



Illinois Interchange



Illinois Technology Transfer Center

Vol. 14 No. 4 Winter 2006



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Please pass this on to other interested parties in your office.



Illinois Department of Transportation
Bureau of Local Roads and Streets



Federal Highway
Administration



FROM THE DESK OF...

Technology Transfer Center's video and publication library is an excellent resource to assist with this preparation.

Currently, the Center has 6 publications, 16 videos, and 2 CD-ROMs covering winter operations. All of the material is available at no charge. The CD-ROMs are the newest addition to the library and are described below. To place an order, complete the order form at www.dot.il.gov/blr/vpform.pdf.

The Salt Institute is a partner of the Local Technology Assistance Program. Their website contains

valuable information on snow fighting techniques. Please visit their site at www.saltinstitute.org.

Please encourage your snow removal crews to plan ahead to ensure the safety of the traveling public this winter season.

Kevin Burke III, P.E.
Local Policy & Technology Engineer

As winter approaches, local and state highway agencies begin gearing up for snow and ice removal. Salt domes are filled, equipment is prepared and additional temporary help may be hired. Part of the preparation should also include mentally preparing the plow operators. The IL

NEW ADDITIONS TO THE VIDEO/PUBLICATION LIBRARY

C003 - Snowfighting Training Materials - Vol. 1, Salt Institute

The materials are designed to help local governments across the United States and Canada become more proficient in all aspects of winter operations. The programs were developed by winter operations specialists and underwent a thorough review by five LTAP centers for content and presentation effectiveness.

The total package is broken into two programs and was developed on the basis of each program being capable of standing alone or presented in conjunction with each other as a half-day session to inform and prepare local government officials for winter operations. Two technical information sheets are provided as handouts or as stand-alone articles of flyers. Each aspect of the package offers valuable information and provides recommendations that participants can take back with them and implement.

C004 - Winter Maintenance Training Materials - Vol. 2, Salt Institute

The Salt Institute, working with an LTAP winter maintenance advisory committee, has provided these materials to you. The materials are designed to help local governments across the United States and Canada become more proficient in all aspects of winter operations. The programs were developed by winter operations specialists and underwent a thorough review by multiple LTAP centers for content and presentation effectiveness.

This CD (Winter Maintenance Training Materials, Volume-2) compliments the previous winter maintenance CD from 2002 (Snowfighting Training Materials, Volume-1). This new CD adds a fifth training presentation and another technical information sheet. Both CDs together provide you with five (5) presentation programs. The programs were developed so each could stand-alone or get presented consecutively. Each presentation provides enough material for a half-day session. The sessions are designed to inform and prepare local government officials for winter operations.

For a complete list of all videos, publications, and CDs, please visit our web site at

<http://www.dot.il.gov/blr/t2center.html>.



NEW RESEARCH & TECHNOLOGY ENGINEER

By Heidi Liske, Research & Technology Engineer, Federal Highway Administration

My name is Heidi Liske and I am the new Research and Technology Transfer Engineer at FHWA's Illinois Division office. I graduated from the University of Wisconsin in 2004 with a degree in civil engineering and began FHWA's two-year rotational Professional Development Program shortly thereafter. During those short 24 months, I worked with multiple FHWA Division offices, state Departments of Transportation, and AASHTO. Furthermore, I relocated between Illinois, Missouri, Colorado, Florida, and Washington D.C. several times. Last year I carried out a nine-month assignment with IDOT's Bureau of Safety Engineering where I gained valuable experience in the highway safety arena and took a liking to the Springfield area.

Upon completion of the rotational program, I began work as a permanent fixture in the Illinois Division office. As the job title suggests, my duties include involvement in and monitoring of IDOT's research program, implementation of the technology transfer program, coordination of the "Highways for Life" program, and general collaboration with the Illinois Technology Transfer Center.

In addition, I am heading the Division's Technology and Innovation Deployment Team, which recently developed Technologies and Innovations for Strategic Marketing and Implementation in Illinois, a listing of eleven promising technologies and innovations worthy of promotion to transportation counterparts throughout the state. The identified technologies

and innovations fall into a wide range of categories and are as follows:

- Hyper-fix solutions
- ACS Lite
- CORSIM software
- Photogrammetry
- Travel demand modeling software
- Highway Economic Requirements System (HERS-ST) software
- Land use assessment software
- Scour Watch program
- Portable scour monitoring equipment
- Expanded polystyrene (EPS) geofoam, and
- Road Safety Assessments (RSAs).

