Local Roads and Streets Council formed

As part of WisDOT’s TransLinks21 long-range planning process, Department Secretary Charles Thompson formed the Local Roads and Streets Council last April. Members come from county, town, city, and village organizations as well as Regional Planning Commissions and Municipal Planning Organizations. WisDOT is represented by five non-voting members.

The Council and its committees are to study financing policies for local roads and streets, gather better data regarding their conditions, and identify the most cost-effective ways to provide local road and street services. The goal is to do a better job of directing local road funding to the highest-priority needs.

Local officials can talk to Council members to let WisDOT know about concerns, problems and policy issues that affect their communities. Its 23 members are drawn from Wisconsin Alliance of Cities, Wisconsin Towns Association, League of Wisconsin Municipalities, and Wisconsin Counties Association. A membership list with addresses and phone numbers is available from the T.I.C. “We’re addressing broad issues that include some knotty problems,” says Douglas Duckert, head of WisDOT’s Office of Local Highway Programs. “The Council has some very capable people working on these things, and we hope to have some useful recommendations to give to the Secretary by mid-summer.”

For a Council membership list with phone numbers and addresses, use the form on page 7 or call 800/442-4615.

Clarifications

Must CDL drivers inspect their trucks?

Lt. Lyle Walheim, State Patrol Program Manager, Motor Safety Program, replies: Privately employed holders of the CDL must carry out daily pre- and post-trip inspections of their equipment and maintain those records according to part 396 of the Federal Code of Regulations (49CFR). Municipal employees specifically exempted from this regulation under part 390.3(f) of those regulations. This means that drivers who contract with a municipality for snow removal and other services operate under different rules and must fill out and keep appropriate inspection forms. Forms are available from commercial vendors.

What is the appropriate use of an arrow board on a two-lane two-way road?

Uses of the arrow panel are described in Part VI F-3 of the Manual on Uniform Traffic Control Devices (MUTCD).

Because it indicates that vehicle drivers have the right of way and can freely move to the other lane, it should never be used in the arrow mode on a two-lane road. It can be set up on the shoulder in the caution mode (all four corners blinking) when both lanes of the highway remain operational and all the work is on the shoulder.

Pavement sensor forecasts

Pavement temperatures and forecasts are about the most sophisticated information currently available for road maintenance. Wisconsin now has a network of pavement sensors and weather stations on interstates and other major divided highways. The stations continuously report weather and pavement data via personal computer to all County Highway offices, WisDOT District offices, and other municipalities.

The system, coordinated by WisDOT, includes a 24-hour forecast of projected pavement temperatures.

Knowing pavement temperatures may let you eliminate a round of salting, says WisDOT’s Wayne Peterson who has been coordinating the system until recently. (Mike Adams is the new on-site program manager.) Even though air temperature is below freezing, if pavement temperature is 40°, it doesn’t make much sense to salt, Peterson says. But if the pavement temperature is 34°, and projected to go down later, you want to salt right away to prevent ice bonding and buildup on the pavement. Peterson believes the system will help cut salt use around the state.

There are 30 stations now, and WisDOT will have 21 new stations on line in December. The department is working towards a 35-mile grid covering the whole state. The information is quite accurate for up to 35 miles, Peterson says.

Larger communities can access this information directly through a computer hook-up. Contact the WisDOT District Maintenance Engineer for information. Smaller communities can call their county Highway departments for a current status report and forecast.

Contract forecasts

Many municipalities contract for commercial weather forecasts. The cost varies with the level of service and size of community. Problems at the simplest, you can just call whenever you want a forecast for your area. The businesses also offer daily routine forecasts, storm alerts, and 24-hour telephone calls. (Contact T.I.C. for a list of forecast services.)

Milwaukee, for example, has received forecasts from Murry and Trellette for more than 30 years. “We use them like an alarm clock,” says Dave Lorbeke, the city’s field manager for winter maintenance operations. “They will call and warn us if snow is coming, 24 hours a day.”

The city’s on-call manager writes the meteorologist’s verbal weather observations and forecasts on a form. He can ask questions and get more information right away. Routine 24-hour forecasts are delivered in the morning by phone or fax and updated in the afternoon. The company also supplies storm alerts and longer range forecasts. The service costs Milwaukee about $5000/yr.

