Above: When Merrimack replaced the Stowell Road bridge they decided to add a little more New Hampshire charm to their town.

On The Road In New Hampshire

For less than it would have cost to use conventional concrete or steel we were able to build a covered bridge

"By using timber we were able to meet our needs and realize our dreams at the same time" -- quote by Robert Brundige, Chairman of the Board of Selectmen, Merrimack, New Hampshire

Merrimack hasn't had a covered bridge for 20 years. Just recently, however, they found that the past was economically sound and could go hand-in-hand with the future. Using modern timber bridge engineering, Merrimack was able to erect a sturdy structure with all the aesthetic quality that should belong to a New Hampshire town bridge.

On Friday, December 14th, Merrimack had the Stowell Road bridge dedication. John Starkey, Assistant Public Works Director, invited us down. "I've got a good bridge story" he told me, "we just put in a single lane, 32 foot span timber bridge and we saved money doing it."

The town of Merrimack had originally set aside $75,000 for a replacement bridge. A problem arose when bids for concrete and steel came in over $100,000. Public Works had to find an alternative and timber turned out to be their choice. They decided to go with a Wheeler Bridge (Wheeler is just one of a number of manufacturers offering the "kit type" bridges now on the market).

"When I told the town fathers what the cost of a timber bridge would run they decided we could put a cover on it and still save money" explained John. "The basic bridge cost $33,000; the cover cost $17,000; and the new footings, abutments, and other pieces added up to $5,000." The total bridge cost the town $55,000 -- a savings of $20,000 compared with the original expectation and a savings of more than $50,000 compared to conventional concrete and steel designs. It should be noted, however, that some of the savings came about because the town was able to use its own work crew to erect the bridge.

Merrimack did a couple of really good things that other towns considering building

Guidelines For Salt Application

Some general principles for spreading salt

Timing is crucial in applying salt. Make initial applications as soon as snow or ice begins to accumulate on the pavement. The salt will quickly produce a brine or keep snow mealy, depending on temperature, and keep snow and ice from bonding to the pavement.

The melting action of salt applied early in a storm works from the pavement surface up so ice does not stick. Salt is usually applied at a rate of 300-800 lbs. per two-mile mile. As temperatures drop, either the

continued on p. 7

continued on p. 6
Directories And Subdirectories

Creating, deleting, and manipulating directories is an essential part of operating a computer with a hard drive.

In the last Road Business the need for directories and subdirectories was discussed.Directories, as you may recall, are similar to an office filing system. How you organize directories is entirely up to you... but be consistent.

The system you choose should allow you to quickly find the files you need. For example, if you need to find a response to Mr. Jones about an inquiry made last June, you should be able to look in the appropriate subdirectory and retrieve the file with ease. I often use my computer files to look up such information because it is quicker than looking it up in the paper files. I periodically purge the files on my disk after copying them onto floppy disks. Even my floppy disks are handled in the same manner that I handle my hard disk directories.

Be careful. Don't over organize! There is a temptation to organize your subdirectories to the point where there are only a couple of files in each one. If you get to this point, you are only a little better off than when you had no directories.

Making A Directory

*Note: a caret, "^" means put a space here; all you do is press the space bar. In the commands used in this article, the space is critical to make the command work.*

The DOS command to make a directory is MD. For example, if you wish to make a directory called WORDPROC you would type: MD:WORDPROC at the C:\> prompt. The computer will then create WORDPROC as a subdirectory of the root directory. The root directory is like the file room. It is the largest unit that can be subdivided. Try it. You can remove it later.

If you wish to create a TEXT subdirectory under WORDPROC all you need to do is type at the prompt: MD.C:\WORDPROC\TEXT. By including the entire path, it doesn't matter which subdirectory you are in. You can create additional subdirectories in the same manner.

