

## **AGENDA**

### **Traffic Committee Meeting January 20, 2016 – 7:30 P.M.**

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

1. Roll Call
2. Minutes – November 18, 2015

### **REGULAR BUSINESS**

3. Request for DO NOT BLOCK INTERSECTION – Rochester Road at Alameda
4. Residential Speed Control – Forsyth, North of Wattles
5. 2016 Meeting Schedule
6. Public Comment
7. Other Business
8. Adjourn

cc: Item 3: Bruce Papet, 1382 Alameda Blvd.  
Properties within 300'

Item 4: Les Marhoff, 4229 Forsyth  
Properties within 300'

Traffic Committee Members;  
Captain Robert Redmond & Sgt. Mike Szuminski, Police Department  
Lt. Eric Caloia, Fire Department  
William J. Huotari, Deputy City Engineer/Traffic Engineer

## 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.

**REGULAR BUSINESS****3. Request for DO NOT BLOCK INTERSECTION – Rochester Road at Alameda**

Bruce Papet of 1382 Alameda Boulevard requests a “DO NOT BLOCK INTERSECTION” sign at the intersection of Alameda Boulevard and Rochester Road.

**SUGGESTED RESOLUTIONS:**

- a. RESOLVED, that a DO NOT BLOCK INTERSECTION sign be **APPROVED** for installation on northbound Rochester Road at Alameda Boulevard.
- b. RESOLVED, that **NO CHANGE** be made at the intersection of Rochester Road and Alameda Boulevard.

**4. Residential Speed Control – Forsyth, north of Wattles**

Les Marhoff of 4229 Forsyth contacted the Traffic Engineering Department with concerns regarding speeding on Forsyth, north of Wattles. Forsyth is a straight section of road that is approximately ½ mile long and provides a direct connection to Hill Elementary. The posted speed limit is 25 mph.

**SUGGESTED RESOLUTIONS:**

- a. RESOLVED, that enhanced speed limit signs be **APPROVED** for installation on Forsyth, north of Wattles and targeted enforcement be considered.
- b. RESOLVED, that **NO CHANGE** be made on Forsyth, north of Wattles.

**5. 2016 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 2016 according to the following schedule at 7:30 PM:
  - Wednesday, February 17
  - Wednesday, March 16
  - Wednesday, April 13 (April 20 conflict with City Council Budget Session)

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

**6. Public Comment**

**7. Other Business**

**8. Adjourn**

A regular meeting of the Troy Traffic Committee was held Wednesday, November 18, 2015 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: Tim Brandstetter  
Mitch Huber  
Al Petrusis  
Cynthia Wilsher  
Pete Ziegenfelder

Absent: David Easterbrook  
Richard Kilmer  
Katie Regan (Student Representative)

Also present: Pat Bismack, 4041 Virgilia  
Bill Huotari, Deputy City Engineer/Traffic Engineer

**2. Minutes – October 21, 2015**

Resolution # 2015-11-47  
Moved by Petrusis  
Seconded by Brandstetter

To approve the October 21, 2015 minutes as printed.

Yes: Brandstetter, Huber, Petrusis, Wilsher, Ziegenfelder  
No: None  
Absent: Easterbrook, Kilmer

**MOTION CARRIED**

**PUBLIC HEARINGS**

**3. Request for Sidewalk Waiver – 4041 Virgilia (Sidwell #88-20-16-452-033)**

Pat Bismack requests a sidewalk waiver for the sidewalk at 4041 Virgilia (Sidwell #88-20-16-452-033). Mr. Bismack states that *“with the new 60’ right-of-way, the neighbor would walk out his front door and his first step would hit the sidewalk and my sidewalk would be the only one on the north side of Wattles, plus one would like to save my trees that are in the right-of-way”*.

Mr. Bismack was present at the meeting and stated that if a sidewalk were required it would be the only sidewalk on the north side of Wattles Road. The 60’ right-of-way line, continued to the west, would cause the proposed sidewalk to go right up to the neighbors door. He continued that he would also like to save the trees that would need to be removed should a sidewalk be required.

Mr. Brandstetter asked if the trees would be removed if the sidewalk were not required. Mr. Bismack replied that the trees would stay on the site if no sidewalk is required.

Mr. Petrusis asked for clarification on the 27' right-of-way. Wattle Road has an ultimate right-of-way width of 120' or 60' half-width. The existing right-of-way is 33' and the additional 27' of right-of-way provides the master planned 60' right-of-way width.

Mr. Brandstetter asked about the location of the proposed sidewalk in the right-of-way and if there were the option to move it closer to the road. This is possible on a road like Wattles where there is room in the right-of-way due to Wattles being a 2-lane road. Items like drainage ditches, utility poles, etc. would need to be considered. Sidewalk is typically placed one (1) foot inside the right-of-way or property line.

Mr. Brandstetter also discussed the lack of connectivity should a sidewalk be required at this location.

Resolution # 2015-11-48

Moved by Petrusis

Seconded by Wilsher

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 no other sidewalks on Wattles or Virgilia to connect to; 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 for the sidewalk requirement at 4041 Virgilia (Sidwell #88-20-16-452-033).

Yes: Brandstetter, Huber, Petrusis, Wilsher, Ziegenfelder

No: None

Absent: Easterbrook, Kilmer

**MOTION CARRIED**

**4. Public Comment**

There was no additional public comment.

**5. Other Business**

Mr. Brandstetter made a motion that the December 2015 Traffic Committee meeting be cancelled.

Resolution # 2015-11-49

Moved by Brandstetter

Seconded by Petrulis

**RESOLVED**, that the December 2015 Traffic Committee meeting be cancelled.

Yes: Brandstetter, Huber, Petrulis, Wilsher, Ziegenfelder

No: None

Absent: Easterbrook, Kilmer

**6. Adjourn**

The meeting adjourned at 8:02 p.m.

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Pete Ziegenfelder, Chairperson

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Bill Huotari, Deputy City Engineer/Traffic Engineer



## **TRAFFIC COMMITTEE REPORT**

December 28, 2015

TO: Traffic Committee

FROM: Bill Huotari, Deputy City Engineer/ Traffic Engineer

SUBJECT: Request for DO NOT BLOCK INTERSECTION  
Rochester Road at Alameda Boulevard

Background:

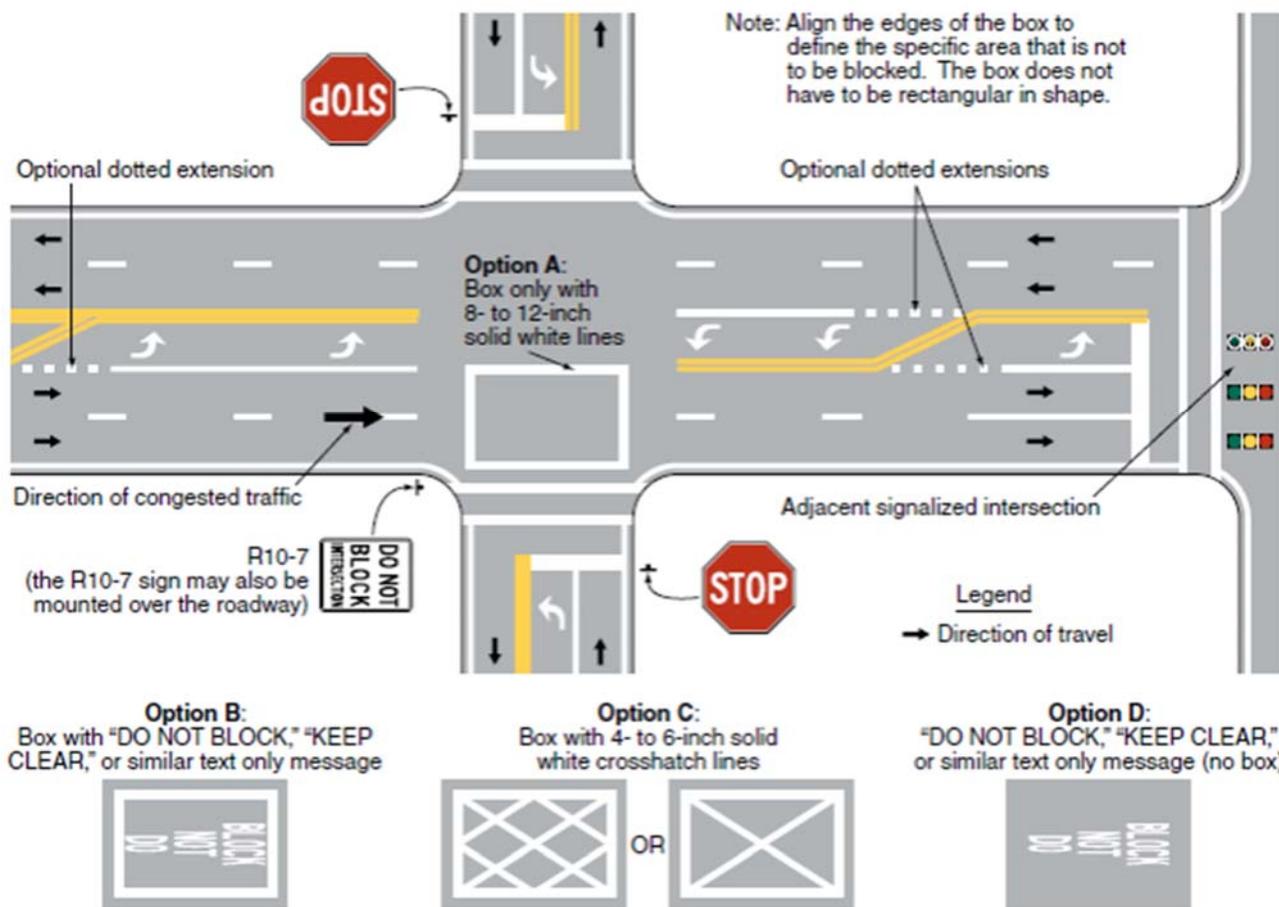
Bruce Papet of 1382 Alameda Boulevard requests a “DO NOT BLOCK INTERSECTION” sign at the intersection of Alameda Boulevard and Rochester Road.

