

ONE-WAY SIGNS AND SIGN PLACEMENT

by Stephen Thompson and Patrick Wright, Pennoni Associates

Whether it's to control traffic direction along narrow alleys or to create a unique network flow within your municipality, designating some roadway segments as one way can improve the safety and effectiveness of your roadway network. From whatever direction a driver approaches a one-way segment, there must be an indication of the direction of traffic flow on that segment. This tech sheet will illustrate the proper way to sign one-way streets and will provide the regulatory basis for such signing.

Engineering and Traffic Study

Under Section 6109 of Title 75 (Vehicle Code), an engineering and traffic study must be conducted to establish a one-way street. The study needs to justify the traffic control that will be established. Section 212.113, "One-Way Streets," in PennDOT's Publication 212, *Official Traffic Control Devices*, lists the conditions under which one-way streets may be established in Pennsylvania.

Of the six conditions listed, three involve the geometric conditions of the roadway segment, and three involve the functionality of the one-way designation. The geometric conditions that must be satisfied for establishing a one-way street follow:

- Traffic can be accommodated in both directions. That is, a parallel street should be used to form a one-way couplet.
- There are intersections for entrance to and exit from the one-way segment.
- Satisfactory transitions to and from the one-way segment are available at the terminal points.

The functional conditions that must be satisfied for establishing a one-way street are:

- The level of service at intersections will be improved.
- Existing bus routes can be accommodated.
- Emergency vehicles will not be impeded.

Your engineering and traffic study must demonstrate and document how these six warrants are satisfied before an ordinance may be passed and the appropriate signs placed.

Ordinances

ONE WAY signs and other signs designating a one-way street require a municipal ordinance to make them enforceable [Vehicle Code (Title 75), Chapter 61, Section 6109(b)]. After you have completed your engineering and traffic study and have documented the results, work with your solicitor to develop or amend an appropriate ordinance for the one-way designation and use of the ONE WAY and other signs.

Also, remember that at intersections of local highways and state-designated highways PennDOT is responsible for approving traffic control, including those signs placed on local highway approaches [Publication 212, Section 212.5(d)]. The municipality is responsible for installation, removal, and maintenance of the signs.

MUTCD

The Federal Highway Administration (FHWA) publishes the Manual on Uniform Traffic Control Devices (MUTCD), which contains information on design, placement, application, maintenance, and uniformity of ONE WAY signs, among other traffic-control devices. The current version of the MUTCD (2009), which has been adopted by PennDOT, is supplemented by PennDOT

Publication 212, and official traffic signs are identified in the *Pennsylvania Handbook of Approved Signs* (Pub 236).

ONE WAY signs are a type of regulatory sign; guidance for their placement can be found in MUTCD Chapter 2B, *Regulatory Signs, Barricades, and Gates*. Specifically, information about ONE WAY signs can be found in Section 2B.40, "ONE WAY Signs" (R6-1, R6-2).

This section also contains information about the use of BEGIN ONE WAY signs (R6-6) and END ONE WAY signs (R6-7).



R6-1



R6-2



R6-6



R6-7

DO NOT ENTER signs are usually used in conjunction with ONE WAY signs and are an important part of any one-way signing plan. Information on DO NOT ENTER signs can be found in Section 2B.37, “DO NOT ENTER Sign” (R5-1), and its supplement, the WRONG WAY sign, is in Section 2B.38, “WRONG WAY Sign” (R5-1a).



R5-1



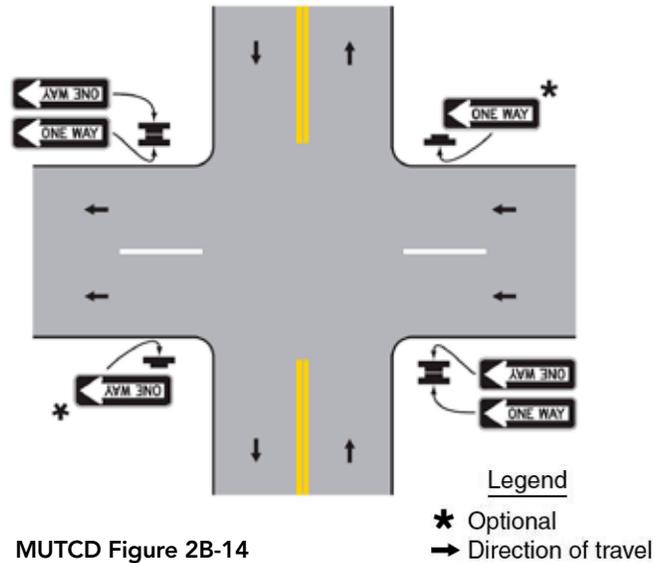
R5-1a

Placement

At unsignalized intersections, ONE WAY signs are placed parallel to the one-way street they designate, at each intersection with a street or alley. The signs are placed to alert drivers approaching the one-way street and to indicate the direction of traffic. Notice that ONE WAY signs are visible on the near right and far left quadrants of the intersection as you approach the

one-way street. Optional signs may be placed on the far right of the intersection for additional emphasis and visibility.

