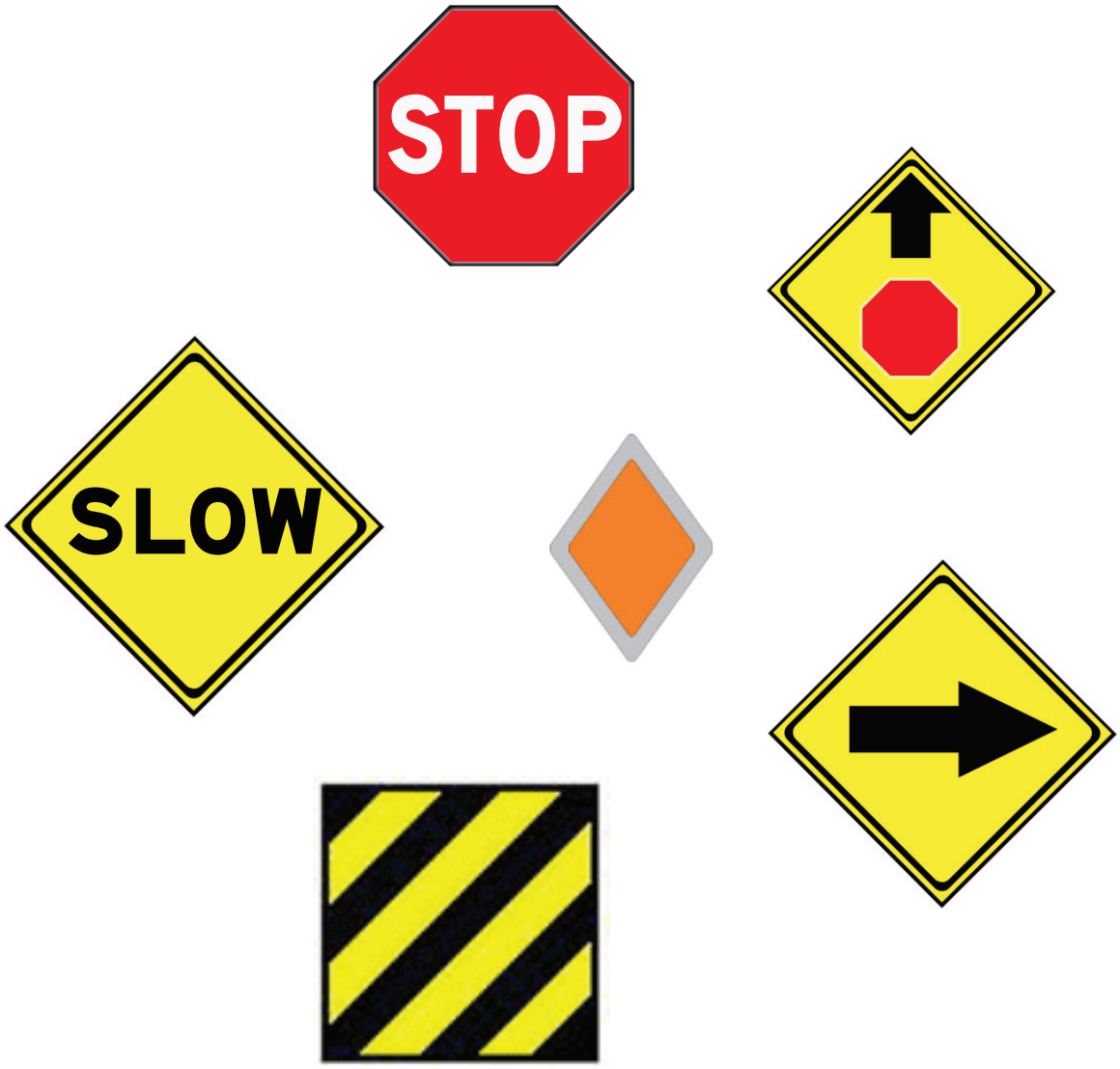
Guidelines for Snowmobile Trail Signing and Placement



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1.0 Introduction

Snowmobilers travel beyond their local trail systems much more frequently now than ever before. When traveling on unfamiliar trails a riders' enjoyment and safety are greatly enhanced by uniform trail markings, detailed information signage, and careful identification of potential hazards. Few experiences in snowmobiling rival for the unpleasantness feeling of being lost, hungry and low on fuel somewhere along a poorly signed trail system.

