

# Speed Limits & Speed Limit Setting

## Did You Know?

According to NHTSA approximately 86% of 2003 speed-related fatalities occurred on non-interstate roadways

## Background

The [National Highway Traffic Safety Administration \(NHTSA\)](#) defines speeding as “travelling in excess of the posted speed limit” or “driving too fast for conditions.” Nationally, speed-related crashes account for 30 percent of all fatal crashes, resulting in over 13,000 fatalities annually and a societal cost exceeding \$40 billion. The numbers in Massachusetts are similar where 33 percent of the 442 fatalities in 2005 were speed-related. In Massachusetts, 58 percent of speed-related fatalities occurred on roadways with a posted speed limit of 35 mph or less, and 80 percent of speed-related fatalities occurred on a roadway with a posted speed limit of 45 mph or less. From an engineering standpoint *properly posted* speed limits represent the front lines of speed management. This fact sheet provides basic information regarding speed limits and guidance on proper speed limit setting and sign posting.

## Speed Laws in Massachusetts

Within the [Massachusetts General Laws \(MGL\)](#) there are two sections that deal specifically with speed limits.

[MGL Chapter 90, Section 18](#) allows for the posting of numerical limits on the typical speed limit sign. This law also indicates that this limit must be based on engineering study and needs approval via a Special Speed Regulation approved by the Registry of Motor Vehicles and MassHighway. Please note that all regulatory speed limit signs not posted under this procedure are in violation of the law and are not legally enforceable.\*



Typical Speed Limit Sign (R2-1)

[MGL Chapter 90, Section 17](#) applies to unposted roadways and specifically states that *it shall be prima facie evidence of a rate of speed greater than is reasonable and proper as aforesaid (1) if a motor vehicle is operated on a divided highway outside a thickly settled or business district at a rate of speed exceeding fifty miles per hour for a distance of a quarter of a mile, or (2) on any other way outside a thickly settled or business district at a rate of speed exceeding forty miles per hour for a distance of a quarter of a mile, or (3) inside a thickly settled or business district at a rate of speed exceeding thirty miles per hour for a distance of one-eighth of a mile, or (4) within a school zone which may be established by a city or town as provided in section two of chapter eighty-five at a rate of speed exceeding twenty miles per hour.*

\* Please note there are special speed law provisions in the MGL for the [Massachusetts Turnpike](#) and [Department of Conservation and Recreation \(DCR\)](#) [formerly the Metropolitan District Commission (MDC)] Roads.



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contact:  
MassHighway  
Traffic Engineering  
(617) 973-8484

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## Setting Speed Limits

Municipalities should contact MassHighway to request speed limit posting on state-owned roadways. It is the responsibility of the municipality to follow the procedures for locally-owned roadways, which require approval by both MassHighway and the Registry of Motor Vehicles (RMV). When considering the establishment of speed limits there are two primary sources it is imperative you review which will provide specific guidance on speed zoning: (1) [Procedures for Speed Zoning on State and Municipal Roads](#), and (2) The Manual on Uniform Traffic Control Devices ([MUTCD Section 2B.13](#)). The establishment of a speed limit is *required* to be based upon engineering study, and any resulting posting must be in increments of 5 mph. One major basis for the setting of speed limits is that most motorists are able to select a reasonable and safe speed. Using the 85<sup>th</sup> %ile speed as a baseline, the proposed speed limit may be adjusted based upon additional factors, including, road characteristics (e.g., shoulder condition, grade, alignment, and sight distance), the pace speed, roadside development and environment, parking practices and pedestrian activity, and reported crash experience.

**Please Note**  
Research has shown that only changing a posted speed limit does not result in significant changes to the roadway speeds. In fact, this holds true for both increases and decreases to the posted limit.

## Engineering Study

An engineering study from the municipality must contain both the collected data and analysis of this data. Data collection includes:

1. Preliminary study of conditions;
2. Speed calculations of curves (MassHighway responsibility);
3. Speed observations;
4. Studies of crash distributions; and
5. Trial runs over the location.

Speed observations are determined from a spot speed study and are representative of the motorists "opinion" regarding the speed limit. Speeds from 100 free flow vehicles (drivers choosing their own speed, i.e., not in queue) should be captured in each direction. Data analysis includes:

1. Safe speed range;
2. Selecting speed limits/lengths of zone;
3. Advisory speeds; and
4. Rechecks with trial runs.

## What is the 85<sup>th</sup> %ile Speed?

This is the speed at which or below 85% of the vehicles are travelling. Speeds are typically assumed to be normally distributed which results in a probability distribution as shown below. Knowing this distribution allows for the targeting of egregious violators. Additionally, studies have shown that as vehicle speeds deviate from the mean the risk of a crash increases; using the 85<sup>th</sup> %ile method lessens variation of speeds within a traffic stream.



