DuPage River Salt Creek Workgroup Members and Executive Board

Agency Members (blue)/ Associate and Individual Members (gray): Village of Addison · AECOM · Arcadis US · Village of Arlington Heights · City of Aurora· Baxter & Woodman · Village of Bartlett · Village of Bensenville · Black & Veatch · Village of Bloomingdale · Village of Bolingbrook · CDM Smith · The Conservation Foundation · Village of Carol Stream · Carollo Engineers · Christopher B. Burke Engineering · Village of Clarendon Hills · Clark-Dietz · Donohue & Associates · Village of Downers Grove · Downers Grove Sanitary District · DuPage County · DuPage County Health Department · City of Elmhurst · Elmhurst-Chicago Stone Company · Engineering Resource Associates · Forest Preserve District of DuPage County · Geosyntec Consultants · Glenbard Wastewater Authority · Village of Glen Ellyn · Village of Glendale Heights · HDR, Inc. · HR Green · Village of Hanover Park · Hey & Associates · Village of Hinsdale · Village of Hoffman Estates · Huff & Huff · Illinois Department of Transportation · Illinois State Toll Highway Authority · Inter-Fluve · Village of Itasca · K-Tech Specialty Coatings · Village of Lisle · Lisle Township Highway Dept. · Village of Lombard · Monroe Truck Equipment · The Morton Arboretum · City of Naperville · Naperville Park District · Naperville Township Road District · City of Northlake · Village of Oak Brook · City of Oakbrook Terrace · Prairie Rivers Network · RHMG Engineers · RJN Group · Robinson Engineering · Ruekert Mielke · Village of Roselle · Salt Creek Sanitary District · Salt Creek Watershed Network · Village of Schaumburg · Sierra Club, River Prairie Group · Strand Associates · Suburban Laboratories · Trotter & Associates · V3 Companies · Village of Villa Park · Walter E. Deuchler Associates · City of Warrenville · WellSpring Environmental Products · City of West Chicago · Village of Westchester · Village of Western Springs· Village of Westmont · City of Wheaton · Wheaton Sanitary District · Village of Winfield · City of Wood Dale · Village of Woodridge · York Township Highway Department

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	VACANT

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Monitoring	Jennifer Hammer, *The Conservation Foundation*
Salt Creek	Dennis Streicher, *Sierra Club-River Prairie Group*
East Branch DuPage	Larry Cox, *Downers Grove Sanitary District*
West Branch DuPage	Erik Neidy, *Forest Preserve District of DuPage County*

Staff

Watershed Manager	Stephen McCracken, *The Conservation Foundation*
Watershed Project Manager	Deanna Doohaluk, *The Conservation Foundation*
Water Resource Assistant	Tara Neff, *The Conservation Foundation*

DuPage River Salt Creek Workgroup

10S404 Knoch Knolls Road
Naperville, IL 60565

Letter from the President

January 2017

Dear Readers,

The DRSCW was founded in 2005 "to implement targeted watershed activities that resolve priority waterway problems efficiently and cost effectively." Since then, we have made measureable improvements to stream resource quality in our watersheds, and have become known statewide and also nationally as an example of a highly successful stakeholder group.

The breadth and depth of our members' expertise is astounding. It includes scientists, biologists, engineers, operators, managers, technicians, and advocates. Also importantly, our board and committees intentionally include a variety of disciplines and organizations. We are all learning from each other as we study our waterways, navigate regulatory frameworks, craft solutions to problems, manage ever tightening budgets, and implement projects.

We have developed innovative, data-driven, and cost-effective programs to meet both stormwater (MS4) and wastewater (POTW) NPDES (National Pollutant Discharge Elimination System) permit requirements. After creating one of the most intensive river monitoring programs in the state, we then analyzed our data and strengthened stakeholder relationships while creating strategies to meet Clean Water Act goals.

Our adaptive management approach uses an Integrated Prioritization System (IPS), a multiple regression analysis developed from our comprehensive monitoring data. The IPS tool identifies and ranks potential projects to improve aquatic life scores, an indicator used to determine whether a stream segment is impaired. These projects have been incorporated into POTW permits. In return for investing in these projects, member POTWs will benefit from phased implementation of capital upgrades to address effluent nutrient concentrations.

We will also be producing a Nutrient Implementation Plan (NIP) that identifies phosphorus input reductions by point source discharges, non-point source discharges, and other measures necessary to remove DO (dissolved oxygen) and offensive condition (algae) impairments in the program area. We are developing the framework for the NIP, which is due to the IEPA by the end of 2023.

With the release of a new stormwater permit (ILR40) this past February, the DRSCW has been working with DuPage County Stormwater Management to help address new monitoring requirements. The DRSCW's chloride reduction program continues to address not only TMDL (Total Maximum Daily Load) requirements, but also some of these new MS4 permit requirements. Articles in this newsletter highlight how snow-fighting operations have been changing responsibly and cost-effectively.

