
Common Council
Work Group to
Review Snow
Policies &
Procedures

DRAFT
FINAL REPORT

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Original documents/materials provided and used over the course of the Work Group’s tenure

Background

In the last several years, Madison has seen above-average snowfalls. While the overall time to plow all city streets has remained effectively steady, the early heavy snowfalls caused heavy rutting and other quality of life issues across the city. On December 8-9, 2009 a large storm dumped approximately 18" of snow across the City. The snow had a high water content and the resulting road conditions led Mayor Cieslewicz to order a top-to-bottom review of the City's response. The report was available on December 24, 2009 and outlined several operational changes that could be implemented to improve the quality of response to snowstorms.

At its first meeting following the December 2010 storm, the Common Council Organizational Committee asked several questions of the Mayor's Office and Streets Superintendent Al Schumacher. It was determined that a Council Working Group be formed to look at the issues in more detail, with the goal of formulating policy and budget adjustments that would improve the city's response to snowstorms.

From the beginning, it was recognized that the record-breaking and near record-breaking snowfall seasons of recent years were remarkable in their magnitude and the stresses they had placed on the City's resources. It was also recognized that the Streets Division had not been growing at a pace to match the City's growth, and that several new technologies had recently become available that could be explored. Previous equipment improvements had made up some of the difference between the growth of the City and the growth of the Streets Division, but one of the main questions the Working Group set out to address was whether the Streets Division needed additional resources and employees in order to function optimally. The Working Group also examined new equipment options, changes to practices such as pre-wetting of pavement with a brine solution and exceeding salt policy limits in extreme cases, and improving dissemination of public information.

After a series of meetings attended by a group of Alders, City Staff, and a representative from the Mayor's Office, the Working Group compiled the recommendations in this report. Additional background on the process is available in the Working Group minutes and other attachments to the report.

Recommendations

The efficacy and speed with which snow is removed is the largest wintertime challenge faced by the Streets Division. It requires a fleet of vehicles with specialized equipment and properly trained drivers, thorough knowledge of weather and pavement conditions, and substantial consumable supplies, specifically road salt. While recognizing that Madison is located in a northern climate and subject to severe snowstorms, the Work Group identified several steps that could be taken to improve the city's snow removal. The recommendations fall into three categories: personnel; equipment, operations, and data; and public communications.

Equipment, Operations, and Data:

The traditional snow removal and salting techniques have seen ongoing refinement over the last several decades, driven in part by a desire to provide better results as well as increasingly constrained budgets, increases in the prices of materials such as salt, and the recognition of the impact of salt on our lakes and our aquifer.

Increased uses of liquids as pre-wetting agents and anti-icing agents

The street ruts experienced in Madison in recent years was primarily due to early, wet, and heavy snowfalls that were compacted by traffic as they bonded to relatively clean pavement. Early snowstorms traditionally tend to be lighter than those seen in recent years, allowing for a layer of salt and sand to be placed on the roads before the heavier storms often seen later in the season. That salt and sand reduced formation of ruts by minimizing bonding of snow to pavement.

To combat the bonding of snow to pavement, it is suggested that the City increase the use of liquids as pre-wetting agents. The Streets Division has ordered 4 – 1035 gallon liquid brine tanks with spray bars to fit on 5-ton dump trucks in an effort to anti-ice salt routes prior to the beginning of storms. These units should be in service in time for the winter season of 2010-2011. In addition, the Streets Division is continuing in the effort to study and implement the use of organic liquids to blend with salt brine to bring the effectiveness of salt to a lower temperature than the 15 °F that salt alone is effective at.

Estimated cost:

Pavement temperature measurements and forecasts

Knowledge of pavement temperatures is important for planning the best snow removal and anti-icing strategy ahead of snowstorms. Currently there is one in-pavement temperature sensor in Madison, operated by WisDOT. Pavement conditions can vary widely throughout the City. It is recommended that the City install a series of pavement sensors and attach them to the City's data network to provide realtime measurements of pavement temperatures. Initially five In-Ground Pavement Sensors would be installed to assist in determining when to effectively utilize salt and pre-wetting agents and to assist in determining the amount of salt that should be spread. Additionally, pavement temperature forecasts could be added to the Weather Services Contract. The real-time data would provide important verification of the forecasts should they be obtained. Generating such forecasts is extremely difficult and should not be seen as a replacement for actual measured temperatures.

Estimated cost: ~\$26,000 for this project for purchase of the sensors, installation, software setup charges and maintenance charges.

Plow blade technology improvements

The traditional curved steel plow blade has seen refinements over time, but further improvements are possible. For example, steel blades do damage to pavement and curbs and blades with a hard rubber surface or edge that contacts pavement directly could provide improved performance for some types of snow. Other improvements including redesigned blades that more effectively clear snow and different styles of blades such as underbelly plows should be investigated. It is recommended that the Streets Division continue to investigate new blades and related technologies, with particular focus on the options that reduce damage to road surfaces while not sacrificing snow-clearing performance.