Removing A Directory

Removing an existing directory is similarly easy. The command is RD. For example, if you want to remove the C:\WORDPROC directory all you need to type is RD.C:\WORDPROC. However, there is a twist to this. If there are files or subdirectories in the C:\WORDPROC directory, DOS will issue an error message telling you that it cannot remove the directory until the files are removed. If you need to remove files type in ERASE.C:\WORDPROC^.* followed by enter. DOS will ask you if you really want to erase all the files. Make sure this is really what you want to do before saying yes. You can recover, but it is better not to make this mistake. (Note: recovery can't be done with DOS. However, several software packages are marketed for this. Ask your dealer.) If you created the TEXT subdirectory, you will need to erase all the files in that directory by typing ERASE.C:\WORDPROC\TEXT^.*

Then remove the TEXT subdirectory by typing RD.C:\WORDPROC\TEXT. This method is safe if you are not familiar with DOS. There are a couple of short cuts, but I will leave it to you to find them.

Copying Files From One Directory To Another

If you want to copy a file, C:\WORDPROC\TEXT\MYFILE.TXT, to another directory DOS provides a relatively easy way to do this through the COPY command. The basic command takes the general form COPY, fromfile,tofile. For example, to copy the above file to C:\WORDPROC\MEMO subdirectory, the command would be

COPY.C:\WORDPROC\TEXT\MYFILE.TXT, C:\WORDPROC\MEMO

DOS will assume you wish to leave the name the same in the new directory unless you specify a different name. If you wish to rename the file to NEWFILE.MEM the command would be

COPY.C:\WORDPROC\TEXT\MYFILE.TXT, C:\WORDPROC\MEMO,NEWFILE.MEM

Let's take this one step further. Suppose you want to transfer the file to a floppy disk to give to a co-worker. The command would be

COPY.C:\WORDPROC\TEXT\MYFILE.TXT,B

You could also rename the file as shown in the previous paragraph. DOS uses the * and ? as wild cards and global characters respectively. They can be used to specify a group of files with one command. The symbol ? substitutes for one character and * substitutes for up to eight characters. Wild cards are permissible for the copy command. That means you can copy all files by using *.* for the file name. For example, if you wish to backup all the files in the C:\WORDPROC\TEXT directory to a floppy disk in drive A:, use the copy command:

COPY.C:\WORDPROC\TEXT.*,.*,A.

However, all the files must fit onto the disk. If they don't, DOS will issue an "Insufficient disk space" error and some of your files will not have been copied. The copy command is a good way to backup your files only when your directory contains just a few files.

What's In The Directory?

DOS provides the ability to find and list the contents of a directory through the DIR command. Using this command is much like using the COPY command. If you want to list the files in the C:\WORDPROC\TEXT subdirectory, type:

DIR.C:\WORDPROC\TEXT. You may find that there are too many files to list on the page (screen). By modifying the command to DIR.C:\WORDPROC\TEXT/W, DOS will display the files in five columns. However, if you do this, you will note that the information displayed on screen will be less than with the first procedure. Additionally, you can use the /P option in place of the /W. This will give you all of the information but it will pause between pages (screens).

Wild cards are also permissible with the DIR command. For example, if you wish to display all files with the extension.MEM, type:

DIR.C:\WORDPROC\TEXT\.*.MEM. If you name all your files dealing with budget information FY????.BGT, you could use the command

DIR.C:\WORDPROC\TEXT\FY*.BGT.

Here's a neat little trick to list only the subdirectories. Type DIR*. What shows up on your screen is a list of only subdirectories (Note: this command will also list any files that don't have an extension — I recommend that all of your files be named using an extension. DOS allows eight characters for a file name and three characters for the extension. continued on p.5
Did You Know?

Some Snow Plowing Tips From New Hampshire Towns

Above: The town of Merrimack is one of many New Hampshire towns now using polymer plows. Merrimack has been running these plows since 1984 and hasn't damaged one yet.