A Division contact identified for each technology and innovation will develop a marketing plan to outline strategies and steps for the deployment process.

Of the eleven identified technologies and innovations, RSAs are particularly applicable to local transportation agencies. RSAs are tools that can be effectively utilized to identify specific safety hazards, points of concern, and needs. An RSA is a formal safety performance examination of an existing, or future, roadway segment or intersection conducted by an independent team. The location is examined solely from a safety standpoint in an effort to move from nominal safety (meeting standards) to substantive safety (meeting data-driven and site-specific needs). An assessment also enables safety needs to be quantified.

Three items are key to the successful deployment of RSAs at the local level:

- 1) **RSA training** – An RSA workshop is in development and will be rolled out upon completion. This workshop will teach the theory behind RSAs, outline the step-by-step process, and identify best practices and benefits.
- 2) **Highway Safety Improvement Program (HSIP)** – Aligning with the soon to be completed HSIP policy, RSAs can be used as a tool to effectively identify safety improvement opportunities at problem locations eligible to receive HSIP funds.
- 3) **Data** – It is crucial to have accurate crash data when preparing for and performing an RSA. This information paints a clearer picture of what is truly happening at the site and provides great insight to locations that are in need of attention but flying under the radar.

Be on the lookout for the RSA local rollout, as this is a powerful tool to store in your toolbox for making direct safety impacts and potentially saving lives. If you would like additional information about RSAs, or other technologies and innovations of interest, I may be contacted by telephone at (217) 492-4637 or email heidi.liske@fhwa.dot.gov. I look forward to future involvement with the local transportation community and collaboration with the Illinois Technology Transfer Center.



GUIDELINES FOR SALT APPLICATION

Timing is crucial in applying salt. Ideally, salt should be spread as soon as a storm begins in order to prevent bonding of snow or ice to the pavement. The salt will quickly produce a brine or keep snow mealy, allowing for efficient plowing.

The melting action of salt applied early in a storm works from the pavement surface up so snow and ice do not form hardpack.

There are times and storm conditions where salt alone is the only answer to keeping the pavements clear. For example, freezing rain cannot be plowed and salt is the only solution for clearing the road when it occurs.

Anti-icing, or applying salt before the storm actually begins is practiced in European countries and by a few agencies in North America. Since Mother Nature and storm forecasting are not always precise, this can be tricky. But, done successfully, presalting is the best means to prevent ice-pavement bonding.

The best advice would be to be prepared to mobilize all forces as soon as a winter storm approaches.

There are no easy answers or solutions with snow and ice control because there are too many variables. It has been estimated there are over 66,666 different storm conditions – pavement temperature, ambient temperature, pavement type, solar radiation, traffic volume, traffic speed, wind direction and velocity, type of precipitation, topography, lake or ocean effect, shaded areas (by mountains, trees or buildings) and wind chill factor, to name a few variables.

Snow and ice control is a very complex issue and those people on the front line need the best information possible.

Salt is usually applied at the rate of 300 to 800 pounds per two-lane mile.

As temperatures drop, either the quantity of salt or the frequency of application must be increased.

Ideally, with a deicer, at the end of the storm all material should be completely used. Since storm forecasting is not precise, some residue may remain on the surface after some storms. That residue, if not blown off or washed away, will be effective in helping prevent bonding of ice and snow in the next storm. A deicer only has residual effect if too much was applied for the storm condition.

Many agencies in the North American snowbelt have found that prewetting salt with brine speeds the reaction time of salt and also provides melting action at lower temperatures. Although most agencies agree that prewetting provides a faster, higher level of service at all temperatures, they do not agree on method of application.

There may also be a combination of applications of any of the above.

Spreading can be done full-width or windrow. Both have strengths depending on conditions. Pay special attention to spinner speeds. A spinner that revolves too fast will throw salt over a wide area, possibly wasting materials. You may correct “overthrow” by adjusting the drop location on the spinner by using your directional baffles or reducing spinner speed. Traffic density and highway design largely determine the spreading pattern required.

A **windrow** of salt applied in a 4-8 foot strip along the centerline is effective on two-lane pavements with a low to medium traffic count. Less salt is wasted with this pattern and quickly gives vehicles clear pavement under at least two wheels. Traffic will soon move some salt off the centerline and the salt brine will move toward both

shoulders for added melting across the entire road width.