Estimated cost: New blades would be a capital cost.

Increase salt routes from 30 to 34 routes

The number of simultaneous salt routes impacts how quickly and well the primary routes are cleared. Increasing the number of simultaneous salt routes without increasing the lane miles of streets that are being salted would increase snow-removal performance. It is recommended that 4 additional trucks and 4 additional operators be hired to achieve this improvement. Some additional funding for overtime would be required as well.

Estimated cost: ~\$840,000.

Plow at 2" instead of 3"

The current policy calls for all streets to be plowed when accumulations reach 3" or greater, resulting in more snowpack on side-streets than under previous policies that required earlier plowing of all streets. Plowing when accumulations reach 2" or greater would increase the number of full scale plowing operations from the current average of 5 times per year to an average of 9 times per year. To achieve this recommendation some additional overtime funding and additional funding in the Streets Division purchased services budget would be required to fund additional contractor hours.

Estimated costs: ~\$800,000.

Residential responsibility for bus stop/bus pad clearing

City policy currently is to have the Streets Division clear bus stops, which may occur one to four weeks following a major storm, resulting in Metro buses picking up passengers at cross streets and private driveways. Such bus stop clearing frequently results in damage to the terraces, This also presents challenges for those in wheelchairs, with walkers or strollers, and those otherwise less able to manage to non-standard locations. One option to address this issue is to have residents address bus stop pads as they do sidewalks, which would require an ordinance change requiring property owners abutting bus stops to be responsible for clearing the snow from the paved pads at the bus stops. This would only be effective if the property owner would also be

responsible for clearing the windrow of snow caused by the plow in the street as well near the bus stop. Otherwise, it will still take 3-4 weeks for City crews to clear all the windrows.

Estimated cost: Minimal to the city, however some residents may have to pay to have this work performed for them.

Personnel

Snow plows need operators. The City relies on a combination of Streets Division staff and hired contractors for manage snow plowing operations. Over the last several years the city has relied increasingly on contractors and on improvements to technology to offset a lack of new Streets Division employees. As with any basic City service, balancing full time staff with hired contractors requires frequent review to ensure that the City's needs are met in the most efficient fashion possible.

Snow Plow Contractor RFP

With an unpredictable workload and competition for snowplowing services from malls and other commercial business, the City is at a disadvantage when it comes to finding quality contractors to augment the paid Streets Division staff. Some parts of the city have chronic problems with plow contractors. It is recommended that the new RFPs for snow plow contractors, to be released in the summer of 2010, contain parameters that improve the quality of the type of equipment as well as to clarify City of Madison contractor expectations.

Estimated cost: Tighter requirements may result in slightly higher costs.

Additional Streets Division Staff

Staffing levels at the Streets Division have been flat for over ten years, despite substantial growth in lane miles of city streets. The impact of this year-round has been somewhat mitigated by technology improvements such as plow blade extensions, automated refuse and recycling pickup, and so on. However, recent changes to Streets Division services such as changes to large-item pickup and brush pickup have highlighted the pressure the Division's staffing has been under. In order to improve snow removal performance as well as address other year-round needs, it is recommended that 20 additional Streets Division employees be hired over the next 3 years to make up for the pressure on providing basic services in a timely and efficient manner.

Each City dump truck with plow costs about \$148,000 and each operator is about \$50,000 per year. New staff could be used year round for some or all of the following tasks:

1. Restore funding and schedule for monthly brush collection. 2 Street Machine Operator II's would have to be restored to the Streets Division budget for a total cost of ~\$125,000 to restore brush to the previous monthly collection service from April through October.
2. Year round staffing of Self Help Drop Off Sites. Add 2 Street Machine Operator I's and staff the Self Help Drop Off sites 12 months per year. Estimated cost: ~\$104,000.
3. Leaf Collection. Due to growth in City forest, tonnages for leaf and yard waste collection are continuing to rise annually. The Streets Division feels that we will require 2 additional complete crews of personnel and equipment to keep current levels of collection the same in the future. Estimated cost: ~\$712,000.

