 Kilmer Drive – Heading South and Looking Right
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 9 Kilmer Drive – Heading South and Looking Left
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 10: Kilmer Drive - Heading North
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 11: Kilmer Drive - Heading North and Looking Left
Date: 10/17/2019 **Photographer:** Matt Clark



Photograph No. 12: Kilmer Drive - Heading North and Looking Right
Date: 10/17/2019 **Photographer:** Matt Clark

Authority: 1949 PA 300, Sec.257-622
Compliance: Required MSP UD-10E
Penalty: \$100 and/or 90 days (Rev 11/2006)

External # 0585915
Crash ID 9376501

Page 01 of 01
Incident # 150029625 File Class C3145

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI: MI 6378400		Department Name Troy Police Department		Special Circumstances <input type="radio"/> School Bus <input checked="" type="radio"/> None <input type="radio"/> Deer <input type="radio"/> Fleeing Police <input type="radio"/> Hit and Run <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation		Special Checks <input type="radio"/> Fatal <input type="radio"/> Non-Traffic Area <input type="radio"/> ORV/Snowmobile	
Crash Date 09/08/2015	Crash Time 15:35	No. of Units 02	Crash Type Other/Unknown	Weather Other/Unknown		Area 10 - NON-FRWY Straight roadway	
County 63 - Oakland	Traffic Control None	Relation to Roadway On Road		Special Study	Road Condition Dry		
City/Twsp 84 - Troy	Construction Zone (if applicable) Type Lane Closed Activity		Light Daylight		Total Lanes 01	Speed Limit 25	Posted Yes

LOCATION	Prefix	Road Name BIG BEAVER	Road Type	Suffix	Divided Roadway
	Distance 100 Feet N	Traffic Way 01 - Not physically divided		Access Control 01 - No access control	
	Prefix	Intersecting Road HARTLAND	Road Type	Suffix	Divided Roadway

UNIT/DRIVER	Unit Number 01	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ##/##/#### (44)	License Type <input checked="" type="radio"/> Operator <input type="radio"/> Chauffeur <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex M	Total Occupants 01	Hazardous Action 03 - Failed to yield
	Unit Type MV	Driver Information ##### ##### TROY, MI 48083-5021 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE	
	Driver Condition <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9 <input type="radio"/> 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE	
	Alcohol <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Refused <input type="radio"/> Not offered <input type="radio"/> PBT <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine				Test Results		Drugs <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Blood <input type="radio"/> Urine	Test Results		Citation Issued <input type="radio"/> Hazardous <input type="radio"/> Other
	Vehicle Registration #####		State MI	Insurance / Policy # #####		Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####		Vehicle Description NISSAN		Make PATHFINDER	Model	Color	Year 2005	Vehicle Type Passenger Car	
	Location of Greatest Damage 06		First Impact 06	Extent of Damage 2	Driveable Yes	Vehicle Direction E	Vehicle Use 01 - Private		Action Prior 07 - Backing	

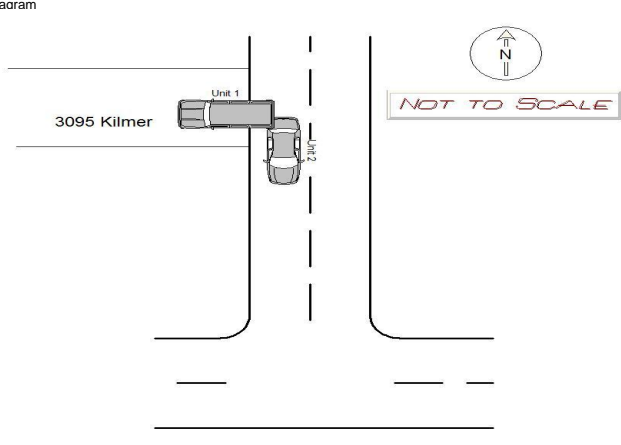
Sequence of Events (● indicates MOST harmful event)	First ● 17 - Motor veh in transport	Second	Third	Fourth
--	--	--------	-------	--------

PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance

TRUCK/BUS	Carrier Information				Carrier Source	GVWR	ICCMC	USDOT	MPSC
					Driver's CDL Type		Endorsements <input type="radio"/> H <input type="radio"/> P <input type="radio"/> T <input type="radio"/> N <input type="radio"/> S <input type="radio"/> X	CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other	CDL Restrictions <input type="radio"/> 28 <input type="radio"/> 29 <input type="radio"/> 30 <input type="radio"/> 35 <input type="radio"/> 36
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth		Cargo Body Type	Medical Card	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill		ID #

OWNERS	Owner Information				Owner Information			

Person Advised of Damaged Traffic Control				Damaged Property				Public
Contact Name:				Owner & Phone				
Contact Date:								
Contact Time:								

