



TRAFFIC COMMITTEE AGENDA

March 18, 2020 – 7:30 P.M.

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

1. Roll Call
2. Minutes – February 19, 2020

PUBLIC HEARINGS

3. No Public Hearings

REGULAR BUSINESS

4. Request for No Parking – Lakeside Drive at Shoreline Drive
5. Request for Traffic Control – Kirkton Drive at Starr Drive
6. Public Comment
7. Other Business
8. Adjourn

Copy to:

Item 4: Properties within 300'

Item 5: Samantha Shelton, 2351 Kirkton
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. No Public Hearings****REGULAR BUSINESS****4. Request for No Parking – Lakeside Drive at Shoreline Drive**

Troy Police request that the eyebrow and island area be posted as a No Parking zone at Lakeside Drive and Shoreline Drive. Troy Police recently responded to a crash in this area and found that parked vehicles were creating a hazardous condition and could potentially block the flow of traffic for large vehicles, delivery trucks, emergency vehicles, etc.

The south side of Lakeside Drive and the east side of Shoreline Drive is currently posted as No Parking due to fire hydrants located along the road.

In an effort to keep the eyebrow open for all travel, the recommendation is to install an additional sign within the eyebrow and two signs on the island. This would prohibit all parking in the eyebrow area.

SUGGESTED RESOLUTIONS:

- a. RESOLVED, that the eyebrow area of Lakeside Drive at Shoreline Drive be **MODIFIED** to prohibit all parking within the eyebrow area including around the island.
- b. RESOLVED, that **NO CHANGE** be made to the eyebrow area of Lakeside Drive at Shoreline Drive.

5. Request for Traffic Control – Kirkton Drive at Starr Drive

Samantha Shelton of 2351 Kirkton Drive states that the lack of ALL-WAY STOP control at the intersection of Kirkton Drive and Starr Drive creates a hazardous condition.

SUGGESTED RESOLUTIONS:

- a. RESOLVED, that the intersection of Kirkton Drive at Starr Drive be **MODIFIED** from Stop signs on the Kirkton Drive approaches to ALL-WAY STOP control at the intersection of Kirkton Drive at Starr Drive.
- b. RESOLVED, that **NO CHANGE** be made at the intersection of Kirkton Drive at Starr Drive.

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

A regular meeting of the Troy Traffic Committee was held Wednesday, February 19, 2020 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
Sunil Sivaraman
Cynthia Wilsher
Pete Ziegenfelder
Alankar Shende, Student Representative

Absent: Al Petrulis

Also present: Rachel & Lilianna Giuffrida 2666 Creek Bend
Sgt. Justin Novak, Police Department
Lt. Eric Caloia, Fire Department
Bill Huotari, City Engineer/Traffic Engineer

2. Minutes – January 15, 2020

Resolution # 2020-02-03
Moved by Kilmer
Seconded by Nurak

To approve the minutes as printed.

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

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

The traffic signal at the intersection of Crooks Road and Wilshire Drive is currently undergoing a modernization. During the design phase of this project, Road Commission for Oakland County (RCOC) and the City of Troy agreed that left turns allowed at this intersection during off peak traffic periods when the signal is in the flash mode of operation should be prohibited to improve safety.

With recent development on Wilshire Drive more traffic is being generated that uses this intersection. This additional traffic has the potential to cause significant conflicts with opposing left turning traffic movements due to the boulevard geometry of the intersection. The crossovers on Wilshire Drive, west and east of Crooks Road, provide a convenient location for indirect left turn movements.

The recommended treatment is to prohibit all left turns to/from Wilshire Drive to/from Crooks Road.

Mr. Kilmer led a discussion of what the issue is and what the recommendation would do. He agrees that left turns should be made east and west, within the existing boulevard section, just like other boulevard intersections.

Mr. Johnson asked about the process as the Committee has not reviewed many of these types of requests.

RCOC Traffic Control Order No. TP 102-22-86, Revision #2, prohibits all left turns for northbound Crooks Road at eastbound Wilshire Drive and southbound Crooks Road at westbound Wilshire Drive, and further prohibits all turns for northbound Crooks Road at westbound Wilshire Drive and southbound Crooks Road at eastbound Wilshire Drive.

The RCOC approved the turn prohibitions at their meeting of January 9, 2020. Wilshire Drive is a City road so a Traffic Control Order is required to prohibit left turns to/from Wilshire Drive and make it enforceable.

