

Temporary Bases

What should you do in situations where there isn't enough snow to support a freestanding sign, but you don't really want a permanent signpost?

One option is to use a permanent signpost anyway. You can always remove or cover the sign during the off season, or install a hinged sign that can be folded over when it is not being used.

Another option is to remove the signposts seasonally. MTDC looked at several techniques for temporarily mounting a signpost.

Square Plastic Signposts Supported by Steel Rods

Kirk Metzger on the Sisters Ranger District, Deschutes National Forest, experimented with 10-foot (3-m) long, 3-inch (76-mm) square plastic downspouts placed over steel index rods.

He drove a 6-foot (1.8-m) fence post, scrap pipe, or 2-inch (51-mm) diameter electrical metal conduit into the ground with a post driver. The metal pipe supported the sign post when the snowpack was shallow.

He attached a sign to a 10-foot (3-m) long, 3-inch (76-mm)-square section of plastic downspout and slid the downspout over the index rod. The plastic downspout could be raised as the snow got deeper.

Kirk found that the plastic gutters are not very strong and they shatter in high wind and extreme cold. Stronger square tubular materials, like 4- by 4-inch (100- by 100-mm) PVC fence posts or round PVC pipe would work better.

We find this design unacceptable because the steel index rods present an unacceptable hazard to snowmobilers or skiers who may run into them. What seems like a safe, out-of-the-way signpost location may look like the middle of the trail after several feet of snow have fallen. And, when it is time to remove the seasonal snow trail signs, the index rods are probably still frozen in the ground and cannot be removed, leaving these hazards for the summer season.

Because of the safety hazard, we do not recommend using short, narrow support rods like steel fence posts or conduit that are driven into the ground to support signs or signposts.

Buried Steel Brackets

Square tubular steel signposts can be mounted on a bracket driven into the ground. When the steel signpost is removed, the mounting frame is only a few inches off the ground. The signpost can be removed in the spring and reinstalled in the fall. This assumes that you can find the mounting bracket in the spring, and that you install the signpost before it is covered with snow and ice each fall. Such a signpost is best suited for plowed parking lots and junctions where it will be easy to find.

The Crescent Ranger District on the Deschutes National Forest drives 4-foot-(1.2-m)-long pieces of 4- by 4-inch (100- by 100-mm) steel tubing into the ground, leaving 6 to 8 inches (150 to 200 mm) exposed. All but 18 inches

(450 mm) of the tube is filled with gravel for drainage. Wooden signposts (4 inches by 4 inches) are placed in the buried tubing during the winter and removed in summer. The tubing needs to be covered with a metal cap or duct tape during the off season to keep it from filling with dirt.



Portable Mounts

One District mounts its signs on 10-foot (3-m), 4- by 4-inch (100- by 100-mm) posts with cross braces at the bottom, and sometimes uses sandbags for extra support in windy areas.

Temporary Bases

They are set in 2 feet (610 mm) of snow initially. When they need to be raised, volunteers dig them out, presumably bases and all, and reset them.

Another portable sign mounting base was developed by Gary Weigel when he worked on the Shoshone National Forest. These steel bases (Figure 15) are relatively easy to fabricate and can be customized to fit the type and size of signpost you are using. They can be pinned to the ground for better support.

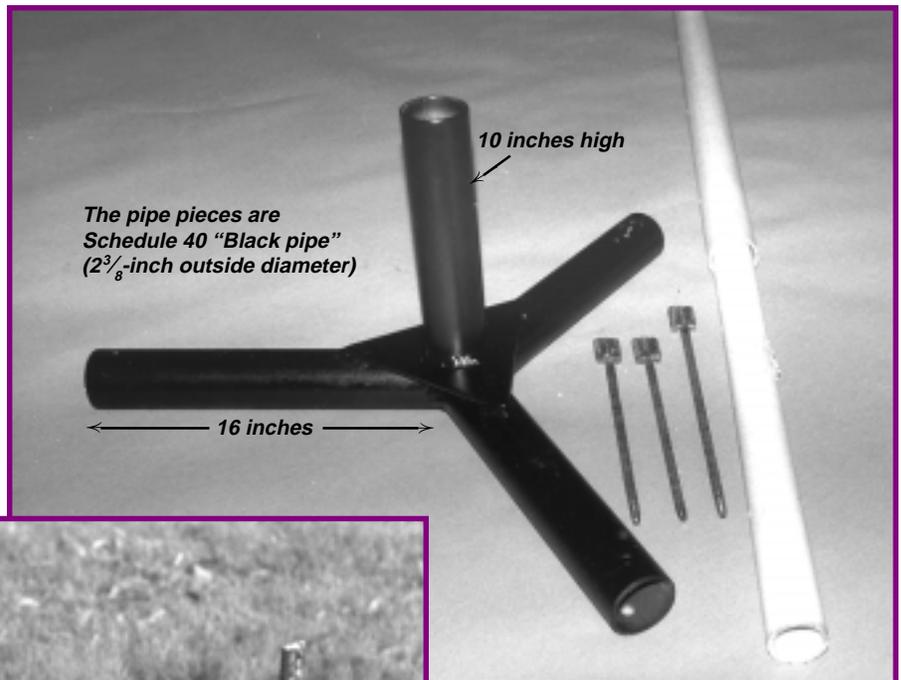


Figure 15—Gary Weigel designed this portable base. It is easily fabricated and can be customized to fit round or square posts. This base was used for MTDC's telescoping PVC signpost system (above), and also for the square tubular steel and Extren signpost (at left).