Polymer plows may be a real alternative to metal -- Many towns have discovered the durability and easy maintenance of the polymer plow. A polymer plow tends to be more forgiving when hitting fixed objects such as a catch basin or manhole. I'm told that the plows seem to deform and come back into shape after striking the object. Metal doesn't seem to do as well under these conditions. Additionally, snow doesn't stick to the polymer blade like it does on cold metal. Best of all, the polymer plow can't rust, hence, it requires no paint and is virtually maintenance free.

You can cut down on your plowing time -- use your one-ton to clean out intersections. The idea is to use the 6 or 10 wheeler snow plow to do the streets, and have a pickup or one-ton following behind to clean the intersections much faster. One town found that their snow plow route which took six hours with two large trucks, takes only four hours with a large truck and a one-ton.

Using a rock rake in late winter can be helpful -- In later part of winter use a rock rake to break up snow and hard packed ice. This allows the gravel roads to thaw out and dry earlier in the Spring (front mounted rakes seem to be much easier to use for this purpose than the rear or trailer mounted rakes).
Road Salt

Some basic information about road salt

Why is Salt Used?
Salt is used as the principle deicer because it is the most available and most cost-effective deicer. The primary type of salt used is rock salt that is mined from the earth. Solar salt, which is evaporated from seawater or Great Salt Lake water, is also used.

Some 10 million tons of deicing salt is used each year in the U.S. and about 3 million in Canada.

In today’s highly mobile society, it is imperative to remove hazardous conditions created by snow and ice as quickly as possible and to keep roads open to guarantee essential mobility in winter. That makes a deicer necessary. Sometimes, salt is used alone when there is ice or too little snow to plow, but mostly it is used in conjunction with snowplows.

Salt is used to keep snow and ice from bonding to the pavement and to allow snowplows to remove accumulations quickly.

How Does Salt Work?
When salt is applied to ice and snow it creates a brine solution that has a lower freezing temperature than the temperature of the surrounding ice.

Salt is the ideal deicing material because
- It is readily available
- It is the least expensive deicer
- It is easy to store and handle
- It is easy to spread
- It is non-toxic and harmless to skin and clothing
- It is harmless to the environment when used and stored properly.

Sensible Salting
Sensible Salting emphasizes getting the most out of every application of deicing salt, maintaining the safest roads possible in the most economical way while protecting the environment.

A good Sensible Salting program should include
- Personnel training
- Good equipment
- Calibration of spreaders
- Use of automatic controls
- Adequate, covered storage
- Proper maintenance around storage areas
- An awareness of safeguarding the environment by all who use salt.

It is essential that salt be spread properly, using only the amount needed to do the job at hand. However, timing is essential. Getting it down early will prevent snow and ice from bonding to the road surface. Salt application rates range from 300 to 600 pounds per two lane mile, depending on storm conditions.

Salt can be applied in a winrow or full width, but generally it should be spread no wider than the truck spreading it. Brine formed by salt and water will run to other parts of the road and be spread by traffic. Plowing operations should be timed to allow maximum melting. Salt reaction time is usually 20 to 30 minutes.

The best snow and ice control operation can be reduced to a mediocre, or even poor operation, if it doesn’t have good equipment. Automatic controls are recommended for spreaders to make sure the correct amount of salt is being spread at all times. Regardless of whether automatic or manual controls are used, they should be calibrated before the snow season starts. Poorly maintained and uncalibrated controls are often responsible for excessive salt use.

Anti-Caking Agents
Certain additives are put into salt to keep it from caking. The most frequently used is sodium ferrocyanide, also known as Yellow Prussiate of Soda (YPS). Another is ferric ferrocyanide, also known as Prussian Blue. They are added in amounts of 10 to 17 pounds per ton.

YPS is approved by the Food and Drug administration as an anti-caking additive in table salt based on exhaustive tests wherein no evidence of toxicity was demonstrated at levels considerably higher than those used in

highway deicing salts.
Prussian Blue is also used in household bluing, blueprints, blue-black ink and carpenter's chalk. It is also non-toxic to animal and plant life.