The signing suggestions provided in this guide should not be construed as minimizing the rider's responsibility to operate their vehicle in a reasonable, responsible, and prudent manner on the trails.

The trail administrator, land owner, rider, local club, and organized snowmobiling in general all benefit from good basic signing practices.

The purposes of snowmobile trail signs are to:

a) regulate the flow of traffic along the trails,
b) inform riders of trail characteristics, and
c) rovide information necessary to the enjoyment of the trail riding experience.

Uniform snowmobile trail signing will:

a) enhance the safety and security of persons, vehicles, and property,
b) improve travel within and between districts, and
c) professionalize and promote recreational snowmobiling.

Many jurisdictions have developed and implemented excellent comprehensive signing programs. In other areas, local traffic conditions or limited resources make elaborate signing systems inappropriate or impossible. The principles and guidelines offered here are intended to complement safe riding practices for a safe and enjoyable trail riding experience.

It should be noted that laws and regulations are different in all of the member jurisdictions. These differences may result in signing program guidelines which vary from this document. This guideline is intended to create uniform signing for snowmobile trails internationally, however liability laws and program mandates need to be reviewed fully by each jurisdiction and an appropriate signing program determined from that review.

2.0 Purpose of this Document

This document provides guidelines for the effective placement of signs on recreational snowmobile trails. It should be seen as a process to improve snowmobile trail development in a safe and cost effective manner as opposed to a rigid policy statement. It is anticipated that as a result of ongoing communication and development, these guidelines will continue to evolve through time.

The International Association of Snowmobile Administrators (IASA) recognizes that the suggested guidelines contained in this document may not be the best recommendation, or indeed even practical in certain specific situations. This being the case, IASA would recommend that this document be considered general guidelines for the development of your trail signing program. This sign placement guideline should be used as a supplement to the Guidelines for Snowmobile Trail Signing adopted by the IASA in 2000.

3.0 Trail Signing Guidelines

The International Association of Snowmobile Administrators has developed this manual to provide the minimum guidelines for regulatory, caution signs, and trail markers. These guidelines should be applied to all officially designated snowmobile trails. Each state and province should develop guidelines for their own information and guide signs. Their placement should follow the guidelines described in Section 4.

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4.0 Trail Sign Placement

This section provides basic information on how snowmobile trail signs are to be oriented and installed.

4.1 Sign Orientation

The most critical part of sign mounting is understanding how reflective signs work. One good analogy is to think of reflective signs as mirrors. To maximize the nighttime view of the sign it must be placed at eye level, perpendicular to the direction of travel of the trail. This orientation also ensures that the sign is visible over the longest possible period so that the rider has a chance to understand the message and to react accordingly. This important concept is illustrated by Figures 1 and 2.

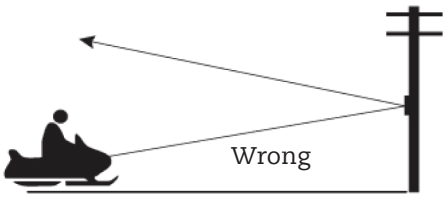
Figure 3 defines an imaginary "window" for sign locations. Signs should be oriented perpendicular to trail within a 5' x 5' area which starts 3' from the trails edge and 2' above the trail. Signs mounted outside the window will not perform as well.

4.1 Sign Orientation

One of the most frequently asked questions in posting signs is how far in advance of the trail condition should the sign be placed. Table 1 on the following page offers some guidance on what the appropriate sign posting distances should be. These recommendations have been developed through a variety of snowmobile and traffic publications, including the Manual on Uniform Traffic Control Devices and field observations. The minimum sign posting distances recommended below pertain only to caution signs.

The sign posting table looks at two situations. The first is a situation where a caution sign is posted so that a snowmobile can come to a complete stop before the trail condition. The most common example of this situation would be a "Stop Ahead,"trail sign prior to a STOP sign. The second signing situation is one where a caution sign is posted so that a snowmobiler might have to reduce speed, but not necessarily come to a complete stop. Examples of this situation might be changes in trail direction. A key factor in using Table 1 is the judgment of the signing crew on what the speed of the majority of reasonable snowmobilers in that situation would be and what reduction in speed, if any, would be necessary for the snowmobiler to comfortably and safely negotiate the trail condition.

Figure 1 - Sign orientation, side view



a) Signs placed too high do not reflect headlights beams back to the rider.

b) Signs placed at the rider's eye level reflect back correctly and are much easier to see.