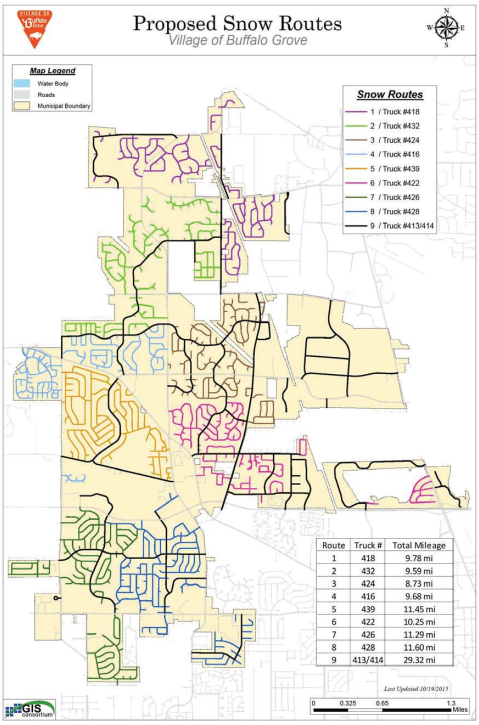
The DRSCW's contract with The Conservation Foundation for staffing was increased from 1.6 FTE to 2.6 FTE to implement additional projects and meet impending deadlines. We are pleased to have Deanna Doohaluk join the DRSCW team. An article introducing Deanna can be found on page 2 inside.

The DRSCW has been steadily obtaining data and finding solutions to fulfil its purpose. We would not be where we are today without stakeholder collaboration, the foundation of our success. I thank you for your membership and involvement. Let's keep rolling up our sleeves and working for our constituents. I look forward to seeing you at our meetings.

David Gorman, President

National APWA Excellence in Snow & Ice Award Winner
Village of Buffalo Grove

After their annual review, the Village of Buffalo Grove Public Works Department revised their winter maintenance plan for 2014 – 2015 to achieve the highest level of service possible at the lowest possible cost. The new plan was created by a team of veteran snow fighters and Public Works management with overarching goals to serve the needs of their community, improve program efficiency, utilize existing and emerging technologies, and demonstrate environmental sensitivity.

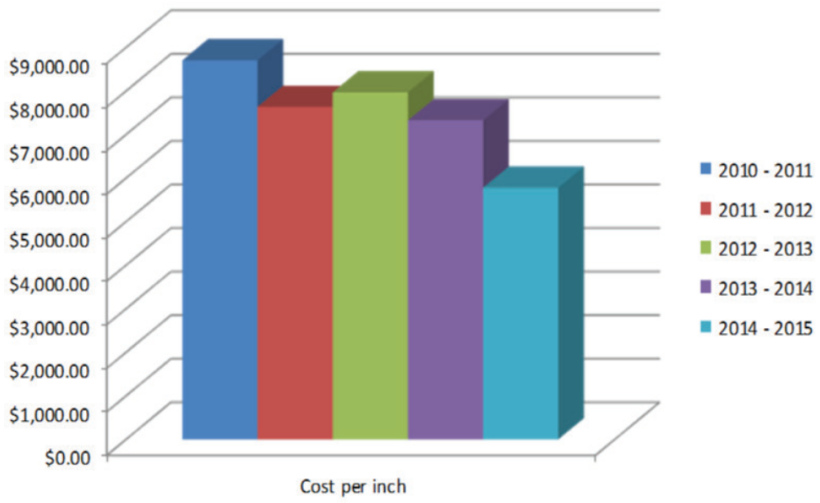


Efforts to reduce road salt application rates is a direct reflection of their concern for the environment. Buffalo Grove is aggressively looks for ways to lead the industry in reducing environmental impacts wherever possible. As a result of their continuous improvement efforts, the Village of Buffalo Grove was awarded the APWA Excellence in Snow and Ice Control Award.

Bryan Beitzel, Maintenance Superintendent, Village of Buffalo Grove, provided their complete award submission, which the can be found at http://drscw.org/wp/wp-content/uploads/2015/03/Excellence-in-Snow-and-Ice-Nomination-Application.pdf. A few highlights are provided with this insert.

Documented results (final year of 2013-2014 plan vs. year 1 of 2014-2015 new plan)

Winter Season	Storm Event	Snow Total	Road Salt Used	Liquids Used	Material Costs
2012-2013	#20	**32.25"**	2,052.5 tons	23,385 gals	**$135,571.75**
2013-2014	#28	**46.75"**	2,716.5 tons	32,200 gals	**$180,260.00**
2014-2015	#20	**48.00"**	1,680.5 tons	32,055 gals	**$118,998.64**



Comparing these winter seasons, the benefits of the new winter maintenance plan are evident. Comparing storm events alone between 2012/13 and 2014/15, Buffalo Grove was able to address 15"+ of additional snow, while reducing material costs by more than $17,000. Buffalo Grove addressed similar snow totals, in 2013/14 and 2014/15 while reducing material costs by more than $61,000. By increasing the liquid application rate from approximately 10 gallons per ton to 20 gallons per ton, they reduced their road salt application rate without compromising the quality of road conditions, or community expectations.

