



## **Twelve Mile Road Speed Limit Review**

December 13, 2016

The Honorable Mayor Fournier and  
Members of the City Commission:

In early 2016, the city of Royal Oak and the Road Commission for Oakland County (RCOC) made agreement to swap jurisdiction for the portions of 11 Mile Road and 12 Mile Road that are in Royal Oak. Accordingly, the RCOC is in the process of reviewing speed limits for Twelve Mile Road. The current 30 miles per hour speed limit was established by the city when this section of roadway was under our control.

RCOC is required by the Michigan Vehicle Code (MVC) to establish speed limits and parking prohibitions in cooperation with the Michigan State Police (MSP). The MSP relies heavily on the 85th percentile speed when establishing speed limits. RCOC and the MSP have determined limits should be set at the 85<sup>th</sup> percentile speeds of drivers, taking no other factors into account. Their staff recommendation is that speed limits between Woodward Avenue and Rochester Road should be raised to 35 miles per hour; and between Rochester Road and Campbell Road speed limits should be raised to 40 miles per hour (Attachment 1). While the final decision will be made by the RCOC, they are giving the City of Royal Oak an opportunity to comment on the proposed change.

Engineering staff is concerned with raising the speed limits along 12 Mile Road. We believe that the current 30 miles per hour speed limit takes into account the uses, nature and configuration of the corridor. There are three schools along the corridor and numerous driveways and side streets entering and exiting 12 Mile Road. We believe that several features as described in Attachment 2 should be considered when establishing speed limits. Engineering contends that the speed limit has been thoughtfully established, is justifiable and has not been artificially lowered which is the reason for establishing and justifying reasonable speed limits.

The Royal Oak Citizens Traffic Committee is the designated city committee for reviewing city related vehicular and non-motorized traffic and pedestrian safety concerns. The traffic committee has reviewed this proposal and is opposed to raising the speed limit above 35 miles per hour on 12 Mile Road in Royal Oak and also opposes changing the speed limit within Royal Oak. The traffic committee recommends the city commission consider the resolution below.


**Be it resolved**, the city commission hereby requests that the Road Commission for Oakland County fully review and consider the residential nature of the area, pedestrian use, school proximity, road configuration and accident occurrences in establishing speed limits on 12 Mile Road within Royal Oak city limits; and

**Be it further resolved**, the city commission hereby requests that the Road Commission for Oakland County maintain a consistent speed limit through the city; and

**Be it finally resolved,** the city commission hereby requests that the Road Commission for Oakland County work with the city to develop and institute traffic calming measures and improved pedestrian safety features in the 12 Mile Road corridor should speed limits be increased.

Respectfully submitted,  
Matthew J. Callahan, P.E.  
City Engineer

Approved,

  
Donald E. Johnson  
City Manager

2 Attachments

# Attachment 1

## Matt Callahan

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**From:** Keller, Chuck <ckeller@rcoc.org>  
**Sent:** Monday, March 14, 2016 12:09 PM  
**To:** Matt Callahan  
**Cc:** Deneau, Danielle; Piotrowicz, Gary; Lutfi, Mohammed  
**Subject:** 12 Mile Rd, M-1 (Woodward Ave) to Campbell Rd, TCOs for Speed Limit & Parking Prohibition  
**Attachments:** Radar Study, 12 Mile, Crooks to Rochester.pdf; Radar Study, 12 Mile, Rochester to Campbell.pdf; Radar Study, 12 Mile, Woodward to Crooks.pdf

Hello Matt:

Wanted to keep you informed about the RCOC process of establishing Traffic Control Orders for the speed Limit and Parking Prohibition on Twelve Mile Road.

RCOC is in the process of establishing an "Absolute Speed Limit" for the section of Twelve Mile Road from Woodward Avenue to Campbell Road where jurisdiction was transfer from the City of Royal Oak to RCOC. We're also in the process of establishing a parking prohibition for this segment as the city has requested.

RCOC is required by the Michigan Vehicle Code (MVC) to establish Speed Limits and Parking Prohibitions in cooperation with the Michigan State Police (MSP). The MSP relies heavily on the 85<sup>th</sup> Percentile Speed when establishing Absolute speed Limits.

Attached are the results of the radar speed studies that were conducted along this stretch of highway. Three separate radar studies for sections of Twelve Mile Road were conducted as follows:

Woodward Avenue to Crooks Road, 85<sup>th</sup> Percentile Speed of 37 MPH  
Crooks Road to Rochester Road, 85<sup>th</sup> Percentile Speed of 36 MPH  
Rochester Road to Campbell Road, 85<sup>th</sup> Percentile Speed of 39 MPH

RCOC will be forwarding this information to the MSP for issuance of a Traffic Control Order (TCO). The request will be to establish a 35 MPH Speed Limit between Woodward Avenue and Rochester Road, and a 40 MPH Speed Limit between Rochester Road and Campbell Road. The parking prohibition request will cover the entire length. The speed limit on 12 Mile Road west of this section is already posted 35 MPH, and the section east is already posted 40 MPH. This proposed establishment will have the speed limit change from 35 MPH to 40 MPH occurring at Rochester Road.