Essentially, the intersection will now perform as boulevard intersections are designed with indirect left turns. All left turn movements will now be required on Wilshire Drive within the existing boulevard.

Mr. Sivaraman discussed operational issues at the intersection and traffic.

Sgt. Novak stated that the new traffic signal is now in place.

Resolution # 2020-02-04

Moved by Sivaraman

Seconded by Johnson

RESOLVED, that intersection of Crooks Road at Wilshire Drive be **MODIFIED** to prohibit all left turns to/from Wilshire Drive to/from Crooks Road.

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

No: None

Absent: Petrulis

MOTION CARRIED

5. Request for Traffic Control – Crooks Road at Premier Drive

Crooks Road at Premier Drive was identified as an intersection where prohibiting certain turning movements during some specified hours of the day may help to reduce the pattern of crashes being reported as part of the Road Commission for Oakland County (RCOC) Annual Safety Review for the years 2016-2018.

Eastbound Premier Drive at Crooks Road had seven (7) crashes involving left turning traffic accessing Crooks Road to head north. Two (2) of the crashes occurred during the lunch time period, 12:00 to 1:00 PM, with the remainder occurring during the peak hour period of 4:00 to 7:00 PM.

Crooks Road is under the jurisdiction of the RCOC. Premier Drive is a City road so a TCO is required to prohibit left turns from Premier Drive to Crooks Road and make it enforceable.

The recommended treatment is to prohibit left turns from eastbound Premier Drive to northbound Crooks Road, between the hours of 4PM and 7PM, Monday through Friday.

Ms. Wilsher discussed traffic in and around this area.

Mr. Kilmer requested clarification on the request and the process.

Ms. Nurak noted that the request was for specific hours (i.e. peak hour from 4:00 PM – 7:00 PM)

Resolution # 2020-02-05

Moved by Sivaraman

Seconded by Nurak

RESOLVED, that the intersection of Crooks Road at Premier Drive be **MODIFIED** to prohibit left turns from eastbound Premier Drive to northbound Crooks Road, between the hours of 4PM and 7PM, Monday through Friday.

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

No: None

Absent: Petrulis

MOTION CARRIED

6. Public Comment

No public comment

7. Other Business

Mr. Kilmer discussed the new IHOP on Rochester Road and Urbancrest and his concerns about off-site parking along Urbancrest. The south side of Urbancrest is already posted as No Parking. The north side of Urbancrest is posted No Parking from approximately the end of the residential area at the east end to Rochester Road.

Additional no parking restrictions, on the north side of Urbancrest, would impact the existing residential properties on the east end of Urbancrest. If additional no parking is desired it should be initiated by the property owners on the east end of Urbancrest.

Mr. Kilmer requested information on several new developments and discussed traffic related issues.

Mr. Kilmer noted that the Stop signs placed over the past few months have helped in his neighborhood.

Mr. Johnson requested information on the pedestrian cross walk locations discussed last year (i.e. Altair/Troy Sports, City Hall and Somerset Collection). The pedestrian crossing at Altair/Troy Sports was partially completed with the traffic signal on the north side. The median improvements and traffic signal improvements on the south side are on hold while Altair works on redevelopment plans. The other two locations are on hold pending completion of I75 construction and further design considerations.

Discussion of I75 Segment 2 took place. New information has been added to the MDOT website (www.modernize75.com) including additional information on the DDI at 14 Mile and Big Beaver as well as 2020 construction information.

MDOT is holding an Open House in Room 305 of the Community Center on Thursday, February 20, 2020 from 4PM – 7PM.

8. Adjourn

The meeting adjourned at 8:11 p.m.

Pete Ziegenfelder, Chairperson

William J. Huotari, City Engineer/Traffic Engineer



TRAFFIC COMMITTEE REPORT

March 3, 2020

TO: Traffic Committee

FROM: Bill Huotari, City Engineer/ Traffic Engineer

SUBJECT: Request for No Parking
Lakeside Drive at Shoreline Drive

Background:

Troy Police request that the “eyebrow” and island area be posted as a No Parking zone at Lakeside Drive and Shoreline Drive.

Troy Police recently responded to a crash in this area and found that parked vehicles were creating a hazardous condition and could potentially block the flow of traffic for large vehicles, delivery trucks, emergency vehicles, etc.

The south side of Lakeside Drive and the east side of Shoreline Drive is currently posted as No Parking due to fire hydrants located along the road.