The **full-width** spreading pattern is used most often on multiple-lane pavements with medium to high traffic volumes. Melting action is obtained over the full pavement width. Vehicles tend to stay in line to clear wheel paths in the lanes.

Often the full width pattern is used when trying to get salt down “under a storm.” But be careful not to waste salt when using this pattern.

Play the wind in spreading. A strong wind blowing across a street or highway can cause salt to “drift” as it comes out of the spreader, pushing it onto the shoulder or into a gutter. This is particularly true in rural areas where there are few “windbreaks.” How the wind affects spreading depends on both wind velocity and pavement condition. Spreader operators should “play the wind” to put salt where it will do the most good.

Give salt time to work. Time plowing operations to allow maximum melting by salt. When you plow salt off the pavement you waste the deicing material and increase the cost of snow removal.

Know when to plow and reapply salt. The need for another salt application can be determined by watching melting snow kicked out behind vehicle tires. If the slush is soft and “fans” out like water, 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

(Continued on p.5)

(Salt Applications from p.4)

drops sharply. Without the sun, the effect of solar radiation and warmth is lost. At night, traffic usually diminishes, minimizing another heat source that helps melt ice and snow. Also, pavement temperature is not always the same as 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 that salt, applied at normal deicing rates, gives as much anti-skid protection as abrasives. The anti-skid effect of salt is immediate as it starts melting snow or ice.

Safeguard the environment. The way salt is spread can make the difference between whether the public appreciates or condemns snowfighters' efforts. Overuse and misuse ignore concern for the environment. Proper calibration of spreading equipment and good storage can avoid most problems.

There is no correlation between yearly snowfall and the total quantity of salt used. The type of storm dictates frequency of application and total amount of salt necessary. A freezing rain or ice storm may require enormous amounts of salt, perhaps even more than a prolonged snowstorm. There is no way to combat freezing rain other than salt use.

DEICING-PREWETTING

Once snow has accumulated and bonded to the road or an ice storm has glazed road surfaces, deicing operations must begin to restore safe driving conditions. The bond between snow and/or ice and the pavement surface must be destroyed by chemical or physical means or a combination of the two.

More than a dozen chemicals have been tested for deicing use. The most

common products used are sodium chloride, calcium chloride and magnesium chloride. Sodium chloride in the form of rock salt or brine is by far the most commonly used chemical in deicing operations due to its lower cost and proven effectiveness. Therefore, in the words of the Transportation Research Board in its 1992 analysis of deicers says salt remains the "deicer of choice."

Abrasives have no melting effect for deicing operations, in fact research by the Strategic Highway Research Program (SHRP) and the University of Wisconsin suggests that sand inhibits the melting process of deicing materials.

Choosing the Proper Application

Salt can be applied in solid, pre-wetted solid, or liquid form. Application methods are determined by weather and road conditions as well as equipment available. Salt needs moisture to provide melting action. Deicing rock salt or solar salt dissolves in road surface moisture to form a brine which melts snow and ice to form more brine which continues the process. Once salt has penetrated the packed snow and ice to make brine on the pavement surface,

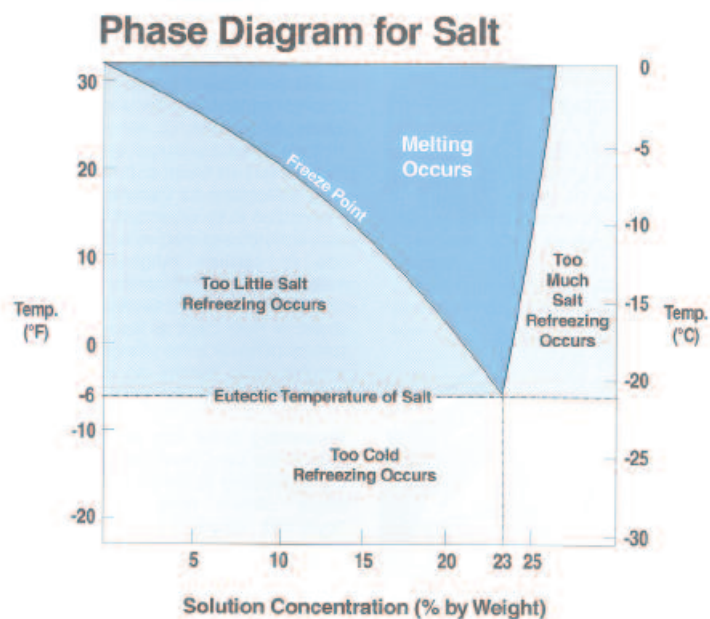
the bond will be broken and removal operations can be successful in restoring bare pavement conditions.

