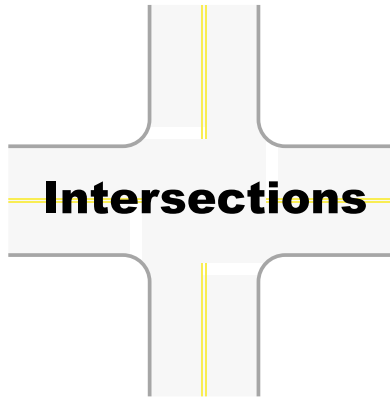


Traffic Control at a Crossroad *Intersections Require Special Consideration*

Traffic control at intersections is a frequent cause of driver frustration. Providing for safe, efficient traffic flow in a community is a constant consideration for transportation officials and community leaders. A broader understanding of what goes into making traffic control decisions improves acceptance of decisions and helps relieve frustration and reduce conflict for drivers, officials and leaders.



It applies to all streets, highways and parking lots open to public travel.

Adhering to the MUTCD is important in developing intersection solutions, as is the application of engineering judgment. While the Manual addresses traffic control needs under normal conditions, an engineering operations evaluation looks at how the intersection will function under actual and proposed design conditions. Commitment to the MUTCD and sound engineering will help guard against liability claims.

Communities face ongoing challenges related to the demographics of growth and changes in land use. As populations increase and shift, and land use changes, familiar and historic traffic flow patterns are impacted. This ultimately affects the transportation system by influencing travel demand, vehicle types, and peaking conditions. Intersections that have functioned for years may no longer adequately handle traffic needs.

Citizen complaints, public pressures, or traffic safety needs require an appropriate response to address a problematic intersection, whether the problem is real or perceived. Intersection traffic controls should not be arbitrarily installed as an expedient tool to merely avoid complaints. Solutions must meet traffic standards as well as operational objectives for the intersection.

Traffic solutions must meet standards and operational objectives

Standards and guidance for the placement of traffic control devices are set to provide uniformity nationwide so drivers know what to expect in similar situations wherever they drive. The Manual on Uniform Traffic Control Devices (MUTCD) 2000 Millennium Edition¹ contains the standards that are adopted in each state.

Engineers use the Manual to evaluate threshold conditions, or warrants, in assessing the feasibility of traffic control measures at intersections. Once MUTCD warrants are considered and the appropriate traffic control criteria met, it is important to evaluate how to best achieve the overall traffic operations objectives. This is commonly accomplished through the use of computer traffic accumulation models. The impacts of intersection capacity, vehicular speed, delays, signal phasing and timing, and lane arrangements can be effectively evaluated. This comprehensive evaluation helps target specific problems and formulate appropriate remedies.

With appropriate control devices in place, traffic operations need to be periodically reviewed to make sure traffic control objectives continue to be met. These reviews help keep a system responsive to driver needs and compliant with accepted standard practices.

¹The MUTCD can be viewed online at <http://mutcd.fhwa.dot.gov>. Highlights of the Manual presented in this article should not be considered as the sole considerations in making decisions related to traffic control.



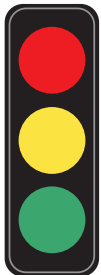
STOP! YIELD! GO! Solutions to a problematic intersection often include employment of a STOP sign, YIELD sign, or TRAFFIC SIGNAL to better regulate and control traffic movements. These three widely used traffic control devices address specific traffic situations and carry specific warrants for their use.



STOP SIGN: Perhaps the traffic control device most requested at the local level, and sometimes most debated in its installation, is the STOP sign. While uncontrolled intersections in residential neighborhoods are not without traffic rules, they are often considered to be inherently unsafe. A STOP sign may be requested in hopes that it will slow traffic if the sign is installed on the busier street. Published studies indicate STOP signs are not effective in controlling speeds beyond a relatively short distance from the sign and, in fact, the MUTCD specifies that STOP signs not be used for speed control.

Two sets of warrants exist for STOP signs; one for a two-way stop typically employed where a minor road intersects a more important major road; the other considers criteria for a multi-directional (three-way or four-way) stop where intersecting traffic volumes are significant and approximately equal. Factors to be evaluated in either circumstance include traffic and pedestrian volumes, travel speeds, accident statistics, intersection geometry, and restricted views. Note: Supplemental plaques indicating the number of controlled stops (e.g. 4-way) will be required with STOP signs after January 17, 2004.

YIELD SIGN: YIELD signs assign right-of-way giving priority to traffic on certain approaches to an intersection. Vehicles controlled by a YIELD sign need to slow down or stop to avoid interfering with conflicting traffic. YIELD signs typically address situations of merging traffic without an adequate acceleration lane, as with a free right turn lane, and where a full stop is not necessary at all times but conditions indicate the need to assign right-of-way.



TRAFFIC SIGNAL: Warrants for traffic signals are the most detailed and thorough of the three intersection control devices discussed. The new MUTCD Millennium Edition now lists eight, instead of the previous eleven, warrants for traffic signals. Analyses of these warrants involve consideration of traffic and pedestrian volumes, school crossings, signal progression and accident history. Although traffic signals should not be installed unless one or more warrants are met, this in itself is not always justification for a signal. A thorough engineering analysis is also needed to determine if a traffic signal is truly warranted and would improve overall safety or operation of the intersection.

ADVANCE WARNING SIGNS: Use of advance warning signs are intended to give drivers more information as they approach an intersection. Signs like YIELD AHEAD, STOP AHEAD, or SIGNAL AHEAD add emphasis or alert drivers to upcoming control devices. They shall be installed in situations where the view of the control device may be limited in sight distance, is partially or intermittently restricted, or temporarily obstructed.

SAFE AND EFFICIENT TRAFFIC MOVEMENT will benefit communities, citizens and the traveling public. Traffic decisions that are purposeful, appropriate, responsive and compliant with accepted standards will provide the traveling public the highest and safest level of service from your traffic control system.