

Before the winter

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Preparing for a successful season

This section contains a few different items that help your organization get prepared for winter. Calibration is one of these items but it is such a large section that we have separated it out of here and gave it its own section.

There may be other things that the audience can suggest that helps them prepare for winter. This section can always be expanded to include more about winter prep.



When the leaves change color you better have your plan in place.
Progressive organizations review and update their plan each year.

Develop ways to inform your customers



MORE SALT
...not always the cure for slippery roads!

30° Normal winter conditions

20° CAUTION Salt takes longer to work and ROADS REFREEZE FASTER

10° EXTREME CAUTION ROADS REFREEZE EVEN FASTER Ice melts very slow

0° When salt is used at these lower temperatures, it may cause wet pavement to refreeze

MDOT
Michigan Department of Transportation

ICE & SNOW
ROAD IT SLOW



Department of
MDOT Transportation

Winter Level of Service Definitions

Priority #1 - Clearance Route
Provide maintenance service as appropriate under prevailing weather conditions, with a goal of providing a pavement surface over its entire width "generally free of ice and snow." This work may be accomplished using overtime as necessary.

Clearing the pavement bare of ice and snow over its entire width will be a continuous process during and after the snow event using overtime as necessary.

Priority #2 - Blue Route
Provide maintenance service as appropriate under prevailing weather conditions, with a goal of providing a pavement surface "generally" free of ice and snow" wide enough for one-wheel track in each direction. This work may be accomplished using overtime as necessary during a winter storm event.

Clearing the pavement bare of ice and snow over its entire width will be accomplished as soon as reasonably possible after the winter storm event, without working overtime.

A "generally free of ice and snow" pavement is defined as a travel lane surface that is free from drifts, snow ridges, and as much ice and snow pack as practical.

Division of Operations - Roadway Operations Support Unit

Photos: Michigan DOT

Communicate the basic concepts of your winter maintenance plan to your customers. By managing their expectations upfront you can avoid some calls and questions during the event.

Many ways to get the word out:

Billboards

Website

Flyers in utility bills

Newspaper

Cable tv channel

Radio

Road signs

State and county fairs

Community festivals

Town meetings

Winter
maintenance
plan only
works if crew
understands
it

Don't skip
this obvious
step



The winter maintenance plan is only as good as your crew is at implementing it. Take time to get them involved in updating and implementing the plan. If they buy into the plan and if they understand the plan you have a much better chance that they will implement the plan during the snow event.

Many ways to educate the crew:

Shop meetings

Getting ready for winter training

Posters in shop/lunchroom/locker room

Website

Printed copy of the winter maintenance plan

Training on the plan

Your winter maintenance plan can protect you legally



Photos: Michigan DOT

Maintenance Advisory

MA 2009-10
November 23, 2009

From Jon W. Reincke, Engineer of Operations

MDOT
Division of Operations
6333 Old Lansing Road
Lansing, MI 48917
Phone: 517-322-3300
Fax: 517-322-3385

Questions regarding this
Maintenance Advisory
should be directed to:

Tim Cross, Engineer
Roadway Operations Unit
Phone: 517-322-3384 or
Cross.T@mi.state.gov



jwr:gmr:tc

The Use of Abrasives in Winter Operations

The intent of this advisory is to provide guidance on the use of abrasives in winter operations. Abrasives should be sand, gravel or slag suitable for the purpose of enhancing friction on packed snow and ice. Abrasives should only be used during weather conditions that preclude the use of de-icing chemicals and should be limited to application on hills, curves, intersections and known trouble spots.

Usage: Abrasives should be used during heavy freezing rain events or when the pavement temperatures are low enough that sodium chloride and other de-icing chemicals are not effective. When abrasives are used, it is suggested that they be prewetted with a de-icing liquid and used on known trouble spots and hills, curves and intersections.

Gradation: Abrasives should be of a fairly uniform size. All particles should be less than 3/8 inch diameter. It is best to use abrasives with highly fractured particles. The following gradation is recommended for sand.