Northbound traffic backs up on Rochester Road through the Alameda intersection making ingress/egress difficult from the condominium development. Traffic from Woodside Bible Church further exacerbates this issue during church events.

The Troy Police Department was also consulted regarding this request and confirmed that this is a valid concern and would not object to posting a DO NOT BLOCK INTERSECTION sign at this location.

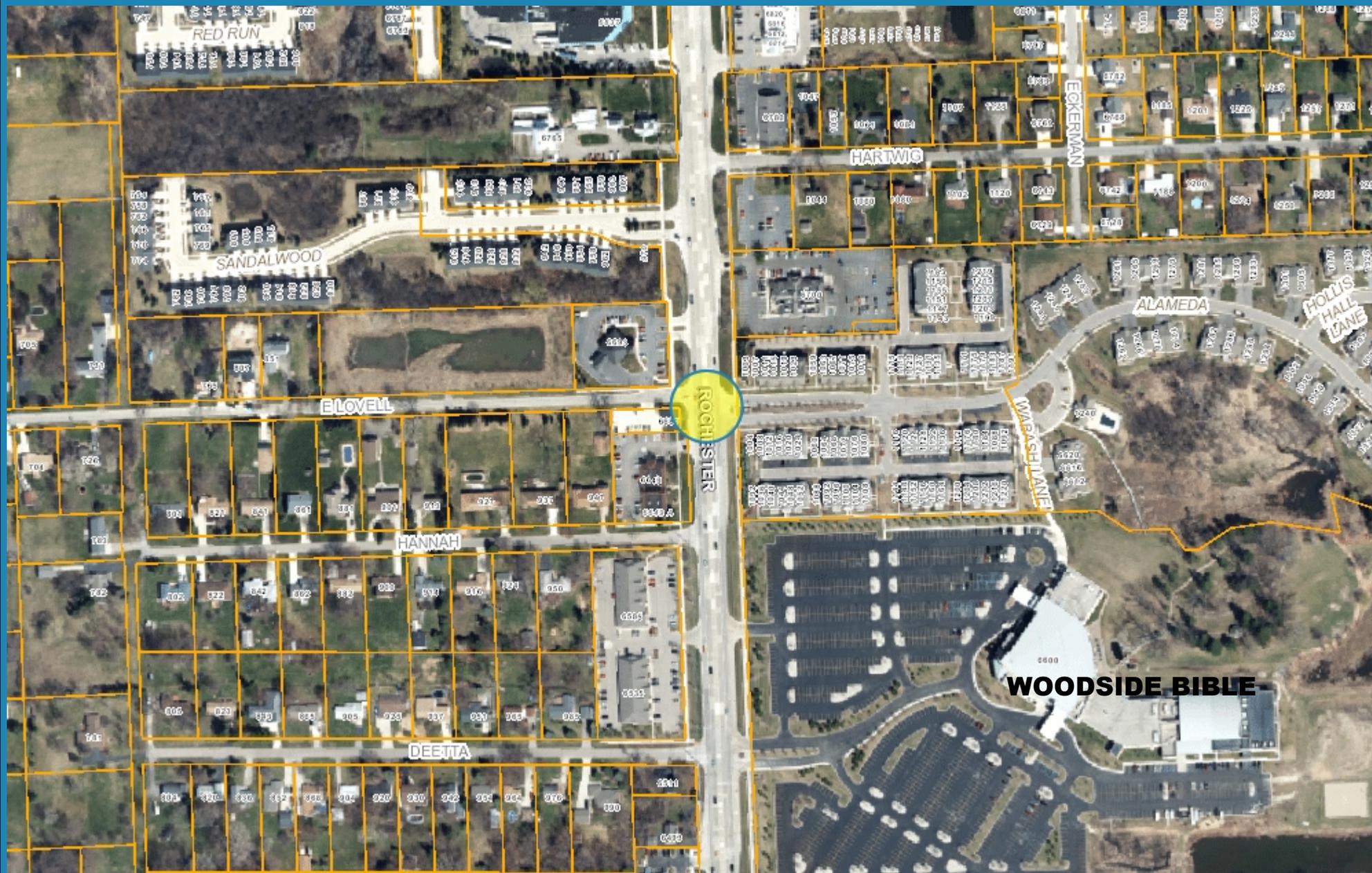
The Michigan Manual of Uniform Traffic Control Devices (MMUTCD) does not contain any warrants for the use of DO NOT BLOCK INTERSECTION signs and markings. Their use is considered a “may” condition, though you should not mark the pavement without also having a sign. The sign is required, the pavement markings are optional. The MMUTCD includes the following options:

Figure 3B-18. Do Not Block Intersection Markings



There is a similar location, south of Square Lake, on Rochester Road at Fairways Boulevard. This location includes a DO NOT BLOCK INTERSECTION sign with a Stop Bar. A Stop Bar is no longer a standard pavement marking for this application. If pavement markings are used, they shall consist of one of the alternatives shown in Figure 3B-18.

Due to seasonal weather limitations, pavement markings could not be placed at this time, if they are recommended. A sign can be installed at most any time. The preferred alternative would be to install a sign only and observe compliance over the next few months. If the situation does not improve, then pavement markings could be investigated.



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.



## **TRAFFIC COMMITTEE REPORT**

December 29, 2015

TO: Traffic Committee

FROM: Bill Huotari, Deputy City Engineer/ Traffic Engineer

SUBJECT: Residential Speed Control  
Forsyth, North of Wattles

### Background:

Les Marhoff of 4229 Forsyth contacted the Traffic Engineering Department with concerns regarding speeding on Forsyth, north of Wattles. Forsyth is a straight section of road that is approximately ½ mile long and provides a direct connection to Hill Elementary. The posted speed limit is 25 mph.

The City requested that OHM complete a speed study on Forsyth and provide their findings and recommendations (see attached).

The speed study was conducted from November 30 through December 7 so that normal school day traffic could be collected. The data indicates that vehicles tend to travel faster than the speed limit between 7:00 – 9:00 AM and 1:00 – 4:00 PM in both the northbound and southbound directions. This is common, as most areas in Troy also experience higher volumes and speeds during the morning and afternoon peak hours.

Volumes are higher during the weekdays due to the location of Hill Elementary at the north end of Forsyth. 85<sup>th</sup> percentile speeds are 35 mph in the northbound direction and 36 mph in the southbound direction. Approximately 16% of traffic in the northbound direction is traveling at 36 mph or higher, while approximately 19% of traffic in the southbound direction is traveling at 36 mph or higher. Typically, we consider additional measures when the 85<sup>th</sup> percentile speeds are 35 mph or higher.

Speeds on Forsyth are generally higher than other local roads studied in Troy. Daily volumes are in line with other residential streets in Troy, but peak hour volumes are higher than normal hourly traffic volumes due to school traffic.

When we evaluate options for a resident concern, we consider:

1. Problem Identification
2. Education and Enforcement
3. Engineering

Typically, Traffic Engineering will contact Troy Police to have the area added for additional patrols when officers are not on higher priority calls. A radar trailer may also be placed on the street by Troy Police to alert drivers to their speeds as they pass the sign. In most cases, drivers associate the radar trailer with

## **ITEM #4**

police enforcement and drive at reasonable and prudent speeds. This has proven effective while the radar trailer is in place, but its effectiveness diminishes after the radar trailer has been removed.