If you have any questions, please let me know.

Thanks,  
Chuck

**Charles T. Keller, P. E.**

Traffic Engineer  
Road Commission for Oakland County  
2420 Pontiac Lake Road  
Waterford, MI 48328  
Phone: (248) 858-4830  
Fax: (248) 858-4814  
[ckeller@rcoc.org](mailto:ckeller@rcoc.org)



# Attachment 1

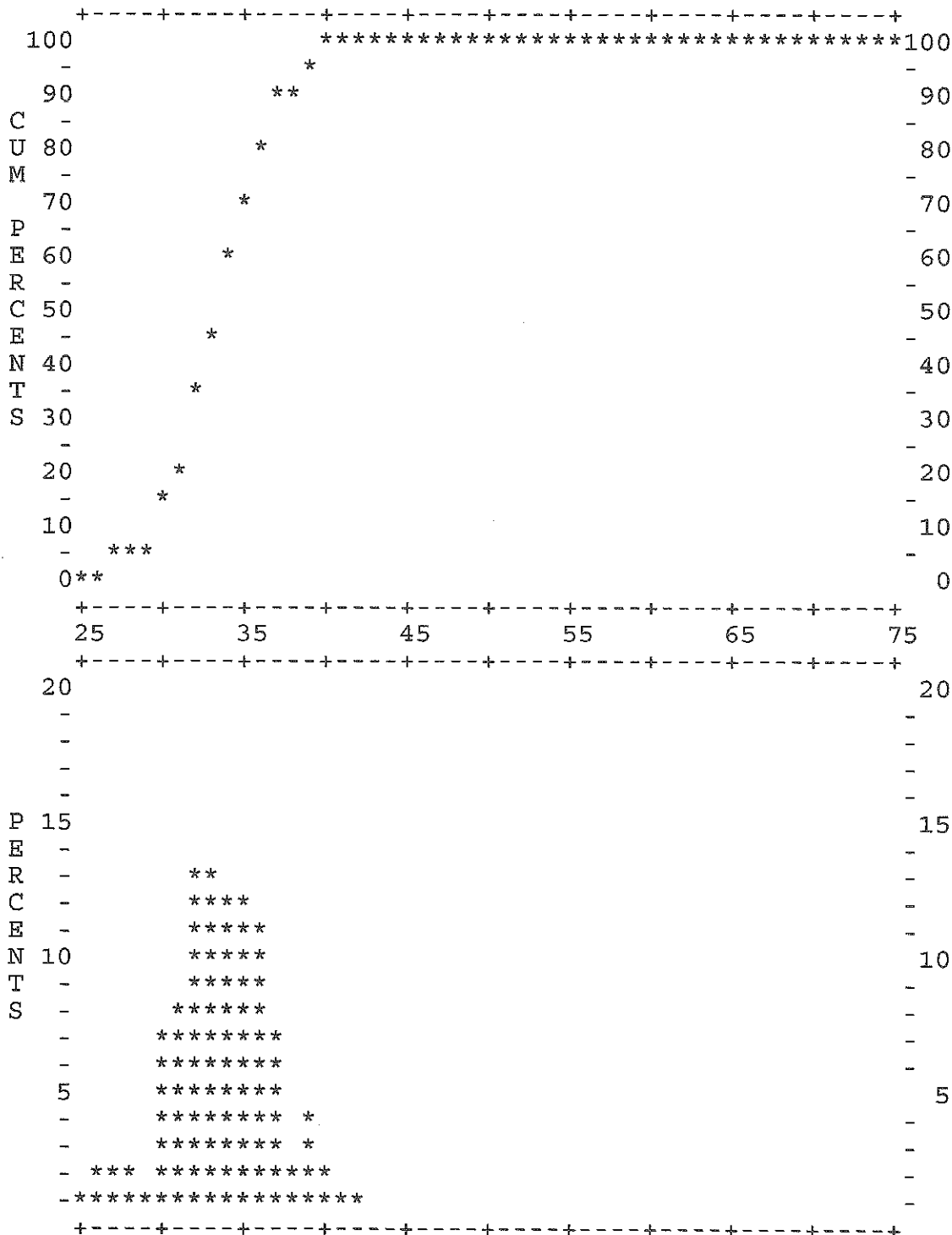
Bather Belrose Boje, Inc. SPEEDPLOT Program

