

Safe Mowing and Vegetation Control

During the growing season, grass, weeds, and brush often limit a driver's line of sight. Controlling roadside vegetation helps keep signs, vehicles, bicyclists and pedestrians visible to drivers. Mowing and other forms of vegetation control help provide the clear line of sight drivers need for safe operation of their vehicles. Safety mowing makes sure signs and other traffic control devices, guardrails, and other safety features can be seen and provides a good sight distance for drivers approaching intersections, driving along curves, and approaching interchanges.

The following chart provides a guide on how far vegetation needs to be cut back in order to provide drivers with from 3 to 5 seconds to read and obey a sign. Critical signs are STOP, YIELD, DO NOT ENTER, ONE WAY, WRONG WAY, and other warning signs (for example, a CURVE sign). Other signs such as destination guide signs, parking regulations, and similar information signs are also important and need to be seen by motorists.

CLEAR DISTANCE TO SEE SIGN

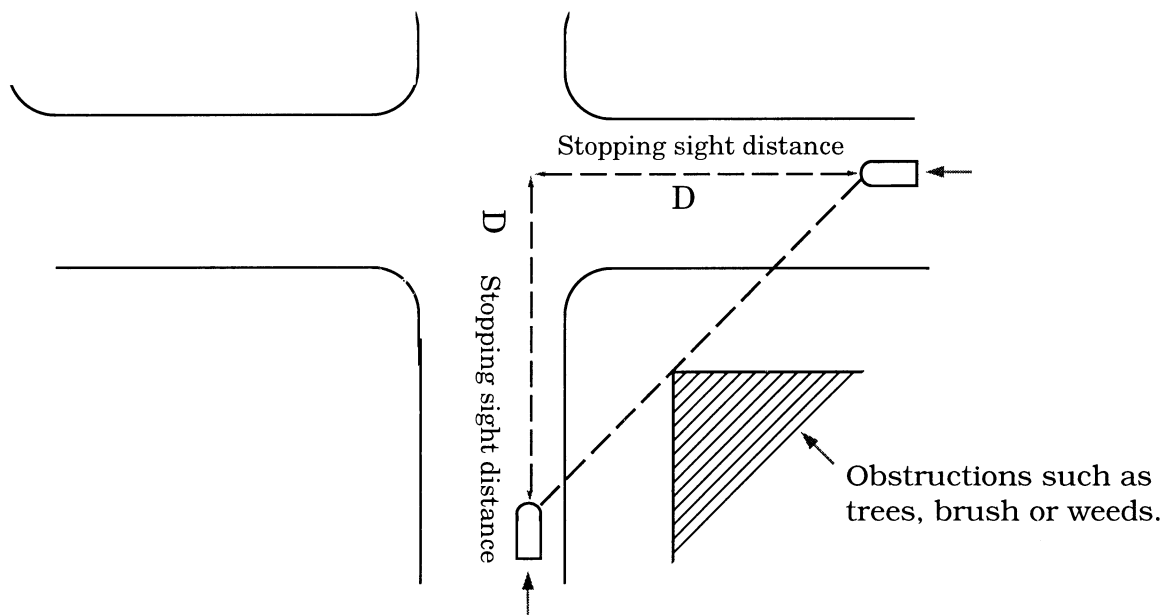
Speed Limit (MPH)	Critical Signs (Feet)	Other Signs (Feet)
30	250	150
40	350	200
50	450	250
60	600	300

Keeping signs and other traffic control devices visible at these recommended distances is the goal of an effective mowing program.

INTERSECTIONS

When an intersection has no STOP or YIELD signs to control who enters the intersection first, the simple “rule of the right” should prevail, however, drivers must be able to see each other, pedestrians, and bicyclists soon enough to avoid collision. Intersections in rural areas especially need to have clear sight distances. In rural areas you expect higher speeds and need to provide longer stopping sight distances than are necessary in urban areas.

The following diagram illustrates the need for a clear sight triangle at an intersection.

