



Agenda Item Summary

File #: MOT 17-151, **Version:** 1

Submitted By

Bill McKenna, Village Engineer

Reviewed By

LKS

Agenda Item Title

Motion to Accept Staff's Recommendation to Upgrade from Two-Way STOP signs to All-Way STOP Signs on Marion Street and Erie Street and Direct Staff to Prepare the Necessary Ordinance

Overview

Residents contacted the Village with concerns about vehicle speed and crashes at the intersection of Marion Street and Erie Street. The Village conducted traffic studies in 2014 and 2016; and reviewed the crash history of the intersection in 2014, 2015 and 2016. There has been increase in crashes since mid-2015. As a result, staff is recommending the upgrade from two-way, east-west STOP signs to all-way STOP signs at the intersection.

Staff Recommendation

Approval

Fiscal Impact

Staff estimates it will cost less \$1,500 to install sign and related pavement markings to upgrade from a two-way STOP-controlled to an all-way STOP-controlled intersection. There are available funds in the FY2017 General Fund, Public Works - Street Services, account no. 1001-43740-761-560634 for this work.

Background

In July 2014, area residents contacted the Village regarding concerns of speeding traffic on Marion Street between Ontario Street and Chicago Avenue. A traffic study was conducted in September 2014 to include school related traffic. At that same time, Village reviewed the crash history at Marion Street and Erie Street and generated a 36-month collision diagram. [See Attachment A for a summary of the traffic studies results and Attachment B for the Marion Street and Erie Street collision diagrams.]

Regarding vehicular speeds, it is an accepted traffic engineering practice to set the speed limit to the 5 mile per hour increment above or below the 85th percentile speed. Village Staff holds the opinion that the majority of drivers will drive at or near the posted speed limit. In addition, it is an accepted fact that the speed indicated on speedometers can vary up to 2 percent above or below the actual speed of the vehicle.

By definition, the 85th percentile speed is the speed at which 85 percent of the vehicles are traveling at or less than. Conversely, 15 percent of the vehicles will be traveling faster than the 85th percentile speed. It has

already been stated that speed limits are typically set to the 5 mile per hour increment above or below the 85th percentile speed. This implies that it is expected that approximately 15 percent of vehicles will be traveling faster than the speed limit, if the speed limit is the 5 mile per hour increment below the 85th percentile speed.

Looking at the 85th percentile speeds for the 200, 300 and 400 blocks of North Marion Street in 2014, the 85th percentile speeds range between 23 and 29 miles per hour (mph). Based on the survey results, northbound Marion Street traffic appears to be traveling at elevated speeds compared to the posted speed limit. To address the apparent speeding issue, the Village placed portable speed radar signage along this section of Marion Street occasionally and the Police Department conducted targeted enforcement. It should be noted, per the Manual on Uniform Traffic Control Devices (MUTCD), YIELD and STOP signs should not be used for speed control. [The MUTCD is a document issued by the Federal Highway Administration (FHWA) to specify the standards and guidance by which traffic signs, pavement markings and traffic signals are designed, installed and operated.]

The collision diagram for the 36 month period ending September 30, 2014 includes four right angle collisions and one side swipe of a parked car. Eliminating the side swipe of the parked car that would not be corrected by all-way STOP signs, the number of crashes would be four. Thus the crash rate would be 0.87 accidents per million entering vehicles (Acc/MEV); the same crash rate calculated for this intersection as part of the Village's 1998 area-wide traffic study. The critical crash rate for this area of the Village as determined in the area-wide traffic study of 1998 was 0.686 Acc/MEV. The significance of the critical crash rate is if the actual crash rate exceeds the critical crash rate then it is highly probable that the accidents were caused by factors other than chance. Allowing for rounding, the intersection's 2014 crash rate was equal to the critical crash rate. As a result, no action was taken at the intersection.

In the summer of 2015, residents in the area contacted the Village with concerns of crashes occurring at the intersection. At that time, the Village updated the collision diagram for the intersection. See Attachment B, page 2 of 3 for the 2015 collision diagram. Three crashes occurred between May 24, 2015 and June 27, 2015. For the 36 months ending June 30, 2015, the number of right angle collisions totaled five. With the updated information, the crash rate for the intersection in 2015 was 1.130 Acc/MEV.

The Village's Traffic Policies state the accident rate should be a significant factor in determining traffic controls. The 1998 Village of Oak Park area-wide traffic study provided recommendations for upgrading from uncontrolled to two-way YIELD signs, upgrading from uncontrolled to two-way STOP signs, and upgrading from two-way YIELD signs to two-way STOP signs but no recommendations for upgrading from two-way STOP signs to all-way STOP signs.

The MUTCD does however provide guidance on upgrading to all-way STOP signs. Village staff conducted analysis based on the MUTCD guidance. The Marion Street and Erie Street intersection did not meet the criteria as listed in the MUTCD. Additionally, nearby development construction caused increased traffic and new travel patterns which may have contributed to the increase in number of crashes. All 2015 crashes occurred within this short period of 35 days where increased traffic and new travel patterns occurred, thus no action was taken.

Four more traffic crashes happened in 2016. An updated collision diagram was generated (Attachment B, page

3 of 3). A traffic study for the intersection of Marion Street and Erie Street was also conducted in December 2016. The traffic study was delayed due to construction and utility work in the area that would affect the results. See Attachment A, page 2 of 2 for the summary of the 2016 study and Attachment B, page 3 of 3 for the 2016 collision diagram.

For the 2016 traffic study, the 85th percentile speed for all four legs of the intersection range between 18 mph and 25 mph. These speeds are either at or below the posted speed limit of 25 mph. Based on the 2016 traffic study, speeding does not appear to be a problem.

The collision diagram for the 36 month period ending November 30, 2016 includes eight right angle collisions and one side swipe of a parked car. The 2016 intersection crash rate is 1.728 Acc/MEV which continues to be above the critical crash rate (0.86 Acc/MEV) for the area. Unlike the 2015 incidents, the crashes in 2016 were spread throughout the year.

Note: seven of the eight (87.5%) right angle collisions involve eastbound vehicles. This roughly corresponds with the amount of eastbound traffic entering the intersection compared to the total number of east-west traffic entering the intersection, 652 vehicles versus 734 vehicles, or 88.8%.

Village staff repeated its analysis to see if the intersection met the MUTCD criteria to upgrade to all-way STOP signs. It did not. As an option, the MUTCD does allow for other criteria to be considered in an engineering study. Because the intersection crash rate continues to be above the critical crash rate and the crashes are not concentrated in a single, short time period; staff is recommending the Marion Street and Erie Street intersection should be upgraded from two-way east-west STOP signs to all-way STOP signs.

The Police Department is in support of upgrading the Marion Street and Erie Street intersection from east-west STOP signs to all-way STOP signs. Please see Attachment C for the Police Department email regarding this item

Alternatives

The alternative to this recommendation could be to delay action to gain additional information.

Previous Board Action

N/A.

Citizen Advisory Commission Action

N/A.

Anticipated Future Actions/Commitments

Subject to consensus of the Village Board, staff will submit an Ordinance to the Village of Oak Park Board for adoption for the installation of the all-way STOP signs at the intersection of Erie Street and Marion Street at a future Board meeting.

Intergovernmental Cooperation Opportunities

None at this time.

Performance Management (MAP) Alignment

N/A.