In an effort to keep the “eyebrow” open for all travel, the recommendation is to install an additional sign within the “eyebrow” and two signs on the island. This would prohibit all parking in the “eyebrow” area.



GIS Online



Legend:

Fire Hydrant

- Out of Service
- Online

Water Valve

- Pressure Reducing Valve
- Air Release Valve
- Isolation Valve
- Gate Valve
- Butterfly Valve
- Tapping Sleeve and Valve
- Blow Off Valve
- Post Indicator Valve
- Service Valve
- Vault

Water Main

- Transmission Main
- Proposed, Out of Service or Standby
- Distribution Main

- Water Pressure Reducing Valve
- Road Centerline Text

Notes:

Map Scale: 1=252

Created: February 13, 2020



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.

Lakeside Looking East



Eyebrow Looking South



Eyebrow Looking North



Shoreline Looking North





TRAFFIC COMMITTEE REPORT

March 3, 2020

TO: Traffic Committee

FROM: Bill Huotari, City Engineer/ Traffic Engineer

SUBJECT: Request for Traffic Control
Kirkton Drive at Starr Drive

Background:

Samantha Shelton of 2351 Kirkton Drive states that the lack of ALL-WAY STOP control at the intersection of Kirkton Drive and Starr Drive creates a hazardous condition.

Kirkton Drive is currently controlled by Stop signs, while Starr Drive is uncontrolled.

There were two (2) crashes recorded in the past five (5) years.

The posted speed limit on both streets is 25 mph.

Starr Drive would be considered the major road as it provides access to Livernois Road.

The major potential sight distance obstruction at the intersection is the northeast house corner at the southwest quadrant of the intersection.

For a vehicle traveling on Kirkton Drive, the safe approach speed was found to be 9.0 mph and 11.3 mph for southbound and northbound vehicles, respectively. Stop-control is appropriate for the Kirkton Drive approaches.

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

February 25, 2020

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

RE: Traffic Control Recommendation for
Kirkton Drive at Starr Drive
OHM JN: 0128-19-0240

Dear Mr. Huotari:

As requested, we have reviewed the intersection of Kirkton Drive at Starr Drive to determine the proper traffic control. Kirkton Drive at Starr Drive is a 4-legged intersection located approximately 3,200 feet north of Maple Road and about 2,200 feet east of Livernois Road. The speed limit on both streets under investigation is 25 mph. Kirkton Drive is STOP-controlled on both approaches to Starr Drive. Attached are aerial and intersection photos.

Types of Roadways

Both Kirkton Drive and Starr Drive are considered local streets. Starr Drive runs east / west, providing access to / from the local neighborhood and Livernois Road (minor arterial) via Plum Drive and Kirkton Drive. Kirkton Drive runs north / south, providing indirect access to Morse Elementary school to the east and Livernois Road to the west via Starr Drive, Hickory Drive and Cherry Drive. Both Kirkton Drive and Starr Drive dead end only a few hundred feet north and east of the subject intersection respectively.

The surrounding land use is entirely single-family residential. On-street parking is permitted on the south side of Starr Drive west of the intersect and on the north side of Starr Drive east of the intersection. Parking is also allowed on the east side of Kirkton Drive in the vicinity of the intersection. Kirkton Drive is currently under STOP-control and would be considered the minor road at the intersection, while Starr Drive would be considered the major road as it provides direct access to Livernois Road and its dead end provides access to more houses.

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 two (2) crashes recorded in the past full five (5) years at the intersection of Kirkton Drive at Starr 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.

In any case, both crashes that occurred in the vicinity of this intersection were trucks backing and colliding with legally parked vehicles, unrelated to the traffic control at the intersection.

Traffic Volumes

Traffic counts were not collected in the vicinity of the intersection. Traffic volumes in residential areas are predominantly driven by the number of single-family residential homes in the neighborhood. Based on the residential nature and the number of homes in the surrounding area, as well as the fact that both Starr Drive and Kirkton Drive are dead-end streets, it is highly improbable that this location would satisfy any of the minimum volume warrants for an all-way STOP. Further explanation within the context of the minimum volume constraints is provided next.

It is extremely unlikely that Starr Drive meets and sustains the 300 vehicles per hour threshold for a minimum of 8 hours. The combined vehicular, pedestrian, and bicycle volumes entering from Plum Drive is similarly unlikely to average at least 200 units for any 8 hours. Additionally, since the posted speed limit is only 25 mph, it is reasonable to assume that the 85th percentile approach speed does not exceed 40 mph on either road; thus, the minimum vehicular volume warrants cannot be discounted to 70 percent of the values described previously. Finally, the study intersection is likely to fall significantly shy even of the reduced 80 percent volumes, based on expected trip generation for this neighborhood. Therefore, the minimum volume criteria for an all-way STOP has not been met.