Salt Bans
There have been several efforts over the years to ban the use of deicing salt. In the early seventies they were tried in Burlington, Concord, Woburn and Winchester, Massachusetts. The longest ban was in Burlington for three winters, but all bans were eventually rescinded. Two Rivers, Wisconsin and Oklahoma City, Oklahoma had more recent experiences with salt bans. Neither ban lasted past the first snow or ice storm after it went into effect.

The above article was taken from Deicing Salt Facts (A Quick Reference), a Salt Institute publication.

page 4
Changing Directories

The command for changing directories is CD.path, where the path is the directory you wish to go to. To move from the current directory to C:\WORDPROC\TEXT, you would type CD.C:\WORDPROC\TEXT. You can use the ERASE, COPY and DIR commands without the path when you work with files that are stored in the same directory that you're in. To list the files in this directory, simply type DIR. (Note: When you don't specify the path, DOS defaults to the directory you have most recently changed into.)

Have you figured out the short cut I talked about in the "Removing A Directory" section of this article? If so, be careful with it. You could lose everything.

Summary

We have discussed how to make and remove directories, copy files and look at the content of directories. These tools provide a great deal of latitude when moving around in your disk space. However you may feel this requires a lot of typing, and it does if you type it every time. There is a way, however, to reduce repetitive typing tasks. You can organize your computer files by grouping similar ones together and establish short commands to get to those files easily. Batch files, which were introduced in the last Road Business, can help. They allow you to avoid monotonously retyping the commands needed most often to access the files you use all the time.

Scan through your DOS manual. A wealth of information is there if you take the time to dig it out. For those of you who prefer not to read manuals (I don't blame you) there are many books on computers. You may want to visit your library or local bookstore and browse them.

More and more public works departments are using computers to assist them in their operations. If you have any comments, questions, or suggestions about computers and their operation please call the Technology Transfer Center at 1-800-423-0060. In particular, if you have any topics that you would like us to cover in an article let us know.

The above article was adapted from Alaskan Transportation, 1990, Vol. 15 No. 1.

Special Spreading And Plowing Problems

A few tips for winter road maintenance

Salt bridges first: Bridges freeze long before road surfaces because they do not hold warmth as a roadbed does because cold air reaches both the top and the bottom surfaces of bridge decks. Bridge decks should receive early attention and an application of salt. Bridge decks may ice over because of high humidity, low temperatures, or other conditions -- even when there is no precipitation.

Salt on the high side of elevated curves: Salt brine will flow down and across a banked curve. If you spread salt down the centerline, everything above it will remain icy. Spread salt on the high side of the curve and let gravity work for you.

Leave no gaps: Operators must go beyond their assigned areas, if necessary, to plow or salt a gap that has not been treated for some reason. A short, neglected stretch can be very hazardous to an unsuspecting motorist.

Watch for drifting: In continued high winds, maintain a patrol to watch for drifting and slick spots even after the pavement has been cleared. Treat icy buildups with a salt application. Avoid slick conditions from buildup of ice or packed snow by applying a salt application heavy enough to prevent refreezing.

Traffic icing: Occasionally, under certain weather conditions, a paper-thin sheet of ice forms in the wheel paths on a bare pavement even when the pavement looks clear (this is commonly referred to as "black ice"). The light ice formation can be deadly. Maintenance operators should be instructed to watch for this occurrence and apply salt immediately if it is detected.

Get your equipment on the road: Once you have word of an impending storm and your plows are mounted and trucks loaded, get vehicles out of the yard and onto their plowing and spreading sections. Every winter there are severe tie-ups because equipment operators are late in getting to critical points.

Make a list of trouble spots that you want operators to salt first during storms. Make sure all personnel understand that bridges, intersections, ramps, hills and curves come first. Have operators wait on location rather than at maintenance areas.

It is far better to have your equipment on the road when snow begins than in the maintenance yard. Nothing is more reassuring to motorists than to see loaded spreaders and plows patrolling prior to storms.