UNIT / DRIVER	Unit Number 02	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ###/###/#### (51)	License Type ● Operator ○ Chauffeur ○ Moped	Endorsements ○ Cycle ○ Farm ○ Recreation	Sex F	Total Occupants 01	Hazardous Action 00 - None	
	Unit Type MV	Driver Information ##### STERLING HEIGHTS, MI 48313-5592 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE		
	Driver Condition ● 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE		
	Alcohol ○ Yes ● No ○ Refused ● Not offered ○ PBT ○ Breath ○ Blood ○ Urine				Test Results		Drugs ○ Yes ● No ○ Test Type ○ Blood ○ Urine		Test Results		
	Citation Issued ○ Hazardous ○ Other				Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect		
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Year 2010		Vehicle Type Passenger Car			
	VIN #####	Vehicle Description FORD	Make EDGE	Model	Color	Action Prior 01 - Going Straight Ahead					
	Location of Greatest Damage 04	First Impact 04	Extent of Damage 2	Driveable Yes	Vehicle Direction S	Vehicle Use 01 - Private					
	Sequence of Events ● 17 - Motor veh in transport (● indicates MOST harmful event)				Second		Third		Fourth		
	PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital	
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
TRUCK / BUS	Carrier Information				Carrier Source	GVWR	ICCMC	USDOT	MPSC		
	Driver's CDL Type				Endorsements ○ H ○ P ○ T ○ N ○ S ○ X	CDL Exempt ○ Farm ○ Other	CDL Restrictions ○ 28 ○ 29 ○ 30 ○ 35 ○ 36				
OWNERS	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth		Cargo Body Type	Medical Card	Hazardous Material ○ Placard ○ Cargo Spill		ID #	Class #	
	Owner Information				Owner Information						
WITNESS	Witness Information				Witness Information						
	Investigated at Scene No	Reported Date (Time) 09/08/2015 (15:35)	1st Investigator Name (Badge) GIOVANNONI (77)			2nd Investigator Name (Badge)			Photos By		
Narrative UNIT 2 WAS TRAVELING SOUTH ON KILMER NORTH OF BIG BEAVER AND WAS STRUCK BY UNIT 1 WHO WAS BACKING OUT OF THEIR DRIVEWAY AT 3095 KILMER.					Diagram 						

Authority: 1949 PA 300, Sec.257-622
Compliance: Required MSP UD-10E
Penalty: \$100 and/or 90 days (Rev 11/2006)

External # 0535898
Crash ID 9208085

Page 01 of 01
Incident # 150005558 File Class C3145

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI: MI 6378400		Department Name Troy Police Department		Special Circumstances <input type="radio"/> School Bus <input checked="" type="radio"/> None <input type="radio"/> Deer <input type="radio"/> Fleeing Police <input type="radio"/> Hit and Run		Special Checks <input type="radio"/> Fatal <input type="radio"/> Non-Traffic Area <input type="radio"/> ORV/Snowmobile	
Crash Date 02/19/2015	Crash Time 09:43	No. of Units 02	Crash Type Head On	Weather Clear		Area 07 - NON-FRWY in Intersection	
County 63 - Oakland	Traffic Control Stop sign	Relation to Roadway On Road		Special Study	Road Condition Dry		
City/Twsp 84 - Troy	Construction Zone (if applicable) Type		Lane Closed	Activity	Light Daylight	Total Lanes 02	Speed Limit 25
						Posted No	

LOCATION	Prefix	Road Name KILMER	Road Type ST	Suffix	Divided Roadway
	Distance 25 Feet S	Traffic Way 01 - Not physically divided			Access Control 01 - No access control
	Prefix	Intersecting Road HARTLAND	Road Type ST	Suffix	Divided Roadway

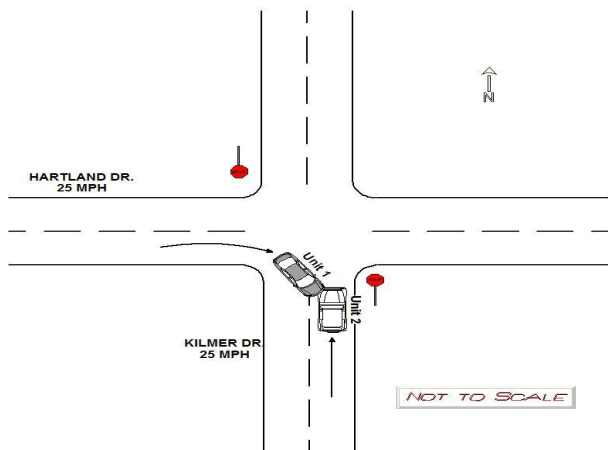
UNIT/DRIVER	Unit Number 01	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ##/##/#### (55)	License Type <input checked="" type="radio"/> Operator <input type="radio"/> Chauffeur <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex F	Total Occupants 01	Hazardous Action 09 - Improper turn
	Unit Type MV	Driver Information ##### ##### TROY, MI 48083-5044 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE	
	Driver Condition <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9 <input type="radio"/> 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE	
	Alcohol <input type="radio"/> Yes <input checked="" type="radio"/> No Test Type <input type="radio"/> Field <input type="radio"/> PBT <input type="radio"/> Not offered <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine				Test Results		Drugs <input type="radio"/> Yes <input checked="" type="radio"/> No Test Type <input type="radio"/> Blood <input type="radio"/> Urine	Test Results		Citation Issued <input checked="" type="radio"/> Hazardous <input type="radio"/> Other
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####	Vehicle Description MAZDA	Make MILLENNIA	Model SILVER	Year 2001	Vehicle Type Passenger Car				
	Location of Greatest Damage 08	First Impact 08	Extent of Damage 3	Driveable Yes	Vehicle Direction S	Vehicle Use 01 - Private	Action Prior 03 - Turning right			
Sequence of Events (# indicates MOST harmful event) First <input checked="" type="radio"/> 17 - Motor veh in transport Second Third Fourth										

PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance

TRUCK/BUS	Carrier Information				Carrier Source	GVWR	ICCMC	USDOT	MPSC
					Driver's CDL Type	Endorsements <input type="radio"/> H <input type="radio"/> P <input type="radio"/> T <input type="radio"/> N <input type="radio"/> S <input type="radio"/> X	CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other	CDL Restrictions <input type="radio"/> 28 <input type="radio"/> 29 <input type="radio"/> 30 <input type="radio"/> 35 <input type="radio"/> 36	
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth	Cargo Body Type	Medical Card	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill	ID #	Class #	

OWNERS	Owner Information				Owner Information			

Person Advised of Damaged Traffic Control Contact Name: Contact Date: Contact Time:				Damaged Property Owner & Phone				Public
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UNIT / DRIVER	Unit Number 02	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ###/###/#### (21)	License Type ● Operator ○ Chauffeur ○ Moped	Endorsements ○ Cycle ○ Farm ○ Recreation	Sex F	Total Occupants 01	Hazardous Action 00 - None	
	Unit Type MV	Driver Information ##### ##### ROSEVILLE, MI 48066-1489 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE		
	Driver Condition ● 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE		
	Alcohol ○ Yes ● No Test Type ○ Field ○ Refused ○ PBOT ● Not offered ○ Breath ○ Blood ○ Urine				Drugs ○ Yes ● No Test Type ○ Blood ○ Urine		Citation Issued ○ Hazardous ○ Other				
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect	
	VIN #####	Vehicle Description JEEP	Make COMMANDER	Model WHITE	Year 2006	Vehicle Type Passenger Car					
	Location of Greatest Damage 08	First Impact 08	Extent of Damage 4	Driveable Yes	Vehicle Direction N	Vehicle Use 01 - Private		Action Prior 04 - Stopped on roadway			
	Sequence of Events ● 17 - Motor veh in transport (● indicates MOST harmful event)										
PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance		
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance		
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance		
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance		
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital		
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance		
TRUCK / BUS	Carrier Information					Carrier Source GVWR	ICCMC	USDOT	MPSC		
						Driver's CDL Type	Endorsements ○ H ○ P ○ T ○ N ○ S ○ X	CDL Exempt ○ Farm ○ Other	CDL Restrictions ○ 28 ○ 29 ○ 30 ○ 35 ○ 36		
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth	Cargo Body Type	Medical Card	Hazardous Material ○ Placard ○ Cargo Spill	ID #	Class #			
OWNERS	Owner Information					Owner Information					
WITNESS	Witness Information					Witness Information					
Investigated at Scene Yes											
Reported Date (Time) 02/19/2015 (09:43)											
1st Investigator Name (Badge) TRINER (10)											
2nd Investigator Name (Badge)											
Photos By											
Narrative #1 STATED SHE WAS E/B HARTLAND TURNING RIGHT ONTO S/B KILMER WHEN THE SUN GOT IN HER EYES ("SUN SHINING"), SHE DID NO SEE #2 AND STRUCK #2. NO WRITTEN STATEMENT (#1 SAID SHE DID NOT SPEAK OR WRITE ENGLISH). #1 ISSUED VIOL #15TR01791 FOR IMPROPER TURN (3-11-15 AT 0830). \NN#2 STATED SHE WAS STOPPED FOR THE STOP SIGN ON N/B KILMER AT HARTLAND WHEN SHE OBS #1 TURN RIGHT FROM E/B HARTLAND ONTO S/B KILMER AND STRIKE #2. #2 SAID #1 TOLD HER THE SUN GOT IN HER EYES. SEE WRITTEN STATEMENT.					Diagram 						

Authority: 1949 PA 300, Sec.257-622
Compliance: Required MSP UD-10E
Penalty: \$100 and/or 90 days (Rev 11/2006)

External # 0481203
Crash ID 9032551

Page 01 of 01
Incident # 140025619 File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI: MI 6378400		Department Name Troy Police Department				Incident Disposition Closed	
Crash Date 08/20/2014	Crash Time 17:02	No. of Units 02	Crash Type Angle	Special Circumstances <input type="radio"/> School Bus <input checked="" type="radio"/> None <input type="radio"/> Hit and Run <input type="radio"/> Deer <input type="radio"/> Fleeing Police	Special Checks <input type="radio"/> Fatal <input type="radio"/> Non-Traffic Area <input type="radio"/> ORV/Snowmobile		
County 63 - Oakland	Traffic Control Stop sign	Relation to Roadway On Road		Special Study	Weather Clear	Area 07 - NON-FRWY in Intersection	
City/Twsp 84 - Troy	Construction Zone (if applicable) Type		Lane Closed	Activity	Light Daylight	Road Condition Wet	
		Total Lanes 02	Speed Limit 25	Posted Yes			

LOCATION	Prefix	Road Name KILMER	Road Type ST	Suffix	Divided Roadway
	Distance 5 Feet S	Traffic Way 01 - Not physically divided			Access Control 01 - No access control
	Prefix	Intersecting Road HARTLAND	Road Type ST	Suffix	Divided Roadway