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 Kirkton Drive at Starr Drive for a motorist traveling southbound on Kirkton Drive is the southwest house corner of the property on the northeast quadrant of the intersection. The major potential sight distance obstruction for a motorist traveling northbound on Kirkton 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 Kirkton Drive were 9.0 mph and 11.3 mph for southbound and northbound vehicles, respectively. Thus, based on the safe approach speed calculations, STOP-control is appropriate for the Kirkton Drive approaches. The safe approach speed calculation spreadsheets for the intersection is attached for your reference.

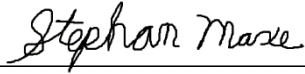
Recommendation

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 STOP-control would be the appropriate traffic control treatment on the Kirkton Drive approaches. OHM recommends retaining the



existing STOP signs. The intersection should be reevaluated if traffic volumes increase or more crashes begin to occur.

Sincerely,
OHM Advisors

Handwritten signature of Stephan Maxe in black ink.

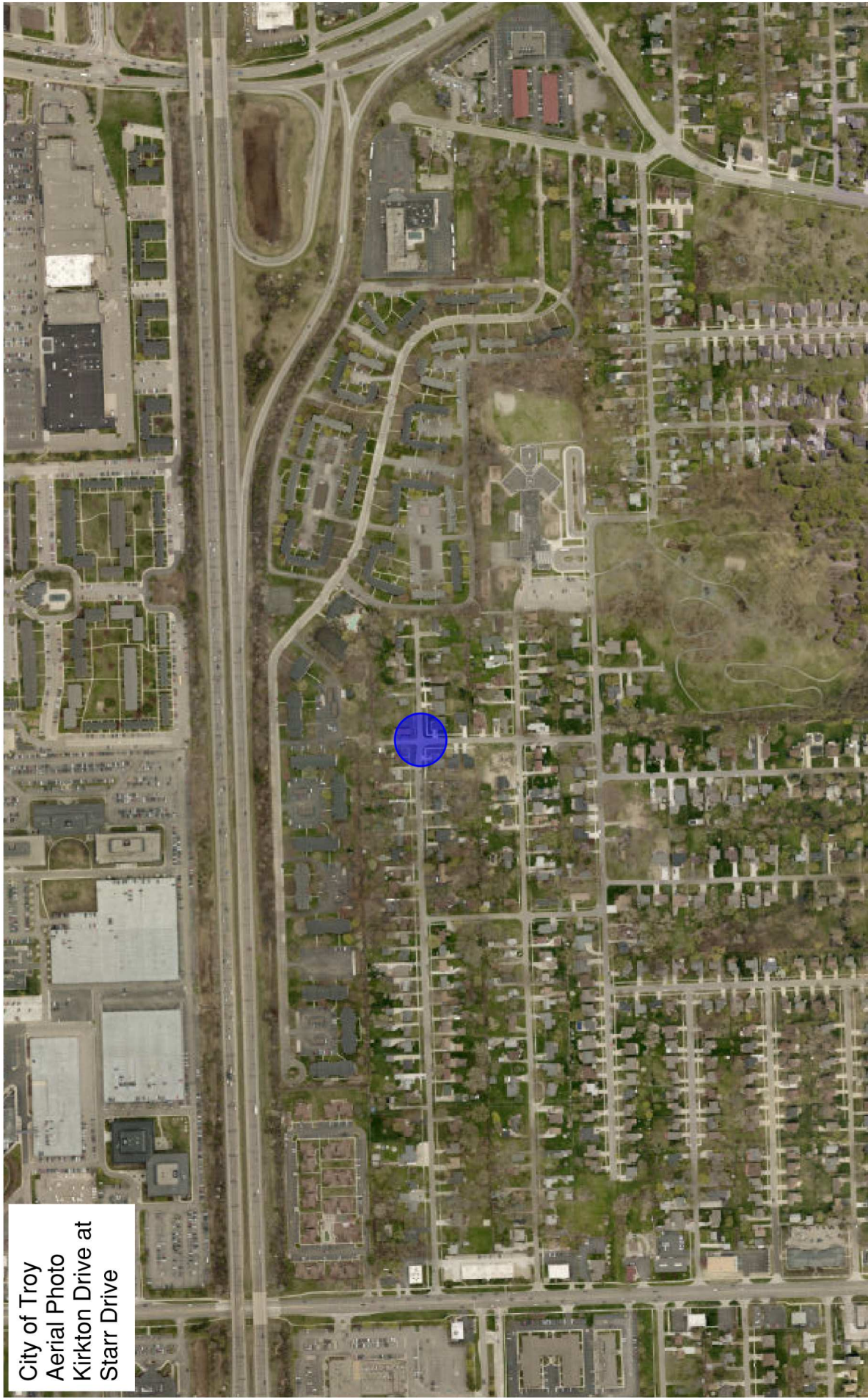