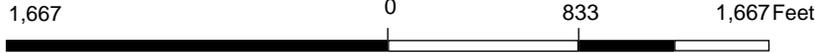
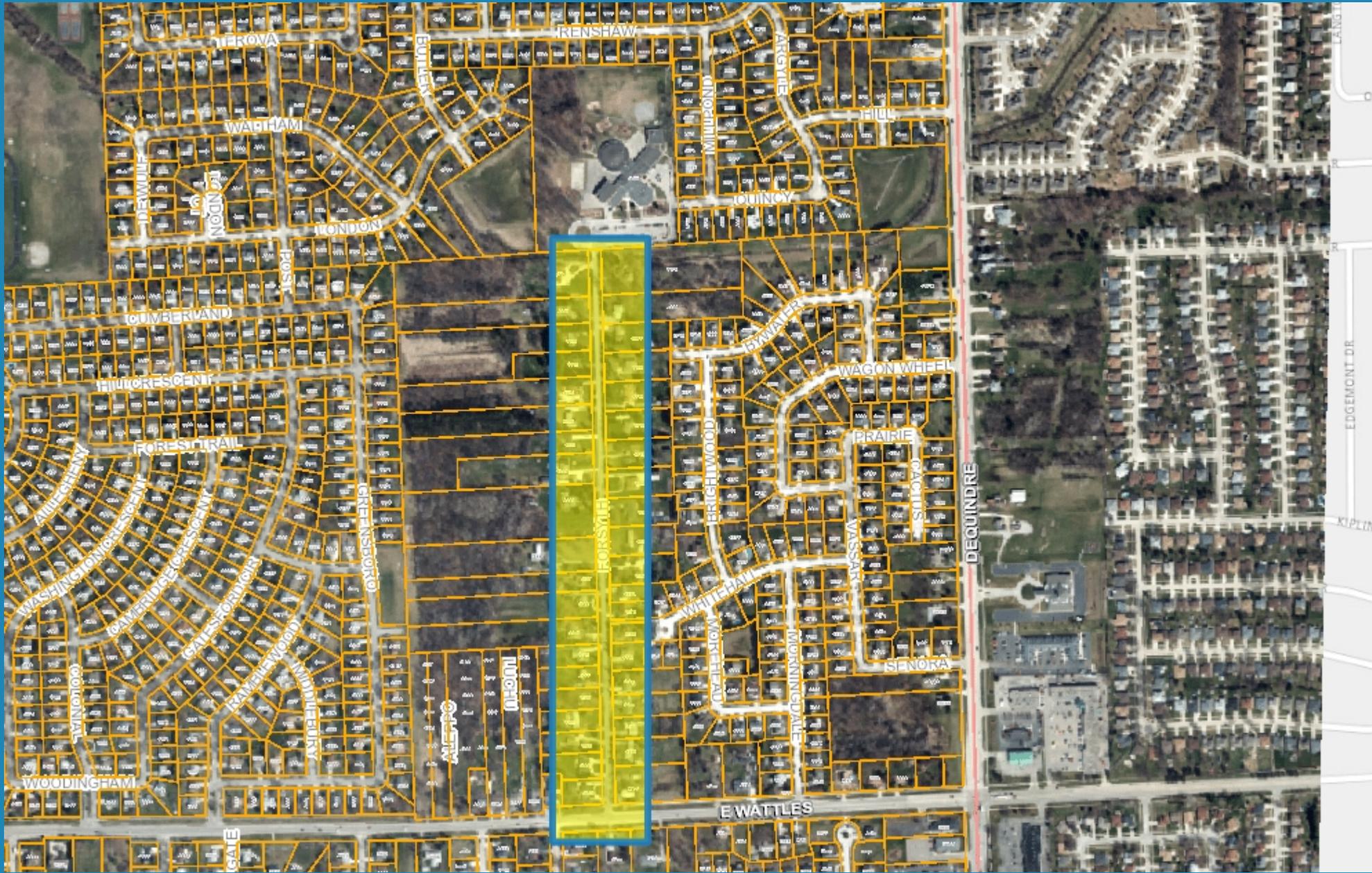
An intermediate step is to look at options for additional signs and/or enhanced signs. In some locations, additional speed limit signs or other signage has been effective in changing driver behavior.

Last year we installed radar speed boards that show a driver their speed as they approach the sign. Two locations showed no change or a slightly higher speed after installation. One location showed a slight decrease in speeds after installation.

Another option may be the use of a “blinker sign” which has LED lights around a standard speed limit sign that can be programmed to operate at specific times of the day (i.e. during morning arrival and afternoon dismissal) to make the signs more effective at set times of the day rather than running all of the time (see attached).

The Engineering phase is much more involved and requires cooperation and support from residents in the area. Options such as speed humps have been discussed in the past at other locations in Troy, but only one speed hump exists in the city and is located on Walnut Hill. A physical measure can only proceed after a Special Assessment District is created. Residents pay for 100% of the cost of a physical measure.

A report by our consultant, OHM Advisors, is attached and discusses some options to consider on Forsyth.



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.



ARCHITECTS. ENGINEERS. PLANNERS.

## memorandum

**Date:** December 8, 2015

**To:** Bill Huotari

**CC:** Steven Loveland and Stephen Dearing

**From:** Matt Clark

**Re:** Troy Speed Study Summary for Forsyth Drive

### Speed and Volume Collection

As requested, speed and volume data has been collected on Forsyth Drive near the middle of the segment between E Wattles Road and Hill Elementary School. The data has been processed and summarized for your review of this location. Attached to this memo is the actual data collected for both speed and volumes.

The posted speed limit is 25 mph. Data was collected at a location approximately 1,540 feet north of E Wattles Road along Forsyth Drive.

**Table 1 - Speed Data Results on Forsyth Drive**

Forsyth Drive		
	Northbound	Southbound
85 <sup>th</sup> Percentile (MPH)	35	36
Mean Speed (MPH)	30	31
10 MPH Pace Speed (MPH)	26-35	26-35
Percent in Pace (%)	65.4	64.2

Based on Table 1, at both locations, the 85<sup>th</sup> percentile speed is higher than the posted speed limit of 25 mph for both directions.

Table 2 shows the AM and PM hour when the highest volume of traffic was within the specified speed range. A dash indicates a day when the data was not complete, which means an hour where the highest volume could not be determined. Data was not complete because the hoses were placed/removed from the roads, there was an error with the hoses or there were no vehicles recorded in that speed range.



**Table 2 - Peak Hours for Specified Speed Ranges on Forsyth Drive**

<b>Forsyth Drive</b>					
		<b>Northbound</b>		<b>Southbound</b>	
	<b>Speed Range (MPH)</b>	<b>AM Peak</b>	<b>PM Peak</b>	<b>AM Peak</b>	<b>PM Peak</b>
<b>11/30 (Mon)</b>	16-20	-	15:00	-	16:00
	21-25	-	15:00	-	15:00
	26-30	-	15:00	-	15:00
	31-35	-	15:00	-	15:00
	36-40	-	15:00	-	15:00
<b>12/1 (Tue)</b>	16-20	07:00	17:00	07:00	14:00
	21-25	08:00	14:00	08:00	15:00
	26-30	08:00	15:00	08:00	15:00
	31-35	08:00	15:00	08:00	15:00
	36-40	08:00	15:00	08:00	12:00
<b>12/2 (Wed)</b>	16-20	10:00	13:00	09:00	13:00
	21-25	11:00	15:00	08:00	15:00
	26-30	08:00	15:00	08:00	15:00
	31-35	08:00	15:00	08:00	15:00
	36-40	08:00	15:00	08:00	15:00
<b>12/3 (Thur)</b>	16-20	08:00	15:00	-	12:00
	21-25	08:00	14:00	07:00	15:00
	26-30	08:00	15:00	08:00	15:00
	31-35	08:00	15:00	08:00	15:00
	36-40	08:00	15:00	08:00	15:00
<b>12/4 (Fri)</b>	16-20	07:00	15:00	08:00	15:00
	21-25	08:00	16:00	08:00	15:00
	26-30	08:00	15:00	08:00	15:00
	31-35	08:00	15:00	08:00	15:00
	36-40	08:00	15:00	08:00	12:00
<b>12/5 (Sat)</b>	16-20	08:00	14:00	-	12:00
	21-25	09:00	13:00	09:00	20:00
	26-30	10:00	15:00	10:00	13:00
	31-35	09:00	15:00	09:00	15:00
	36-40	01:00	20:00	09:00	12:00
<b>12/6 (Sun)</b>	16-20	10:00	14:00	05:00	17:00
	21-25	03:00	12:00	09:00	17:00
	26-30	11:00	17:00	11:00	16:00
	31-35	11:00	19:00	11:00	13:00
	36-40	11:00	12:00	10:00	17:00
<b>12/7 (Mon)</b>	16-20	08:00	-	03:00	-
	21-25	07:00	12:00	08:00	12:00
	26-30	08:00	13:00	08:00	13:00
	31-35	08:00	12:00	08:00	12:00
	36-40	08:00	12:00	08:00	12:00



The data indicates that vehicles tend to travel faster than the speed limit between 7:00 – 9:00 AM and 1:00 – 4:00 PM in both the northbound and southbound directions.