UNIT/DRIVER	Unit Number 01	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ##/##/#### (31)	License Type <input checked="" type="radio"/> Operator <input type="radio"/> Chauffeur <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex F	Total Occupants 01	Hazardous Action 03 - Failed to yield
	Unit Type MV	Driver Information ##### ##### CLARKSTON, MI 48346-2447 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE	
	Driver Condition <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9 <input type="radio"/> 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE	
	Alcohol <input type="radio"/> Yes <input checked="" type="radio"/> No Test Type <input type="radio"/> Field <input type="radio"/> PBT <input type="radio"/> Not offered <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine				Test Results		Drugs <input type="radio"/> Yes <input checked="" type="radio"/> No Test Type <input type="radio"/> Blood <input type="radio"/> Urine	Test Results		Citation Issued <input checked="" type="radio"/> Hazardous <input type="radio"/> Other
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Towed To/By		Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####	Vehicle Description CHEVROLET		Make CAVALIER	Model SILVER	Year 2003	Vehicle Type Passenger Car			
	Location of Greatest Damage 08	First Impact 08	Extent of Damage 4	Driveable No	Vehicle Direction N	Vehicle Use 01 - Private	Action Prior 01 - Going Straight Ahead			
	Sequence of Events (● indicates MOST harmful event) First ● 17 - Motor veh in transport Second Third Fourth									

PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance
	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital
					Injury	Airbag Deployed	Ejected	Trapped	Ambulance

TRUCK/BUS	Carrier Information				Carrier Source	GVWR	ICCMC	USDOT	MPSC
					Driver's CDL Type	Endorsements <input type="radio"/> H <input type="radio"/> P <input type="radio"/> T <input type="radio"/> N <input type="radio"/> S <input type="radio"/> X	CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other	CDL Restrictions <input type="radio"/> 28 <input type="radio"/> 29 <input type="radio"/> 30 <input type="radio"/> 35 <input type="radio"/> 36	
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth	Cargo Body Type	Medical Card	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill	ID #	Class #	

OWNERS	Owner Information				Owner Information			

Person Advised of Damaged Traffic Control Contact Name: Contact Date: Contact Time:				Damaged Property Owner & Phone				Public
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UNIT / DRIVER	Unit Number 02	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ##/##/#### (51)	License Type ● Operator ○ Chauffeur ○ Moped	Endorsements ○ Cycle ○ Farm ○ Recreation	Sex F	Total Occupants 01	Hazardous Action 00 - None	
	Unit Type MV	Driver Information ##### ##### TROY, MI 48083-5091 (###) ###-####				Injury O	Position 01	Restraint 04	Hospital NONE		
	Driver Condition ● 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 99				Interlock No	Ejected	Trapped	Airbag Deployed No	Ambulance NONE		
	Alcohol ○ Yes ● No Test Type ○ Field ○ PBT				● Not offered ○ Breath ○ Blood ○ Urine		Test Results	Drugs ○ Yes ● No Test Type ○ Blood ○ Urine		Citation Issued ○ Hazardous ○ Other	
	Vehicle Registration #####	State MI	Insurance / Policy # #####			Towed To/By			Special Vehicles 0	Private Trailer Type	Vehicle Defect
	VIN #####	Vehicle Description FORD		Make Model ESCAPE	Color RED		Year 2009	Vehicle Type Passenger Car			
	Location of Greatest Damage 02	First Impact 02	Extent of Damage 3	Driveable Yes	Vehicle Direction E	Vehicle Use 01 - Private			Action Prior 01 - Going Straight Ahead		
	Sequence of Events ● 17 - Motor veh in transport (● indicates MOST harmful event)										
	PASSENGERS	Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital	
Injury						Airbag Deployed	Ejected	Trapped	Ambulance		
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
				Injury	Airbag Deployed	Ejected	Trapped	Ambulance			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
				Injury	Airbag Deployed	Ejected	Trapped	Ambulance			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
				Injury	Airbag Deployed	Ejected	Trapped	Ambulance			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
				Injury	Airbag Deployed	Ejected	Trapped	Ambulance			
Passenger Information				Date of Birth (Age)	Sex	Position	Restraint	Hospital			
				Injury	Airbag Deployed	Ejected	Trapped	Ambulance			
TRUCK / BUS	Carrier Information					Carrier Source	GVWR	ICCMC	USDOT	MPSC	
						Driver's CDL Type	Endorsements ○ H ○ P ○ T ○ N ○ S ○ X	CDL Exempt ○ Farm ○ Other	CDL Restrictions ○ 28 ○ 29 ○ 30 ○ 35 ○ 36		
	Interstate/Intrastate	Vehicle Type	Type & Axle Per Unit First Second Third Fourth	Cargo Body Type	Medical Card	Hazardous Material ○ Placard ○ Cargo Spill	ID #	Class #			
OWNERS	Owner Information					Owner Information					
WITNESS	Witness Information ##### ##### #####, ## ####-#### (###) ###-####					Witness Information					
Investigated at Scene Yes		Reported Date (Time) 08/20/2014 (17:02)	1st Investigator Name (Badge) C. HUCK (85)			2nd Investigator Name (Badge)			Photos By		
Narrative VEHICLE 2 WAS PROCEEDING E/B ON HARTLAND, AT KILMER, WHEN VEHICLE 1 PULLED OUT IN FRONT, FROM N/B KILMER CAUSING A CRASH. VEHICLE 2 DID NOT HAVE A STOP SIGN AND HAD THE RIGHT OF WAY. \NNDRIVER 1 ADVISED SHE THOUGHT TRAFFIC WAS CLEAR AND THAT E/B HARTLAND HAD A STOP SIGN SO SHE BEGAN PROCEEDING N/B ON KILMER AFTER STOPPING FOR A STOP SIGN AT HARTLAND. \NNDRIVER 2 ADVISED SHE WAS E/B ON HARTLAND WHEN DRIVER 1 PULLED OUT IN FRONT OF HER FROM N/B KILMER. \NINDEPENDENT WITNESS, RICHARD BAILEY, CONFIRMED DRIVER 2'S STATEMENT.					Diagram						