Stephan Maxe, PE
Project Engineer

Handwritten signature of Sara A. Merrill in black ink.

Sara Merrill, PE, PTOE
Traffic Project Manager

Attachments:

- Aerial Photo
- Safe Approach Speed Calculation Spreadsheets
- Intersection Photos
- UD-10 Crash Reports (2)
- Traffic Control Determination Reference Guide



City of Troy
Aerial Photo
Kirkton Drive at
Starr Drive

Safe Approach Speed Calculation

Starr Dr and Kirkton
Your City

Date: 2/19/2020
Analyst: Ricardo Freshley

Measured:

Width of Roads

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

Distance to Obstructions

a = 28 (ft) e = 33 (ft)
b = 23 (ft) f = 43 (ft)
c = 34 (ft) g = 36 (ft)
d = 67 (ft) h = 39 (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 = 9.0 (mph) [Based on Veh. A]
or V₂ = 13.3 (mph) [Based on Veh. C]

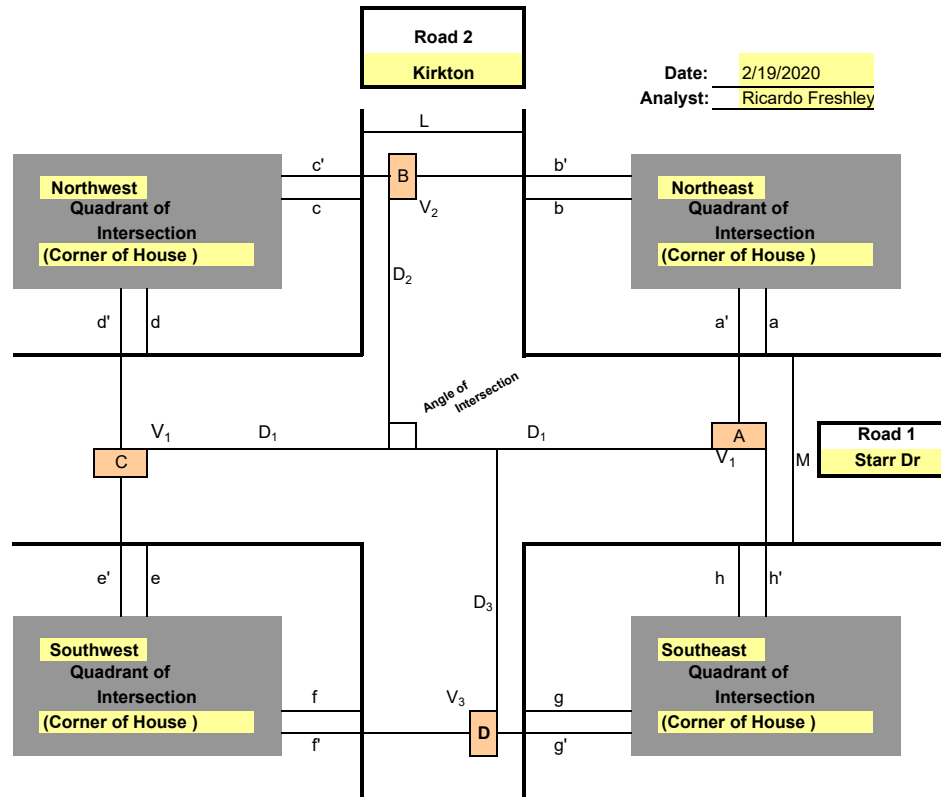
Calculated Safe Approach Speed for Vehicle D

Approaching on Road 2

V₃ = 11.7 (mph) [Based on Veh. A]
or V₃ = 11.3 (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' = 34 e' = 39
D_{2A} = 40.9 b' = 33 f' = 53
D_{2C} = 65.8 c' = 40 g' = 42
D_{3A} = 56.0 d' = 77 h' = 49
D_{3C} = 53.4