Figure 2 - Sign orientation, plan view

a) Signs facing the trail do not reflect headlight beams back to the rider.

b) Signs placed perpendicular to the trail reflect headlights back to the rider correctly.

Figure 3 - Recommended sign location window

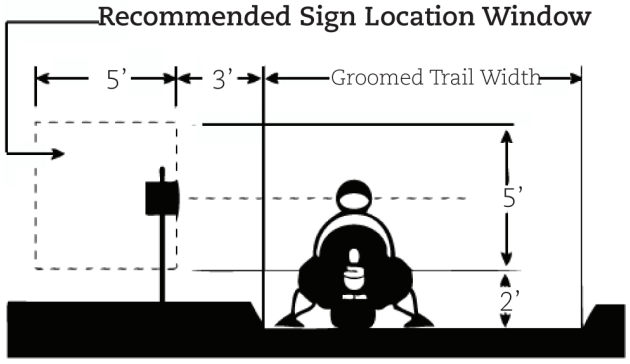


Table 1: Caution Sign Placement

Suggested Minimum Posting Distances for Snowmobile Caution Signs (in feet)					
		Deceleration Distance to Desired Speed (mph) "Y" =			
Judged Speed (mph)	Condition Requiring Stop "X" =	10	20	30	40
20	*	**			
25	*	100	**		
30	175	150	100		
35	225	200	175	**	
40	300	275	250	175	
45	350	350	300	250	**
50	425	400	400	325	225
55	500	500	475	400	300

* No suggested minimum distance recommended. At these speeds, sign location depends on physical conditions at the site.

** No suggested minimum distance recommended. At these 5 mile per hour reductions in speed, location depends on the physical conditions at the site.

Examples showing the use of Table 1 above can be found on pages 7 through 11.

Regulatory signs shall be placed to the side of the trail in accordance with the section 4.1. Unlike caution signs, regulatory signs are located where the desired action is to take place.

The Table above shows a range of distances for trail sign placements. The Table is adapted from previous IASA Signing Guidelines and is intended as a general guide for sign placement distances. Other studies, specifically those by Michigan Technological Keweenaw Research Center, are specific to defined snow and ice surfaces found during their study. Most snowmobile trails typically have a mix of trail surface conditions and those conditions can change daily depending upon weather conditions and other factors. Terrain also has to be taken into account. For these reasons the IASA guidelines use the signing distance range table shown above.

4.3 Mounting Considerations

The methods used to mount trail signs vary greatly depending on the intended permanence of the installation. The following points provide guidance in selecting an appropriate mounting method to suit your circumstances.

- Generally, signs should be placed to the right of the trail to conform with the riders familiarity with highway signs.
- The sightline from the driver to the sign must be clear for the entire distance though which the sign is intended to be viewed. This requires routine monitoring.
- On private property, signs should be placed as late in the fall as possible and removed promptly at the end of the season. This reduces vandalism, reduces potential trespass, and conserves sign life by reducing exposure to the sun and elements.
- Mounting signs on living trees is not recommended. If it is the only alternative, use aluminum nails. Ensure that all nails are removed when the signs are removed.
- On posts, use bolts or screws instead of nails to reduce vandalism and theft. A cordless drill with spare battery packs is an ideal tool to drive screws providing the sign holes are predrilled.
- Use an existing mounting object, such as a fence post, only if it is within the recommended sign location window and the permission of the landowner has been obtained.
- Use durable materials for permanent installations, i.e. flexible plastic, fiberglass, steel, or wooden post.
- If more than one sign is used at the same location, they should be placed vertically with the most important sign on top.
- It must be remembered that the trail will be used in both directions. Separate and often different signing is required for each direction of travel.
- Signing should be done by persons who are familiar with the trail and who know where they are and where they are going. When putting up signs, imagine that you have never been in this area or on this trail before. Try to picture what signs would be necessary to get you safely to your destination.
- Have your signage reviewed by someone less familiar with the area to identify locations that need improvement.
- Overuse of signs should be avoided. Only authorized trail signs should be allowed to avoid clutter and confusion. Signage posted by business should be carefully controlled by the trail operator.
- Extra regulatory and caution signs should be carried on grooming equipment and by trail patrollers to replace those which have been vandalized.
- Maintaining visibility of signs in areas of heavy snowfall accumulations poses additional challenges in terms of sign mounting techniques and materials. These signing situations will require periodic inspections and adjustment of sign poles or stakes throughout the winter to keep signs from being obliterated by snowfall.