Table 3 is a day by day summary of the traffic volumes along Forsyth Drive. On average, southbound traffic is approximately 9% higher than northbound traffic on weekdays and northbound traffic is approximately 5% higher than southbound traffic on weekends.

**Table 3 – Forsyth Drive Traffic Volumes**

Day	Forsyth Drive		Total
	Northbound	Southbound	
Monday 11/30 (Partial)	189	165	354
Tuesday 12/1	469	504	973
Wednesday 12/2	460	498	958
Thursday 12/3	443	498	941
Friday 12/4	386	436	822
Saturday 12/5	157	146	303
Sunday 12/6	133	129	262
Monday 12/7 (Partial)	232	292	524
<b>Average Weekday Daily Traffic*</b>	457	500	957
<b>Average Weekend Daily Traffic</b>	145	138	283

\*=Tuesday, Wednesday, Thursday

Table 4 shows the percentage of the total traffic in each speed range. 82% of northbound and 83% of southbound total traffic was traveling at speeds higher than the speed limit at the study location.

**Table 4 – Forsyth Drive Percent Traffic Volume in Each Speed Range**

Speed Range	Forsyth Drive	
	Northbound	Southbound
1-15	3.6%	2.8%
16-20	3.3%	2.2%
21-25	11.1%	11.7%
26-30	34.7%	31.0%
31-35	30.7%	33.2%
36-40	13.3%	14.2%
41-45	2.7%	4.1%
46-50	0.4%	0.7%
51-55	0.2%	0.1%

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
11/30/15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	0	0	0	6	15	8	0	0	0	0	0	0	0	0	29	30-39	23
15:00	<b>2</b>	<b>3</b>	<b>7</b>	<b>17</b>	<b>27</b>	<b>13</b>	<b>1</b>	0	0	0	0	0	0	0	<b>70</b>	26-35	44
16:00	0	1	2	7	5	3	1	0	0	0	0	0	0	0	19	26-35	12
17:00	1	1	2	7	7	8	0	0	0	0	0	0	0	0	26	31-40	15
18:00	0	0	2	8	6	1	0	0	0	0	0	0	0	0	17	26-35	14
19:00	1	0	0	4	4	1	0	0	0	0	0	0	0	0	10	26-35	8
20:00	0	1	3	3	3	2	0	0	0	0	0	0	0	0	12	26-35	6
21:00	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	20-29	2
22:00	0	0	0	1	0	1	0	0	<b>1</b>	0	0	0	0	0	3	19-28	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
<b>Total</b>	5	6	16	55	67	37	2	0	1	0	0	0	0	0	189		
<b>Percent</b>	2.6%	3.2%	8.5%	29.1%	35.4%	19.6%	1.1%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%			

AM Peak Vol.	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	22:00	15:00
PM Peak Vol.	2	3	7	17	27	13	1	1		70

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
12/01/15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
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	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	14-23	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	24-33	2
07:00	0	2	3	8	5	3	1	0	0	0	0	0	0	0	22	25-34	13
08:00	2	2	6	36	30	13	3	0	0	0	0	0	0	0	92	26-35	66
09:00	2	1	2	4	1	4	0	0	1	0	0	0	0	0	15	21-30	6
10:00	0	1	1	7	1	0	0	0	0	0	0	0	0	0	10	22-31	8
11:00	5	0	2	9	9	5	1	0	0	0	0	0	0	0	31	26-35	18
12 PM	0	0	2	8	13	8	2	0	0	0	0	0	0	0	33	26-35	21
13:00	0	0	3	3	3	1	1	0	0	0	0	0	0	0	11	26-35	6
14:00	1	1	7	16	13	2	1	0	1	0	0	0	0	0	42	26-35	29
15:00	4	2	6	22	26	10	3	0	0	0	0	0	0	0	73	26-35	48
16:00	0	1	1	11	8	3	1	0	0	0	0	0	0	0	25	26-35	19
17:00	0	4	0	13	7	6	0	0	0	0	0	0	0	0	30	26-35	20
18:00	0	1	5	18	12	5	0	0	0	0	0	0	0	0	41	26-35	30
19:00	1	0	2	6	4	0	0	0	0	0	0	0	0	0	13	25-34	10
20:00	0	0	1	5	4	2	0	0	0	0	0	0	0	0	12	26-35	9
21:00	0	1	1	0	0	1	0	0	0	0	0	0	0	0	3	14-23	2
22:00	0	0	3	3	0	2	0	0	0	0	0	0	0	0	8	21-30	6
23:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	24-33	2
<b>Total</b>	15	16	47	171	139	65	13	1	2	0	0	0	0	0	469		
Percent	3.2%	3.4%	10.0%	36.5%	29.6%	13.9%	2.8%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	07:00	08:00	08:00	08:00	08:00	08:00	04:00	09:00						08:00		
Vol.	5	2	6	36	30	13	3	1	1						92		
PM Peak	15:00	17:00	14:00	15:00	15:00	15:00	15:00	14:00							15:00		
Vol.	4	4	7	22	26	10	3	1							73		

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
12/02/15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
05:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
06:00	1	0	0	1	1	1	0	0	0	0	0	0	0	0	4	24-33	2
07:00	0	1	3	15	5	2	1	0	0	0	0	0	0	0	27	25-34	20
08:00	<b>5</b>	0	2	<b>36</b>	<b>44</b>	<b>8</b>	<b>4</b>	0	0	0	0	0	0	0	<b>99</b>	26-35	80
09:00	5	0	2	4	0	1	2	0	0	0	0	0	0	0	14	21-30	6
10:00	0	<b>3</b>	1	1	1	0	1	0	0	0	0	0	0	0	7	16-25	4
11:00	2	0	<b>5</b>	11	9	7	0	<b>1</b>	0	0	0	0	0	0	35	26-35	20
12 PM	0	1	3	7	8	3	0	0	0	0	0	0	0	0	22	26-35	15
13:00	<b>2</b>	<b>2</b>	4	2	1	2	1	0	0	0	0	0	0	0	14	21-30	6
14:00	2	1	4	15	11	3	1	0	0	0	0	0	0	0	37	26-35	26
15:00	2	0	<b>7</b>	<b>32</b>	<b>30</b>	<b>11</b>	<b>2</b>	<b>1</b>	0	0	0	0	0	0	<b>85</b>	26-35	62
16:00	0	1	5	10	13	1	<b>3</b>	0	0	0	0	0	0	0	33	26-35	23
17:00	0	1	2	9	11	4	0	0	0	0	0	0	0	0	27	26-35	20
18:00	0	1	2	8	6	4	1	0	0	0	0	0	0	0	22	26-35	14
19:00	0	0	2	4	2	0	1	0	0	0	0	0	0	0	9	26-35	6
20:00	0	1	0	6	3	0	0	0	0	0	0	0	0	0	10	26-35	9
21:00	1	0	2	2	2	0	1	0	0	0	0	0	0	0	8	26-35	4
22:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	25-34	2
23:00	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	14-23	1
<b>Total</b>	<b>20</b>	<b>12</b>	<b>47</b>	<b>163</b>	<b>150</b>	<b>48</b>	<b>18</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>460</b>		
<b>Percent</b>	<b>4.3%</b>	<b>2.6%</b>	<b>10.2%</b>	<b>35.4%</b>	<b>32.6%</b>	<b>10.4%</b>	<b>3.9%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			
AM Peak	08:00	10:00	11:00	08:00	08:00	08:00	08:00	11:00							08:00		
Vol.	5	3	5	36	44	8	4	1							99		
PM Peak	13:00	13:00	15:00	15:00	15:00	15:00	16:00	15:00							15:00		
Vol.	2	2	7	32	30	11	3	1							85		