Forecasted conditions and road surface temperatures at the time of treatment determine whether winter maintenance materials should be applied in solid, prewetted solid or liquid form. The type of precipitation event, dry snow, wet snow, ice, sleet, freezing rain, etc. must be considered. Keep in mind that changing conditions will affect operations. Falling temperatures can cause refreezing. Additional precipitation can dilute winter maintenance materials, rendering them ineffective.

If the road surface is wet and temperatures will not cause refreezing, then application of dry salt is appropriate. Necessary moisture is already present so brine will be formed immediately and melting action can begin. The application rate will be determined by the amount of snow and ice coverage. Keep in mind the reduced mobility effect as dilution of deicing salt occurs.

If snow pack and ice is solid, or temperatures will fall to the point that refreezing will take place, then prewetted

(Continued on p.11)



2006 APWA TOP 10 PUBLIC WORKS LEADER



Robert (Bob) Wraight, P.E., is the Superintendent of Public Works for the Village of Morton, Ill. He is responsible for planning and implementing a capital improvement program with an average annual budget of \$6 million; generating and implementing programs and policies for the department's sewer, water, building and zoning, gas and streets divisions; preparing and reviewing engineering plans for Village projects; and serving as liaison between the Department of Public Works, planning commission, and the elected Village Board.

In 1980, when Wraight assumed the position of Superintendent of Public Works, the Village of Morton

suffered from serious infrastructure deficiencies, particularly in the areas of stormwater and wastewater treatment. Through Wraight's efforts, significant plans were developed to address these needs. In particular, Morton's comprehensive stormwater drainage plan was the largest public works project ever undertaken in the Village. It involved miles of creek improvements, numerous bridges, thousands of feet of sewer construction and several ancillary facilities and structures.

Wraight has been very active in community service. He prepared a nine-part public information series describing the Morton Department of Public Works which was published in the Morton Times News, November 1995–June 1996, and he has been a featured speaker at meetings of local civic organizations including Rotary Club, Pastoral Alliance, Kiwanis Club, Board of Realtors and Morton Chamber of Commerce Leadership School. Wraight is a director in the APWA Illinois Chapter's Central Branch, and was a member of the 2006 North American Snow Conference committee.

"The single word that best describes him is 'effective,' whether it involves solving a citizen's problem, generating budgets with the village board, or working with other governmental officials on regulatory and other issues." – James G. Roth, P.E., Manager of Water Resources and Development Dept., Crawford, Murphy & Tilly, Inc., Springfield, Illinois

Bob Wraight

Superintendent of Public Works, Morton, Illinois

- Bob has 28 years of service in the public works field
- He is the Superintendent of Public Works for the Village of Morton. Morton is a suburb of Peoria which has a population of 15,400 people.
- Morton's Public Works Department has an annual budget of \$28 million and has 34 employees.
- In his spare time, Bob flies airplanes.

The Technology Transfer Center would like to congratulate Bob for this outstanding accomplishment.

(Reprinted with permission from the APWA Reporter May 2006)

ILLINOIS' TOP THREE

Top Three Videos

1. V003 Motorgrader
2. V077 Snow & Ice Control
3. V517 Snow Removal Techniques-Plowing Tips From the Pros

For more information on our video library, visit our website at <http://www.dot.il.gov/blr/lib.html> (reproducible tapes) and <http://www.dot.il.gov/blr/lib3.html> (copyrighted tapes)

Top Three Publications

1. P005 Work Zone Traffic Control
2. P018 General Administrative Duties of the Township Highway Commissioner
3. P034 Jurisdictional Transfer Guidelines for Highway and Street Systems

For more information on our publication library, visit our website at <http://www.dot.il.gov/blr/publication.html>

2006 APWA SNOW FIGHTERS



The Nineteenth Annual Illinois Chapter APWA Snow Fighters Roadeo took place on September 29th at The Tri Township Park in Troy, Illinois. There were 24 teams participating from 16 local agencies. The Roadeo consisted of testing the skills of a two-person team in a three-part exercise consisting of a Written Test, The Circle of Safety and The Obstacle Course.