Ice Control Sand - Sieve Analysis (MTM 105)	
Sieve Size	Percent Passing
3/8"	100
#4	95 - 100
#6	65 - 90
#30	20 - 65
#200	0 - 5

Applications: Typically 600 to 1000 pounds per lane mile when mixed with 5 percent salt. If more salt is used, the rate should be reduced appropriately.

Abrasives should be applied when temperature or weather conditions warrant and in quantities and at intervals necessary to provide traction. When applying abrasives they should be prewetted with a de-icing agent to assure better adherence to the roadway.

Storage: Sand/salt stockpiles that contain more than 1 percent salt must be stored in an enclosed building or covered with waterproof tarp in accordance with the Michigan DEC Salt and Brine Storage Guide.

Give example of 2 organizations that had similar accidents. Both went to court. The one that had the winter maintenance plan and could prove that they were following it was held harmless. It is not possible to be everywhere at once. We need to prioritize our routes, staff and trucks and do the most critical first.

If it goes to court you can prove that you were offering the best service to the travelling public.

You can give other examples of court cases won by having a policy and documentation to back it up.

Integrate items to help protect the environment



Photo: Fortin Consulting



- What triggers a call out

Think about what you can implement in your plan that can help reduce salt use there are many ways to do this.

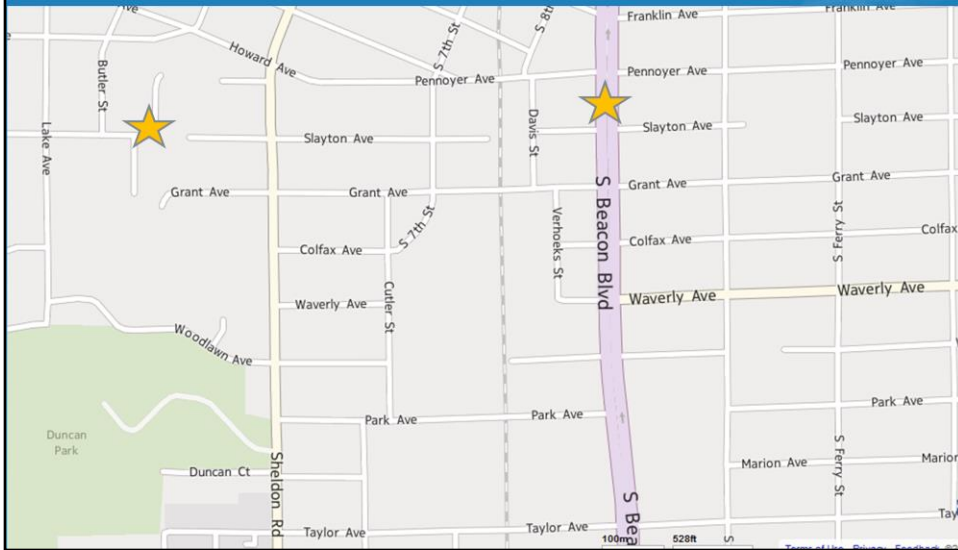
For example:

Level of service, make sure to have different level of service standards for different areas. Make sure the crew knows what they are. Make sure crew doesn't give higher level of service. Everyone wants to do the best job possible but sometimes by doing the best job it involves more salt. The level of service is design with public safety in mind so if we can hold to that level of service and not exceed it by using extra salt we have done our job in the best way possible.

It may be time to re-evaluate the level of service for areas. Does a dead end road need bare pavement? Maybe not but bare intersections ? Probably

Call outs, the earlier we can get out and plow the less the snow and ice will become compacted. Without compaction we can use less salt. So look at your call outs and see if you can move them up. For example move a 3 inch call out up to a 2 inch call out.

Do we need the same level of service on all of our roads?



Before the winter:
drive your routes



Photo: Michigan DOT

Know obstacles, know how
many miles you **plow** and
how many miles you **salt**.



Each driver should know their route, how many lane miles they plow and how many they apply material to.

If the driver knows this they should be able to calculate how much salt they need. It is a good cross check for them and the equipment to make sure everything is operating properly.

For example if the route is 20 lane miles and they salt 4 miles of it. If the application rate is 300 lbs/mile they should have used about 1,200 pounds of salt. If the truck is half empty...something is wrong..