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 :

STOP Sign



Photograph No. 1: Kirkton Drive – Heading North
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 2: Kirkton Drive - Heading North and Looking Left
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 3: Kirkton Drive - Heading North and Looking Right
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 4: Kirkton Drive - Heading South
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 5: Kirkton Drive - Heading South and Looking Left
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 6: Kirkton Drive - Heading South and Looking Right
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 7: Starr Drive – Heading East
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 8: Starr Drive – Heading East and Looking Left
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 9: Starr Drive – Heading East and Looking Right
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 10: Starr Drive - Heading West
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 11: Starr Drive - Heading West and Looking Left
Date: 2/19/2020 **Photographer:** Ife Ogundeji



Photograph No. 12: Starr Drive - Heading West and Looking Right
Date: 2/19/2020 **Photographer:** Ife Ogundeji

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

External #
0571370

Crash ID
9332434

Page 01 of 01
Incident # 150022967 File Class 93001

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI: MI 6378400		Department Name Troy Police Department		Reviewer NOVAK (104493)	
Crash Date 07/13/2015	Crash Time 15:54	No. of Units 02	Crash Type Sideswipe-Opposite	Special Circumstances <input type="checkbox"/> School Bus <input checked="" type="checkbox"/> None <input type="checkbox"/> Hit and Run <input type="checkbox"/> Deer <input type="checkbox"/> Fleeing Police	Special Checks <input type="checkbox"/> Fatal <input type="checkbox"/> Non-Traffic Area <input type="checkbox"/> ORV/Snowmobile
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 Daylight	Road Condition Dry
Total Lanes 02		Speed Limit 25	Posted Yes		

Prefix	Road Name KIRKTON	Road Type ST	Suffix	Divided Roadway
Distance 40 Feet S	Traffic Way 01 - Not physically divided		Access Control 01 - No access control	
Prefix	Intersecting Road STARR	Road Type DR	Suffix	Divided Roadway

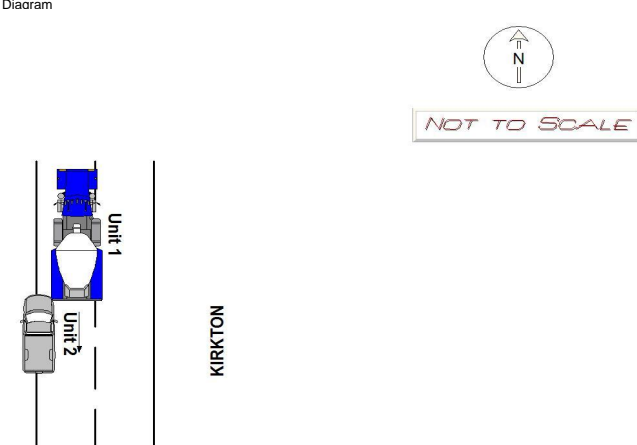
Unit Number 01	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ##/##/#### (56)	License Type <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Chauffeur <input type="checkbox"/> Moped	Endorsements <input type="checkbox"/> Cycle <input type="checkbox"/> Farm <input type="checkbox"/> Recreation	Sex M	Total Occupants 01	Hazardous Action 11 - Improper backing
Unit Type MV	Driver Information ##### ##### CLARKSTON, MI 48346-1907 (###) ###-####				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 Not Equipped	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"/> 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 ADVANCE		Make MIXER	Color BLUE	Year 2005	Vehicle Type Truck/Bus		
Location of Greatest Damage 06	First Impact 06	Extent of Damage 1	Driveable Yes	Vehicle Direction S	Vehicle Use 02 - Commercial(business)	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	

Carrier Information VAN HORN BROTHERS 3770 AIRPORT RD WATERFORD, MI 48329		Carrier Source Driver	GVWR 99,999	ICCMC	USDOT 000001720945	MPSC
Driver's CDL Type Group A		Endorsements <input type="radio"/> H <input type="radio"/> P <input type="radio"/> T <input checked="" 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 Intrastate	Vehicle Type BB	Type & Axle Per Unit First 6	Second	Third	Fourth	Cargo Body Type 5
Medical Card Yes		Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill		ID #	Class #	