“We want to know what time of day the storm will hit, the temperature before and after the storm,” says Lorbeke.

Continued on page 7
Mobile pavement sensor improves salt use

In Vermont they are using pavement temperature information to limit salting to conditions where it will be most effective. Pavement and air temperatures can often be very different. Supervisors collect pavement temperatures using an infrared sensor mounted on their patrol trucks.

Vermont’s Smart Salting strategy, first fully implemented for winter 1994-95, appears to have cut salt and sand use. “We used 59,000 cubic yards of sand, compared to an average of 100,000 cubic yards, and kept salt use to the average of 100,000 tons, with 10 more storm events last year,” says Mr. Ian Lawson, State Maintenance Engineer. He oversees winter maintenance for 3,072 road miles in Vermont.

The infrared sensor looks like a flashlight mounted to the truck’s frame. A digital unit inside the cab continuously displays pavement temperatures while the supervisor drives at highway speeds. The sensors cost Vermont about $2200 each.

Pavement temperatures vary about five degrees with local conditions like shading, pavement type and age, road elevation, and bridge decks. The range remains relatively constant over the geographical area for which a supervisor is responsible.

Supervisors determine salt application rates by combining pavement temperature with an estimate of the ice or snowpack thickness. Since one pound of salt can melt more than 46 pounds of ice when pavement temperatures are at 30°F, and about 8.6 pounds at 20°F, they try to limit salting to that 10-degree range. This gets the job done while conserving salt and keeping excess out of the environment.

Using ground speed controlled salters and keeping them calibrated are important elements of the strategy as well. Pre-wetting the salt, either as it’s being loaded or through tanks on the truck, helps jump start the salt’s melting action when the snow is dry. The salt sticks better and less bounces off when it is spread or kicked off by following vehicles.

Copies of Vermont’s Smart Salting booklet are available from the T.I.C. Use the form on page 7 or call us at 800/442-4615. Vermont’s sensor supplier is Control Products Inc., Vancouver, WA, 360/571-0988.

Thermal system fixes problem manholes

“There’s nothing more frustrating than to hit a high manhole when you’re plowing,” says Rick Heisler, public works supervisor in the city of West Bend. He’s found a system for repairing them that is quick, effective and efficient. The city hires a local contractor to level raised manholes using an infrared thermal patching system.

The unit heats a six by eight foot area of bituminous concrete around the raised manhole. Workers rake and loosen the softened material, then spray on an emulsion to help rejuvenate the existing pavement materials. New hotmix is also added and the pavement surface is reshaped and compacted to eliminate the high spot. The whole process takes about 15 minutes.

“We did 400 in the summer of 1994, and it cost us $38 each,” says Heisler. “Now we have them on a regular maintenance schedule and are doing about 125 a year for $45 each.”

Heat sensor information

Weather forecasts, pavement temperature information, and personal observation are tools to help you respond to winter storms effectively and efficiently. The tools keep getting better, and the cost is going down. Using them in combination with a pre-determined maintenance plan can help you save on salt, sand and labor.

Contact the T.I.C. for a list of private weather forecasting services, contract satellite and radar image suppliers, and information on National Weather Service current conditions and forecasts in text form.

A newsletter providing information on roads and bridges to local officials, published quarterly by the Transportation Information Center, located at the University of Wisconsin–Madison, Dept. of Engineering Professional Development, 432 N. Lake St., Madison, WI 53706. Phone: 800/442-4615. Fax: 608/263-3160.

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Lynn Butline, Lynn Butline Writing & Editing
Swan Kummer, Artwork
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My idea, comment or question is ____________________________.

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Pavement Management for Local Roads This revised workshop is offered in three four-hour sessions to meet a range of training needs for those using PASER and ROADWARE to implement pavement management. During the morning of Day 1, you will learn the basics of pavement management and of using ROADWARE and how to rate pavements using PASER; that afternoon you will see the program features of ROADWARE 5.01 and try your hand with it in the computer lab. During the morning of Day 2 you will visit various maintenance strategies by running computer simulations with several databases. You can register for one, two, or all three half-day sessions depending on your needs.