Knowledge is power and leads to more effective winter maintenance

Know which areas are prone to drifting



Blowing drifting areas get special attention. These areas should be documented for your organization and you should be working to get temporary or living snow fences installed.

Training for the driver is important too. Often times it is better to not anti-icing or salt these stretches and just let the snow blow across the road.

Snow fences

can reduce blowing and drifting problems, reduce cost of winter maintenance, make roads safer and protect the water!



LIVING SNOW FENCES Michigan CONSERVATION RESERVE PROGRAM CRP – CP17A

Natural Resources Conservation Service (NRCS)

March 2011



Photo courtesy of USDA NRCS

WHAT IS A LIVING SNOW FENCE?

Living snow fences are linear plantings of multiple rows of trees or shrubs established for environmental purposes such as managing snow, providing living screens, and enhancing wildlife habitat. Living snow fences intercept snow to protect roads, lanes, railroads, etc. and also provide travel corridors, nesting sites, food, and escape cover for many wildlife species.

ELIGIBILITY

To be eligible for this practice for the Conservation Reserve Program (CRP), the land must have a cropping history (4 out of 6 years from 2002 - 2007), and need protection from snow.

If wildlife habitat is the only resource concern, the site is not eligible for a CRP Living snow fence. However, the site may be eligible for a Field Windbreak (CP5A) through the Continuous Conservation Reserve Program, or it may be eligible for other USDA cost-share programs.

If the purpose of the windbreak is to protect growing plants, minimize wind erosion, or protect buildings or livestock areas, the site is not eligible for a CRP CP17A. However, the site may be eligible for a Field Windbreak (CP5A) or a Shelterbelt (CP16A) through CRP, or it may be eligible for other USDA cost-share programs.

CRP POLICY

Living snow fences will be installed according to the Windbreak/Shelterbelt Establishment Standard (380) in the local Field Office Technical Guide (FOTG).

For the Conservation Reserve Program, the maximum width of living snow fences will be the minimum needed to manage snow, according to the FOTG, regardless of the purpose of the living snow fence (windbreak density of at least 50%).

The living snow fence will be oriented perpendicular to the troublesome winds, and will be located so as not to create visibility or snow accumulation problems. The interval between new and existing living snow fences, and the spacing between and within the rows, will be determined based on the Design and Mature height of the species in the living snow fence according to FOTG. The windward row will be located at least 75 feet from the area to be protected and will extend at least 85 feet in either direction from the area to be protected.

Tree and shrub species selected for the living snow fence will be adapted to the site conditions and meet the standards in the local FOTG. Only viable, high quality planting stock will be used.

INSTALLATION

It is very important to prepare a weed-free and firm seedbed before planting the trees and shrubs, and cost-share is authorized for this component. It may be necessary to prepare the site the fall before planting the trees in the spring using tillage, herbicides, etc. Contact your local Michigan State University Extension Office for specific herbicide recommendations. **All herbicides will be applied according to the label.**

Plantings using bare-rooted stock and non-rooted cuttings should be completed in the spring after the ground thaws, but no later than June 1; or planted in the fall after October 1 until the ground freezes when soil moisture is adequate. Containerized and balled and burlap stock may be planted between October 1 and June 1 as local soil moisture and weather conditions permit.

Weed Control is also important to ensure survival and maximum growth of the trees after they are planted. Cost-share is authorized for one weed control application within 24 months after the trees are planted. A 2-ft radius around each tree should remain weed-free to maximize tree growth. Fabric weed barriers are very effective at minimizing weed competition, but are not eligible for CRP cost-share. **Mowing is not allowed for weed control for trees.**

NRCS, Michigan
March 2011

<http://ftp-fc.sc.egov.usda.gov/mi>

Link to MI snow fence guidance



By contracting 40 percent of sites with snow problems to living snow fences, MnDOT predicts they could save \$1.3 million per year.

Photo: Gary Wyatt

<http://www.dot.state.mn.us/environment/livingsnowfence/design.html>

MN snowfence website. Helpful in determine location and dimensions of living and structural snow fences.