Owner Information	Owner Information
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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 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 <input 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 Not Equipped	Ambulance NONE		
	Alcohol <input type="radio"/> Yes <input checked="" type="radio"/> No Test Type <input type="radio"/> Field <input type="radio"/> PBT				Drugs <input type="radio"/> Yes <input checked="" type="radio"/> No 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 SILVERADO	Model	Color	Year 2009	Vehicle Type Pickup truck		
	Location of Greatest Damage 02		First Impact 02	Extent of Damage 2	Driveable Yes	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 <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					
	Witness Information					Witness Information					
WITNESS	Investigated at Scene Yes	Reported Date (Time) 07/13/2015 (15:54)	1st Investigator Name (Badge) C. HUCK (85)			2nd Investigator Name (Badge)			Photos By		
	Narrative WHILE BACKING DOWN KIRKTON TO DELIVER A LOAD OF CONCRETE, VEHICLE 1 BACKED INTO VEHICLE 2, WHO WAS PARKED ON THE WEST SIDE OF THE ROADWAY.					Diagram 					

Authority: 1949 PA 300, Sec.257-622
Compliance: Required MSP UD-10E
Penalty: \$100 and/or 90 days (Rev 01/2016)

External #
0906664

Crash ID
1435476

Page 01 of 01
File Class 93001

Incident #
180022587

Reviewer
SZUMINSKI (100902)

STATE OF MICHIGAN TRAFFIC CRASH REPORT

ORI MI 6378400		Department Name Troy Police Department							
Crash Date 07/12/2018	Crash Time 14:20	No. of Units 02	Crash Type Other	Special Circumstances <input checked="" type="radio"/> None <input type="radio"/> Fleeing Police <input type="radio"/> Hit and Run <input type="radio"/> Unknown <input type="radio"/> School Bus <input type="radio"/> Animal		Special Checks <input type="radio"/> Fatal <input type="radio"/> Non-Traffic Area <input type="radio"/> ORV/Snowmobile			
County 63 - Oakland	Traffic Control None	Relation to Roadway On the Road		Weather Cloudy		Area NON-FRWY Straight Roadway			
City/Twsp 84 - Troy	Contributing Circumstances 1st None		2nd		Light Daylight	Road Surface Condition Dry	Total Lanes 02	Speed Limit 25	Posted Yes
Work Zone (if applicable) Type Workers Present Activity Location									

LOCATION	Prefix	Primary Road Name STARR	Road Type RD	Suffix	Divided Roadway
	Distance / Direction 40 Feet E				
	Trafficway Not Physically Divided				
	Prefix	Intersecting Road Name KIRKTON	Road Type	Suffix	Divided Roadway

UNIT / DRIVER	Unit Number 01	Unit Known Yes	State MI	Driver License Number #####	Date of Birth (Age) ###/###/#### (50)	License Type <input type="radio"/> Operator <input checked="" type="radio"/> Chauffeur <input type="radio"/> Moped	Endorsements <input type="radio"/> Cycle <input type="radio"/> Farm <input type="radio"/> Recreation	Sex M	Total Occupants 02	Hazardous Action Improper Backing	
	Unit Type MV	Driver Information ##### STERLING HEIGHTS, MI 48310-5210 (###) ###-####				Driver is Owner No	Injury O	Position Front - Left		Restraint Shoulder and Lap Belt	
	Driver Condition at Time of Crash 1st Appeared Normal				2nd		Driver Distracted By Unknown		Ejected	Trapped	Airbag Deployed Not Deployed
	Hospital NONE					Ambulance NONE					
	Alcohol Suspected No	Contributing Factor No	Alcohol Test Type <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine <input type="radio"/> Field <input type="radio"/> PBT <input type="radio"/> Refused <input checked="" type="radio"/> Not Offered			Alcohol Test Results <input type="radio"/> Pending		Test Results:		Interlock Device No	
	Drug Suspected No	Contributing Factor No	Drug Test Type <input type="radio"/> Blood <input type="radio"/> Urine <input type="radio"/> Field <input type="radio"/> Refused <input checked="" type="radio"/> Not Offered			Drug Test Results <input type="radio"/> Pending		Test Results:		Citation Issued <input type="radio"/> Hazardous <input type="radio"/> Other	
	Vehicle Registration BA38938		State MI	Vehicle Description 2007	Make PETERBILT	Model 335	Color YELLOW				
	VIN 2NPLLD9XX7M677395		Vehicle Type Truck / Bus		Special Vehicles Not Applicable		Private Trailer Type		Vehicle Defect		
	Automation System(s) in Vehicle		Automation System Level in Vehicle				Automation System Level Engaged at Time of Crash				
	Insurance Company #####			Insurance Policy # #####			Towed By		Towed To		
Location of Greatest Damage 04		First Impact 04	Extent of Damage (Power Unit and/or Trailers) Minor Damage		Vehicle Direction E	Vehicle Use Commercial (Business)		Action Prior Backing			
Sequence of Events First ● 18 - Parked Motor Vehicle (● indicates MOST harmful event)											