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	16:20	21:25	26:30	31:35	36:40	41:45	46:50	51:55	56:60	61:65	66:70	71:75	76:999	Total	Pace Speed	Number in Pace
12/03/15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	14-23	1
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	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
04:00	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	14-23	1
05:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	9-18	1
06:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	29-38	1
07:00	1	1	5	11	7	0	1	0	0	0	0	0	0	0	26	25-34	18
08:00	<b>2</b>	<b>2</b>	<b>10</b>	<b>23</b>	<b>34</b>	<b>16</b>	1	0	0	0	0	0	0	0	<b>88</b>	26-35	57
09:00	0	0	2	6	6	7	0	0	0	0	0	0	0	0	21	29-38	13
10:00	1	0	0	3	8	2	0	0	0	0	0	0	0	0	14	26-35	11
11:00	1	0	7	6	8	5	0	1	0	0	0	0	0	0	28	24-33	14
12 PM	0	1	0	8	9	7	0	0	0	0	0	0	0	0	25	26-35	17
13:00	1	0	1	1	3	2	0	0	0	0	0	0	0	0	8	31-40	5
14:00	0	0	<b>11</b>	11	9	3	1	1	0	0	0	0	0	0	36	21-30	22
15:00	<b>3</b>	<b>3</b>	4	<b>31</b>	<b>30</b>	<b>9</b>	<b>4</b>	0	0	0	0	0	0	0	<b>84</b>	26-35	61
16:00	2	0	3	7	9	2	0	0	0	0	0	0	0	0	23	26-35	16
17:00	0	1	2	16	7	3	1	0	0	0	0	0	0	0	30	26-35	23
18:00	0	0	8	3	6	2	0	0	0	0	0	0	0	0	19	21-30	11
19:00	2	1	2	2	4	3	0	0	0	0	0	0	0	0	14	29-38	7
20:00	0	0	0	3	0	1	1	0	0	0	0	0	0	0	5	26-35	3
21:00	0	1	1	1	5	0	0	0	0	0	0	0	0	0	8	26-35	6
22:00	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3	19-28	2
23:00	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3	25-34	3
<b>Total</b>	13	11	59	136	149	63	9	2	1	0	0	0	0	0	443		
<b>Percent</b>	2.9%	2.5%	13.3%	30.7%	33.6%	14.2%	2.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	08:00	08:00	08:00	08:00	08:00	08:00	07:00	11:00	04:00						08:00		
<b>Vol.</b>	2	2	10	23	34	16	1	1	1						88		
<b>PM Peak</b>	15:00	15:00	14:00	15:00	15:00	15:00	15:00	14:00							15:00		
<b>Vol.</b>	3	3	11	31	30	9	4	1							84		

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	16:20	21:25	26:30	31:35	36:40	41:45	46:50	51:55	56:60	61:65	66:70	71:75	76:999	Total	Pace Speed	Number in Pace
12/04/15	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	21-30	3
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
05:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
06:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	25-34	2
07:00	0	2	2	7	4	1	1	1	0	0	0	0	0	0	18	25-34	11
08:00	8	2	6	27	17	8	2	0	0	0	0	0	0	0	70	26-35	44
09:00	1	0	1	3	5	2	1	0	0	0	0	0	0	0	13	26-35	8
10:00	1	0	3	0	7	1	0	0	0	0	0	0	0	0	12	29-38	8
11:00	1	2	1	2	5	4	0	1	0	0	0	0	0	0	16	30-39	9
12 PM	0	0	2	5	4	6	1	0	0	0	0	0	0	0	18	29-38	10
13:00	0	0	4	5	1	4	1	0	0	0	0	0	0	0	15	21-30	9
14:00	0	1	5	12	9	4	0	0	0	0	0	0	0	0	31	26-35	21
15:00	2	3	5	37	22	10	0	0	0	0	0	0	0	0	79	26-35	59
16:00	1	1	6	3	6	5	0	0	0	0	0	0	0	0	22	30-39	11
17:00	0	0	0	24	10	4	0	0	0	0	0	0	0	0	38	26-35	34
18:00	0	0	1	3	4	2	0	0	0	0	0	0	0	0	10	26-35	7
19:00	0	0	2	5	0	0	0	0	0	0	0	0	0	0	7	21-30	7
20:00	1	0	1	2	3	0	0	0	0	0	0	0	0	0	7	25-34	5
21:00	0	2	0	5	0	0	0	0	0	0	0	0	0	0	7	21-30	5
22:00	0	0	2	4	2	2	0	0	0	0	0	0	0	0	10	26-35	6
23:00	0	0	0	2	0	2	0	0	0	0	0	0	0	0	4	20-29	2
<b>Total</b>	15	13	42	152	101	55	6	2	0	0	0	0	0	0	386		
<b>Percent</b>	3.9%	3.4%	10.9%	39.4%	26.2%	14.2%	1.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	08:00	07:00	08:00	08:00	08:00	08:00	08:00	07:00							08:00		
<b>Vol.</b>	8	2	6	27	17	8	2	1							70		
<b>PM Peak</b>	15:00	15:00	16:00	15:00	15:00	15:00	12:00								15:00		
<b>Vol.</b>	2	3	6	37	22	10	1								79		

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
12/05/15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	19-28	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	19-28	1
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
08:00	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4	15-24	2
09:00	2	0	2	3	2	0	0	0	0	0	0	0	0	0	9	26-35	5
10:00	0	0	0	5	1	0	0	0	0	0	0	0	0	0	6	24-33	6
11:00	0	0	0	4	2	1	0	0	0	0	0	0	0	0	7	26-35	6
12 PM	1	0	3	2	0	1	0	0	0	0	0	0	0	0	7	21-30	5
13:00	4	1	5	4	2	1	0	0	0	0	0	0	0	0	17	21-30	9
14:00	1	2	1	2	2	2	0	0	0	0	0	0	0	0	10	31-40	4
15:00	0	2	1	9	5	1	1	0	0	0	0	0	0	0	19	26-35	14
16:00	0	0	3	7	2	1	0	0	0	0	0	0	0	0	13	21-30	10
17:00	0	0	2	1	4	2	1	0	0	0	0	0	0	0	10	31-40	6
18:00	0	1	0	3	1	0	0	0	1	0	0	0	0	0	6	26-35	4
19:00	0	1	0	7	4	0	0	0	0	0	0	0	0	0	12	26-35	11
20:00	1	0	0	7	5	3	0	0	0	0	0	0	0	0	16	26-35	12
21:00	0	1	0	2	3	1	0	0	0	0	0	0	0	0	7	26-35	5
22:00	0	0	0	2	3	0	0	0	0	0	0	0	0	0	5	26-35	5
23:00	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	9-18	1
<b>Total</b>	10	12	19	61	36	15	2	1	1	0	0	0	0	0	157		
<b>Percent</b>	6.4%	7.6%	12.1%	38.9%	22.9%	9.6%	1.3%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	09:00	08:00	09:00	10:00	09:00	01:00		04:00							09:00		
<b>Vol.</b>	2	2	2	5	2	1		1							9		
<b>PM Peak</b>	13:00	14:00	13:00	15:00	15:00	20:00	15:00		18:00						15:00		
<b>Vol.</b>	4	2	5	9	5	3	1		1						19		

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
12/06/15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
02:00	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	19-28	1
03:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	15-24	2
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	14-23	1
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
09:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	19-28	2
10:00	0	1	0	1	2	1	0	0	0	0	0	0	0	0	5	31-40	3
11:00	0	0	1	8	7	2	3	0	0	0	0	0	0	0	21	26-35	15
12 PM	0	0	4	3	3	4	1	0	0	0	0	0	0	0	15	21-30	7
13:00	0	0	1	6	2	4	1	0	0	0	0	0	0	0	14	26-35	8
14:00	0	1	3	4	1	0	0	0	0	0	0	0	0	0	9	21-30	7
15:00	0	0	1	3	0	1	1	0	0	0	0	0	0	0	6	21-30	4
16:00	2	0	2	3	2	1	1	0	0	0	0	0	0	0	11	26-35	5
17:00	1	0	1	7	2	1	0	0	0	0	0	0	0	0	12	26-35	9
18:00	0	1	2	2	3	1	0	0	0	0	0	0	0	0	9	26-35	5
19:00	0	1	0	5	4	1	1	0	0	0	0	0	0	0	12	26-35	9
20:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	24-33	2
21:00	0	1	0	2	1	0	0	0	0	0	0	0	0	0	4	24-33	3
22:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	25-34	2
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
<b>Total</b>	3	5	20	48	32	16	9	0	0	0	0	0	0	0	133		
<b>Percent</b>	2.3%	3.8%	15.0%	36.1%	24.1%	12.0%	6.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>		10:00	03:00	11:00	11:00	11:00	11:00								11:00		
<b>Vol.</b>		1	2	8	7	2	3								21		
<b>PM Peak</b>	16:00	14:00	12:00	17:00	19:00	12:00	12:00								12:00		
<b>Vol.</b>	2	1	4	7	4	4	1								15		

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Northbound

Start Time	15	16:20	21:25	26:30	31:35	36:40	41:45	46:50	51:55	56:60	61:65	66:70	71:75	76:999	Total	Pace Speed	Number in Pace
12/07/15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	9-18	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	9-18	1
06:00	0	0	0	3	2	0	0	0	0	0	0	0	0	0	5	25-34	5
07:00	0	0	8	3	12	1	0	0	0	0	0	0	0	0	24	26-35	15
08:00	5	2	3	37	36	15	4	1	0	0	0	0	0	0	103	26-35	73
09:00	0	0	1	2	8	2	0	0	0	0	0	0	0	0	13	28-37	10
10:00	0	1	1	4	3	1	0	0	0	0	0	0	0	0	10	25-34	7
11:00	1	2	7	8	8	5	3	0	1	0	0	0	0	0	35	24-33	16
12 PM	1	0	2	6	10	5	1	0	0	0	0	0	0	0	25	26-35	16
13:00	0	0	2	7	4	0	0	0	0	0	0	0	0	0	13	25-34	11
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
<b>Total</b>	7	7	24	71	84	29	8	1	1	0	0	0	0	0	232		
<b>Percent</b>	3.0%	3.0%	10.3%	30.6%	36.2%	12.5%	3.4%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	08:00	08:00	07:00	08:00	08:00	08:00	08:00	08:00	11:00						08:00		
<b>Vol.</b>	5	2	8	37	36	15	4	1	1						103		
<b>PM Peak</b>	12:00		12:00	13:00	12:00	12:00	12:00								12:00		
<b>Vol.</b>	1		2	7	10	5	1								25		
<b>Total</b>	88	82	274	857	758	328	67	9	6	0	0	0	0	0	2469		
<b>Percent</b>	3.6%	3.3%	11.1%	34.7%	30.7%	13.3%	2.7%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 23 MPH  
 50th Percentile : 29 MPH  
 85th Percentile : 35 MPH  
 95th Percentile : 39 MPH