STREET..... Q Blk. 12 Mile Rd.  
 LIMITS..... Woodward to Crooks

DIRECTION(S).....EB/WB  
 DATE.....2/26/16  
 TIME.....2:30-3:30 pm  
 POSTED SPEED LIMIT....30

50TH PERCENTILE SPEED.....34  
 85TH PERCENTILE SPEED.....37  
 10 MPH PACE SPEED.....30 through 39  
 PERCENT IN PACE SPEED..... 89.1  
 PERCENT OVER PACE SPEED..... 4.3  
 PERCENT UNDER PACE SPEED..... 6.6  
 RANGE OF SPEEDS.....25 to 44  
 VEHICLES OBSERVED..... 532  
 AVERAGE SPEED.....33.8

SPEED NO.	PCT.	CUM. PCT.
25	5	0.9
26	8	1.5
27	9	1.7
28	8	1.5
29	5	0.9
30	38	7.1
31	43	8.1
32	67	12.6
33	68	12.8
34	66	12.4
35	63	11.8
36	58	10.9
37	38	7.1
38	11	2.1
39	22	4.1
40	12	2.3
41	3	0.6
42	5	0.9
43	1	0.2
44	2	0.4



## **Attachment 2** **12 Mile Road Speed Limit Review**

### Configuration

- 12 Mile Road within Royal Oak is a 2.5 mile long section of 4 lane roadway with left turn lanes at the intersections of Crooks Road, Main Street, Rochester Road and between Vermont and Campbell Road. Along this route lane widths vary from 10 to 11 feet.
- Regarding the current four lane configuration, numerous data sources indicate that left turn lanes can prevent certain types of accidents which is lacking along the majority of the corridor. Conversely, narrow lane widths have been shown to reduce speeds in traffic calming studies.
- In many areas along 12 Mile Road the sidewalks are within 6 feet of, or actually abut the roadway forcing pedestrians to be within close proximity of moving vehicles. It is a best practice that review agencies consider pedestrian factors when reviewing speed limits.

### Character of the Corridor

- The area consists densely spaced, single-family residential homes in nature between Connecticut Avenue and just east of Rochester Road, and between Linwood Avenue and Crooks Road.
- The area has sidewalks along both the north and south sides of the road. The city prides itself as a community that continually focuses on pedestrian safety and other non-motorized facilities to create a network of "complete-streets"
- To the east of Royal Oak, speed limits are set at 40 miles per hour (MPH) in Madison Heights and to the west of Royal Oak; speed limits are set at 35 MPH in Berkley.
- Traffic on 12 Mile Road is approximately 23,000 to 25,000 vehicles per day (VPD) and has 7% commercial truck traffic (2011-12)
- The current speed limit along the corridor is set at 30 MPH due to pedestrian crossings for nearby schools. This speed limit has been in effect since before 1999/2000 when speed limit signs were replaced last. The city does not have an origin date for this traffic control order (TCO)
- The county has indicated informally that the existing traffic signal system is being looked at for upgrades. Road commission standards include equipping all traffic signals with push-button activation for pedestrians crossing signals. It should be noted that the city is obligated to pay for much of the improvements proposed by the road commission with little say.

### Schools

Three schools are currently located along the areas being considered for higher speed limits. A school zone exists west of Crooks for Northwood School, and a second reduced speed school zone is being considered in the area of Shrine grade school.

- For Shrine Grade School and church, students and church-goers cross 12 Mile Road at a special pedestrian activated signal just east of Woodward Avenue.
- For Northwood School, students cross 12 Mile Road, at Vinsetta Blvd., Crooks Road, and at a special pedestrian activated signal just east of McDonald.
- For Keller Grade School, students cross 12 Mile Road at Campbell Road, and at the N. Connecticut Avenue pedestrian activated signal (which is also a designated bike route and has a bicycle activated signal sensor).



Engineering Division  
211 South Williams Street  
Royal Oak, MI 48067

## Access

It is well documented that higher speeds can negatively impact access to the roadway from both driveways and side streets. In the very short stretch between Vinsetta Blvd. and Main Street there are approximately 84 vehicle access points onto 12 Mile Road which equates to 58.4 access points per ½ mile. During peak hours, it may become more difficult for resident driveway and side street access due to increased speeds.

## Accidents

A five (5) year accident history report shows 307 accidents along this roadway.