Give Interchanges special attention: Salt on and off ramps as quickly as possible. A safe road or street is of little value without safe entrances and exits.

Can you keep trucks out of the way? One state has a novel plan aimed at reducing costly and dangerous traffic tie-ups during snowstorms by keeping truckers posted on road conditions. Here is how it works:

Eight district engineers in different regions of the state relay information about road conditions to one trucking company in their area. The trucking firm passes the information on to other truckers who request it by radio or telephone. The road condition information becomes available within minutes to a vast number of motorists equipped with CB radios as it is related on various citizen's band channels.

Company dispatchers are instructed not to send trucks into areas where trouble spots exist and to advise drivers if chains are needed.

The "Snow Alert" eliminates many serious tie-ups caused by trucks and other vehicles trying to negotiate impassable routes. This gives maintenance crews a chance to work with less interference from traffic.

Deicing Grates on Bridges: Many drawbridges and other opening spans have open metal grating over part of their length. Salt applied on these structures simply falls through the mesh with very little melting effect. To melt ice that forms on the metal, spread a salt application up to the dividing point between concrete and steel and let traffic move the brine across the grating.

The above article was taken from The Snowfighter's Handbook, a Salt Institute publication.
this type of bridge should take into consideration. As noted above, the town designed and built new abutments. You can't just place a new bridge on the old abutments. If you do, the bridge could be unsafe. Although the "kit type" timber bridges are professionally engineered and are load rated, they can only be as strong as the abutments. Poor sight preparation could end up in a disaster! We recommend that you have your bridge sights designed by a professional engineer and inspected before erecting your bridge. This was a serious consideration for the town of Merrimack.

Another consideration with the covered bridge built in Merrimack was fire. They had one burn 20 years earlier and didn't want to see this happen again. John Starkey did some good hunting and found a fire retardant varnish for the sides and the cover. When a surface protected by this fire retardant coating is exposed to heat and flame, the coating should swell and form a thick, insulating barrier preventing the penetration of heat to the surface below and prohibiting the spread of flame along the coated surface. This reaction is designed to seal out the oxygen required for combustion so that only the most intense exposure to heat can char the under-surface. A coating thickness of approximately 200 to 300 times the original coating thickness results. Although the surface may become discolored, it should remain structurally sound and it should not ignite (Merrimack used Ocean Chemicals' product "Ocean 441" which exceeds the ASTM-E-108-78 Class "C" Burning Brand Test requirements -- they used 50 gallons at $31.50/gal).

At the end of the ceremony, Merrimack public works drove a dump loaded with stone over the bridge -- ceremonial load testing. However, they didn't demonstrate the capabilities of their varnish... "I hope we don't have to test that one out" John said with a big smile.

Merrimack is proud of their new covered bridge... and we think they should be.

Right: Although Merrimack left the old abutments for their beauty, they built new bridge abutments for structural integrity (it is highly recommended that any new bridge site include an engineering study to determine structural needs)

Left: Rather than destroy the beauty of the old abutments Merrimack left them standing for aesthetic purposes (see new construction below)

Right: After the official bridge opening a couple of the town DPW crewmen load tested their handwrought the old fashioned way -- by driving a dump full of stone over the deck and blowing the horn few times

Left: John Starkey, Acting Public Works Director, hands out scissors with DPW orange handles for the ceremonial tape cutting
Know when to plow and reapply salt:

You can tell when another salt application is needed by watching the melting snow kick up behind vehicle tires. If the slush is soft and "fans" out, the salt is still working. Once the slush begins to stiffen and is thrown directly to the rear of vehicle tires, it is time to plow and spread more salt.

Has the weather changed?

Remember that salt application rates may have to be increased at night, on sunless days and when the temperature drops sharply. Without the sun, you lose the effect of pavement radiation and warmth. At night, traffic usually falls off, minimizing another heat source that helps melt ice and snow. One thing that must be considered is that the pavement temperature is not always the same as the air temperature.