Written Test

Teams were tested on technical snow and ice control questions, rules of the road and safety related questions. The tests consist of 50 questions with a point value of 2 points each for a total of 100 points. Combined a perfect team score would be 200 points. In addition, there were five bonus questions which were not counted in the overall score, but would have

been used as a tie-breaker in the written test or the circle of safety.

Circle of Safety

Teams were tested by correctly identifying as many as possible of the 20 operational defects in the allotted 4 minutes. The defects were located on the plow, hitch, spreader and on the truck itself. As a team effort, each defect was worth five points for a total score of 100 points.

Obstacle Course

Teams were tested by their maneuvering through nine obstacles. A team effort was worth a maximum of 340 points. The obstacles included: plowing around a parked vehicle, inside curve, offset alley, serpentine, driver exchange (no points), backing, straight line, outside curve, stopping accuracy and time.



Overall Grand Total Winners

1st Place

City of Highland
Bugger/Daiber

2nd Place

County of Madison
McCormick/Kuehner

3rd Place

City of Fairview Heights
Rujawitz/Vollmer

Written Test Winners

Sangamon County
Warrington/Richmond

Circle of Safety Winners

City of Fairview Heights
Rujawitz/Vollmer

Obstacle Course Winners

City of Highland
Bugger/Daiber



Photos and article courtesy of Gary Stahlhut, Madison County Highway Department

PLOWING/SALTING TIPS

By Rick Ray, Norfolk Southern Railway Company



The railroads serving your state and local community request you use special care when plowing/salting roads this upcoming winter season.

Never dump salt or chemicals directly on or near any highway/railroad crossing at grade. Salt or chemicals reduce the resistant properties of timber and ballast, which can cause the electrical signals carried through the rails to short out resulting in activation of Flashing Light warning devices or malfunction of Train Signals.

While this may not be apparent at first, over the years a build up of these snow melting agents can cause areas of low resistance on the track. The only solution for this problem is

to remove the crossing surface, ties and ballast and install with new clean materials.

Snow management at or within 15 feet either side of Highway/Railroad crossings should consist of (when possible) removal with plows and sand or light gravel applied.

Where possible, avoid “piling” snow on or near RR Crossings, under gate arms or mechanisms and on access roads parallel and adjacent to tracks.

Snow and Ice removal using salt/chemical or gravel on approaches (up to 15 feet from tracks) of grade crossings assists the motorist greatly in maintaining braking ability when

approaching a grade crossing.

When possible “clear” Railroad pavement markings on the approaches.

Once again, plow and use sand or light gravel on and within 15 feet on either side of highway/railroad crossings. This should be done at all crossings whether signaled or non-signaled alike.

The railroads, your friends and neighbors who must deal with salt inducted grade crossing signal activations thank you, the plow truck/salt drivers, for this extra care around highway/railroad crossings and for making our roads safe for all this winter driving season.



WINTER SAFETY TIPS

One of LTAP's partners is the Salt Institute. On their website: www.saltinstitute.org, there are a variety of informational pages that will help with upcoming "winter operations for professional snowfighters." Good common sense with the right attitude keep snowfighters safe. They are the ones who clear the roads of snow and ice during winter months, not only for emergency situations, but also for those traveling the roadways.

BEFORE THE SNOW

Preparations before the snow flies keeps the snowfighters aware of any changes that may have occurred on the route. New driveways or culverts, low hanging wires or tree branches, new curbs or guardrails, all need to be noted because they won't be as identifiable when covered with snow.

Another item on the dry run that will help with the safety factor is to mark all obstacles with the idea of being able to see them during a snowstorm. Those trees that have grown may need a few branches taken off also.