Stats  
 10 MPH Pace Speed : 26-35 MPH  
 Number in Pace : 1615  
 Percent in Pace : 65.4%  
 Number of Vehicles > 55 MPH : 0  
 Percent of Vehicles > 55 MPH : 0.0%  
 Mean Speed(Average) : 30 MPH



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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Southbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
12/01/15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	34-43	1
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	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
05:00	1	0	0	1	2	0	0	0	0	0	0	0	0	0	4	25-34	3
06:00	0	0	0	4	7	0	0	1	0	0	0	0	0	0	12	26-35	11
07:00	0	2	1	9	22	10	3	0	0	0	0	0	0	0	47	31-40	32
08:00	2	2	12	54	40	15	1	1	0	0	0	0	0	0	127	26-35	94
09:00	0	1	4	5	5	2	0	0	0	0	0	0	0	0	17	26-35	10
10:00	1	2	6	5	1	0	0	0	0	0	0	0	0	0	15	21-30	11
11:00	3	1	1	5	5	1	1	0	0	0	0	0	0	0	17	26-35	10
12 PM	0	0	3	11	13	9	1	0	0	0	0	0	0	0	37	26-35	24
13:00	1	0	2	4	9	1	0	0	0	0	0	0	0	0	17	26-35	13
14:00	1	1	0	2	8	4	1	0	0	0	0	0	0	0	17	30-39	12
15:00	0	1	21	32	23	9	1	1	0	0	0	0	0	0	88	25-34	55
16:00	0	0	3	5	9	6	1	0	0	0	0	0	0	0	24	29-38	15
17:00	0	1	3	7	3	3	0	0	0	0	0	0	0	0	17	21-30	10
18:00	0	0	2	6	3	5	0	0	0	0	0	0	0	0	16	24-33	9
19:00	0	1	2	6	4	3	1	0	0	0	0	0	0	0	17	25-34	10
20:00	0	0	4	10	10	1	0	0	0	0	0	0	0	0	25	26-35	20
21:00	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3	24-33	2
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	19-28	1
<b>Total</b>	9	12	66	168	165	70	11	3	0	0	0	0	0	0	504		
<b>Percent</b>	1.8%	2.4%	13.1%	33.3%	32.7%	13.9%	2.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	11:00	07:00	08:00	08:00	08:00	08:00	07:00	06:00							08:00		
<b>Vol.</b>	3	2	12	54	40	15	3	1							127		
<b>PM Peak</b>	13:00	14:00	15:00	15:00	15:00	12:00	12:00	15:00							15:00		
<b>Vol.</b>	1	1	21	32	23	9	1	1							88		

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Southbound

Start Time	15	16:20	21:25	26:30	31:35	36:40	41:45	46:50	51:55	56:60	61:65	66:70	71:75	76:999	Total	Pace Speed	Number in Pace
12/02/15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	14-23	1
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	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
04:00	1	1	0	0	0	0	1	0	0	0	0	0	0	0	3	15-24	1
05:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
06:00	0	0	1	4	4	1	1	0	0	0	0	0	0	0	11	26-35	8
07:00	1	0	4	9	18	9	5	1	0	0	0	0	0	0	47	26-35	27
08:00	4	0	13	37	50	14	2	2	0	0	0	0	0	0	122	26-35	87
09:00	3	2	4	4	3	5	4	1	0	0	0	0	0	0	26	34-43	9
10:00	0	0	0	2	6	3	1	0	0	0	0	0	0	0	12	29-38	9
11:00	0	0	6	5	4	4	0	0	0	0	0	0	0	0	19	21-30	11
12 PM	0	1	4	12	9	5	1	2	0	0	0	0	0	0	34	26-35	21
13:00	3	2	5	14	5	5	1	0	0	0	0	0	0	0	35	21-30	19
14:00	1	0	1	4	6	2	1	0	0	0	0	0	0	0	15	26-35	10
15:00	3	1	10	23	30	13	4	0	0	0	0	0	0	0	84	26-35	53
16:00	0	0	1	6	17	4	2	0	0	0	0	0	0	0	30	26-35	23
17:00	1	0	4	10	5	2	0	0	0	0	0	0	0	0	22	26-35	15
18:00	1	1	4	5	7	0	0	0	0	0	0	0	0	0	18	26-35	12
19:00	0	1	1	2	3	2	0	0	0	0	0	0	0	0	9	31-40	5
20:00	1	0	1	2	1	0	0	0	0	0	0	0	0	0	5	26-35	3
21:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	29-38	1
22:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
<b>Total</b>	19	9	61	139	171	70	23	6	0	0	0	0	0	0	498		
<b>Percent</b>	3.8%	1.8%	12.2%	27.9%	34.3%	14.1%	4.6%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	08:00	09:00	08:00	08:00	08:00	08:00	07:00	08:00							08:00		
<b>Vol.</b>	4	2	13	37	50	14	5	2							122		
<b>PM Peak</b>	13:00	13:00	15:00	15:00	15:00	15:00	15:00	12:00							15:00		
<b>Vol.</b>	3	2	10	23	30	13	4	2							84		

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Southbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Pace Speed	Number in Pace
12/03/15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	1
04:00	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3	24-33	2
05:00	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3	19-28	2
06:00	0	0	2	4	5	3	0	0	0	0	0	0	0	0	14	26-35	9
07:00	1	0	3	7	17	8	7	0	0	0	0	0	0	0	43	31-40	25
08:00	1	0	3	32	49	23	6	0	0	1	0	0	0	0	115	26-35	81
09:00	0	0	2	11	10	2	2	0	0	0	0	0	0	0	27	26-35	21
10:00	0	0	2	5	5	3	0	0	0	0	0	0	0	0	15	26-35	10
11:00	2	0	1	9	6	4	1	0	0	0	0	0	0	0	23	26-35	15
12 PM	0	4	7	9	12	6	1	1	0	0	0	0	0	0	40	26-35	21
13:00	1	2	0	0	6	2	1	0	0	0	0	0	0	0	12	31-40	8
14:00	0	1	4	5	2	3	0	1	1	0	0	0	0	0	17	21-30	9
15:00	0	1	8	38	24	11	4	0	0	0	0	0	0	0	86	26-35	62
16:00	0	0	7	11	12	3	1	0	0	0	0	0	0	0	34	26-35	23
17:00	1	1	4	10	7	3	2	0	0	0	0	0	0	0	28	26-35	17
18:00	0	0	5	7	4	0	0	0	0	0	0	0	0	0	16	21-30	12
19:00	0	1	0	7	7	0	1	0	0	0	0	0	0	0	16	26-35	14
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
21:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	29-38	1
22:00	0	1	0	1	1	0	0	0	0	0	0	0	0	0	3	24-33	2
23:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	24-33	1
<b>Total</b>	8	11	49	158	170	72	26	2	1	1	0	0	0	0	498		
<b>Percent</b>	1.6%	2.2%	9.8%	31.7%	34.1%	14.5%	5.2%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	11:00		07:00	08:00	08:00	08:00	07:00			08:00					08:00		
<b>Vol.</b>	2		3	32	49	23	7			1					115		
<b>PM Peak</b>	13:00	12:00	15:00	15:00	15:00	15:00	15:00	12:00	14:00						15:00		
<b>Vol.</b>	1	4	8	38	24	11	4	1	1						86		