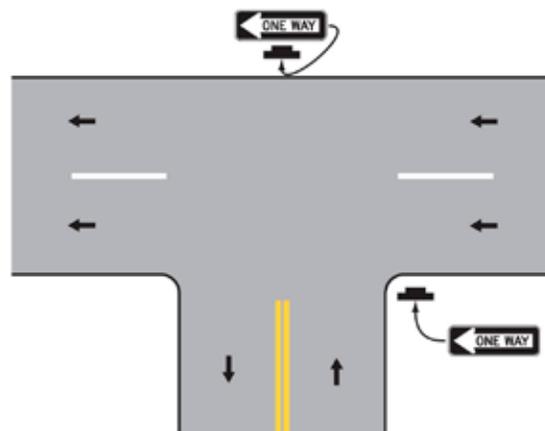
At signalized intersections, place ONE WAY signs near the appropriate signal faces, on the poles holding the traffic signals, on the mast arm or span wire holding the signals, or at locations similar to those for unsignalized intersections.



MUTCD Figure 2B-14

At unsignalized T-intersections, two ONE WAY signs are visible to drivers approaching a one-way street: one on the near right, and the second on the far side, directly across from the intersection.

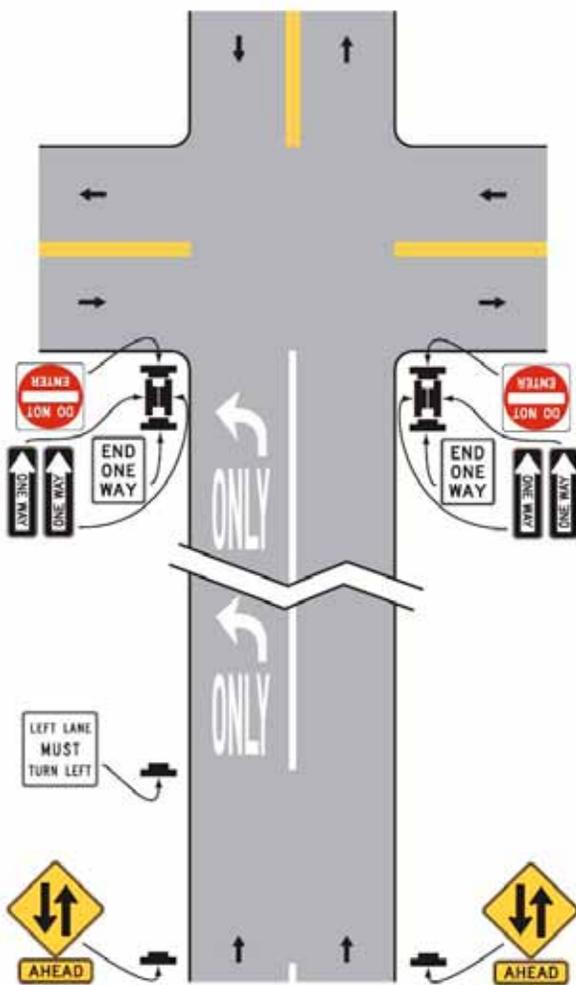
For signalized T-intersections, place ONE WAY signs near the appropriate signal faces, on the poles holding the traffic signals, on the mast arm or span wire holding the signals, or at locations similar to those for unsignalized T-intersections.



MUTCD Figure 2B-14

ONE WAY signs may be used instead of or in place of roundabout directional arrows on the center island of a roundabout. However, some drivers may be confused that the ONE WAY sign indicates the direction of travel on the intersecting roadway rather than the direction of travel within the roundabout. Using the ONE WAY sign along with the roundabout directional arrow may alleviate this confusion.

Signs such as BEGIN ONE WAY and END ONE WAY designate the ends of a one-way segment and are part of the transition between two-way and one-way travel.



MUTCD Figure 2B-14

Use the DO NOT ENTER sign where traffic is prohibited from entering a restricted roadway. Place the sign on the right side of the roadway facing the traffic that might enter the roadway in the wrong direction. A second DO NOT ENTER

sign may be placed on the left-hand side of the roadway. If a DO NOT ENTER could be visible to drivers to which it does not apply, place the sign so that it is turned away or shielded from the view of those drivers.

WRONG WAY signs may be used to supplement DO NOT ENTER signs where the geometry of the intersection between a one-way road and a crossroad does not intuitively discourage or prevent wrong-way entry. WRONG WAY signs are placed along the one-way roadway, near the intersection with the crossroad, but further down the road from the intersection where DO NOT ENTER signs are placed.

Also, remember not to place signs of differing shapes back-to-back on the same post. This is particularly important with STOP signs. Unless it does not extend beyond the edges of a STOP sign, a square or rectangular shaped sign placed behind a STOP sign will obscure its shape, reducing its recognition as a STOP sign.

Improving Visibility

Common issues with signs, particularly those that are not illuminated, are visibility and conspicuity. Visibility is enhanced by the use of contrasting colors and retroreflective sign sheeting. PennDOT Publication 236 requires that the border and the arrow in a ONE WAY sign be white reflectorized material, while the background and legend are black, producing contrast for daytime visibility and light reflection for nighttime hours. Section 212.104, "Retroreflectorization," of PennDOT Publication 212 indicates that all signs that are not illuminated must use approved retroreflective materials. The use of Type III or higher retroreflective sheeting is required to improve nighttime visibility and to help comply with FHWA's minimum maintained retroreflectivity levels for signs found in Section 2A.08 of the MUTCD.

To improve the conspicuity of the sign, consider:

- Adding reflective post striping,
- Trimming vegetation and removing obstructions that might obscure signs,
- Adjusting the sign position/placement, and
- Oversizing the signs.

Improving Safety

Proper planning and preparation for the installation of ONE WAY signs and the several other signs that designate one-way streets may reduce crashes and properly regulate traffic through a community. Improper signing can create dangerous conditions for drivers and liability for the responsible municipality.