

## Iowa LTAP Mission

To foster a safe, efficient, and environmentally sound transportation system by improving skills and knowledge of local transportation providers through training, technical assistance, and technology transfer, thus improving the quality of life for Iowans.

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# Fenced in: Keeping snow off the road

Snow fences are an effective and economical way of improving winter safety. They keep snow and ice off the road and increase driver visibility by reducing the force of the wind on the snow. A 2006 report by Tabler & Associates revealed that snow fences helped reduce accidents caused by poor visibility by up to 70% along I-80 in southeastern Wyoming.

Snow fences may also reduce costs by supplementing traditional snow removal, reducing the number of trucks and salt used to keep roads clear. Simply put, snow fences are a great addition to an agency's winter program.

### It begins with preparation

Effective snow fence installation requires a plan of action. "Putting up a snow fence is the easy part," says Iowa DOT Road Weather Information Systems Coordinator Tina Greenfield, stressing that preparation is the key to success. Successful snow fence installation demands you know the right spot to install a fence. A poorly placed fence can be ineffective or do more harm than good. Preparation is also important if the snow fence needs to be installed on private property, such as local farm land. Your agency will need enough time to establish a relationship with the farmer to allow your use of the land.

### Three steps to snow fence success

According to Greenfield, there are three primary steps in preparing snow fences for installation, each of which will increase your likelihood for success.

1. Identify your spots. Knowing the roads and areas with the biggest drift and visibility problems will help you figure out where a snow fence is needed. To do this you can ask experienced employees who are familiar with trouble spots.
2. Identify your best chance for success. Not every trouble spot will yield the same chance for success. Some spots may be unavailable due to constraints such as land access or configuration.

Determine which spots are likely to bring success and focus on those first.

3. Identify your budget. Installation requires time, labor, and materials. Determining all three of these will give you a better idea of how to successfully implement your snow fence program and operate within your means.

### When to install

If your agency needs to contact landowners and establish a contract with them to install a snow fence on their land, then by late summer you will want to establish talks and develop a plan for winter.

Many times installation cannot begin until harvest ends and a farmer is out of the field. This can be potentially troublesome depending on the weather. Once the ground freezes and receives snow, it may be too late to install.

### Where to install

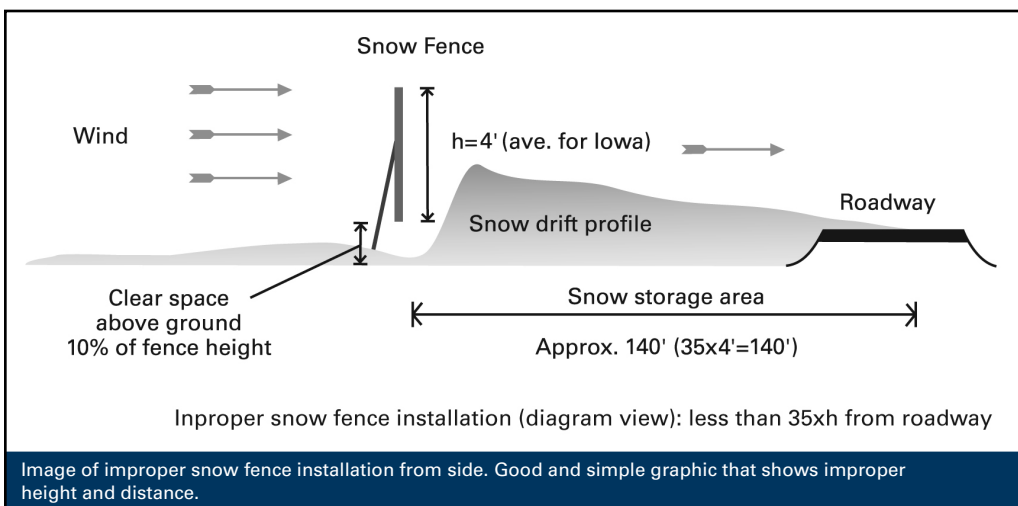
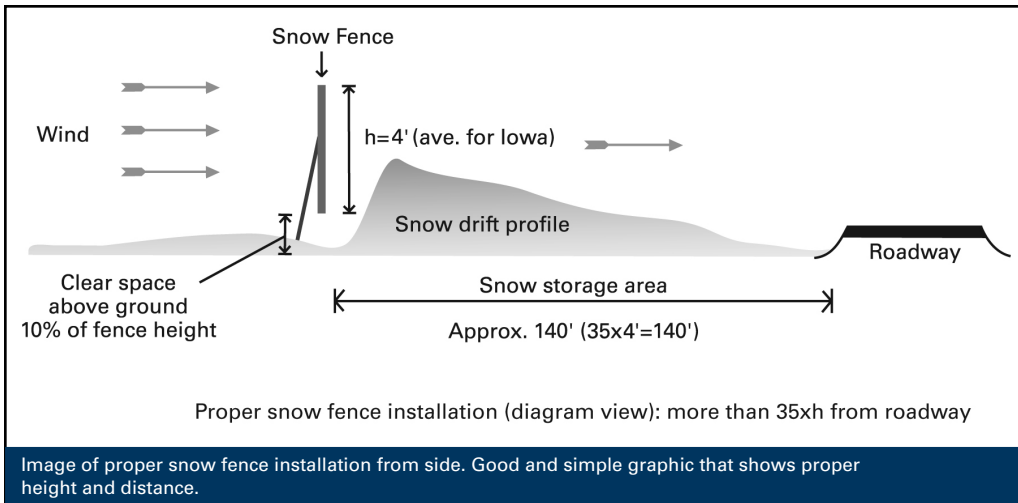
As a rule of thumb, a snow fence should be installed at a distance of 35 times its height from the edge of the road. That is, if you were installing a six-foot-high fence, it would need to be at least 210 feet from the road to be effective. This distance will set the fence far enough away to allow snow to accumulate before the fence and between the fence and the road, rather than over and on the road itself.