WHEN WINTER ARRIVES

The following checklists are good reminders for snowfighters:

Crew Safety

- Adequate sleep or rest
- Multi-layers of warm clothing
- Hard hat, safety vest, safety shoes/boots, gloves
- First Aid Kit
- Thermos/lunch box
- Survival kit: flashlight/extra batteries, ice scraper/snow brush, jumper cables
- Tool kit, flares/reflectors, traffic control flags, shovel, sand, fire extinguisher

Material Safety

- Materials Safety Data Sheet for chemical information with emergency procedures
- Remain in truck cab when truck is being loaded (unless you're the loader operator)

Vehicles and Equipment Safety

- Pre-trip inspection of truck - check fluid levels, tire tread & inflation, brakes, windshield wipers & blades, heater, defroster
- Clean windows and mirrors
- Check all lights
- Back-up alarm, plow flags & warning signs on rear of truck
- Radio communications
- Full fuel tank
- Final walk around inspection
- Safety belt

Facilities Safety

- Good housekeeping
- Well-lit facility

Operations Safety

- Know your truck & equipment
- Know safe backing rules; circle of safety (Note: backing accidents number more than any other type of accident in our road maintenance operations.)
- Backup alarm standard equipment

- When spreading material & running with truck bed up, the bottom of the truck bed should not be higher than the top of the cab
- When changing plow blades, raise the plow and block it securely
- To unclog a spreader, turn off engine and all power to the spreader
- Relieve all pressure in the hydraulics and then use a tool to unclog (Even though all power is off, the reserve pressure in the hydraulic lines can still turn the auger as it is freed. Using a tool to unclog prevents the habit of sticking your hands in hazardous places.)
- Defensive driving & obey traffic laws
- Wear your safety belt
- Do not speed
- Keep adequate stopping distance
- Be aware of fatigue
- Know your own limitations
- Keep cool-Anger clouds judgment

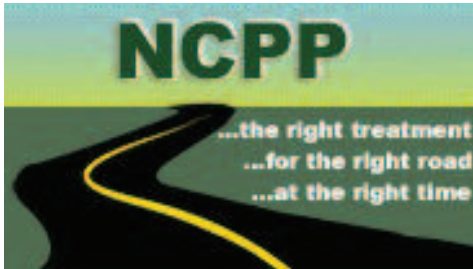
Winning combination to winter operation safety: Professional snowfighters provide the vital service to maintain a safe transportation system, think safe and act safe to be safe.

Permission granted to reprint Winter Safety Tips – Montana LTAP MATTERS, Fall 2006; from Safety Winter Operations for Professional Snowfighters, Courtesy of Salt Institute - More info at: <http://www.saltinstitute.org/30.html> and/or <http://www.saltinstitute.org/snowfighting>



JOIN THE MIDWESTERN PAVEMENT PRESERVATION PARTNERSHIP

By Ken Baker, Township Engineer, McHenry County



Road agencies throughout the United States are being confronted by increasing demands on their road network, while often facing diminishing resources (people, equipment and funding). As a consequence, pavements frequently fall victim to today's reality and condition levels spiral downward. Pavement preservation is a proven strategy used to improve the highway network condition with the existing resources available. To further the advancement of pavement preservation technology and best practices, agencies in the Midwest have come together to

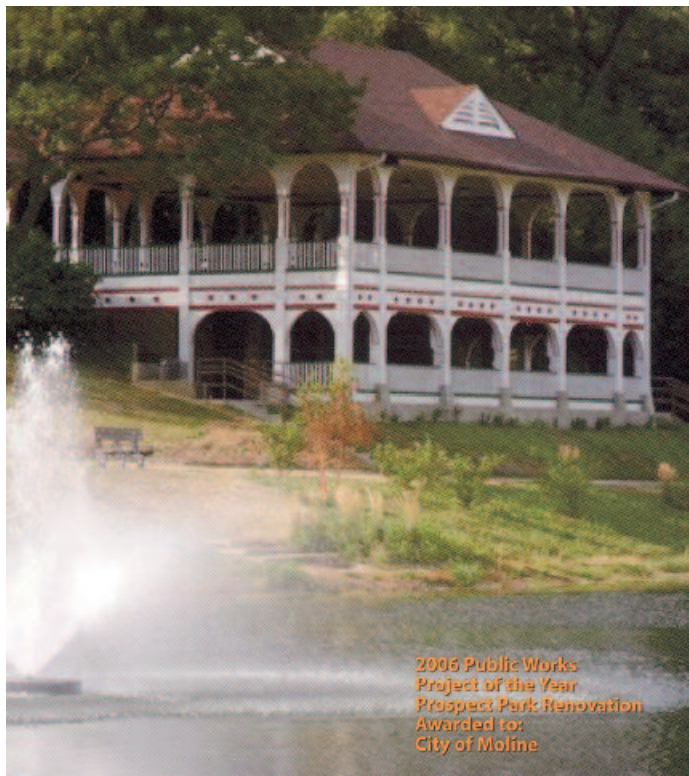
form the Midwestern Pavement Preservation Partnership (MPPP).

