

**Statutory Speed Limits:  
Pa Vehicle Code, Title 75,  
Section 3362(a)**

## ENGINEERING AND TRAFFIC STUDIES & SAFE RUNNING SPEED

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The Pennsylvania Vehicle Code, Title 75, establishes certain maximum lawful speeds for vehicles traveling in urban, residential, and other locations. These statutory speed limits can be found in Section 3362(a) of Title 75. In addition, municipalities are also given the authority to establish speed limits on their roads, as spelled out in Section 6109(a)(10) of the Vehicle Code.

When a roadway does not satisfy the requirements for a statutory speed limit, a municipality must conduct an engineering and traffic study to determine the most appropriate speed for conditions. Keep in mind that engineering and traffic studies are not required for statutory speed limits, but documentation should be on file for urban districts and residential districts to show that the requirements defined in the Vehicle Code are satisfied.

### Collecting Speed Data

PennDOT Publication 212.108(b) authorizes the establishment of speed limits based on either the 85th percentile speed or the safe running speed. Values for both are determined by conducting engineering and traffic studies. One critical element to establishing a speed limit with an engineering and traffic study is the collection of speed data.

While there are several different types of speed data, spot speeds are used to determine the 85th percentile speed. Spot speeds are collected in a variety of ways, including an automated traffic recorder (ATR), a radar device, VASCAR, or a stopwatch, to physically measure the speed of passing vehicles at a specific point. The data is then analyzed to determine the 85th percentile speed. This method is more appropriate for establishing speed limits on shorter segments of road with uniform roadway geometry.

A second type of speed data is safe running speeds, which is the focus of this tech sheet. Safe running-speed data is appropriate for helping to determine an appropriate speed limit on roadway segments of any length, because the data accounts for changing roadway geometry, sight distance limitations, and cross-roads and driveways. There is no minimum or maximum length of a roadway on which safe running speeds can be determined. Safe running-speed data collection guidelines are described in more detail on the next page.



## Safe Running-Speed Data Collection

Section 17 (iii) in the Appendix of PennDOT Publication 212 outlines the steps to collect safe running-speed data. Data may be collected by any municipal staff member, including the roadmaster, street superintendent, foreman, police officer, or any other public works personnel. The data should be collected by two persons in a vehicle.

**Safe Running Speed:**  
**PennDOT Publication 212,**  
**Appendix 17: Speed Data (iii)**

The steps to collect the safe running-speed data are as follows:

- **Define the starting and stopping points of the study area.** This is typically the entire length of roadway to which the speed limit is to be applied.
- **Drive the defined length of roadway.** The driver’s job is to travel at a reasonable and prudent speed, taking into account the roadway geometry, sight distance limitations, and intersections or driveways.
- **Record the speed of the vehicle at consistent data points along the roadway.** It is the passenger’s job to record this data. The locations to record speed should be selected using engineering judgment at roughly even increments and avoiding curves where the speed is significantly reduced. Speed along curves can be addressed through the use of advisory speeds and should not be considered in determining the safe running speed. There is no set minimum or maximum number of readings required.
- **Repeat the data collection in each direction** a minimum of five times.
- **Calculate the safe running speed** by taking the average of all the recorded speeds for each direction.

PennDOT Publication 212.108(b) states that speed limits should be established within 5 miles per hour (mph) of the safe running speed determined from the data collection. The speed limit may be reduced up to 10 mph below the safe running speed if one or more of the following three conditions are satisfied:

1. A major portion of the highway has insufficient stopping sight distance if traveling at the 85th percentile speed or the safe running speed.
2. The available corner sight distance on side roads is less than the necessary stopping sight-distance values for through vehicles.
3. The majority of crashes are related to excessive speed, and the crash rate during a minimum 12-month period is greater than the applicable rate in the most recent high-crash rate or high-crash severity rate table included in the appendix of Official Traffic Control Devices (Department Publication 212). Crashes related to excessive speed include those crashes with causation factors of driving too fast for conditions, turning without clearance, or failing to yield the right-of-way.

It is recommended that the full engineering and traffic study be documented using PennDOT’s TE-101 form. Remember that before posting the speed limit, the municipality must pass an ordinance. When posting the new speed limit, follow the guidelines established in Publication 212, Section 212.108(e).

## Example of Safe Running-Speed Data Collection

The chart below is an example of a safe running-speed data collection effort on a 1.5-mile stretch of township road. The driver’s speed was recorded at approximately quarter-mile intervals.

The average speed for the northbound direction was 35.4 mph, and the average speed in the southbound direction was 34.1 mph. Following the guidelines outlined in Publication 212, the speed limit may be posted at either 35 or 40 mph in the northbound direction

| NORTHBOUND               |       |       |       |       | SOUTHBOUND               |       |       |       |       |
|--------------------------|-------|-------|-------|-------|--------------------------|-------|-------|-------|-------|
| Run 1                    | Run 2 | Run 3 | Run 4 | Run 5 | Run 1                    | Run 2 | Run 3 | Run 4 | Run 5 |
| 37                       | 37    | 38    | 38    | 38    | 32                       | 35    | 33    | 35    | 34    |
| 27                       | 27    | 30    | 30    | 28    | 26                       | 29    | 30    | 31    | 32    |
| 36                       | 39    | 39    | 40    | 38    | 28                       | 29    | 27    | 26    | 24    |
| 37                       | 39    | 37    | 40    | 36    | 42                       | 40    | 39    | 40    | 42    |
| 31                       | 34    | 30    | 32    | 34    | 40                       | 35    | 38    | 36    | 37    |
| 37                       | 37    | 38    | 39    | 40    | 36                       | 36    | 37    | 33    | 40    |
| Average Speed = 35.4 mph |       |       |       |       | Average Speed = 34.1 mph |       |       |       |       |

and 30 or 35 mph in the southbound direction with final selection of the speed limit taking into account sight distance, crash history, and engineering judgment. Although PennDOT Publication 212 does not prohibit the posting of different speed limits for opposing directions on a roadway and the final selection should be based on engineering judgment, it is recommended that the selected speed limit be the same in both directions.