A common pitfall in snow fence installation is placing a fence too close to or too far from the road. A fence too close to the road can actually increase the amount of snow on the road. A fence too far from the road will allow the wind to pick snow back up and deposit it on the road. It is best to properly measure the distance and, if needed, to install multiple fences.

A snow fence should also extend approximately 20 feet or 30 degrees past the length of the area intended for protection. This will reduce the effect of wind wrapping around the edge of the fence, increasing the area of coverage. Extending the fence also helps protect against a larger variation of wind directions.

The orientation of the snow fence should be parallel to the road and perpendicular to prevailing winds. However, the makeup of the terrain may alter fence placement. An adjust-





### Determining height

The height of your snow fence is an important factor in stopping snow. The higher a fence, the more snow it can stop, but the more expensive it is. Tina Greenfield says a height of four to six feet is average for the Iowa DOT, but it largely depends on the location and extent of the snow problem.

ment in a fence's angle up to 25 degrees will not significantly detract from the fence's effectiveness.

### How to install

The physical installation of the fence is perhaps the most traditional part of the installation process but can vary depending on the type of your fence. Common fence types include post-supported fences, truss-type fences, and living fences.

Post-supported fences are made by driving steel or wooden posts into the ground, unpacking the fencing material, and tying the fence to the posts. This type of fence can take more time and labor to install, with numerous trips to transport materials.

Truss-type fences consist of a surface-mounted framework that's anchored to

prevent overturning in the wind. Truss-type fences are often prefabricated, reducing the time and labor required to install them.

Living fence installation is up to the land owners, who plant trees or shrubbery or leave corn stalks in their fields to act as a fence and prevent the wind from carrying snow onto the road.

A gap of approximately 10% of the fence's height should be left underneath the snow fence. If you were installing a fence with a height of four feet, you would want to install the fence with 4–5 inches between the bottom of the fence and the ground. This gap will prevent snow from accumulating near and on the fence. This will reduce extra weight and damage from snow accumulation and increase the effectiveness

of your fence.

### A successful installation

The benefits of snow fences cannot be overlooked. Ineffective snow fences, or a lack of snow fences can result in impaired driver visibility, buried informational signs, and snow drifts making a road inoperable—all of which increase the dangers and risks to road workers and drivers. Snow fences help reduce these dangers and reduce the costs of other means of snow removal to provide better snow management.

### For more information

For more information, contact Iowa DOT RWIS Coordinator Tina Greenfield, 515-233-7746, [tina.greenfield@dot.iowa.gov](mailto:tina.greenfield@dot.iowa.gov). ■