Weather: Various
 Serial Number: 33214
 Installed by: Matt Clark
 Other Notes: None

OHM Advisors
 34000 Plymouth Road
 Livonia, MI 48150
Advancing Communities

Hartland Dr
 E of Kilmer

Start Time	21-Oct-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	0	3	2	1	*	*	*	*	*	*	*	*	1	2
01:00	*	*	1	1	2	1	*	*	*	*	*	*	*	*	2	1
02:00	*	*	0	4	1	1	*	*	*	*	*	*	*	*	0	2
03:00	*	*	0	0	0	0	*	*	*	*	*	*	*	*	0	0
04:00	*	*	1	0	1	0	*	*	*	*	*	*	*	*	1	0
05:00	*	*	4	5	4	2	*	*	*	*	*	*	*	*	4	4
06:00	*	*	20	9	11	12	*	*	*	*	*	*	*	*	16	10
07:00	*	*	43	19	45	27	*	*	*	*	*	*	*	*	44	23
08:00	*	*	78	43	82	55	*	*	*	*	*	*	*	*	80	49
09:00	*	*	32	25	16	16	*	*	*	*	*	*	*	*	24	20
10:00	*	*	16	34	*	*	*	*	*	*	*	*	*	*	16	34
11:00	*	*	29	45	*	*	*	*	*	*	*	*	*	*	29	45
12:00 PM	*	*	33	50	*	*	*	*	*	*	*	*	*	*	33	50
01:00	*	*	32	39	*	*	*	*	*	*	*	*	*	*	32	39
02:00	*	*	38	37	*	*	*	*	*	*	*	*	*	*	38	37
03:00	*	*	39	63	*	*	*	*	*	*	*	*	*	*	39	63
04:00	10	32	24	90	*	*	*	*	*	*	*	*	*	*	17	61
05:00	30	143	33	139	*	*	*	*	*	*	*	*	*	*	32	141
06:00	34	73	25	81	*	*	*	*	*	*	*	*	*	*	30	77
07:00	27	40	25	46	*	*	*	*	*	*	*	*	*	*	26	43
08:00	12	45	13	30	*	*	*	*	*	*	*	*	*	*	12	38
09:00	6	29	12	20	*	*	*	*	*	*	*	*	*	*	9	24
10:00	3	9	3	10	*	*	*	*	*	*	*	*	*	*	3	10
11:00	3	7	4	4	*	*	*	*	*	*	*	*	*	*	4	6
Lane Day	125	378	505	797	164	115	0	0	0	0	0	0	0	0	492	779
AM Peak	-	-	08:00	11:00	08:00	08:00	-	-	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	78	45	82	55	-	-	-	-	-	-	-	-	80	49
PM Peak	18:00	17:00	15:00	17:00	-	-	-	-	-	-	-	-	-	-	15:00	17:00
Vol.	34	143	39	139	-	-	-	-	-	-	-	-	-	-	39	141

Comb. Total	503	1302	279	0	0	0	0	1271
ADT	ADT 1,302	AADT 1,302						

Weather: Various
 Serial Number: 27494
 Installed by: Matt Clark
 Other Notes: None

OHM Advisors
 34000 Plymouth Road
 Livonia, MI 48150
Advancing Communities

Kilmer
 S of Hartland

Start Time	14-Oct-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	*	*	0	0	0	2	*	*	*	*	*	*	0	1
01:00	*	*	*	*	0	1	0	0	*	*	*	*	*	*	0	0
02:00	*	*	*	*	1	0	1	0	*	*	*	*	*	*	1	0
03:00	*	*	*	*	0	0	2	0	*	*	*	*	*	*	1	0
04:00	*	*	*	*	2	1	5	0	*	*	*	*	*	*	4	0
05:00	*	*	*	*	4	1	6	2	*	*	*	*	*	*	5	2
06:00	*	*	*	*	27	10	19	6	*	*	*	*	*	*	23	8
07:00	*	*	*	*	47	19	53	23	*	*	*	*	*	*	50	21
08:00	*	*	*	*	82	34	70	47	*	*	*	*	*	*	76	40
09:00	*	*	*	*	30	25	32	20	*	*	*	*	*	*	31	22
10:00	*	*	*	*	22	16	23	21	*	*	*	*	*	*	22	18
11:00	*	*	*	*	30	30	27	30	*	*	*	*	*	*	28	30
12:00 PM	*	*	*	*	40	42	37	37	*	*	*	*	*	*	38	40
01:00	*	*	*	*	26	25	24	25	*	*	*	*	*	*	25	25
02:00	*	*	*	*	10	35	20	34	*	*	*	*	*	*	15	34
03:00	*	*	*	*	22	35	26	30	*	*	*	*	*	*	24	32
04:00	*	*	*	*	22	49	21	63	*	*	*	*	*	*	22	56
05:00	*	*	*	*	20	57	32	50	*	*	*	*	*	*	26	54
06:00	*	*	*	*	17	27	25	28	*	*	*	*	*	*	21	28
07:00	*	*	*	*	21	26	16	25	*	*	*	*	*	*	18	26
08:00	*	*	*	*	4	20	9	15	*	*	*	*	*	*	6	18
09:00	*	*	*	*	8	10	10	10	*	*	*	*	*	*	9	10
10:00	*	*	*	*	3	7	2	3	*	*	*	*	*	*	2	5
11:00	*	*	*	*	0	4	3	5	*	*	*	*	*	*	2	4
Lane	0	0	0	0	438	474	463	476	0	0	0	0	0	0	449	474
Day	0		0		912		939		0		0		0		923	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	82	34	70	47	-	-	-	-	-	-	76	40
PM Peak	-	-	-	-	12:00	17:00	12:00	16:00	-	-	-	-	-	-	12:00	16:00
Vol.	-	-	-	-	40	57	37	63	-	-	-	-	-	-	38	56