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January 3-4, 1996 in Madison

Highway Safety This workshop will help you reduce risk to your work force and the public. It covers the basics of workzone traffic control and the fundamentals of highway and street signing, and introduces a new method that you can use to improve the safety of your streets and roads through a systematic evaluation and mitigation of roadway safety hazards.

January 5-6, 1996 at numerous Wisconsin locations

Bidding Small Road Improvements (audio ETN conference presented by the UW Local Government Center and T.I.C.) Do you have an idea to exchange? Have you designed a gadget or found a new way to do something that other streets and highway people can use? Use the form on page 7 to let us know, or call Don Walker or Steve Pudloski at 800/442-4615.

UW–Madison seminars

Local government officials are eligible for a limited number of scholarships for the following course in Madison. Use the form on page 7 for details or call 800/442-4615.

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Writing Civil Engineering Specifications, February 5-7

Managing Fleet Maintenance Operations, February 26-27

Improving Public Works Construction Inspection Skills, February 26-28

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Highway Safety Improvements, April 15-17

Managing Highway Liability, April 17-19

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Commercial Pesticide Applicator Training—Right-of-Way Pesticides are valuable for managing roadside vegetation but they must be applied by a certified applicator, or under the supervision of one. This workshop prepares you to take the examination the same day. (Training 8:30 a.m. to 2:30 p.m., followed by 90 minutes to take the exam.)

Jan 24 Arlington (preregister by Jan 20)

Jan 25 Wauwatosa (preregister by Jan 21)

To register, complete a Commercial Pesticide Applicator Training (CPAT) registration card available from your county Extension office or from the CPAT office in Madison (608/262-1999). A fee is required.

A self-study video tape is available through the T.I.C. Video-tape Library. Contact your county Extension office to borrow a copy. To receive print materials and exam instructions, complete a CPAT registration card and pay the fee.

Thermal system fixes manholes

When they started the manhole program, they repaired problem manholes all over the city. Now, each spring they review all manholes in a section of the city and prepare a bid spec. It takes one person or two days to survey the manholes, spray paint numbers on them, and mark corresponding numbers on a map for those needing repair.

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Where to go with the snow: Snow treatment and disposal guidance for municipalities, Wis. DNR, PBL-WR-154-95REV, 1995, pamphlet. This brief pamphlet points out that snow removed from streets may have salts, nutrients, oil, sand, silt, litter, heavy metals, and toxic chemicals. Explains potential problems, recommends disposal methods, and offers strategies to reduce contaminants.

WiDoT now has available a training program on metric (SI) use in highway agencies. Program, Metric (SI) Training for Highway Agencies, CBT 2.0, is based on the National Highway Institute course by the same name. The disks run on IBM compatible computers, 286 or better, with VGA graphics.

The training allows users to progress at their own speed, use whatever modules apply to them, and participate in a training at their convenience. The course includes: building blocks for conversion to SI, overview of SI in the highway context, five modules, quiz and quiz questions. The modules are: Planning and roadway design, Drainage, Bridge design, Materials, Quantification, cost estimation.

Available on loan from B. Parke, WiDoT Division of Highway Training Coordinator, 608/267-3615.

Privatizing Public Works, UW-Madison (17787, Tape 1-20 min., Tape 2-90 min.) Phoenix, Charlotte, and Indianapolis are the “giants” in privatizing public works, but smaller cities have also succeeded including San Mateo, Calif., Highland, Mich., and Wauwatosa and Salkville, Wis.

Roads of Winter Driving (3 tapes: 26 min.; 27 min.) Discusses pre-operation vehicle inspection procedures and techniques for safe operation of the vehicle in a variety of winter driving conditions and, through driver comments, actual winter driving conditions, and through driver comments. Slow snowfighting techniques. For supervisors, equipment maintenance personnel and winter control operations, Oregon Ministry of Transportation (17796, 26 min.; Sanding and Salting, 27 min.; Sidewalk Maintenance, 19 min.) An excellent three part video including all aspects of winter road and sidewalk maintenance. It includes fall preparation, equipment preparation and maintenance, communication procedures, and materials usage and handling. For supervisors, equipment maintenance personnel and safety-related groups.

Snow Plow Safety, National Safety Council (#17789, 23 min.) Discusses pre-operation vehicle inspection procedures and techniques for safe operation of the vehicle in a variety of situations. Good for plow operators and supervisors.