Don't overlook salt's anti-skid value:

For years, maintenance people have observed that salt, applied as an ice melter, also gives anti-skid protection. Tests conducted in cooperation with the National Safety Council show salt, applied at normal deicing rates, gives as much anti-skid protection as sand. The anti-skid effect of salt is immediate as it starts melting snow or ice.

Safeguard the environment:

The way you spread salt can make the difference between whether the public appreciates or condemns your efforts. Overuse and misuse ignore concern for the environment. Proper calibration of spreading equipment can avoid most problems.

There is no correlation between yearly snowfall and the total quantity of salt used. The type of storm dictates the frequency of application and total amount of salt necessary. An ice storm may require enormous amounts of salt, perhaps even more than a prolonged snow-storm.

The above article was taken from The Snowfighter's Handbook, a Salt Institute publication.

Snow Safety

To make snow removal operations less dangerous, road crews should follow these safety precautions:

1. Check all equipment before each use. Make sure lights, brakes, wipers, exhaust systems, tires, chains and steering are safe. Report any mechanical trouble immediately.

2. Clean all lights and windows frequently during snow and ice removal operations. Vehicles working in traffic lanes should be equipped with flashing yellow lights, and flags should be mounted on the left and right side of the plow and at the end of the wing.

3. Keep heating systems and defrosters in good condition. To keep snow off tailights, heaters should be installed in the lights.

4. If it becomes necessary to stop a truck in a traffic lane for any delay when spreading abrasives or chemicals, traffic should be warned in any of the following ways:

   -continued operation of revolving yellow flashers;
   -using four-way flashers;
   -placing lighted fuses on the roadway if visibility is limited.

5. Establish procedures for safely handling blade changes and attachments during storms. For example, a plow should be stored, blocked up, at the exact height of the equipment so it will not have to be lifted into place when attached or detached.

6. Make sure flashlights, flares, flags, safety vests, blanket, candle (to warm cab in breakdown) and first aid kit are available in all truck cabs.

7. Observe traffic laws at all times when plowing roads. Remember that speed can kill, especially in a snowstorm or at night, so resist the urge to get the job done in a hurry.

8. Respect the rights of others. Be considerate of motorists who have trouble driving in the snow and, whenever possible, report stranded motorists.

9. Watch for signs of fatigue in equipment operators. A limit of 12 continuous hours on duty is fairly common in public works agencies in the Snow Belt, although some agencies permit longer work periods.

The above article was taken from The Bridge, Vol.4, No.4, Summer/Fall 1990, Michigan Technological University.
Know Your Snow

There are roughly five major kinds of storm conditions and all of the maintenance force should know how to combat each type.

Snow occurs when water vapor in an air mass is cooled below freezing. The density of snow varies. Some storms produce “wet” snow, others “dry” snow. Wet or heavy snow can often be plowed away. Time is of the essence. Use of weather forecasting services allows for crew readiness before storms. Salt should be applied as soon as the precipitation begins to accumulate.

Winter storms produce a number of hazardous conditions other than snow. Even without rain, ice may occur when moist air contacts a cold surface, particularly on bridge decks. Rain may freeze as it falls on pavement. Frozen rain falls as sleet or hail, which may stick to pavements.

There are roughly five major kinds of storms (the conditions are listed below). Each requires a somewhat different approach. All of the maintenance force should know these basic kinds of storms and how to combat them.

Most storms occur under Conditions 1, 2 or 3. But variations in temperature, precipitation, pavement condition or other factors are common. You must depend upon well-trained maintenance crews to use initiative and imagination in coping with unforeseen problems.

Keep An Eye On The Weather. You cannot prepare for a storm unless you know when it will arrive, how long it will last and what kind of storm it will be. Arrange with the U.S. Weather Bureau, a local airport weather station or a private forecasting service to get complete detailed reports during winter. Some maintenance departments hire a private forecaster to be sure of a balanced and more localized weather picture.