Comb. Total	0	0	912	939	0	0	0	923
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ADT	ADT 926	AADT 926
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Weather: Various
 Serial Number: 33214
 Installed by: Matt Clark
 Other Notes: None
 WB

OHM Advisors
 34000 Plymouth Road
 Livonia, MI 48150
Advancing Communities

Hartland Dr
 E of Kilmer

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
10/22/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
05:00	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4	14-23	3
06:00	4	5	7	3	1	0	0	0	0	0	0	0	0	0	20	16-25	12
07:00	4	18	9	11	1	0	0	0	0	0	0	0	0	0	43	16-25	27
08:00	22	26	11	17	2	0	0	0	0	0	0	0	0	0	78	16-25	37
09:00	1	10	6	12	2	1	0	0	0	0	0	0	0	0	32	20-29	18
10:00	3	2	2	7	2	0	0	0	0	0	0	0	0	0	16	21-30	9
11:00	7	1	7	11	3	0	0	0	0	0	0	0	0	0	29	21-30	18
12 PM	8	10	4	8	2	1	0	0	0	0	0	0	0	0	33	16-25	14
13:00	7	5	7	9	3	1	0	0	0	0	0	0	0	0	32	21-30	16
14:00	1	7	10	18	2	0	0	0	0	0	0	0	0	0	38	21-30	28
15:00	6	16	11	5	1	0	0	0	0	0	0	0	0	0	39	16-25	27
16:00	3	6	5	8	2	0	0	0	0	0	0	0	0	0	24	21-30	13
17:00	5	10	7	7	4	0	0	0	0	0	0	0	0	0	33	16-25	17
18:00	4	6	7	7	1	0	0	0	0	0	0	0	0	0	25	19-28	14
19:00	1	7	11	4	2	0	0	0	0	0	0	0	0	0	25	16-25	18
20:00	0	2	6	5	0	0	0	0	0	0	0	0	0	0	13	21-30	11
21:00	0	2	5	5	0	0	0	0	0	0	0	0	0	0	12	21-30	10
22:00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3	20-29	3
23:00	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4	16-25	4
Total	77	137	120	140	28	3	0	0	0	0	0	0	0	0	505		
Percent	15.2%	27.1%	23.8%	27.7%	5.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	08:00	11:00	09:00									08:00		
Vol.	22	26	11	17	3	1									78		
PM Peak	12:00	15:00	15:00	14:00	17:00	12:00									15:00		
Vol.	8	16	11	18	4	1									39		
Total	77	137	120	140	28	3	0	0	0	0	0	0	0	0	505		
Percent	15.2%	27.1%	23.8%	27.7%	5.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 14 MPH
 50th Percentile : 21 MPH
 85th Percentile : 28 MPH
 95th Percentile : 31 MPH

Stats 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 260
 Percent in Pace : 51.5%
 Number of Vehicles > 25 MPH : 171
 Percent of Vehicles > 25 MPH : 33.9%
 Mean Speed(Average) : 21 MPH

OHM Advisors

34000 Plymouth Road

Livonia, MI 48150

Advancing Communities

Weather: Various
Serial Number: 33214
Installed by: Matt Clark
Other Notes: None
EB

Hartland Dr
E of Kilmer

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
10/22/19	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	21-30	3
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
02:00	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4	14-23	3
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	1	1	0	1	2	0	0	0	0	0	0	0	0	0	5	25-34	3
06:00	1	3	1	3	1	0	0	0	0	0	0	0	0	0	9	26-35	4
07:00	4	6	6	1	2	0	0	0	0	0	0	0	0	0	19	16-25	12
08:00	5	14	14	9	0	1	0	0	0	0	0	0	0	0	43	16-25	28
09:00	4	8	5	6	2	0	0	0	0	0	0	0	0	0	25	16-25	13
10:00	6	8	8	8	4	0	0	0	0	0	0	0	0	0	34	16-25	16
11:00	10	8	16	9	1	1	0	0	0	0	0	0	0	0	45	19-28	25
12 PM	7	19	8	12	4	0	0	0	0	0	0	0	0	0	50	16-25	27
13:00	8	10	9	9	3	0	0	0	0	0	0	0	0	0	39	16-25	19
14:00	13	2	4	15	3	0	0	0	0	0	0	0	0	0	37	21-30	19
15:00	15	19	16	10	3	0	0	0	0	0	0	0	0	0	63	16-25	35
16:00	12	24	21	26	7	0	0	0	0	0	0	0	0	0	90	21-30	47
17:00	17	33	24	54	10	1	0	0	0	0	0	0	0	0	139	21-30	78
18:00	13	23	17	22	6	0	0	0	0	0	0	0	0	0	81	16-25	40
19:00	5	16	12	13	0	0	0	0	0	0	0	0	0	0	46	16-25	28
20:00	1	5	10	11	3	0	0	0	0	0	0	0	0	0	30	21-30	21
21:00	2	5	9	3	1	0	0	0	0	0	0	0	0	0	20	16-25	14
22:00	1	5	3	0	1	0	0	0	0	0	0	0	0	0	10	16-25	8
23:00	0	0	1	3	0	0	0	0	0	0	0	0	0	0	4	21-30	4
Total	125	211	186	219	53	3	0	0	0	0	0	0	0	0	797		
Percent	15.7%	26.5%	23.3%	27.5%	6.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	08:00	11:00	08:00	10:00	08:00										11:00	
Vol.	10	14	16	9	4	1										45	
PM Peak	17:00	17:00	17:00	17:00	17:00	17:00										17:00	
Vol.	17	33	24	54	10	1										139	
Total	125	211	186	219	53	3	0	0	0	0	0	0	0	0	797		
Percent	15.7%	26.5%	23.3%	27.5%	6.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 14 MPH
50th Percentile : 21 MPH
85th Percentile : 28 MPH
95th Percentile : 31 MPH