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Southbound

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
12/04/15	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	29-38	1
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	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	*	1
04:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	25-34	2
05:00	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	8-17	1
06:00	0	0	0	8	1	2	0	0	0	0	0	0	0	0	11	26-35	9
07:00	0	1	3	6	14	5	1	2	0	0	0	0	0	0	32	26-35	20
08:00	<b>3</b>	<b>2</b>	<b>8</b>	<b>32</b>	<b>42</b>	<b>12</b>	<b>5</b>	<b>1</b>	0	0	0	0	0	0	<b>105</b>	26-35	74
09:00	0	1	1	3	8	4	3	2	0	0	0	0	0	0	22	31-40	12
10:00	1	0	3	4	1	2	0	0	0	0	0	0	0	0	11	21-30	7
11:00	1	0	4	1	7	2	0	0	0	0	0	0	0	0	15	31-40	9
12 PM	0	0	1	6	10	<b>5</b>	<b>4</b>	0	0	0	0	0	0	0	26	26-35	16
13:00	0	1	1	6	5	3	1	0	0	0	0	0	0	0	17	26-35	11
14:00	0	0	1	2	2	1	2	0	0	0	0	0	0	0	8	26-35	4
15:00	<b>2</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>23</b>	3	3	0	0	0	0	0	0	0	<b>74</b>	26-35	55
16:00	2	0	7	21	12	4	0	0	0	0	0	0	0	0	46	26-35	33
17:00	0	1	5	4	7	3	0	0	0	0	0	0	0	0	20	25-34	11
18:00	1	0	2	4	12	0	1	0	0	0	0	0	0	0	20	26-35	16
19:00	1	1	0	3	3	0	0	0	0	0	0	0	0	0	8	26-35	6
20:00	1	0	2	2	0	0	0	0	0	0	0	0	0	0	5	20-29	4
21:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	14-23	1
22:00	0	0	0	3	1	0	0	0	0	0	0	0	0	0	4	24-33	4
23:00	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3	29-38	2
<b>Total</b>	<b>16</b>	<b>9</b>	<b>49</b>	<b>137</b>	<b>152</b>	<b>48</b>	<b>20</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>436</b>		
<b>Percent</b>	<b>3.7%</b>	<b>2.1%</b>	<b>11.2%</b>	<b>31.4%</b>	<b>34.9%</b>	<b>11.0%</b>	<b>4.6%</b>	<b>1.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>			
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00	08:00	07:00							08:00		
Vol.	3	2	8	32	42	12	5	2							105		
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	12:00								15:00		
Vol.	2	2	9	32	23	5	4								74		





**OHM Advisors**  
 34000 Plymouth Road  
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*Advancing Communities*

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

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Southbound

Start Time	15	16:20	21:25	26:30	31:35	36:40	41:45	46:50	51:55	56:60	61:65	66:70	71:75	76:999	Total	Pace Speed	Number in Pace
12/07/15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	9-18	1
04:00	2	0	1	1	0	0	0	0	0	0	0	0	0	0	4	19-28	2
05:00	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3	14-23	2
06:00	0	0	3	6	2	1	0	0	0	0	0	0	0	0	12	21-30	9
07:00	0	0	3	6	11	9	2	0	1	0	0	0	0	0	32	31-40	20
08:00	2	0	13	42	38	14	3	1	0	0	0	0	0	0	113	26-35	80
09:00	1	0	3	13	11	4	2	0	0	0	0	0	0	0	34	26-35	24
10:00	0	0	0	8	4	2	0	0	0	0	0	0	0	0	14	26-35	12
11:00	4	1	2	8	8	5	2	0	0	0	0	0	0	0	30	26-35	16
12 PM	2	0	2	5	10	8	2	0	0	0	0	0	0	0	29	31-40	18
13:00	0	0	0	7	8	4	0	0	0	0	0	0	0	0	19	26-35	15
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
<b>Total</b>	11	3	28	97	92	47	11	1	1	0	0	0	0	0	291		
<b>Percent</b>	3.8%	1.0%	9.6%	33.3%	31.6%	16.2%	3.8%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%			
<b>AM Peak</b>	11:00	03:00	08:00	08:00	08:00	08:00	08:00	08:00	07:00						08:00		
<b>Vol.</b>	4	1	13	42	38	14	3	1	1						113		
<b>PM Peak</b>	12:00		12:00	13:00	12:00	12:00	12:00								12:00		
<b>Vol.</b>	2		2	7	10	8	2								29		
<b>Total</b>	74	58	312	826	885	380	109	20	2	1	0	0	0	0	2667		
<b>Percent</b>	2.8%	2.2%	11.7%	31.0%	33.2%	14.2%	4.1%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 24 MPH  
 50th Percentile : 30 MPH  
 85th Percentile : 36 MPH  
 95th Percentile : 39 MPH

Stats  
 10 MPH Pace Speed : 26-35 MPH  
 Number in Pace : 1711  
 Percent in Pace : 64.2%  
 Number of Vehicles > 55 MPH : 1  
 Percent of Vehicles > 55 MPH : 0.0%  
 Mean Speed(Average) : 31 MPH

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
 Date End: 07-Dec-15  
 Near 4290 Forsyth Dr.  
 Troy, MI

Start Time	30-Nov-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou
12:00 AM	*	*	1	1	0	2	2	0	3	1	0	3	1	2	1	2
01:00	*	*	0	0	0	0	0	0	1	0	2	0	1	1	1	0
02:00	*	*	0	0	0	0	0	0	0	0	0	2	1	0	0	
03:00	*	*	1	1	1	1	1	1	1	2	1	1	2	2	1	1
04:00	*	*	2	1	1	3	2	3	1	2	2	2	0	0	1	2
05:00	*	*	0	4	1	1	2	3	1	3	1	1	1	4	1	3
06:00	*	*	2	12	4	11	1	14	2	11	0	3	0	0	2	8
07:00	*	*	22	47	27	47	26	43	18	32	1	1	2	1	16	28
08:00	*	*	<b>92</b>	<b>127</b>	<b>99</b>	<b>122</b>	<b>88</b>	<b>115</b>	<b>70</b>	<b>105</b>	4	5	0	5	<b>59</b>	<b>80</b>
09:00	*	*	15	17	14	26	21	27	13	22	<b>9</b>	<b>13</b>	2	7	12	19
10:00	*	*	10	15	7	12	14	15	12	11	6	12	5	9	9	12
11:00	*	*	31	17	35	19	28	23	16	15	7	5	<b>21</b>	<b>18</b>	23	16
12:00 PM	*	*	33	37	22	34	25	40	18	26	7	10	<b>15</b>	<b>13</b>	20	27
01:00	*	*	11	17	14	35	8	12	15	17	17	9	14	13	13	17
02:00	29	12	42	17	37	15	36	17	31	8	10	10	9	6	28	12
03:00	<b>70</b>	<b>80</b>	<b>73</b>	<b>88</b>	<b>85</b>	<b>84</b>	<b>84</b>	<b>86</b>	<b>79</b>	<b>74</b>	<b>19</b>	15	6	9	<b>59</b>	<b>62</b>
04:00	19	25	25	24	33	30	23	34	22	46	13	7	11	12	21	25
05:00	26	21	30	17	27	22	30	28	38	20	10	9	12	11	25	18
06:00	17	8	41	16	22	18	19	16	10	20	6	7	9	6	18	13
07:00	10	4	13	17	9	9	14	16	7	8	12	7	12	3	11	9
08:00	12	8	12	25	10	5	5	0	7	5	16	<b>16</b>	2	4	9	9
09:00	3	6	3	3	8	1	8	1	7	1	7	3	4	2	6	2
10:00	3	0	8	0	2	1	3	3	10	4	5	3	2	0	5	2
11:00	0	1	2	1	2	0	3	1	4	3	2	2	0	0	2	1
Lane	189	165	469	504	460	498	443	498	386	436	157	146	133	129	343	368
Day	354		973		958		941		822		303		262		711	
AM Peak	-	-	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	09:00	09:00	11:00	11:00	08:00	08:00
Vol.	-	-	92	127	99	122	88	115	70	105	9	13	21	18	59	80
PM Peak	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	20:00	12:00	12:00	15:00	15:00
Vol.	70	80	73	88	85	84	84	86	79	74	19	16	15	13	59	62

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

**OHM Advisors**  
 34000 Plymouth Road  
 Livonia, MI 48150  
*Advancing Communities*

Date Start: 30-Nov-15  
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 Near 4290 Forsyth Dr.  
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Start Time	07-Dec-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou	Northbou	Southbou
12:00 AM	0	0	*	*	*	*	*	*	*	*	*	*	*	*	0	0
01:00	0	0	*	*	*	*	*	*	*	*	*	*	*	*	0	0
02:00	0	0	*	*	*	*	*	*	*	*	*	*	*	*	0	0
03:00	2	1	*	*	*	*	*	*	*	*	*	*	*	*	2	1
04:00	0	4	*	*	*	*	*	*	*	*	*	*	*	*	0	4
05:00	2	3	*	*	*	*	*	*	*	*	*	*	*	*	2	3
06:00	5	12	*	*	*	*	*	*	*	*	*	*	*	*	5	12
07:00	24	32	*	*	*	*	*	*	*	*	*	*	*	*	24	32
08:00	<b>103</b>	<b>113</b>	*	*	*	*	*	*	*	*	*	*	*	*	<b>103</b>	<b>113</b>
09:00	13	34	*	*	*	*	*	*	*	*	*	*	*	*	13	34
10:00	10	14	*	*	*	*	*	*	*	*	*	*	*	*	10	14
11:00	35	30	*	*	*	*	*	*	*	*	*	*	*	*	35	30
12:00 PM	<b>25</b>	<b>29</b>	*	*	*	*	*	*	*	*	*	*	*	*	<b>25</b>	<b>29</b>
01:00	13	19	*	*	*	*	*	*	*	*	*	*	*	*	13	19
02:00	0	1	*	*	*	*	*	*	*	*	*	*	*	*	0	1
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lane	232	292	0	0	0	0	0	0	0	0	0	0	0	0	232	292
Day	524		0	0	0	0	0	0	0	0	0	0	0	0	524	
AM Peak	08:00	08:00	-	-	-	-	-	-	-	-	-	-	-	-	08:00	08:00
Vol.	103	113	-	-	-	-	-	-	-	-	-	-	-	-	103	113
PM Peak	12:00	12:00	-	-	-	-	-	-	-	-	-	-	-	-	12:00	12:00
Vol.	25	29	-	-	-	-	-	-	-	-	-	-	-	-	25	29

Comb. Total	878	973	958	941	822	303	262	1235
ADT	ADT 957	AADT 957						



ARCHITECTS. ENGINEERS. PLANNERS.