The Snowfighters, Salt Institute (#17790, 21 min.) Provides good information on costs vs. benefits of salt as a highway deicer, maintenance and winter preparation, and snowfighting techniques. For supervisors, maintenance, and operator personnel. Elected officials can also benefit.

School Zone Safety, Utah DOT & Utah Technology Transfer Center (#17791, 22 min.) Good training for school crossing guards. Includes duties at reduced school speed zones, school crossings, and traffic signals. Also presents proper signing and marking for school zones. For school crossing guards, traffic engineers, school officials, and local safety groups.

Winter Control Operations, Ontario Ministry of Transportation (17796, Snow Plowing, 26 min.; Sanding and Salting, 27 min.; Sidewalk Maintenance, 19 min.) An excellent three part video involving all aspects of winter road and sidewalk maintenance. It includes fall preparation, equipment preparation and maintenance, communication procedures, and materials usage and handling. For supervisors, equipment maintenance personnel and safety-related groups.
Good ideas from winter maintenance workshops

Nobody knows the tricks of snow plowing better than you do. We often hear good ideas for removing snow at intersections. If you've attended, you may have heard plans categorize all streets as 1) priority (plowed first and 2) secondary (plowed next). Elkhorn's street maintenance folks developed their plan seven years ago. They started with a sample plan from UW Extension's Snow and Ice Control course. After a week and a half of work to modify it for Elkhorn, the plan categorizes all streets as 1) priority (plowed first and 2) secondary (plowed next). They started with a sample plan from UW Extension's Snow and Ice Control course. This plan in which his wingplow-equipped trucks make mostly right turns clear streets faster than others, says Michael Early, Elkhorn's Streets Foreman, “I put 12 to 15 warning tickets on illegally parked cars at the beginning of every snow season,” says Titze. “And then usually I only have to give about one actual ticket.” Titze also has the authority to have the vehicle towed.

Plowing advice

Recent Winter Maintenance Workshop participants shared many good ideas about how to plow streets:

Plowing cul de sacs

Cul de sacs, with their many drive-ways and limited terrace space, are a plowing nuisance. In West Bend the city doesn't plow them at all; private contractors do. They come in with loaders, which are more maneuverable than trucks, and mound the snow in the cul de sac's center. When the piles get too high they make the snow away. Contractors charge $75 hour and it takes them about 15 minutes to plow each of West Bend's 65 cul de sacs, according to Stevens Point's superintendent of services. "Plows cut plowing and make the job easier, in clearing intersections. West Bend's efforts to level manholes has also helped," saysMutze. "They're real 'knee jammers,'" says Jim Harer, St. Croix County patrol superintendent. "They're really only useful on those salt routes eventually. They're so busy getting the job done, it can be hard to remember to put the salt. So we often ask these questions. If serious accidents occur, this information will be helpful if a lawsuit develops. The data also helps us with the state's salt plans reviews.

Plowing advice

Stevens Point’s superintendent of services, has developed a plowing plan in which his wing-plow-equipped trucks make mostly right turns. The driver plows all the way around each block, then stops and backs across the street (red line). At this point the driver begins plowing the next block. After all the blocks are done, the entire perimeter gets plowed.

Plowing advice

Road width and snow conditions permit, they assign the plow crews to work straight time rather than overtime.

Spreading and wetting sand and salt

When people see sand on the roads, they can tell that main- tenance is being done, says Jim Harer of St. Croix County. He uses sand mixed with 10% salt most of the time on county roads. The spreader located at the inside corner of the truck is set to turn slowly. Traffic action quickly kicks the sand into the travel lanes. They spread sand on the highways and limited access facilities. If the plow is too fast, the snow moves under the plow and doesn't scatter well. Some people are still reluctant to use them, wing plows are working well on the urban streets of Stevens Point, West Bend and Portage County.

Keeping storm records

So, how did yesterday's plowing operation go? How many trucks were on the road? How low did it take to clear the road? You're so busy getting the job done, it can be hard to track the salt use and the deicer. Governmental and reporters often ask these questions. If serious accidents occur, this information will be helpful if a lawsuit develops. The data also helps us with the state's salt plans reviews.

