

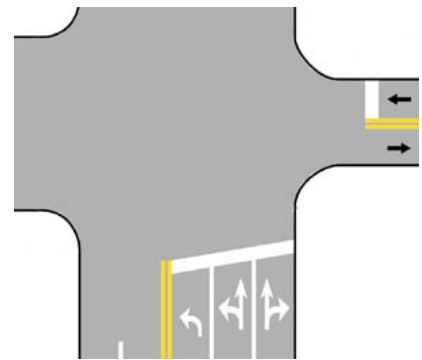
Pavement Markings: Other

Background

This fact sheet refers to non-centerline and non-edgeline pavement markings, such as stop lines, yield lines, crosswalks, symbols, and text messages. For details on centerline and edgeline pavement markings, please refer to the *Pavement Markings: Centerline and Edgeline* fact sheet in this toolbox series. Although signs typically line the sides of roadway, the roadway itself is another medium by which to convey important messages to the roadway user that may supplement other traffic control devices. Specifically, pavement markings are on-road markings that provide guidance and information to the user.

Roadways are designed to provide a safe and efficient environment for roadway users. Pavement markings allow for the road user to keep their eyes on the roadway and still be focused on the upcoming path ahead. Pavement markings can be effectively used to provide drivers with pertinent information along the roadway.

There are considerations municipalities must address when using pavement markings including factors such as size, color, retroreflectivity, and wording. Specific information regarding this type of information can be found in Part 3 of the [Manual on Uniform Traffic Control Devices \(MUTCD\)](#) which provides standards and guidance on all traffic control devices used.



Source: MUTCD

For example, an intersection may contain many of these markings, such as the symbolic pavement markings to provide drivers lane use designation regarding turning maneuvers. In addition, stop lines and crosswalks are also likely at an intersection providing separation between vehicles and pedestrians.

Pavement markings do however have limitations, especially in states like Massachusetts where snowfall is frequent during the winter months. Pavement markings are only visible to the driver if the roadway is clear of snow and debris. Similarly, high traffic volumes may also obscure a driver's ability to view pavement markings. In addition, heavy traffic volumes will increase the rate at which pavement markings wear. Another consideration is that all pavement marking materials are susceptible to wear and tear from snow plows. Maintenance is key to keeping pavement markings a useful tool for roadway users.



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Last Revised:
January 2008

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Typical Pavement Markings

The following table includes descriptions of pavement markings found on roadways, including placement of these markings and their practical importance. Also provided are direct references to the relevant sections of the MUTCD where a more comprehensive description of the pavement markings can be found.

Important Reminder!

Municipalities do not have the authority to add pavement markings on state roadways. Rather, they must work cooperatively with [MassHighway](#). If you are not sure if the roadway is a state roadway, contact MassHighway.

Types of Pavement Markings

Stop Line is a solid white line that extends across approach lanes to indicate the point at which a stop is required to be made on conjunction with STOP sign, a traffic control signal, or at an at-grade railroad crossings. A stop line is important because of its connection to the STOP sign. ([MUTCD Section 3B.16](#) or [MUTCD Section 8B.21](#))

Yield Line is a line of white triangle markings that extend across approach lanes to indicate a point at which a yield maneuver is required and a driver must exercise caution. Examples include an entrance to a traffic circle or roundabout as well as a non-intersection pedestrian crossing. ([MUTCD Section 3B.16](#))



Sample Yield Line
(Source: MUTCD)

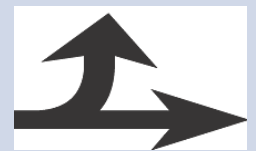
Pedestrian Crossings (Crosswalks) help alert motorists and pedestrians alike as to the location of designated crossing areas. Additional details on crosswalks, including installation tips, can be found in the *Crosswalks* fact sheet of this toolbox series. Information on crosswalks can also be found in [MUTCD Section 3B.17](#).

Word Markings are used on roadways to guide or warn drivers of conditions ahead. Some example of word markings include "STOP AHEAD" or "SCHOOL XING", and a listing of allowable word messages is available in the [MUTCD Section 3B.19](#).



Sample "ONLY" Marking
(Source: MUTCD)

Symbol Markings are used on roadways to convey either guidance or mandatory information to roadway users. Some examples of symbol markings include directional arrows or railroad crossing symbols, and more information can be found in [MUTCD Section 3B.19](#) or [MUTCD Section 8B.20](#).



Sample Symbol Marking
(Source: MUTCD)



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Implementing Pavement Markings

The MUTCD must be consulted for specifications on sizing and exact placement before adding pavement markings to roadways. Another useful reference is the [Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities \(ADAAG\)](#) by the U.S. Access Board, which provides information on handicapped parking spaces and crosswalk design and construction, among other elements.

What material should be used? On roadways, if it's being done under a MassHighway contract, the material would be either thermoplastic or heat-fused retroreflective preformed thermoplastic. If your municipality is doing the work itself, using municipal workers or a contractor, the state of Massachusetts does not have a specific requirement as to what material to use. It is important to remember cost can vary significantly by material.

Cost Estimates (MassHighway Price List)

Pavement Arrows and Legends (retroreflective)	Painted - \$1.56 per sq foot
	Surface Tape - \$9.86 per sq foot
	Thermoplastic - \$3.92 per sq foot
Crosswalk, Stop Lines, Yield Lines (retroreflective)	Painted - \$0.60 per sq foot
	Thermoplastic - \$1.53 per sq foot

Prices included are from the [MassHighway Weighted Average Bid Prices](#) as of January 2008. These prices reflect the relative cost differences between treatment options, and will generally be lower than what a municipality may expect to pay.

Retroreflective preformed thermoplastic is considerably lower in cost than surface tape but does cost more than paint. Paint however has the shortest functional life, sometimes needing to be replaced twice a year. For short stretches of roadway, surface tape may be advantageous as it can often be installed by a municipality.

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/>.

ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)

This reference provides information regarding the design of facilities which incorporate features for transportation system users with mobility disabilities.

Reminder!

Although the materials used on the municipal roadways for pavement markings are up to your town, they still must be compliant in terms of color and retroreflectivity with the MUTCD.



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