5.0 Core Trail Sign List

The key to establishing a uniform signing system is the development of a list of core signs based on the IASA Guidelines for Snowmobile Trail Signing. The regulatory and caution signs listed in this section are suggested by the IASA. Each individual state or province is encouraged to add to this list any additional signs that they feel are appropriate when developing their own trail sign list.

Core Trail Signs

Stop
Instructs riders to bring their snowmobile to a complete stop before proceeding with caution. The sign is 12" x 12" octagon with red background with white lettering.

Snowmobile Trail Blazers
Informs riders that they are on a designated snowmobile trail. Sign is a 5"x 7", 4"x6", 6"x 6" or other sized uneven diamond, orange in color with reflective border, or fully reflectorized.

Stop Ahead
Informs riders they are approaching a stop sign and will need to stop ahead.

Slow
Warns riders that there may be a potentially hazard condition or feature ahead on the trail. Riders are to temporarily slow their snowmobile when seeing this sign so they can watch for the full range of potential hazardous operating conditions that might be present.

Hazard Marker
Identifies a fixed object at the side of the trail. Used any time the fixed object narrows the normal width of the trail such as bridge railings. The stripes slope down towards the trail. Sign is typically a 6"x 18" vertical rectangle with right side and left side signs, or a 11"x 11" square (minimum).

Directional Arrow
This arrow sign informs riders that the trail ahead makes a distinct change in direction; slow down to ensure you're prepared to safely negotiate the turn. Sign is 12" x 12" diamond with yellow background and black arrow.

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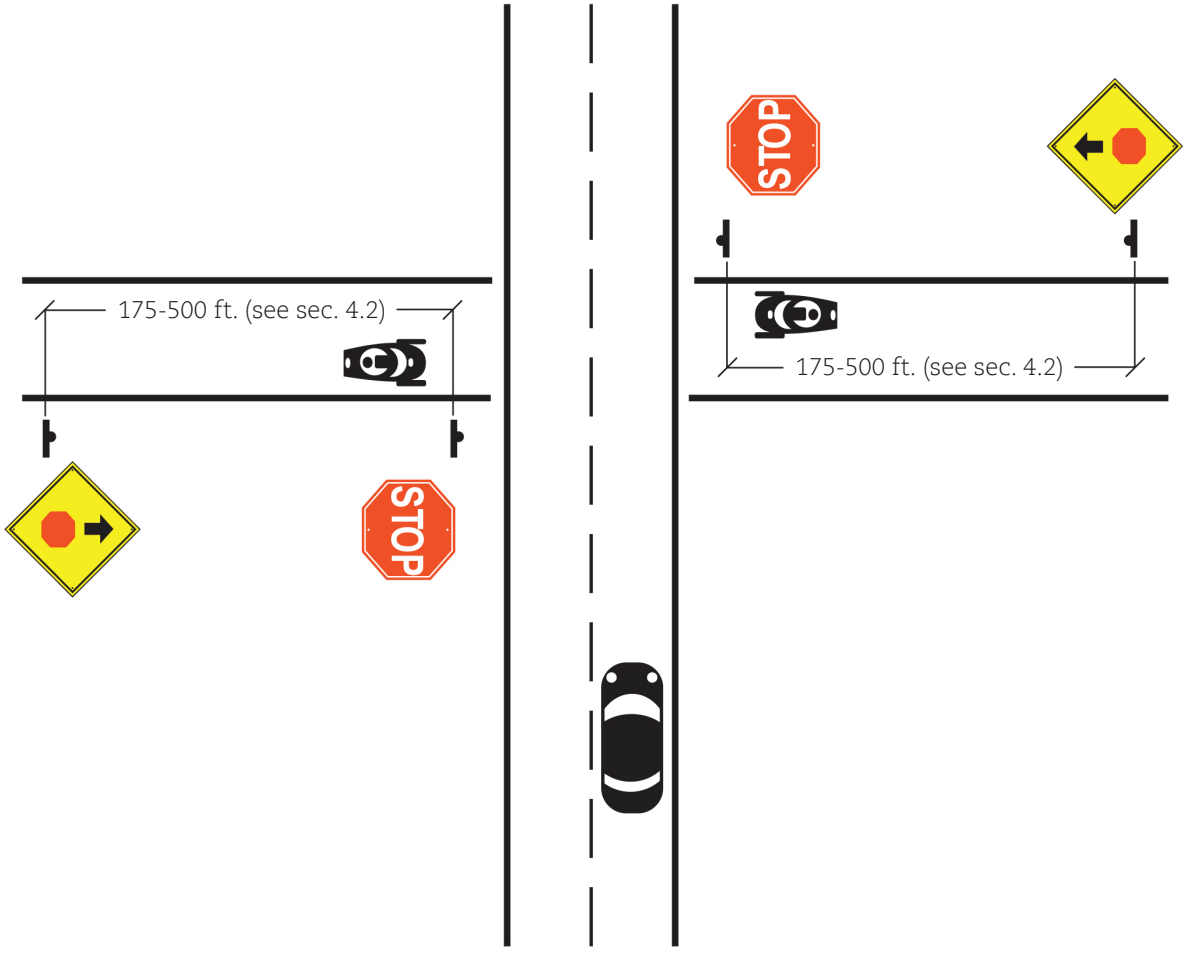
6.0 Examples Of Sign Use