Stats
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 405
Percent in Pace : 50.8%
Number of Vehicles > 25 MPH : 275
Percent of Vehicles > 25 MPH : 34.5%
Mean Speed(Average) : 21 MPH

[illegible]

Weather: Various
 Serial Number: 27494
 Installed by: Matt Clark
 Other Notes: None
 SB

OHM Advisors
 34000 Plymouth Road
 Livonia, MI 48150
Advancing Communities

Kilmer
 S of Hartland

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
10/17/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
03:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	20-29	2
04:00	0	1	1	3	0	0	0	0	0	0	0	0	0	0	5	20-29	4
05:00	0	0	4	2	0	0	0	0	0	0	0	0	0	0	6	20-29	6
06:00	3	3	5	7	1	0	0	0	0	0	0	0	0	0	19	21-30	12
07:00	3	7	27	13	3	0	0	0	0	0	0	0	0	0	53	21-30	40
08:00	6	7	37	15	4	1	0	0	0	0	0	0	0	0	70	21-30	52
09:00	1	8	13	8	2	0	0	0	0	0	0	0	0	0	32	16-25	21
10:00	4	3	8	7	1	0	0	0	0	0	0	0	0	0	23	21-30	15
11:00	2	2	14	9	0	0	0	0	0	0	0	0	0	0	27	21-30	23
12 PM	2	2	17	10	5	1	0	0	0	0	0	0	0	0	37	21-30	27
13:00	0	4	12	3	5	0	0	0	0	0	0	0	0	0	24	16-25	16
14:00	4	5	6	3	2	0	0	0	0	0	0	0	0	0	20	16-25	11
15:00	3	1	9	10	3	0	0	0	0	0	0	0	0	0	26	21-30	19
16:00	3	3	6	6	3	0	0	0	0	0	0	0	0	0	21	21-30	12
17:00	7	3	8	12	2	0	0	0	0	0	0	0	0	0	32	21-30	20
18:00	2	4	6	11	2	0	0	0	0	0	0	0	0	0	25	21-30	17
19:00	2	1	8	3	2	0	0	0	0	0	0	0	0	0	16	21-30	11
20:00	0	0	4	3	2	0	0	0	0	0	0	0	0	0	9	21-30	7
21:00	1	1	3	2	3	0	0	0	0	0	0	0	0	0	10	19-28	5
22:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	14-23	2
23:00	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3	24-33	3
Total	43	56	190	131	41	2	0	0	0	0	0	0	0	0	463		
Percent	9.3%	12.1%	41.0%	28.3%	8.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	08:00	08:00	08:00	08:00									08:00		
Vol.	6	8	37	15	4	1									70		
PM Peak	17:00	14:00	12:00	17:00	12:00	12:00									12:00		
Vol.	7	5	17	12	5	1									37		
Total	93	133	338	257	73	7	0	0	0	0	0	0	0	0	901		
Percent	10.3%	14.8%	37.5%	28.5%	8.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 16 MPH
 50th Percentile : 23 MPH
 85th Percentile : 28 MPH
 95th Percentile : 32 MPH

Stats 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 595
 Percent in Pace : 66.0%
 Number of Vehicles > 25 MPH : 337
 Percent of Vehicles > 25 MPH : 37.4%
 Mean Speed(Average) : 23 MPH

Kilmer
S of Hartland

[illegible]

Weather: Various
 Serial Number: 27494
 Installed by: Matt Clark
 Other Notes: None
 NB