Keeping storm records

In Stevens Point they fill out a simple form after each storm event. It includes beginning and ending times for the storm and for plowing salt routes and regular routes, along with current and forecast temperatures, and whether salt or sand was used. There’s also room to note any special occurrences.

Keeping storm records

Winter 1996

November, 1996

The driver works a multi-block section, starting at #1, plowing right turns clear streets faster. He starts at the corner (red line) of the road. Then, with right turns the radius, then stops and backs across the street (red line). At this point the driver begins plowing the next block. After all the blocks are done, the entire perimeter gets plowed.

Crossroads
Good ideas from winter maintenance workshops

Nobody knows the tricks of snow plowing better than you who do it. We often hear good ideas for removing snow at
driver to take over a route. While some routes look bigger
the entire perimeter gets plowed.

Plowing advice

Recent Winter Maintenance Workshop participants shared many good ideas about how to plow. The county has underbody blades on five trucks used to
on the wing end helps drivers judge its distance from the curb or
eight the volume of
cut salt use and gets slow-moving graders off the road, says
who do it. We often hear good ideas for removing snow at

Pre-snow planning

Planning plow routes, setting priorities, and putting plans on
driving the route before the first snow. The driver works a multi-block section, starting at #1, plowing
to preserved the surface. Krieski. They don't use the wings on
to preserve the surface. Peterson likes the new

Plowing advice

City block

Right turn plowing plan

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The driver works a multi-block section, starting at #1, plowing

Plowing shoes

Portage County saves wear on wing blades and

Wing plows clear urban streets

Although some people

Ice cuts

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At numerous Wisconsin locations

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New tapes in video library

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This chart shows effective salt application rates as determined by melting formulas. In actual salting patrols with ground-oriented spreaders, the practical minimum is about 100 pounds of salt per lane mile with an error factor of ±25 pounds. relatively constant over the geographical area for which a supervisor is responsible.

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He has a local contractor to level raised manholes using an infrared thermal patching system. The unit heats a six by eight foot area of bituminous concrete around the raised manhole. Workers rake and loosen the softened material, then spray on an emulsion to help rejuvenate the existing pavement materials. New hotmix is also added and the pavement surface is reshaped and compacted to eliminate the high spot. The whole process takes about 15 minutes.

“We did 400 in the summer of 1994, and it cost us $38 each,” says Heisler. “Now we have them on a regular maintenance schedule and are doing about 125 a year for $45 each.”

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Crossroads

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Weather—the winter guessing game

duration, and predicted amounts of snow, rain, or sleet,” says Dick McDowell, the administrator and projects manager for Milwaukee’s Sanitation Division. That information helps them decide how to deploy equipment and what is the minimum amount of chemicals needed to handle the job. They don’t rely on just one source, however. They also use computer links to get data from the state’s pavement sensor and weather reporting system and pay for images from radar and satellite. They use free information too. Cable TV weather channels and forecasts by local TV meteorologists are taken into account, and they routinely have supervisors drive local streets to check conditions.

Contract satellite and radar images

Dane County Highway Department uses visual images of weather systems from a private vendor, Satellite Information Systems (formerly DTN). They get the images through a satellite dish and TV monitor supplied by the company.

“We can zoom in on Iowa and Dane Counties and watch the systems move,” says Steve Haag, patrol superintendent. “You can tell their speed, and how heavy the rain or snowfall is. It’s very accurate.” The information comes from radar and satellite images which are visualized as maps by the vendor. It also supplies National Weather Service current conditions and forecasts in text form.

The county uses this tool, along with state-supplied pavement temperature information, to decide their maintenance strategy. “If it’s a light snow, for example, we may just salt our 24-hour and class one routes during the night and wait until the regular shift comes on for the other routes,” says Haag. “That way we can save on overtime costs.”

Dane County doesn’t use a private forecast service for storm alerts, but relies on State Patrol emergency calls to alert them to unexpected conditions. Haag and his counterpart in Madison, Toby Oppheim, the city’s Streets Operations Manager also share information and coordinate together. Madison does use a private forecast service.

Options for smaller communities

Weather forecasts, pavement temperature information, and personal observation are tools to help you respond to winter storms effectively and efficiently. The tools keep getting better, and the cost is going down. Using them in combination with a pre-determined maintenance plan can help you save on salt, sand and staff.

