

Crosswalks

Background

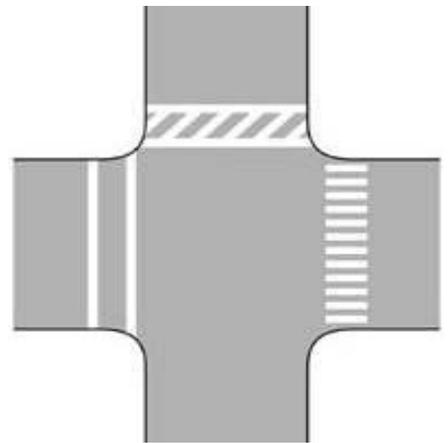
In 2006, pedestrians accounted for fourteen percent of total roadway fatalities in Massachusetts. Nationwide there were 4,784 pedestrian fatalities accounting for eleven percent of all roadway fatalities. Based upon these statistics, pedestrian accommodation should be a critical element of transportation safety, and, in fact, is required under Massachusetts General Law. One common practice for accommodating pedestrians is the use of crosswalks.

Roadways must accommodate a wide variety of pedestrians who behave differently and have a variety of physical, cognitive, and sensory abilities. From a crossing perspective, this is important as some pedestrians may require more time to cross a street and desire more predictable surfaces. Similarly, pedestrians who are visually impaired may require audible and tactile cues. Pedestrians using wheelchairs may cross the street more quickly, but are also more difficult to see from a vehicle.

Design of a Crosswalk

Crosswalk markings provide guidance for pedestrians who are crossing roadways. Minimally, crosswalks must consist of two parallel lines that shall not be less than 6 inches or greater than 24 inches in width. The crosswalk should have a width of no less than six feet.

For added visibility additional marking opportunities exist. For example, the preferred type of crosswalk marking in many municipalities is the ladder, or “continental” pattern consisting of white longitudinal lines parallel to traffic flow, however “zebra” (diagonal) striping may also be used. Longitudinal or diagonal lines should be 12 to 24 inches wide and spaced 12 to 60 inches apart. Crosswalk markings should be spaced so that the lines are not in wheel paths. In addition, the spacing should not exceed 2.5 times the width of the lines. See the [Manual on Uniform Traffic Control Devices \(MUTCD Section 3B.17\)](#) for more information.



Source: MUTCD

Installing Crosswalks

Crosswalks are typically installed at intersections where pedestrian delineation proves beneficial. At non-intersection locations, crosswalks should only be added when there is both a significant pedestrian presence and after an engineering study deems it safe.



Continental Crosswalk Markings (Source: www.pedbikeimages.org)

EOT

MASSACHUSETTS
EXECUTIVE OFFICE
OF TRANSPORTATION

MASS HIGHWAY

U.S. Department of Transportation
Federal Highway
Administration

University of Massachusetts
Transportation Center

For more information
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MassHighway
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(617) 973-8484

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Crosswalks

When to Install Crosswalks

Crosswalks should be marked at all intersections with substantial conflicts between vehicles and pedestrians, as well as at other appropriate points of pedestrian concentration, including non-intersection locations with a significant pedestrian presence. As per the [MUTCD Section 3B.17](#), an engineering study should be performed before installing marked crosswalks away from traffic signals or STOP signs. Warning signs should be installed at non-intersection crosswalks, and added visibility should be provided through parking prohibitions on the crosswalk approaches. Worth noting is that some municipalities have established quantitative guidelines (e.g., number of pedestrians per some specified time period) for installing crosswalks at non-intersection locations.

Crosswalks at Intersections

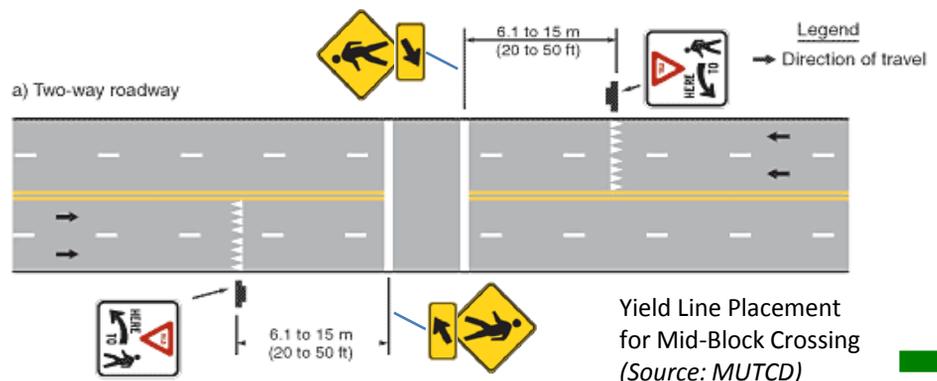
Crosswalks should be marked at intersections when they:

- Help pedestrians find their way across a complex intersection;
- Show pedestrians a safe route across traffic;
- Minimize exposure to motor vehicles, bicycles, and traffic conflicts; and
- Position pedestrians where they can best be seen by oncoming traffic.

Crosswalks located at intersections should be no more than 26 feet from the edge of the intersections. When crosswalks are located on a street with a stop line or with traffic signals, there should be a minimum spacing of 4 feet between the outer edge of the crosswalk and the nearest edge of the stop bar.

Non-Intersection Crosswalks

At non-intersection locations, in addition to the crosswalk markings, yield lines may be used to indicate the point at which vehicles should yield to pedestrians. Yield lines consist of solid white isosceles triangles pointing toward approaching vehicles and extend across the approach lane. The individual triangles have a base 12 to 24 inches wide and a height of 1.5 times the base, and are spaced 3 to 12 inches apart. If used, yield lines should be placed next to a "Yield Here to Pedestrians" (R1-5) sign. Please see [MUTCD Section 3B.16](#) for additional details at these locations.



Yield Line Placement
for Mid-Block Crossing
(Source: MUTCD)



Pedestrian Crossing
Warning Sign



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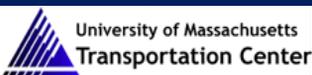
Crosswalks



Post-mounted Regulatory Pedestrian Sign
(Source: MassHighway Traffic Engineering)



Unsignalized Pedestrian Crossing Sign
(Source: MUTCD)



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Pedestrian Laws and Regulations

- [Massachusetts General Law \(MGL\) Chapter 89, Section 11](#) requires, among other things, that when traffic control signals are not in place or not in operation the driver of a vehicle shall yield the right of way to a pedestrian crossing the roadway within a marked crosswalk;
- Regulations promulgated under [MGL Chapter 90, Section 18A](#), by MassHighway, require every pedestrian crossing a roadway at any point other than a marked crosswalk shall yield the right-of-way to all vehicles upon the roadway;
- As per the [MUTCD Section 2B.12](#) in-street pedestrian crossing signage shall not be used at signalized intersections, and if it is placed in the roadway the sign support shall comply with the breakaway requirements.

Crosswalk Enhancements on Local Roadways

Raised Crosswalks

Raised crosswalks bring the roadway up to the level of the sidewalk at the crosswalk. They improve the visibility of the crosswalk and pedestrian, and by acting as a speed hump they can be effective at reducing vehicle speeds.

In-Roadway Warning Lights

In-roadway warning lights are amber lights embedded in the roadway on both sides of a crosswalk that begin flashing when activated by a pedestrian, thereby alerting drivers that a pedestrian is in the vicinity of the crosswalk.

Roadway Lighting

Although street lighting provides a benefit at many locations, it is particularly beneficial at crosswalks where lighting increases the visibility of pedestrians to passing motorists.

Refuge Islands and/or Medians

The addition of refuge islands and/or medians may be an effective design technique that affords pedestrians the opportunity to cross a roadway in stages.

Resources

The Manual on Uniform Traffic Control Devices (MUTCD)

Published by the FHWA, the MUTCD defines the standards used by transportation professionals nationwide to install and maintain traffic control devices on all streets and highways. The most recent version (2003) can be found at <http://mutcd.fhwa.dot.gov/>

The Pedestrian and Bicycle Information Center (PBIC)

The PBIC is a national clearinghouse for information about health, safety, engineering, advocacy, education, enforcement, access, and mobility for pedestrians and bicyclists. Information can be found at <http://www.walkinginfo.org/index.cfm>