OHM Advisors
 34000 Plymouth Road
 Livonia, MI 48150
Advancing Communities

Kilmer
 S of Hartland

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
10/17/19	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	20-29	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	15-24	2
06:00	0	2	3	1	0	0	0	0	0	0	0	0	0	0	6	16-25	5
07:00	0	5	9	7	2	0	0	0	0	0	0	0	0	0	23	20-29	16
08:00	4	5	21	15	2	0	0	0	0	0	0	0	0	0	47	21-30	36
09:00	5	6	6	2	1	0	0	0	0	0	0	0	0	0	20	16-25	12
10:00	1	6	8	5	1	0	0	0	0	0	0	0	0	0	21	16-25	14
11:00	0	7	9	11	3	0	0	0	0	0	0	0	0	0	30	21-30	20
12 PM	3	4	14	14	1	1	0	0	0	0	0	0	0	0	37	21-30	28
13:00	1	2	12	8	2	0	0	0	0	0	0	0	0	0	25	21-30	20
14:00	7	10	11	5	1	0	0	0	0	0	0	0	0	0	34	16-25	21
15:00	1	2	16	10	1	0	0	0	0	0	0	0	0	0	30	21-30	26
16:00	6	8	31	15	3	0	0	0	0	0	0	0	0	0	63	21-30	46
17:00	8	8	24	7	3	0	0	0	0	0	0	0	0	0	50	16-25	32
18:00	4	3	13	7	1	0	0	0	0	0	0	0	0	0	28	21-30	20
19:00	1	5	16	2	1	0	0	0	0	0	0	0	0	0	25	16-25	21
20:00	1	4	6	3	1	0	0	0	0	0	0	0	0	0	15	16-25	10
21:00	0	4	3	3	0	0	0	0	0	0	0	0	0	0	10	16-25	7
22:00	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3	14-23	2
23:00	1	2	0	2	0	0	0	0	0	0	0	0	0	0	5	15-24	2
Total	43	84	205	120	23	1	0	0	0	0	0	0	0	0	476		
Percent	9.0%	17.6%	43.1%	25.2%	4.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	11:00	08:00	08:00	11:00											08:00	
Vol.	5	7	21	15	3											47	
PM Peak	17:00	14:00	16:00	16:00	16:00	12:00										16:00	
Vol.	8	10	31	15	3	1										63	
Total	98	187	399	226	39	1	0	0	0	0	0	0	0	0	950		
Percent	10.3%	19.7%	42.0%	23.8%	4.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 16 MPH
 50th Percentile : 22 MPH
 85th Percentile : 27 MPH
 95th Percentile : 29 MPH

Stats 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 625
 Percent in Pace : 65.8%
 Number of Vehicles > 25 MPH : 266
 Percent of Vehicles > 25 MPH : 28.0%
 Mean Speed(Average) : 22 MPH

Reference Guide on Traffic Control Determination in the State of Michigan

Background

This document is intended to be used as a reference guide for performing intersection traffic control studies of intersections on public roadways in Michigan. The document explains the procedure and requirements necessary to implement traffic control at an intersection as stipulated by the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). Generally, the starting premise is an uncontrolled intersection. The first step would then be to verify if the intersection should remain uncontrolled or if YIELD or STOP controls on the minor street approach(es) should be provided. For locations with higher traffic volumes and /or crash issues, then an evaluation of the location for all-way STOP warrants would be performed. The appropriate analysis for each level of control described below.

YIELD Traffic Control Guidance

The use of a YIELD sign is intended to assign the right-of-way at intersections where it is not usually necessary to stop before proceeding into the intersection. Conversely, the STOP sign is intended for use where it is usually necessary to stop before proceeding into the intersection.

The following conditions should be fully evaluated to determine how the right-of-way should be assigned:

- Traffic Volumes: Normally, the heavier volume of traffic should be given the right-of-way.
- Approach Speeds: The higher speed traffic should normally be given the right-of-way.
- Types of Highways: When a minor highway intersects a major highway, it is usually desirable to control the minor highway.
- Sight Distance: Sight distance across the corners of the intersection is the most important factor and is critical in determining safe approach speeds.

STOP Traffic Control Guidance

Based on the MMUTCD there are four conditions where STOP signs may be warranted:

- At the intersection of a less important road with a main road where application of the normal right-of-way rule is unduly hazardous.
- On a street entering a through highway or street.
- At an unsignalized intersection in a signalized area.
- At other intersections where a combination of high speed, restricted view, or crash records indicate a need for control by the STOP sign.

Many times STOP signs are installed where they may not be warranted. Traffic experts agree that unnecessary STOP signs:

- Cause accidents they are designed to prevent.
- Breed contempt for other necessary STOP signs.
- Waste millions of gallons of gasoline annually.
- Create added noise and air pollution.
- Increase, rather than decrease, speeds between intersections.

There is also an explicit restriction in the MMUTCD that STOP signs are not to be used for speed control, in Section 2B.04.

Evaluation of All-Way STOP Traffic Control

Based on the MMUTCD there are four conditions where **all-way** STOP signs may be warranted:

- A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
- B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
- C. *Minimum volumes:*
 - 1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
 - 2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
 - 3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*
- D. *Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.*



TRAFFIC COMMITTEE REPORT

October 21, 2019

TO: Traffic Committee

FROM: Bill Huotari, City Engineer/ Traffic Engineer

SUBJECT: 2020 Traffic Committee Meeting Schedule

According to the City of Troy Traffic Committee By-Laws, Article IV – Meetings:

“Regular meetings will be held on the third Wednesday of each month at 7:30 p.m. at the Troy City Hall, 500 West Big Beaver Road, Troy, Michigan.”

There are no other by-laws or procedures that establish the actual dates of the meetings, but an annual calendar of meetings is published by the City so meeting dates need to be set for this purpose.

Recommended dates for 2020 Traffic Committee meetings are detailed below:

- Wednesday, January 15
- Wednesday, February 19
- Wednesday, March 18
- Wednesday, April 15
- Wednesday, May 20
- Wednesday, June 17
- Wednesday, July 15
- August – NO MEETING
- Wednesday, September 16
- Wednesday, October 21
- Wednesday, November 18
- December – NO MEETING