

To: **Public Safety Committee**
Through: **Nathan Burkett, City Manager**
From: **Ross Beckwith, Public Works & Parks Director/City Engineer**
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Stop Signs and Speed Limits

BACKGROUND INFORMATION:

One of the most common requests we get in the engineering department is that vehicles are speeding down a certain street and the resident is requesting stop sign or all-way stop. Below is information on how stop sign requests are evaluated, how speed limits are determined and what traffic calming measures we have to combat areas that are actual, not perceived, problem areas.

STOP SIGNS

Stop signs should not be used to control speeding. Drivers tend to speed up after going through unwarranted stop signs. Reductions in speed may only occur in the immediate vicinity of the stop sign.

Stop sign and all-way stop sign evaluations are based on criteria from the MN Manual of Uniform Traffic Control Devices (MNMUTCD). The first step to evaluate any intersection is to go through the guidelines from the manual.

The use of a stop sign on the minor-street approaches should be considered if engineering judgment indicates that stop is always required because of one or more of the following conditions:

1. Traffic volumes exceed 6,000 vehicles per day on the through street. (Typical residential streets carry around 1,000 vehicles per day or less)
2. A restricted view exist that requires road users to stop ion order to adequately observe conflicting traffic on the through street.
3. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a stop sign have been reported within a 12-month period or that five or more crashes have been reported in a 24-month period.

Research suggests that at most locations, increasing the level of intersection control will not improve safety.

When evaluating a multi-way stop application the factors that are included in the engineering study include:

1. Traffic volume on the interesting roads is approximately equal.

2. If the intersection is justified to be signalized, a multi-way stop can be used as an interim measure.
3. Five or more reported crashes in a twelve-month period that can be corrected by a multi-way stop installation.
4. The volume of traffic entering the intersection from the major street (total of both approaches) averages at least 300 vehicles per hour for any 8 hours on an average day.
5. 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.
6. 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 4 and 5 above.

Other criteria that may be considered for multi-way stops:

1. Controlling left-turn conflicts.
2. Controlling vehicle/pedestrian conflicts in areas with high pedestrian volumes
3. Areas with poor sight distance for drivers where they cannot see conflicting traffic and will have difficulty navigating the intersection unless conflicting traffic is also required to stop.
4. Two collector streets that operate similarly, where multi-way stop control would improve traffic operations.
5. Engineering judgement is always used when evaluating intersections for stop control as they all have their own characteristics.

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Unwarranted stop and all-way stops are also dangerous because if a car does not expect to meet another vehicle at the intersection they tend to roll through it. This can create a serious problem for bicycles and pedestrians (as well as other vehicles) who expect the vehicle to stop based on the signage.

SPEED LIMITS

The technical factors that go into speed limit determination include:

1. The 85th Percentile Speed is the speed at which 85% of drivers are traveling at or below.
2. The Ten Mile Per Hour Pace is the 10-mph range that contains the highest fraction of drivers in the sample.

There are fewer potential conflicts and increased level of safety for vehicles and pedestrians when drivers travel about the same speed.

National research shows that most drivers will select reasonable and safe speed based on their perception of the roadway environment, not by speed limit signs. A comprehensive national study examined 100 sites in 22 states where speed limits were lowered or raised by 5 to 20 mph. The report concluded that changing the speed limit does not appear to change driver behavior.

While cities have been given authority to make changes to local speed limits, simply changing the number on a sign will not bring the desired outcome that the public expects. Education and enforcement

would be necessary factors in any such changes. However, studies continue to show that drivers will continue to travel the speed they feel most comfortable.

TRAFFIC CALMING

Traffic calming comes in many different shapes and sizes and is different for lower volume/speed streets than it is for higher volume/speed streets. There are many traffic calming studies out there but they have the same general themes and tools. Below is a summary of traffic calming measures that resulted from a Minnesota Local Road Research Board study.

- a. Narrowing the roadway can be done by moving the actual curb line inward or by altering the appearance of the roadway width through the use of pavement markings.
- b. Chokers, also referred to as bump-outs or curb-extensions, narrow the space through which vehicles must travel. Narrowing can be done either midblock or at intersections.
- c. Median islands are small islands in the middle of the street, which narrow the vehicle travel lanes. They can be used to enhance pedestrian crossing points and provide a visual narrowing of the roadway.
- d. Median barriers prevent cut-through traffic by prohibiting left turns from a major street to a local street.
- e. On street angled parking and protected parking bays. These parking changes reduce roadway width, making it more difficult for drivers to maneuver along the roadway, causing them to reduce their speeds.
- f. Vehicle restrictions/turn restrictions through the use of signage (Do Not Enter / No Left Turn) can move some traffic onto other, busier streets. This is hard to enforce though and does add traffic to other streets.
- g. One-way streets can be used to prevent cut-through traffic in residential areas.
- h. Street closure/cul-de-sac of a residential roadway typically reduce traffic volumes and speeds, however may increase traffic on neighboring roads.
- i. Roundabouts lower vehicular speeds and reduce crash/injury severity.
- j. Variable-speed display boards educate drivers about speeding.
- k. Speed bumps/speed humps are hazardous for bicyclists and motorcycles. They also slow down emergency vehicles and make snow removal difficult.
- l. Landscaping plantings can alter driver behavior and improve the overall appearance of the street. These plantings are thought to cause the average driver to pay closer attention to their surroundings, and if they have more to focus on they tend to slow down. Trees should be mature and trimmed up to 8-feet so drivers can see pedestrians, and bushes should be no more than 2-feet tall so children are visible.
- m. Changing the roadway material or color can cause drivers, who are less familiar with the area, to slow down. A commercial district would be the right application for this.

Traffic calming is not a one-size fits all issue. Each application needs to be studied independently and the community needs to be involved in the decision making process. It is also important to study the larger street network to make sure the traffic problem is not being moved to another street.

Some cities have a *Traffic Calming Policy* to evaluate traffic issues within neighborhoods. The methods of traffic calming fall into three basic categories of education, enforcement and engineering.

Stop sign requests are one of the most common traffic control requests the city receives. Numerous studies have shown that installation of unwarranted stop signs may actually decrease the safety of pedestrians and motorists at intersections. All stop sign requests should be evaluated with the MNMUTCD stop sign requirements.

BICYCLE AND PEDESTRIAN PLAN

Active Living Dakota County is currently soliciting applications for the Statewide Health Improvement Partnership (SHIP). City Council passed a resolution of support for this grant application at the August 23, 2021 City Council meeting. Staff is applying for a \$30,000 grant to update our currently Bicycle and Pedestrian Plan. If we are successful in obtaining this grant, the study will begin this winter and be completed next fall.

This update will be a great opportunity to look how the residential and economic development has shaped West St. Paul over the past decade and where we see it going. Then, building on the expansive network that we have constructed since the last update, we can look at bicycle and pedestrian safety corridors and identify major and minor future connections.

STAFF RECOMMENDATION:

Staff recommends that stop sign requests continue to follow individual evaluation per the MNMUTCD and engineering judgement.

It is also recommended that the current 30mph residential speed limits should not be changed, as the desired outcome of slowing down traffic would not be met. There is a study underway by the MN Local Road Research Board to help guide cities on working through this new authority. Once this study comes out, it would be a good item of discussion for the Safety Committee meeting.

The Bicycle and Pedestrian Plan update will allow an ample review of the network in our city and how safety can be improved for all users. Staff recommends that this study be completed before any changes are made to the above topics discussed, as they will all be reviewed in the plan update.