- Accidents occur primarily between the hours of 7am and 10pm and most crashes occur during the afternoon peak hour.
- Over 37% of accidents were attributed to unable to stop.
- 31% of accidents were attributed to failure to yield - typically side street entry to the main road.
- 5% of accidents were head-on crashes. These types of accidents can involve serious damage and injury.
- More than 12% of accidents were sideswipes, and narrow lanes can be a factor in this type of accident.
- Four accidents involved pedestrians.
- Four accidents involved bicyclists.
- Fortunately, 12 Mile Road has seen no fatal accidents; however roughly 25% of accidents do involve a range of mild to severe injuries:

Several studies indicate that, typically, driving at the 85<sup>th</sup> percentile speed is relatively safe and does not necessarily increase accident occurrence. While higher speeds may not increase the number of accidents, they can however contribute to more severe accidents of all types. Traffic engineers believe that consistent speeds throughout a corridor can be confusing to motorists. It is a best practice that speed changes coincide with changes in configuration or character (e.g. changes from commercial to residential; 5-lanes to 4-lanes, approaching a major intersection, etc.)

## Other Speed Limit Sources

- In the section of 12 Mile between Vinsetta Blvd. and Main Street there are approximately 58.4 vehicle access points per ½-mile. The Uniform Traffic Code (UTC) recommends a speed limit of 25MPH when 60 or more access points exist per ½-mile, and 35MPH when more than 45 access points exist per ½-mile. Currently the speed limit is 30MPH which is midway between the two recommendations. In the past, UTC methods for establishing speed limits were recommended and followed by the city. The city also took into account school and pedestrian activity as a primary factor to err on the side of safety.
- *USLIMITS2* is a web-based tool for setting appropriate speed limits developed by the Federal Highway Administration (FHWA). A *USLIMITS2* analysis of the corridor recommends a speed limit of 35MPH for the area between Woodward and Rochester Road which would be an increase in the speed limit by 5MPH. A *USLIMITS2* analysis of the corridor recommends a speed limit of 35MPH for the area between Rochester Road and Campbell Road which would also be an increase in the speed limit by 5MPH.

## USLIMITS2 Speed Zoning Report

### Project Name: 12 Mile Road from Woodward to Rochester Road

**Analyst:** Matt Callahan

**Date:** 12-07-2016

#### Basic Project Information

Project Number: 2016-B  
Route Name: 12 Mile Road  
From: Woodward Avenue  
To: Rochester Road  
State: Michigan  
County: Oakland County  
City: Royal Oak city  
Route Type: Road Section in Developed Area  
Route Status: Existing

#### Roadway Information

Section Length: 1.5 mile(s)  
Statutory Speed Limit: 30 mph  
Adverse Alignan: No  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 4  
Area Type: Residential-Collector  
Number of Driveways: 145  
Number of Signals: 8

#### Crash Data Information

Crash Data Years: 5.00  
Crash AADT: 23400 veh/day  
Total Number of Crashes: 224  
Total Number of Injury Crashes: 68  
Section Crash Rate: 350 per 100 MVM  
Section Injury Crash Rate: 106 per 100 MVM  
Crash Rate Average for Similar Roads: 431  
Injury Rate Average for Similar Roads: 129

#### Traffic Information

85th Percentile Speed: 37 mph  
50th Percentile Speed: 34 mph  
AADT: 23400 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

**Project Description:** 12 Mile Road from Woodward to Rochester Road speed limit review

### Recommended Speed Limit:



**Note:** The final recommended speed limit is higher than the statutory speed limit of **30 mph** for this type of road. An engineering study such as the one carried out with USLIMITS is usually required to set a speed limit above the statutory limit.



## USLIMITS2 Speed Zoning Report

### Project Name: 12 Mile road Speed Limit Review

**Analyst:** Matt Callahan

**Date:** 12-07-2016

#### Basic Project Information

Project Number: 2016-01  
Route Name: 12 Mile Road  
From: Woodward Avenue  
To: Campbell Road  
State: Michigan  
County: Oakland County  
City: Royal Oak city  
Route Type: Road Section in Developed Area  
Route Status: Existing

#### Roadway Information

Section Length: 0.9 mile(s)  
Statutory Speed Limit: 30 mph  
Adverse Alignment: No  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 4  
Area Type: Residential-Collector  
Number of Driveways: 87  
Number of Signals: 5

#### Crash Data Information

Crash Data Years: 5.00  
Crash AADT: 23800 veh/day  
Total Number of Crashes: 107  
Total Number of Injury Crashes: 40  
Section Crash Rate: 274 per 100 MVM  
Section Injury Crash Rate: 102 per 100 MVM  
Crash Rate Average for Similar Roads: 431  
Injury Rate Average for Similar Roads: 129

#### Traffic Information

85th Percentile Speed: 39 mph  
50th Percentile Speed: 35 mph  
AADT: 23800 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

**Project Description:** Review of speed limits on 12 Mile Road within the city boundaries of Royal Oak

### Recommended Speed Limit:



**Note:** The final recommended speed limit is higher than the statutory speed limit of **30 mph** for this type of road. An engineering study such as the one carried out with USLIMITS is usually required to set a speed limit above the statutory limit.

**Analyst Comments:** This is for the section of 12 Mile between Rochester and Campbell Road