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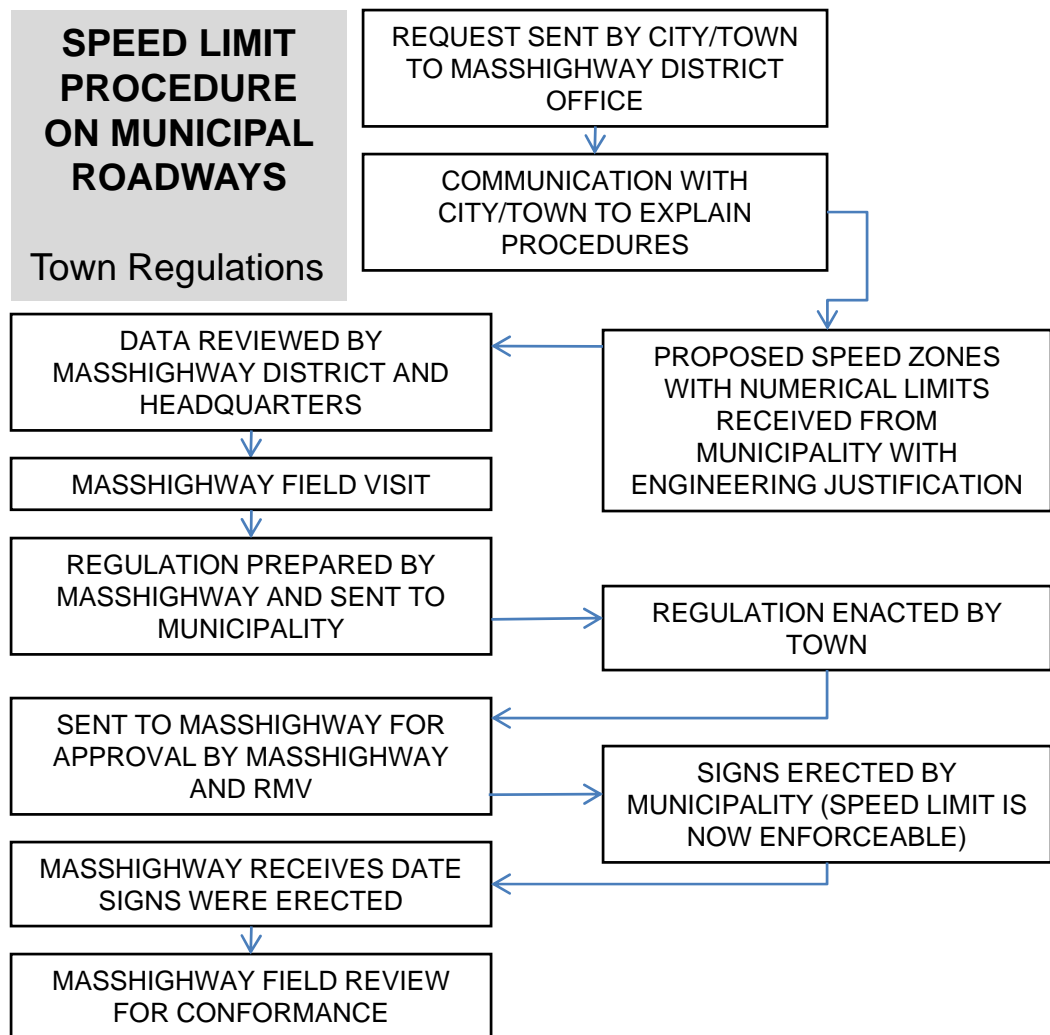
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## Important Reminder!

Advisory speed signage should be used when engineering judgment indicates the need to advise road users of a recommended speed for a given condition (e.g., an exit, a ramp or a curve). Please note that advisory speed limits are not enforceable. Additional information on advisory speed limits is available in the MUTCD Sections [2C. 36 & 2C. 46](#).

## SPEED LIMIT PROCEDURE ON MUNICIPAL ROADWAYS

### Town Regulations



## Resources

### Massachusetts Traffic Safety Toolbox Series

This series of fact sheets provides information on safety improvements that can be implemented at the local level. Information on problem areas, possible countermeasures, and implementation considerations is included in each fact sheet which can be found at [www.mass.gov/mhd/safetytoolbox/](http://www.mass.gov/mhd/safetytoolbox/)

### Procedures for Speed Zoning on State and Municipal Roads

These procedures provide specifications for speed zoning in Massachusetts and can be found at <http://www.mhd.state.ma.us/downloads/manuals/speedZoning.pdf>

### 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/>



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