If late afternoon reports indicate the possibility of overnight snowfall, ready equipment by attaching snowplows and spreaders before the workday ends. If weather forecasts indicate it, you may need to hold a certain portion of your work force to start fighting the storm when it comes. If the forecast indicates snow during the night, you should send the work force to get some rest and alert them that they may be called out during the night. Arrange with the highway patrol, local police, sheriff's department or your weather service to notify key personnel of storms that develop late at night. Make someone responsible for relaying the alert to the entire maintenance force if need be.

Equip maintenance outposts with wind gauges and outside thermometers so crew can note changes in the weather.

Storm Fighting Guidelines

The following is a guideline to combat various types of storms. Local conditions and policies will be the final determining factor.

Condition 1
- Temperature - Near 30
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet

If snow or sleet, apply salt at 500 lbs. per two-lane mile. If snow or sleet continues and accumulates, plow and salt simultaneously. If freezing rain, apply salt at 200 lbs. per two-lane mile. If rain continues to freeze, reapply salt at 200 lbs. per two-lane mile.

Condition 2
- Temperature - Below 30 or falling
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet or sticky

Apply salt at 300-800 lbs. per two-lane mile, depending on accumulation rate. As snowfall continues to accumulate and repeat salt application. If freezing rain, apply salt at 200-400 lbs. per two-lane mile.

Condition 3
- Temperature - Below 20 and falling
- Precipitation - Dry Snow
- Road Surface - Dry

Plow as soon as possible. Do not apply salt. Continue to plow and patrol to check for wet, packed or icy spots; treat them with heavy salt applications.

Condition 4
- Temperature - Below 20
- Precipitation - Snow, sleet or freezing rain
- Road Surface - Wet

Apply salt at 600-800 lbs. per two-lane mile, as required. If snow or sleet continues and accumulates, plow and salt simultaneously. If temperature starts to rise, apply salt at 500-600 lbs. per two-lane mile, wait for salt to react before plowing. Continue until safe pavement is obtained.

Condition 5
- Temperature - Below 10
- Precipitation - Snow or freezing rain
- Road Surface - Accumulation of packed snow or ice

Apply salt at a rate of 800 lbs. per two-lane mile or salt-treated abrasives at rate of 1500 to 2000 lbs. per two-lane mile. When snow or ice becomes mealy or slushy, plow. Repeat application and plowing as necessary.

*Note: The light, 200-lb. application called for in Conditions 1 and 2 must be repeated often for the duration of the condition.

The above article was taken from The Snowfighter's Handbook, a Salt Institute publication.

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<tr>
<th>Pounds of Ice Melted Per Pound of Salt</th>
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<tr>
<td>Temperature Degrees F.</td>
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<th>Coverage of One Cubic Yard of Salt</th>
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<td>Rate of Application Per Two-Lane Mile</td>
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<td>200 lbs.</td>
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*Note: Salt meeting ASTM Specification D532 weighs approximately 80 lbs. per cubic foot.
From all of us at the Technology Transfer Center,

We wish you joy over the holidays and throughout the season.
Give Your Employees The Skills For CDL

Most DPW employees will have to pass a CDL test

A commercial motor vehicle is a motor vehicle or combination used in commerce to transport passengers or property. This pertains to ALL NEW HAMPSHIRE PUBLIC WORKS DEPARTMENTS! You must have a CDL to drive any of the following:

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- A trailer with a GVWR of more than 10,000 pounds.
- A vehicle designed to transport more than 15 persons (including the driver).
- Any size vehicle which transports hazardous materials which requires placarding.

Depending on your job requirements you may have to take any or all of the following:

- The General Knowledge Test
- The Tank Vehicle Test
- The Passenger Vehicle Test
- The Air Brake Test
- The Double/Triple Trailer Test
- The Combination Vehicle Test
- The Hazardous Materials Test

The Technology Transfer Center has training tapes available for your use. You can either borrow a copy of these tapes for two weeks or you can purchase them on an "extended play VHS tape" for $16.50. All video purchases will be sent to you within a one week period.

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