

# TRAFFIC AND SAFETY MANUAL

## Chapter 7 – Traffic Engineering Studies 7A –No Passing Zone Study

### Rope Method

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#### General

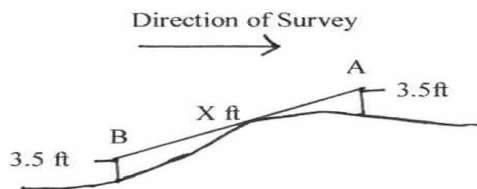
A “No Passing Zone” is defined as a section of two-lane roadway where passing is prohibited because of inadequate sight distance or other special conditions.

Other procedures that achieve the desired results are acceptable. Innovative methods are encouraged to improve accuracy and enhance safety for traffic and the survey crew. Procedures for the rope method are described in this section. Procedures for a method using distance measuring instruments are provided in [Section 7A-3](#) of the Traffic and Safety Manual.

#### Procedures

A two-member field survey crew establishes the beginning and ending points of no-passing zones. The forward observer "A" pulls a rope of appropriate length with the lead vehicle. A cloth is attached to the other end of the rope and the trailing observer "B" follows the cloth in the rear vehicle. The length of the rope is determined by observation of the speed limit for the section of highway being surveyed and the use of Table 1 in [Section 3B-1](#) of the Traffic and Safety Manual.

1. The survey crew proceeds along the highway with "A" observing the headlights of the trailing vehicle in the rear view mirror. This system is modified to account for differing heights of lead vehicle mirror and trailing vehicle headlights to ensure that all potential no passing zones are checked. One such modification is for "B" in the trailing vehicle to have an eye height of 3.5 feet and observe a flashing yellow light or other target mounted on the forward vehicle at a height of 3.5 feet. When a hillcrest breaks the line of sight between the observers both vehicles are stopped. The crewmembers get out of the vehicles and stretch the rope between them. (See Figure 1). For vertical curves this can normally be done at edge of pavement.

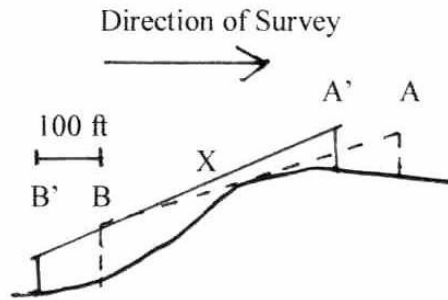


HILLCREST BREAKS THE LINE OF SIGHT

Figure 1

2. With one observer sighting, the other holding a target, and keeping the rope tight, they determine the location at which the required sight distance for oncoming traffic is available.

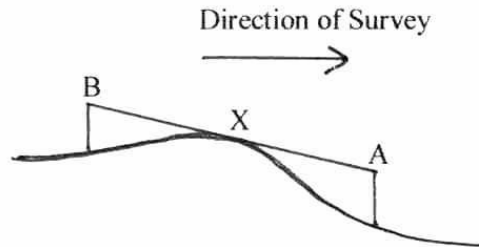
From that point "A" walks toward "B" until "A" can see clearly over the crest of the hill along the roadway ahead from an eye height of 3.5 feet, to determine that there is no secondary feature such as a dip that could cause a vehicle to be hidden within the apparent passing sight distance. At this point "A" marks the **end** of the zone for traffic coming from the opposite direction. Also at that time "B" paces 100 feet, going away from "A", and marks the **beginning** of the zone for traffic going in the same direction the crew is driving. (See Figure 2).



MARKING BEGINNING OF ZONE AND ENDING OF OPPOSITE ZONE

Figure 2

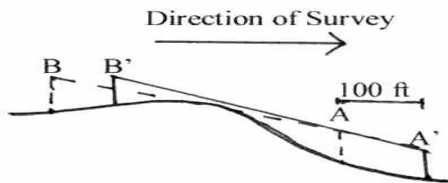
3. The survey crew again proceeds along the highway. When the line of sight is no longer broken by the hillcrest they stop and stretch the rope between them, to determine the location at which the sight distance required for oncoming traffic is not available. (See Figure 3).



HILLREST NO LONGER BREAKS THE LINE OF SIGHT

Figure 3

4. At that point "A" paces 100 feet, going away from "B", and marks the **beginning** of the zone for traffic coming from the opposite direction. "B" walks toward "A" until "B" can clearly see over the crest of the hill along the roadway ahead from an eye height of 3.5 feet, to determine that there is no secondary feature such as a dip that could cause a vehicle to be hidden within the apparent passing sight distance. At this point "B" marks the **end** of the zone for traffic going in the same direction the crew is driving. (See Figure 4).



MARKING ENDING OF ZONE AND BEGINNING OF OPPOSITE ZONE

Figure 4

Observer "A" always marks the zones for the opposite direction of travel and observer "B" always marks the zone for the crew's direction of travel.

No passing zones in 55 mph zones shall be a minimum of 500 feet in length, with any additional length being added to the beginning of the zone. For slower speed zones the minimum is adjusted as provided in [Section 7A-1](#) of the Traffic and Safety Manual. No passing zones less than 50 feet in length shall not be marked. No passing zones shall be extended beyond their normal limits and certain special no passing zone lines placed as specified in [Section 7A-1](#) of the Traffic and Safety Manual.

This procedure is followed when surveying horizontal curves also, but zones are marked when sight is restricted by obstructions in the right-of-way or when the sight line crosses the right-of-way line. Also, the observers work from opposing inside wheel paths rather than edge line to simulate the lateral location of the driver's eye. The beginning point of no passing zones is extended 100 feet from the beginning of the observed location but the ending point need not be extended since no hillcrest is involved.

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