The MPPP is a regional consortium of pavement professionals from State and Provincial Agencies, Local and Federal Government Officials, Contractors, Suppliers, and Academia, all working together to take advantage of the synergy to be gained from sharing information and identifying common issues for furthering the practice of transportation system preservation. The MPPP provides a forum through which information can be shared and publicized in research, design, specifications, materials and construction practices, and to promote the benefits of Pavement Preservation through education, experience, and application.

The MPPP has recently entered into negotiations to form a partnership with the National Association of County Executives (NACE) in an effort

to significantly increase the participation of county and municipal roadway agencies interested in furthering the advancement and development of their pavement preservation programs. Any local or county roadway agency can join the MPPP for the price of \$800 per year. Membership includes; paid registration to the annual meeting for four participants who will also be eligible to serve as officers, and one vote on issues being considered at the MPPP business meeting. The next MPPP meeting will be held in the Fall 2007 in Montana.

Partnership descriptions can be found at www.pavementpreservation.org/partnerships. For further information on the MPPP or to inquire about membership, contact Ken Baker, Township Engineer, McHenry County at 815-334-4966, or Patte Hahn at the National Center for Pavement Preservation at 517-432-8220.



2006 Public Works Project of the Year
Prospect Park Renovation
Awarded to:
City of Moline



Illinois Chapter Conference May 2-4, 2007



5th Association of Equipment Management Professionals, Illinois Chapter Expo



23rd PPUATS Street Maintenance Seminar



5th Institute of Transportation Engineers, Illinois Section Traffic Engineering Track



15th International Municipal Signal Association, Midwestern Section Certification Training



New Emergency Management Seminar Track Coming Soon

(Salt Applications from p.5)

solid application of deicers may provide more rapid results. Adding moisture to the salt either at loading or at the spinner when applied will jump start the deicing process by providing more moisture to begin the melting process.

Spraying liquids is not recommended for packed snow as the liquid destroys surface friction and the brine may become so diluted before melting action is completed that refreezing could occur. Application of brine is an effective treatment for “black ice” conditions. Although salt can melt ice at temperatures as low as -6°F, the prac-

tical limitation of brine application is considered by the Federal Highway Administration to be around 15°F. Below that temperature, pre-wet with calcium chloride or calcium magnesium chloride mixed with sodium chloride.

Deicers should be applied close to the crown or high point of the road. The resulting brine will run downhill from the crown to the rest of the surface. Spinner speed should be low enough to ensure that deicing materials remain on the road surface. Spinner speed and application rates should be higher at intersections and other high traffic areas to spread deicing material

over a larger area or in higher concentrations as required by the condition. However, use of the “BLAST” override on automatic controls while stopped at a stop sign or light is not appropriate.

Road conditions, temperature, amount of snow and ice cover, storm progress, and traffic conditions all affect deicing application rate.

Summary

Use of salt is a proven snowfighting technique with many advantages:

- Returns roadway surfaces to bare pavement conditions more quickly, thereby reducing the number of accidents and property damage, and saving lives. Research has shown that use of salt as a deicer more than pays for itself
- Lowers manpower costs by reducing the time necessary to restore dry pavement conditions
- Eliminates or greatly reduces cleanup costs
- Compared to alternatives, salt is safer to handle, and kinder to the environment when properly used.

Prewetting may enhance salt use:

- Salt can be spread more uniformly with less waste on shoulders and in ditches because wetted salt sticks to the pavement
- The amount of dry materials used can be cut by 20-30% because of the dual action of added brine and more materials remain on roadway
- Works faster because more brine is present
- Driving/spreading speeds can be increased because salt stays on the roadway.

Courtesy of Salt Institute - More info at: <http://www.saltinstitute.org/30.html> and/or <http://www.saltinstitute.org/snowfighting>

STORMFIGHTING GUIDELINES

The following chart 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, re-apply salt at 200 lbs. per two-lane mile. Consider anti-icing procedures.

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 and accumulates, plow and repeat salt application. If freezing rain, apply salt at 200-400 lbs. per two-lane mile. Consider anti-icing and de-icing procedures as warranted.

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 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 Condition 1 and 2 must be repeated often for the duration of the condition.



The Technology Transfer (T2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to transfer the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement.

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Printed by authority of the State of Illinois, 12/06, 4,325



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