

## STOP Signs

### Purpose of a STOP Sign

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

The *Manual of Uniform Traffic Control Devices (MUTCD)* describes STOP signs (R1-1), including applications and placement. STOP signs are used to assign right-of-way at an intersection. Since a STOP sign causes inconvenience to motorists, it should be used only where warranted.



### Where Should A STOP Sign Be Installed?

STOP signs should be located where vehicles are to stop or as near to that point as possible. The sign may also be supplemented with a STOP line and/or the word STOP on the pavement.

Where there is a marked crosswalk, the STOP sign should be located approximately 4 ft. in advance of the crosswalk line. When only one STOP sign is used on an intersection approach, it should be on the right side of the roadway.

At wide intersections however, placing an additional sign on the left side of the approach may reduce violations of the STOP sign and the likelihood of right-angle crashes.

If two lanes of traffic exist on an approach, at least one STOP sign should be visible to each lane of traffic.

### Under What Conditions Should a Two-Way STOP Sign Be Installed?

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

- ◆ An intersection of a minor and major road, where the application of the normal right-of-way-rule would be hazardous;
- ◆ A street enters a highway;
- ◆ An unsignalized intersection in a signalized area; and
- ◆ Locations where there is a combination of high speed traffic, restricted view, and a previous crash record that indicates a need for STOP sign control.

The advantage of a two-way stop is that the major flows do not have to stop and they incur almost no delay at the intersection (i.e., the majority of the traffic does not have to stop).



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### Under What Conditions Should a Four-Way (Multi-way) STOP Sign Be Installed?

Four-way STOP signs are often used at the intersection of two roadways that exhibit approximately equal traffic volumes. The following criteria should be considered:

- ◆ 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. Previous crash records include right- and left-turn collisions, as well as right-angle collisions;
- ◆ Minimum traffic and pedestrians volumes;
- ◆ 85th percentile major-street vehicle speeds in excess of 40 mph;
- ◆ Average minor street vehicle delays of at least 30 sec. during the maximum hour;
- ◆ The need to control left-turn conflicts;
- ◆ The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- ◆ Locations where a road user, after stopping, cannot see conflicting traffic and is not able to safely negotiate the intersection unless conflicting cross traffic is also required to stop; and
- ◆ An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

### Failure to Stop at Existing STOP Signs

When there is a history of drivers failing to heed STOP signs that clearly have adequate visibility, the following approaches could be considered:

- ◆ Install STOP AHEAD sign;
- ◆ Increase size of STOP and STOP AHEAD signs from 30 to 36 in.;
- ◆ Install two transverse rumble strips in the approach lane in advance of the STOP AHEAD and before the STOP sign;
- ◆ Consider installation of two additional transverse rumble strips to supplement the first two locations;
- ◆ Install intersection illumination;
- ◆ Consider adding a flashing red beacon in conjunction with the STOP signs or an overhead intersection control beacon with flashing red for the minor street and flashing yellow for the major street;
- ◆ Place actuated flashers on the top of a STOP sign. A detector would be in the pavement in advance of STOP sign. As a vehicle approaches, a red flasher would appear. This solution would address the driver expectancy problem and give more attention to the STOP sign; and
- ◆ Use of double-indicating left-side STOP sign.

### Resources

The MUTCD is located at the following Web site: [mutcd.fhwa.dot.gov](http://mutcd.fhwa.dot.gov).

Ellison, James W., P.E. *Case Study: Failure to Stop at a Stop Sign: A Progressive Approach.*

[http://www.ite.org/library/Intersection\\_Safety/Ellison.pdf](http://www.ite.org/library/Intersection_Safety/Ellison.pdf).