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

TRUCK / BUS	Carrier Information TRINGALI SANITATION INC. 33373 DEQUINDRE TROY, MI 48083				USDOT 000001634930		MC	MPSC
					Driver's CDL Type Group A	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	
	GVWR/GCWR <input type="radio"/> 10,000 lbs. or Less <input type="radio"/> 10,001 - 26,000 lbs. <input checked="" type="radio"/> Greater than 26,000 lbs.		Vehicle Configuration Single-Unit 3+ Axles		Cargo Body Type 7	Medical Card Yes	Hazardous Material <input type="radio"/> Placard <input type="radio"/> Cargo Spill	ID #

OWNERS	Owner Information				Owner Information			

Damaged Property		Public	Owner & Phone

UNIT / DRIVER	Unit Number 02	Unit Known No	State 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 ##### ##### (###) ###-####				Driver is Owner No		Injury	Position		Restraint			
	Driver Condition at Time of Crash 1st 2nd					Driver Distracted By Unknown			Ejected	Trapped	Airbag Deployed			
	Hospital NONE					Ambulance NONE								
	Alcohol Suspected No	Contributing Factor No	Alcohol Test Type <input type="radio"/> Breath <input type="radio"/> Blood <input type="radio"/> Urine <input type="radio"/> Field <input type="radio"/> PBT <input type="radio"/> Refused <input type="radio"/> Not Offered				Alcohol Test Results <input type="radio"/> Pending		Test Results:		Interlock Device No			
	Drug Suspected No	Contributing Factor No	Drug Test Type <input type="radio"/> Blood <input type="radio"/> Urine <input type="radio"/> Field <input type="radio"/> Refused <input type="radio"/> Not Offered				Drug Test Results <input type="radio"/> Pending		Test Results:		Citation Issued <input type="radio"/> Hazardous <input type="radio"/> Other			
	Vehicle Registration 4KAVITA		State MI	Vehicle Description 2017		Make TOYOTA		Model HIGHLANDER		Color BLACK				
	VIN 5TDJZRFH5HS434838		Vehicle Type Passenger Car, SUV, Van		Special Vehicles Not Applicable		Private Trailer Type		Vehicle Defect					
	Automation System(s) in Vehicle		Automation System Level in Vehicle					Automation System Level Engaged at Time of Crash						
	Insurance Company #####			Insurance Policy # #####			Towed By PRIVATE TOW			Towed To				
	Location of Greatest Damage 08		First Impact 08	Extent of Damage (Power Unit and/or Trailers) Disabling Damage		Vehicle Direction W	Vehicle Use Private		Action Prior Parked					
	Sequence of Events ● First ● 17 - Motor Veh in Transport ● indicates MOST harmful event													
	PASSENGERS	Passenger Information					Date of Birth (Age)		Sex	Position		Restraint		
					Injury	Ejected	Trapped	Airbag Deployed						
Hospital					Ambulance									
Passenger Information					Date of Birth (Age)		Sex	Position		Restraint				
					Injury	Ejected	Trapped	Airbag Deployed						
Hospital					Ambulance									
TRUCK / BUS	Carrier Information					USDOT		MC	MPSC					
						Driver's CDL Type		Endorsements OH OP OT ON OS OX		CDL Exempt <input type="radio"/> Farm <input type="radio"/> Other				
	GVWR/GCWR <input type="radio"/> 10,000 lbs. or Less <input type="radio"/> 10,001 - 26,000 lbs. <input type="radio"/> Greater than 26,000 lbs.		Vehicle Configuration		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) 07/12/2018 (14:20)	1st Investigator Name (Badge) M. STANSBURY (24)			2nd Investigator Name (Badge)			Photos No					
	Narrative DRIVER #1 WAS BACKING AND STRUCK VEHICLE #2. NO CITATION ISSUED.					Diagram 								

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). Act 300 of Public Acts of 1949 (as amended) requires the adoption of this Manual, and further requires conformance to the manual for all state highways, county roads and local streets open to public travel.

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.

In many cases 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.*