4. **Increased Street Sweeping.** Some streets in the City are swept weekly in the Clean Streets/Clean Lakes sweeping areas. The remainder of the City is swept on a 3-4 week cycle. This idea would increase the frequency of street sweeping in the areas of the City that are swept every 3-4 weeks by adding one additional sweeper each side of town and the corresponding additional operators. Estimated cost: ~\$525,000. Another option would be to just hire the operators and scheduled them at night to sweep. While this would save on the cost of the sweeper, we will have to overcome the issue of noise during the overnight hours. Estimated cost: ~\$215,000.
5. **Additional Stump Removal Crew.** To ensure that all stumps on city-owned property could be removed on a timelier basis, a third stump grubbing crew could be added to work longer into the fall and begin earlier in the spring. Staffing and equipment costs: ~\$400,000.
6. **Winter Weekend Staff at Self Help Drop Off Sites.** If proposal #2 above isn't a viable option, Streets staff would like to open the Drop Off Sites for one to two weekends per month during the winter to assist our customers by creating some convenient hours to utilize the facilities. This would be additional overtime costs of either \$2,425 or \$4,849 depending on one or two weekends per month. Hours may require flexibility if staff is also used for plowing operations.

Twenty additional Streets Division staff would cost approximately \$1,000,000 per year, with associated capital equipment costs associated with how those jobs are distributed.

Public Communications

While many of the potential and recommended changes to the way Madison responds to citizen expectations for winter storm management are technical or physical in nature, the Working Group recognized that communications efforts are also very important and can be effective in setting expectations and giving citizens strategies to avoid or minimize surprises or hassles, especially during declared snow emergencies, and on how to participate in efforts to get the city back to normal operation in winter.

Increase Overall Winter General Information

It is recommended that the city create a "Winter Wondering?" publication or Web site document to remind residents of general Winter Safety and Awareness Tips.

This should include standard safety reminders, such as:

- Vehicle winter maintenance and safety strategies:
 - Tire maintenance (good tread, proper pressure)
 - The differences between front wheel drive, all wheel drive and four wheel drive driving and stopping capabilities.
 - Know your vehicle clearance and handling on snow and ice.
- Reference to Madison's Winter parking and shoveling regulations: Highlight what's new and what's changed, specifically regulations, penalties and options.
- What does a snow emergency mean and what should you expect to happen?
- How to learn more: Offer the latest options to be on e-mail, text, RSS, social media or other real-time communications vehicles.
- How to ask questions, report complaint and get action.

Inform Neighbors How to Help Each Other During Snow Events

There are limits to what City Staff can be expected to accomplish following a snowstorm. The Working Group strongly suggests that methods be developed to encourage “Neighbors helping neighbors.” Such methods could include:

- Development of a registry for those who cannot shovel to get assistance.
 - There currently are a number of agencies that assist elderly/handicapped residents who need assistance in snow removal. These agencies are listed in our website and are: Independent Living, South Madison Coalition of the Elderly, W. Madison Senior Coalition, North/Eastside Senior Coalition and East Madison/Monona Coalition of the Aging.
- Coordinate neighborhood groups that could assist those in need that could be developed through neighborhood associations, list serves and meetings.
- Request the Streets Division to solicit private snowplow contractors that perform residential snow plow removal for interest in providing a service on an on-call basis when situations would become dire for the elderly/handicapped. The residents would be provided names and telephone numbers and the residents would deal directly with the private companies. One concern with this options is that most of the residential snowplow companies have a full customer base and they could only assist the elderly/handicapped after their regular routes are complete.

E-Communications

One way to use text messaging is to provide updated plowing information. Text-messaging notifications for people who sign up for them are sent when there is a declared Snow Emergency. Additional text technology is available that could break the City down into geographical areas or quadrants where separate text messages could be sent out notifying people when plowing would commence and how long the plow is expected to take. These texts could be updated and sent at various times during the plowing effort. Information Technology has scheduled a demonstration of this type of text-messaging technology for the City to investigate further.

Mass Media Recommendations

A text crawl could be provided on Madison City Channel.

Estimated cost: \$8000 for the character generator, plus \$800 staff time with additional cost for overtime.

Report a Problem addition

It is recommended that Report-a-Problem add categories for “Park or city sidewalk needs clearing.”

Continue to work with the UW, Edgewood and MATC to increase notice to students

It is recommended that the City's Information Technology staff continue working with their counterparts at the UW to explore and implement cost-effective methods to improve notification of students of snow-related news. It is suggested that the methods used by Seattle, Washington be reviewed for ideas, as well as other areas that are performing well in this regard.

Narrow Street Alert

The City of Madison currently issues a news release that lists the locations of streets that, due to becoming narrow, will be towed during a snow emergency. This is done every time the "tow package" is utilized during a declared Snow Emergency. In addition, the Streets Division gets reports from Streets staff, Madison Metro, the Fire Department and from Parking Enforcement on streets that are becoming too narrow and need to have snow removed from them. Finally, the Report a Problem websites provides Streets staff with locations where streets are becoming narrow.

It is recommended that the City provide email alerts and Web site alerts, much like the Snow Emergency email alert, that would allow people to sign up receive an email as to which streets are becoming narrow and when the Streets Division will be removing the snow from those streets.