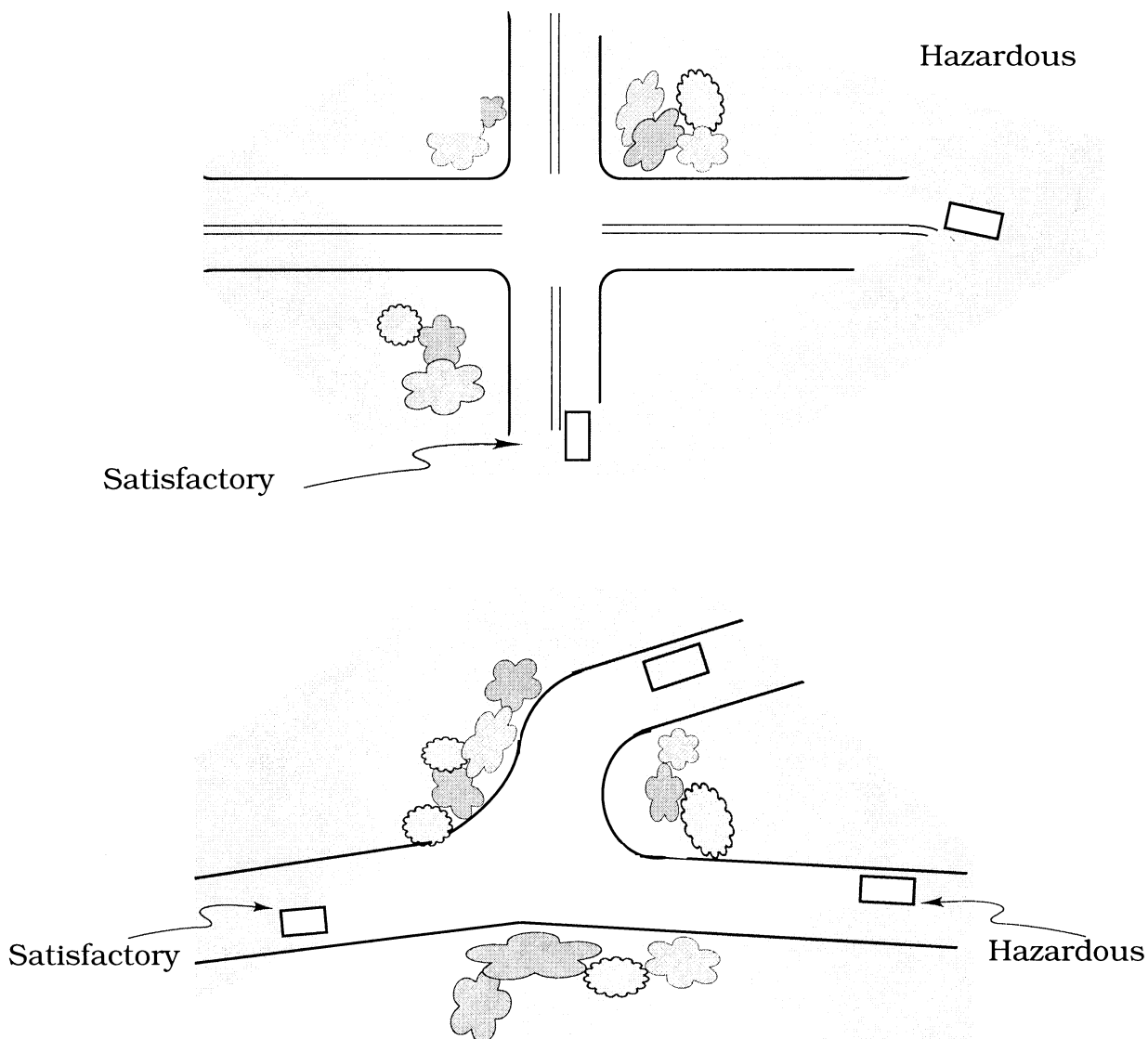


At intersections with no stop signs (or with stop signs only at the cross street) drivers from all directions need to be able to see oncoming traffic soon enough to be able

Speed Limit (MPH)	(D) Stopping Sight Distance in Feet
20	125
30	215
40	330
50	470
60	650
70	845

to stop. This stopping sight distance is distance D in the drawing above. The table below lists the stopping sight distance needed for different speed limits. Rural intersections also need to have clear intersection sight distances. The following sketches show typical rural intersection sight problems. In rural areas we expect higher speed limits and need the longer stopping distances listed in the table on the previous page.

Stopping Sight Distance Intersections and Access Points



CURVES

When vehicles are traveling along the inside of curves, the driver needs to be able to see ahead around the curve for the same stopping sight distance as at intersections. In order to allow motorists to see the full stopping sight distance, as a maintenance supervisor you must instruct your crew to cut brush, weeds, or trees growing in the roadside ditch that block the view of drivers on the inside of the curve.

MEDIAN CROSSOVERS

On divided roadways with median crossovers, drivers entering a median crossover must be able to see approaching vehicles for a clear distance at least as long as for the intersections sight distance. Vehicles using a median crossover will usually be entering the traffic lanes at slower speed. Providing good sight distance at median crossovers allows the higher-speed drivers on the through lane to avoid collisions with the vehicles entering their lane from the median crossover.

RAILROAD CROSSINGS

At-grade railroad crossings of highways and streets are a special case of intersections. The most important thing to do in vegetation control is to make sure that signs and signals for the crossing can be clearly seen by drivers. Clear vegetation to the railroad crossing signs and the advance warning signs to provide good sight distance to all flashing signals. **DO NOT ENTER THE RAILROAD RIGHT OF WAY TO CUT VEGETATION UNLESS YOU ARE UNDER THE SUPERVISION OF PROPER RAILROAD EMPLOYEES** and have been authorized to do so by your maintenance supervisor. When you do cut vegetation, trim it enough so that normal growth will not reach to a height of three feet for at least one month. For a better solution, see step 4 below.