Contact the T.I.C. for a list of private weather forecasting services, contract satellite and radar image suppliers, and information on National Weather Service and WisDOT services. Use the form below or call 800/442-4615.

Reader Response
Local Roads and Streets Council formed

As part of WisDOT’s TransLinks21 long-range planning process, Department Secretary Charles Thompson formed the Local Roads and Streets Council last April. Members come from county, town, city, and village organizations as well as Regional Planning Commissions and Municipal Planning Organizations. WisDOT is represented by five non-voting members.

The Council and its committees are to study financing policies for local roads and streets, gather better data regarding their conditions, and identify the most cost-effective ways to provide local road and street services. The goal is to do a better job of directing local road funding to the highest-priority needs.

Local officials can talk to Council members to let WisDOT know about concerns, problems and policy issues that affect their communities. Its 23 members are drawn from Wisconsin Alliance of Cities, Wisconsin Towns Association, League of Wisconsin Municipalities, and Wisconsin Counties Association. A membership list with addresses and phone numbers is available from the T.I.C. "We’re addressing broad issues that include some knotty problems," says Douglas Duckert, head of WisDOT’s Office of Local Highway Programs. “The Council has some very capable people working on these things, and we hope to have some useful recommendations to give to the Secretary by mid-summer.” For a Council membership list with phone numbers and addresses, use the form on page 7 or call 800/442-4615.

Clariﬁcations

Must CDL drivers inspect their trucks? Lt. Lyle Walheim, State Patrol Program Manager, Motor Safety Program, replies: "Private employers of the CDL must carry out daily pre- and post-trip inspections of their equipment and maintain those records according to part 396 of the Federal Code of Regulations (49CFR). Municipal employees are specifically exempted from this regulation.

Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD). Because it indicates that vehicle drivers have the right of way and can freely move to the other lane, it should never be used in the arrow mode on a two-lane road. It can be set up on the shoulder (in the caution mode at all four corners blinking) when both lanes of the highway remain operational and all the work is on the shoulder.

Pavement sensors forecasts

Pavement temperatures and forecasts are about the most sophisticated information currently available for road maintenance. Wisconsin now has a network of pavement sensors and weather stations on interstate and other major divided highways. The stations continuously report weather and pavement data via personal computer to all county highway offices, WisDOT District offices, and other municipalities.

The system, coordinated by WisDOT, includes a 24-hour forecast of projected pavement temperatures. Knowing pavement temperatures may let you eliminate a round of salting, says WisDOT’s Wayne Peterson who has been coordinating the system until recently. (Mike Adams is the new on-site program manager.) Even though air temperature is below freezing, if pavement temperature is 40°, it doesn’t make much sense to salt, Peterson says. But if the pavement temperature is 34°, and projected to go down later, you want to salt right away to prevent ice binding and build up on the pavement. Peterson believes the system will help cut salt use around the state.

There are 30 stations now, and WisDOT will have 21 new stations on line in December. The department is working towards a 35-mile grid covering the whole state. The information is quite accurate for up to 35 miles, Peterson says. Larger municipalities can access this information directly through a computer hook-up. Contact the WisDOT District Maintenance Engineer for information. Smaller communities can call their county highway departments for a current status report and forecast.

Contract forecasts

Many municipalities contract for commercial weather forecasts. The cost varies with the level of service and size of community. Problems at the simplest, you can just call whenever you want a forecast for your area. The businesses also offer daily routine forecasts, storm alerts, and 24-hour telephone calls. (Contact T.I.C. for a list of forecast services.

Milwaukee, for example, has received forecasts from Murry and Trettle for more than 30 years. “We use them like an alarm clock,” says Dave Lorbeke, the city’s field manager for winter maintenance operations. “They will call and warn us if snow is coming, 24 hours a day.”

The city’s on-call manager writes the meteorologist’s verbal weather observations and forecasts on a form. He can ask questions and get more information right away. Routine 24-hour forecasts are delivered in the morning by phone or fax and updated in the afternoon. The company also supplies storm alerts and longer range forecasts. The service costs Milwaukee about $5000/year.

“We want to know what time of day the storm will hit, the temperature before and after the storm, its..." Continued on page 7