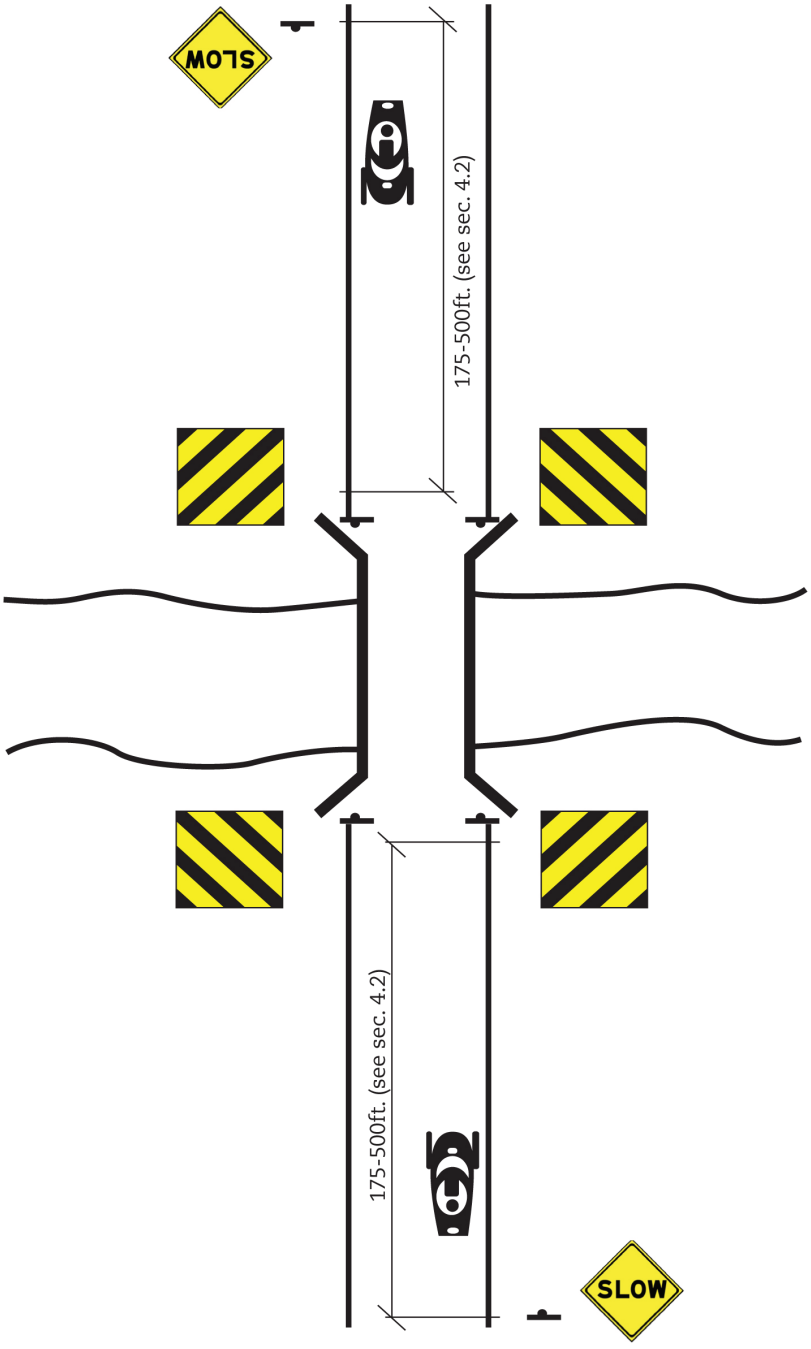
The following six illustrations are intended to give signing crews an example of a few of the basic situations they will encounter on most trails. Only a few of the signs contained in section 5.0 are shown in these illustrated examples.