STEPS FOR KEEPING SIGNS AND TRAFFIC CONTROL DEVICES VISIBLE

1. Look for signs and other traffic control devices blocked by trees, brush, grass, or weeds when on routine maintenance patrol.
2. Pull maintenance vehicle off the travel lane and place traffic control warnings.
3. Cut or trim brush, weeds, or grass to clear a driver's line of sight.
4. Paint stubs or brush or small trees with weed killer solution to keep them from coming back.
5. Collect limbs and large brush to haul away for disposal.
6. Look for moving traffic when removing temporary traffic control warnings and leaving the sight. Drivers may not realize you are through working and probably will not expect you to pull onto the traffic lane.
7. Watch especially for overhead power lines and electrified farm fences when cutting brush. Never touch a wire farm fence when an electrical storm is in the vicinity of your work.

OPERATE YOUR MOWER SAFELY

An important safety consideration in roadside mowing and vegetation control is the safety of the mower operator. Mowing can be very dangerous. Following is a list of some of the things you should keep in mind while clearing the right-of-ways and doing roadside mowing.

- Consider the equipment to be used. Read the operator's manual thoroughly. Supervisors as well as equipment operators need to complete this step. Follow all warnings in the operator's manual. **Never get complacent.**

- Dress with care. Clothes that are loose or baggy, and jewelry, can get caught in the machinery. Wear clothes that fit well and tuck in your shirt tail. Remove all jewelry. Wear sturdy and protective work shoes with hard soles and hard toes. A hard hat and safety goggles will protect your head and eyes from injury by twigs, flying chips or debris. Wear ear plugs, "muffs", or other ear protection when operating a mower for any length of time. Protect yourself from the sun. Use a canopy on the mower, use sun screen, and wear a shirt and hat. Wear an orange safety vest. You will not be as obvious on a mower as you would be if you were operating a large piece of equipment. Anything which will help you be more visible will provide a measure of safety.
- Clean equipment and gear. Dirt or grease can contribute to accidents. When working on a unit keep it turned off and lowered to the ground or properly supported.
- Check your equipment. All shields, lights, and signs should be in place and working. Do **NOT** drive a tractor that needs repair. Check the chain guard or other mower covers intended to keep debris from being thrown out of the mower. Never operate a mower with a defective debris guard.
- Keep all guards, shields, and safety devices in place. The shields reduce the chance of being hit by a thrown object. Never disconnect or disable safety items such as the operator presence systems (seat switches.) **BUCKLE UP!** Statistics prove that the safest way to ride a mower is belted within the safety frame. Contrary to popular myth, jumping clear in a rollover accident does not provide safety.
- Turn on rotating yellow beacons or strobe lights when operating the mower unit. Display the slow moving vehicle symbol (reflective triangle) on the rear of a mower unit moving down the road. Drive safely. When you double your speed, your risk of overturning increases four times. Cross highways carefully. Never carry riders or allow others nearby when you are mowing.
- Before you mow, visually inspect the area. Look for washouts and debris.
- Face oncoming traffic as much as possible when cutting vegetation around hazard marker panels and other sign or safety hardware near the edge of the roadway. Otherwise **MOW IN THE DIRECTION OF ONCOMING TRAFFIC**. This results in less impact if an object is hit and thrown out. It also provides more visibility. Always be aware of how close you are to edges of the roadside.
- When you are mowing let others know your intentions. Use hand signals.
- Leave room for a mower between trees and bridges or other structures. Strip grass from around a tree in a circle to help avoid mower wounds that can kill trees. The radius of the circle should be one to three feet, depending on the size of the tree. Remove low tree branches that can poke an eye or throw the operator off balance. Keep holes filled for a level terrain.
- **STAY ALERT!** Watch for potential problems while mowing such as hidden culvert holes, rough ground, stumps, washouts, and overgrown gullies. Also watch for signs requiring limited mowing because of wildlife habitat. If you think these "no mow" areas are becoming a safety hazard, report it to your supervisor for review.

- Ballast or weight the tractor properly. This becomes especially important when mowing on a hillside or when using boom mowers. Use slope mowers where needed. Begin climbing slowly. On steep slopes, if the attachment allows it, back the tractor up the incline. Otherwise, climb at an angle. When going downhill keep the tractor in gear. Let the engine act as a brake to slow the load. If the load brakes too much, open the throttle slightly. If it doesn't brake enough, press on both brake pedals with even pressure. Try to travel down a slope at an angle.

- Set the height of the mower's back one inch higher than the front. The resulting angle tends to force objects to be hit forward and down so that chains are more effective in deflecting them to the ground.

- Be aware of the danger zone to the right side rear of the mower. Field experiments with rotary mowers show that most debris exited the right side rear of the mower.

Always be aware of your own safety. Clearing roadside vegetation is intended to make roadways safer for traffic. Protecting yourself while you are performing this kind of maintenance is extremely important too. Keep safety in mind as you perform this task.

*This article has been reprinted from **Special Bulletin #11**, a publication of the South Dakota Transportation Technology Transfer Service. Sue Grant, Information Specialist with SDT3S originally compiled the information and used material from the following sources:*

Vegetation Control for Safety: A Guide for Street and Highway Maintenance Personnel,
Federal Highway Administration, Office of Highway Safety.
Mowing and Brush Control, A Quick Guide for New Hampshire Towns, No. 8.
Better Roads, Vol. 62, No. 9, September, 1992.

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