January 4, 2016

Mr. William Huotari, PE  
Asst. City Engineer  
City of Troy  
515 Big Beaver Rd  
Troy, MI 48084

RE: Traffic Calming for Forsyth Dr

Dear Mr. Huotari:

As requested, we have considered the issues and problems associated with relatively high prevailing speeds on Forsyth Dr, a local street in Section 13 of the City. This is a straight, level street of just under ½ mile length, without any intervening intersections between Wattles Rd and the Hill Elementary School. The road is 22' wide with turf shoulders and open ditch drainage.

The speed data shows prevailing speeds (i.e. 85<sup>th</sup> percentile) at 35-36 mph, peaking in the school arrival and dismissal periods. Over 80% of all traffic was traveling as speeds greater than the posted limit of 25 mph. These characteristics are what makes this such a challenge in developing methods for controlling speeds. In our research into traffic calming practices, long straightaways are the hardest segments to control.

The customary response to such situations is to begin with speed enforcement by the police. The case with Forsyth Dr appears to be related to parents driving children to and from Hill Elementary School. So it should be possible to develop an enforcement campaign that would selectively target these drivers. Physical measures of traffic calming are usually not considered unless enforcement has proven ineffective.

There are only two known, proven engineering methods that would be useful for this roadway: vertical deflections (i.e. speed humps) or horizontal deflections (i.e. mid-block slow points). Speed humps come in a variety of configurations. I believe the one instance of use in Troy involved a 14' long hump, possibly 3-½ inches tall, using a parabolic shape. However, there are also designs that use sinusoidal or circular shapes, ranging from 12' to 16' long and from 3" to 4" high. The key to their use is that they only become effective when used in series. They should be spaced from 300' to 600' apart, depending on the shape, length and height of the humps.

Regarding mid-block slow points, a typical configuration would be a curbed island ranging from 10' to 16' wide placed in the middle of the roadway. A single lane of 10' would pass to either side of the island, with a 50' taper to transition between the existing undivided street to the boulevard created by the island. The length of the island can range between 25' to 50' (or longer, if desired) and the segment impacted by the island and tapers will have to be posted NO PARKING. As with speed humps, mid-block slow points need to be installed in series to be effective. They should be spaced from 400' to 700' apart. This type of physical device is an excellent choice when used to provide for a mid-block pedestrian crossing. The downside is the need to widen a segment of the roadway to allow for the installation of the island, with potential impacts to drainage facilities and driveways.

Given the traffic and speed characteristics of Forsyth Dr, I would recommend you consider starting with targeted police enforcement. This may be combined with changes to the speed limit signing to add conspicuity to them, such as using bright reflective panels for the sign posts or LED flashers within the sign borders. If enforcement



does not elicit the desired changes in driver behavior, then the installation of physical devices may be considered. Speed humps would generally be a more cost effective solution than mid-block slow points.

I hope this information is of assistance. Let me know if you have any questions.

Sincerely,  
OHM Advisors

A handwritten signature in black ink that reads "Stephen B. Dearing". The signature is written in a cursive, flowing style.

Stephen B. Dearing, PE, PTOE  
Practice Leader for Traffic Engineering

## R2-1 Speed Limit BlinkerSign<sup>®</sup>

TAPCO's innovation of enhancing traffic signs with LEDs makes intersections safer, reduces accidents and saves lives!

Daylight visible BlinkerSign<sup>®</sup> LED enhanced signs feature an array of incredibly bright LEDs that flash in unison, once per second, commanding the attention of drivers day and night.

- Solar powered
- No AC power required
- Easy installation
- MUTCD compliant
- Proprietary Day-Viz<sup>™</sup> circuitry

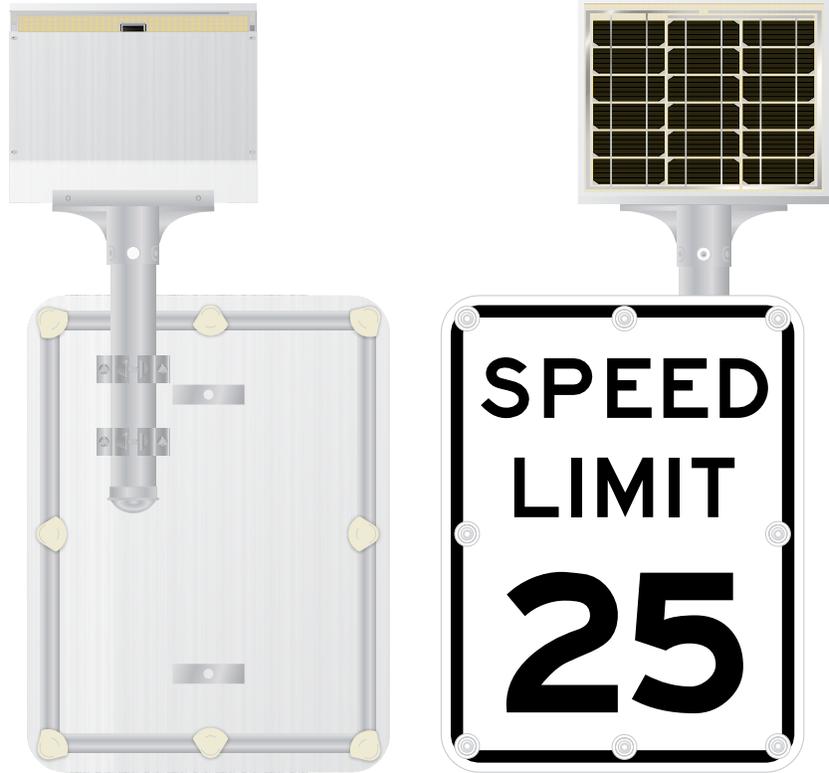


## Features

- Installs easily onto any new or existing sign post
- Can be integrated into an ITS (Intelligent Transportation System)
- High intensity Day-Viz™ LEDs command attention day and night
- Can be programmed to operate continuously (24/7) or on solar time clocks, push-buttons and/or motion (vehicle) detectors
- Proprietary circuitry automatically adjusts light output for maximum visibility and battery efficiency
- Multiple signs can be synchronized
- Heightened driver awareness
- Increased visibility at high incident intersections

## Applications

- New speed change locations
- High incident intersections
- Rural roads



PATENTS #6,943,698; #6,693,556  
OTHER PATENTS PENDING

Standard specifications (subject to change without notice)

### Sign Specification- Custom

Sign Substrate	.080 Highway Grade Aluminum
Reflective Sheeting	3M™ DG3™ - with anti-graffiti overlay
MUTCD Compliance	MUTCD Section 2A.07 Compliant

### Day-Viz™ Management System (patent pending)

Battery	Nickel Metal Hydride (NiHM)- 14,000mAh
Battery Lifespan	Up to 5 years
Autonomy- Functionality without Charge	Up to 30 days in 24/7 operation
Flash Pattern	MUTCD Compliant
LED Type	High Power Luxeon- 1 watt
LED Life Expectancy	Over 100,000 hours

### Warranty

2 year standard warranty

### Smart Activation Options

24/7 continuous,  
Time clock (Windows-based software programmable)  
Wireless control  
Vehicle detection



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## **TRAFFIC COMMITTEE REPORT**

December 29, 2015

TO: Traffic Committee  
FROM: Bill Huotari, Deputy City Engineer/ Traffic Engineer  
SUBJECT: 2016 Meeting Schedule

### Background:

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 should be set for this purpose.

The following 2016 Traffic Committee meeting dates are recommended:

- Wednesday, February 17
- Wednesday, March 16
- Wednesday, April 13 (April 20 conflict with City Council Budget Session)
- Wednesday, May 18
- Wednesday, June 15
- Wednesday, July 20
- August – NO MEETING
- Wednesday, September 21
- Wednesday, October 19
- Wednesday, November 16
- December – NO MEETING