These illustrations serve as simplistic guidelines for use on snowmobile trails. It is understood that unusual situations may be encountered relating to trail conditions, topography, man made objects, or other circumstances that will require some modifications to typical sign placement. The most suitable placement of each sign must be determined at the site where all variables are visible. It would be prudent to document the case where sign placement is outside the range indicated in this manual and prepare written justification for your files.

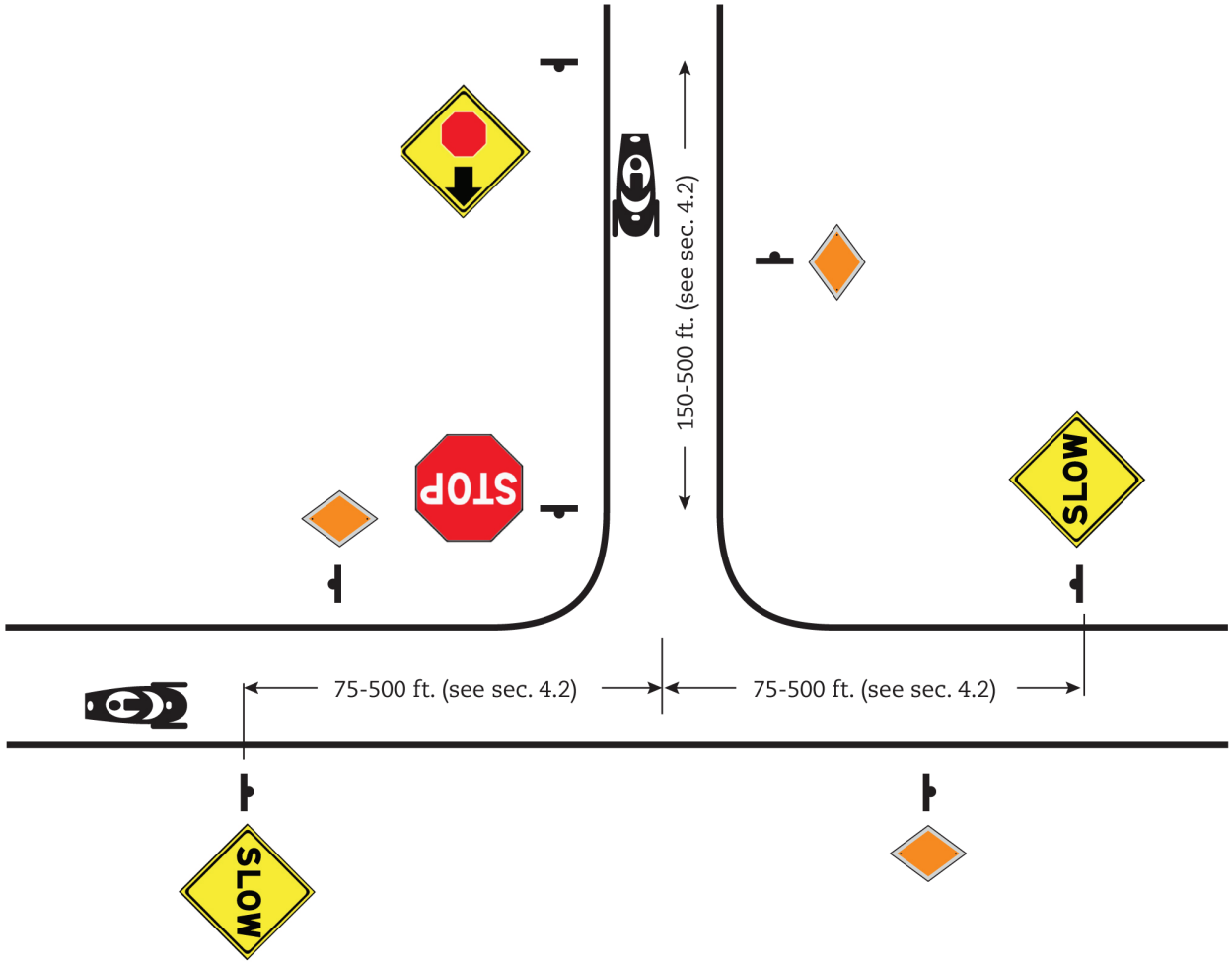
6.1 Road Crossing



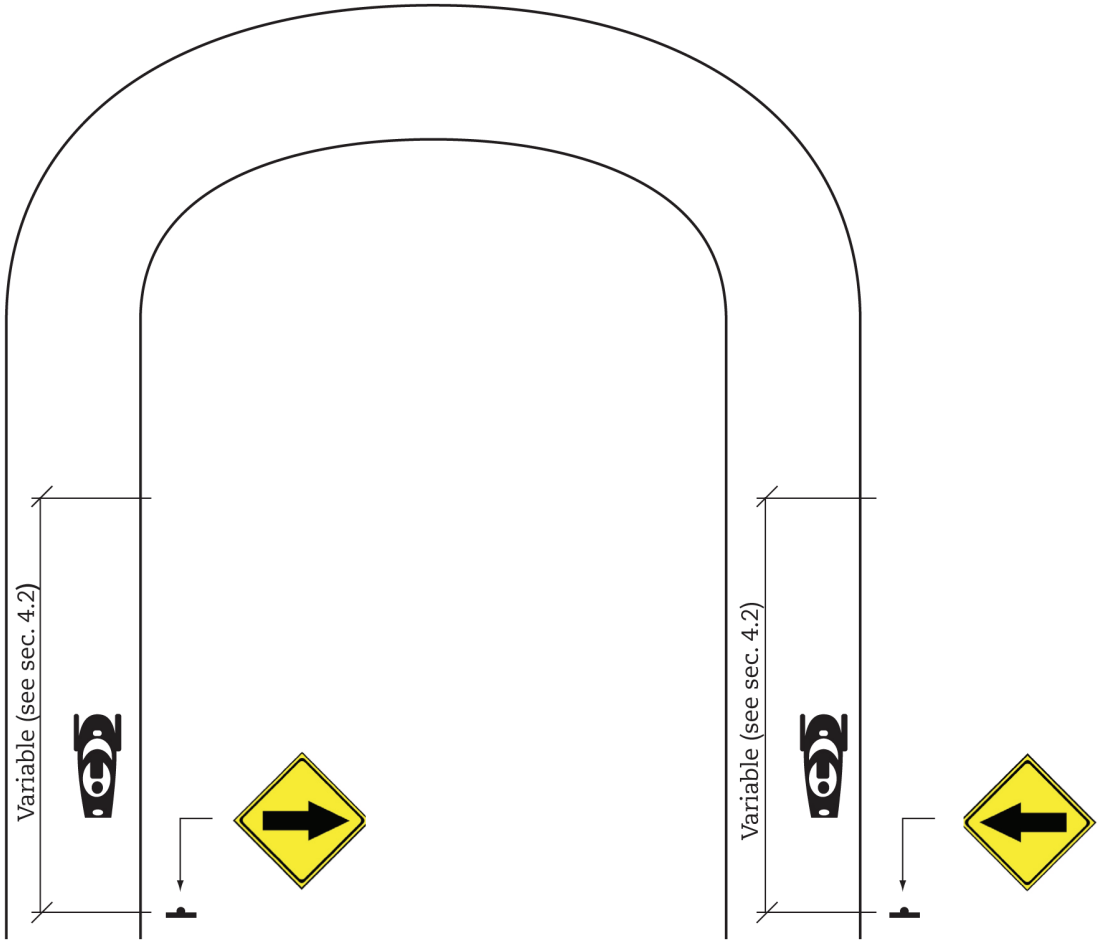
6.2 Bridge



6.3 Trail Intersection



6.4 Change in Direction



7.0 Corridor Setting

In forested areas, following the trail may be a fairly obvious and straightforward task. However, when trails cross fields, lakes, meadows or other cleared areas, trail routing may not be at all obvious. Relying on the groomed track for trail routing is not adequate since even a well-established trail can be quickly obscured by a heavy snow fall.

Both snowmobilers and groomer operators need continuous reference points to navigate the trail confidently. A simple method of identifying the trail corridor in open areas is to use stakes or poles that are mounted into the ground or snow adjacent to the trail.

7.1 Stakes/Poles

In areas where snow depths are low to moderate, a typical stake is a 2" x 2" (minimum) piece of inexpensive lumber sharpened at one end to allow for mounting in the ground. A minimum of 12" at the top of the stake is painted a color that offers high contrast to the background, e.g. blaze or fluorescent orange. This will make the stake more visible during the flat light conditions that can occur during daylight hours.