The signposts can be permanently attached to the base or left unbolted so that the posts can be pulled out to raise the sign. The signpost may freeze to the base, making it immovable.

The bases need to be removed in the spring after the ground has thawed. Locating and transporting the heavy bases after all the snow had melted created enough extra work that one District discontinued using them.

Telescoping Signposts

Why not develop a telescoping signpost that could be raised as snow depths increase? This would allow a single signpost to serve for shallow, moderate, and deep snowpacks.

MTDC looked at three such systems. One is commercially available and the other two were prototypes constructed in our shop.

Telescoping square tubular steel signposts are commercially available. They can be detached from bases driven nearly flush with the ground. They work quite well for many situations.

To reduce weight and reduce the likelihood that close-fitting steel posts may freeze together, MTDC telescoped a 2-inch (51-mm)-square plastic tube onto a square tubular steel post. It was mounted with quick-release fasteners rather than nuts and bolts (Figure 16). In limited field testing, the unit held up well and did not freeze. Extren, the industrial-strength plastic we used, costs nearly \$5.00 per foot. It is far too expensive for us to recommend as an alternative to less expensive signposts that are easier to install.

MTDC also telescoped two lengths of 1½-inch (38-mm) and 2-inch (51-mm)

Schedule 40 PVC pipe (Figure 17). This also worked, although we do not know how sturdy this would be on sideslope installations, where snow continually migrates downhill and would bend the signpost.

If you really need a system that is anchored to the ground, the telescoping PVC signposts might work. We did not see our field testers clamoring to use them instead of permanent signposts or free-floating signposts—methods they recognized as simpler, easier to maintain, and cheaper.



Figure 16—MTDC's steel and Extren plastic telescoping signpost system. The Extren plastic cost too much for us to recommend this system even though it is satisfactory otherwise. Telescoping two pieces of steel tubing is less costly.

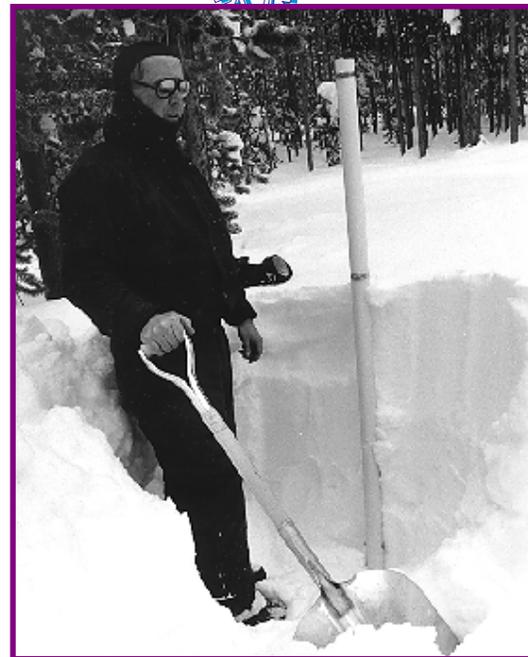


Figure 17—The top of MTDC's telescoping PVC signpost. It was difficult to line up the holes drilled through the PVC, and who wants to dig down this far to reach the buried fastener, anyway?



About the Author

Brian Vachowski has been a Project Leader specializing in recreation, trails, and wilderness projects at MTDC since 1993. He received a bachelor of science degree in forestry from the University of Massachusetts

in 1974, and a master of science degree in outdoor recreation from Utah State University in 1976. Brian has worked for the Nez Perce, Bighorn, Winema, and Routt National Forests in recreation, wilderness, lands,

planning, rural community assistance, special uses, fire, and timber positions. Before coming to MTDC he was an assistant staff officer for wilderness and recreation on the Nez Perce National Forest.

Library Card

Vachowski, Brian. 1998. Signposts for snow trails. Tech. Rep. 9823-2806-MTDC. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 17 electronic p.

Describes signpost systems that work in shallow, moderate, and deep snowpacks. Traditional signposts anchored firmly in the ground work best for trails with low and moderate amounts of snow. Free-floating signposts supported only by the snow around them work best in moderate to deep snowpacks. Telescoping signposts and signposts with temporary bases work for shallow, moderate, and deep snowpacks, but these systems are rarely used because they are more expensive and are harder to install and maintain than traditional or free-floating signposts.

Keywords: signboards and signposts, signs, snow trails, trails.

Additional single copies of this document may be ordered from:

USDA Forest Service, MTDC
Building 1, Fort Missoula
Missoula, MT 59804-7294

Phone: (406) 329-3900
Fax: (406) 329-3719
IBM: pubs/wo,mtdc
E-mail: pubs/wo_mtdc@fs.fed.us

For further technical information, contact Brian Vachowski at the address above.

Phone: (406) 329-3935
Fax: (406) 329-3719
IBM: bvachowski/wo,mtdc
E-mail: bvachowski/wo_mtdc@fs.fed.us