

TRAFFIC AND SAFETY INFORMATIONAL SERIES FREQUENTLY ASKED QUESTION #20

WHEN DO INTERSECTIONS RECEIVE STOP SIGNS (TWO-WAY AND FOUR-WAY) AND SIGNALS?

Traffic control devices are present to safely assist and guide drivers. Several people believe that many of our traffic problems would be solved by the addition of a stop sign or traffic signal. Some would even like a traffic signal or a stop sign at every intersection. In fact, there are situations in which the absence of a stop sign or traffic signal actually provides a safer situation.

Based on the *Manual on Uniform Traffic Control Devices* (MUTCD), traffic control devices should meet five basic requirements. They should

- fulfill a need;
- command attention;
- convey a clear, simple meaning;
- command respect of road users; and
- give adequate time for proper response.

WHAT IS THE APPROPRIATE USE AND PLACEMENT OF STOP SIGNS?

The stop sign is a regulatory sign used to stop traffic. It is a red octagon that has a white border and large white letters that read “STOP.” At multiway stop intersections, a small plate is placed below the stop sign to inform the driver of how many approaches are required to stop.



Because stop signs inconvenience drivers, they should only be used where they are strictly warranted. The following warrants for the placement of stop signs are found in the MUTCD:

1. the intersection of a less important road with a main road where application of the normal right-of-way rule is unduly hazardous;
2. a street entering a through highway or street;
3. an unsignalized intersection in a signalized area;
4. other intersections where a combination of high speed, restricted view, and serious accident record indicates a need for control by the stop sign.

There are also locations where the use of stop signs should be avoided. Every time a stop sign is considered, a less restrictive method such as a yield sign should first be considered.

WHAT DETERMINES THE PLACEMENT OF A MULTI-WAY STOP SIGN?

The multiway stop sign may improve the safety of an intersection. Normally, it is used at the intersection of two roads that contain similar traffic volumes. A three-way stop is used at

intersections that have only three approaches (e.g., a T-intersection). According to the MUTCD, the warrants for placing multiway stop signs are as follows:

1. where traffic signals are going to be placed soon and the intersection needs a temporary solution to control the traffic;
2. an intersection that has several crashes (≥ 5 correctable accidents in 12 months);
3. when an intersection has the following traffic volumes: (a) the total volume of traffic entering the intersection from all approaches must average at least 500 vehicles per hour for any eight hours of an average day; (b) the combined vehicular and pedestrian volume that enters the intersection from the minor street must average at least 200 units per hour for the same eight hours, with an average delay to the minor street traffic of at least 30 seconds per vehicle during the maximum hour; (c) the 85th percentile approach speed (this is the speed at or below which 85 percent of the vehicles travel on a given roadway) of the major street traffic exceeds 40 miles per hour, and the minimum vehicular volume warrant is 70 percent of the above requirements.

WHY CAN'T WE PLACE A TRAFFIC SIGNAL AT EVERY SCHOOL CROSSING?

The fourth MUTCD warrant for traffic signalization explains traffic signal placement with regard to school crossings. If a traffic study shows that the number and length of gaps in the traffic flow are not adequate to allow the children to cross safely, then a traffic control signal may be warranted. When the gaps are sufficient, the addition of a traffic control device may not be necessary. A crossing guard or school crossing sign at the crosswalk with warning signs at the approaches can also help control traffic during peak traffic flow times.

When traffic control signals are installed entirely because of this warrant, the MUTCD notes the following:

- Pedestrian indications shall be provided for each crosswalk established as a school crossing.
- At an intersection, the signal normally should be traffic-actuated. As a minimum, it should be semi-actuated, but full actuation with detectors on all approaches may be desirable. Intersection installations that can be fitted into progressive signal systems may have pretimed control.
- At nonintersection crossings, the signal should be pedestrian-actuated, parking and other obstructions should be prohibited for at least 100 feet in advance of and 20 feet beyond the crosswalk, and the installation should include suitable standard signs and pavement markings. Special police supervision and/or enforcement should be provided for a new nonintersection location.

WHAT DETERMINES THE PLACEMENT OF TRAFFIC SIGNALS?

The warrants for the placement of traffic signals are found in the MUTCD. Please refer to the informational series answer for the question, “What is the harm in installing an unwarranted traffic control device?”

For more information

For more information, please contact _____.

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When do intersections receive stop signs and signals?

It may surprise you to learn that adding stop signs or traffic signals would not necessarily slow drivers down or increase safety at an intersections. In fact, in some cases, especially when the signs or signals do not seem to be needed, some drivers may begin to ignore them. Therefore, officials in your area make careful decisions concerning the use of stop signs and traffic signals. Here are some of the factors they consider:

Too many signs can lead to ineffectiveness

Studies have shown that when stop signs are placed at intersections where they are not really needed, motorists become careless about stopping. Installing traffic signals where they are not needed can also create traffic congestion, add travel time, and frustrate drivers, and these drivers may become impatient and make unsafe maneuvers.

The use of signs and signals should be restricted to locations where they will be effective

Signs and signals are only effective and should only be used when they meet the following four requirements. They should (1) fulfill a need, (2) convey a clear, simple meaning, (3) command attention and respect, and (4) give adequate time for drivers to respond.

Locations must have one or more of the following the conditions for two-way stop signs to be installed:

- an intersection of a minor and a major road, where the application of the normal right-of-rule would be hazardous;
- a street enters a highway;
- an unsignalized intersection in a signalized area;
- there is high-speed traffic, it is hard to see, and there is a previous crash record.

Four-way stop signs are often used at the intersection of two roadways that contain similar traffic volumes. The location must have at least one of the following conditions:

- a traffic signal is going to be installed and the intersection needs a temporary solution to control the traffic;
- within 12 months at least five crashes have occurred at the intersection that could have been prevented by stop signs;
- relatively high volumes and/or high major-street vehicle speeds exist.

At least one of 11 conditions must be met for a traffic signal to be installed. The conditions include high vehicle and/or pedestrian volumes, a record of severe crashes, and school crossings where there is not enough of a gap in traffic flow for children to cross safely.

Other options

To make travel efficient and safe and to help ensure the proper observance of stop signs and traffic signals, they are installed only where they are absolutely necessary. Other solutions—for example, a yield sign—should be considered first and may be more appropriate.

For more information

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