At least 3 square inches of reflective material should be attached on both sides of the stake at a point 4" down from the top of the stake. This will make the stake more visible at night from both directions of travel. The length of the stake is selected so that when it is driven into place, a minimum of 30" of stake remains visible above the top of the snow with the reflective material being as close to eye level as possible. Stake lengths in these snow conditions are typically 4', 5' or 6'.

Figure 4 shows a recommended configuration of an inexpensive wooden stake.

Stakes are driven into the snow or ground within the sign location window previously defined in figure 3. A commercial post driver is a simple and inexpensive tool that makes this task much easier.

In areas where snow depths are moderate to heavy (6'–12'+) it may not be practical to use stakes that are driven into the ground. Large seasonal snow depths may dictate the use of plastic fence posts, PVC tubing or similar commercially manufactured synthetic products that are mounted in the snowpack adjacent to the trail. The characteristics of contrasting color and reflectorization mentioned in the previous paragraphs apply. The major differences are the typical lengths of the material, 6'–12', and the necessity for inspection and occasional readjustment to reflect changes in snow depth.

Figure 4 - Stake Example

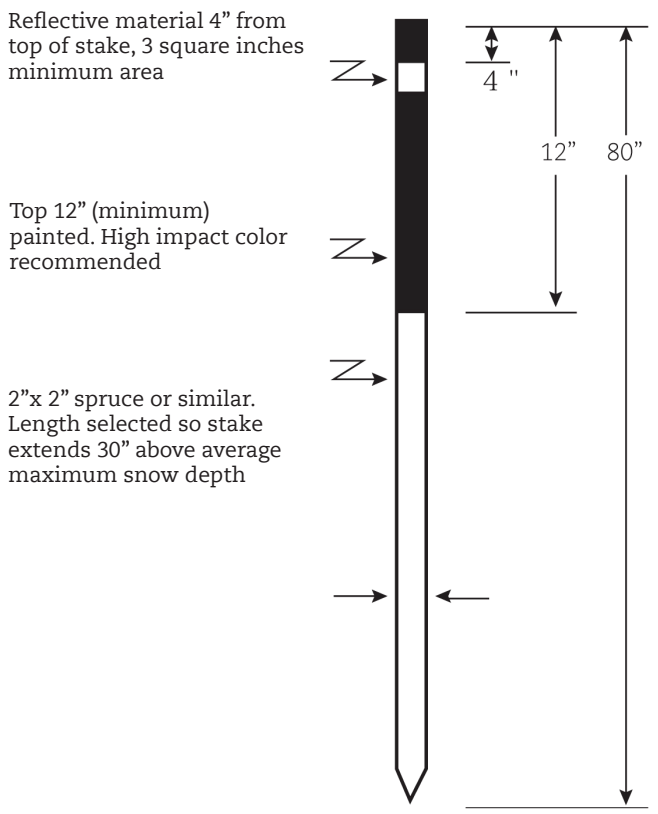


Figure 5 - Examples of Staking

a) Single Stake used to augment an existing fixed objects such as a fence post. Note the use of a blazer to provide a second reference point.

b) Standard two stake configuration leaves no doubt as to the intended trail routing.

7.2 Setting the Corridor

There are several generally accepted methods of establishing a corridor:

a) placing stakes or poles in pairs at right angles to the trail to set a "gate" through which a snowmobiler passes through or alternating stakes/poles along the trail to set a general corridor of travel or,

b) setting a single line of single stakes or poles with periodic pairs of stakes or poles to reinforce which side of the stake or pole line is intended for the flow of traffic.

In either case, the next stake/pole or stake/pole pair must be easily visible after passing by a stake/pole or stake/pole pair. This spacing will vary on the nature of the terrain being marked. The frequency of stake/pole sets should be increased significantly to indicate a turn, although if the turn is sharp, the signing requirements for curves discussed earlier should be used. Figure 5 illustrates these concepts on previous page.

8.0 Acknowledgements

This document consists of materials previously developed by the International Association of Snowmobile Administrators (IASA) and its Trails Committee, as well as materials developed by a number of other snowmobile trail operating organizations. We thank all of these individuals and groups for their contributions.

Updated graphics provided by State of NH Division of Parks and Recreation and Bureau of Trails.