National APWA Excellence in Snow & Ice Award Winner—Village of Buffalo Grove cont.

Highlights of the Village of Buffalo Grove program include:

Salt Storage

- In 2015 the Village completed construction on an 82 ft. diameter salt dome which nearly doubled salt storage capacity. The facility has a series of floor drains to capture soap, salt, and chemical and water runoff during cleaning; the drainage system flows through a triple catch basin within the structure before any flow exits to the sanitary sewer system.

Training

- Front line winter maintenance staff is assigned a 12 hour shift and only one winter maintenance route for the season. Operators are coached in exactly how routes are driven, plowed and maintained, to create a culture of total accountability. Everyone is expected to perform the same work, the same amount of work and in the same way, resulting in the ability to assess all routes in a uniform fashion.

Equipment

- Fleet lifespan averages 14-20 year service life, far surpassing the industry average. All winter maintenance equipment undergoes rigorous pre and post season inspection by street maintenance and fleet maintenance staff. Following every storm, all winter maintenance equipment is washed and inspected for wear, damage and other issues throughout the season.
- Reduced cycle time for sidewalk snow removal from approximately 40 man hours to 16 man hours by using an MT Trackless machine in 2014-2015
- Addressed residents largest concern by using five-ton plow units equipped with undercarriage plow blades, to plow cul de sacs in a clockwise rotation, pulling snow from the outer curb and depositing it on the center island or along the inner curb.

Anti-Icing

- For the 2014-2015 season, Buffalo Grove added a salt brine maker, combined with additional storage tanks and a blending pump station. For the 2015-2016 season, they expanded anti-icing to include all Buffalo Grove maintained streets and cul de sacs. Anti-icing units are fully integrated into existing cab control systems allowing for targeted (speed sensitive) application rates.
- Reduced road salt application rates from 300 lbs/lane mile to 200 lbs/lane mile without sacrificing street conditions by applying a liquid beet juice blend of multiple chlorides, cut with salt brine, to create a blend that is targeted to a given snow event.

Technology

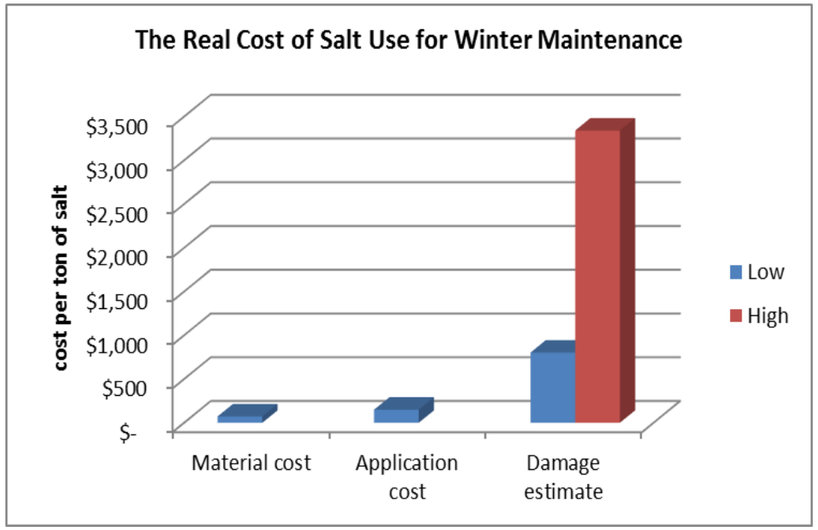
- Precise Systems provides live GPS tracking of primary winter maintenance fleet. The system is a cell over WiFi reporting system. This fully functional documenting and reporting system provides storm reporting throughout the event, or in total at the end of the event. The reports generated include the following:
    - Driving miles
    - Plowing miles
    - Salting miles
    - Tons of road salt
    - Gallons of liquid
    - Hours of operation
    - Application rate settings
    - Operator identification
    - Hours of downtime
- Raw data is parsed into a spreadsheet that will add all material costs, equipment costs and manpower costs for each winter maintenance event. Reports are generated following every snow event and are provided to upper level management along with monthly and seasonal totals.

Public Education/Outreach

- In 2015-2016, Buffalo Grove hosted its first annual winter maintenance “open house” prior to the beginning of the winter season. The open house served as a “touch a truck” event and included lunch, refreshments and raffle prizes for children.

The Real Cost of Salt Use for Winter Maintenance

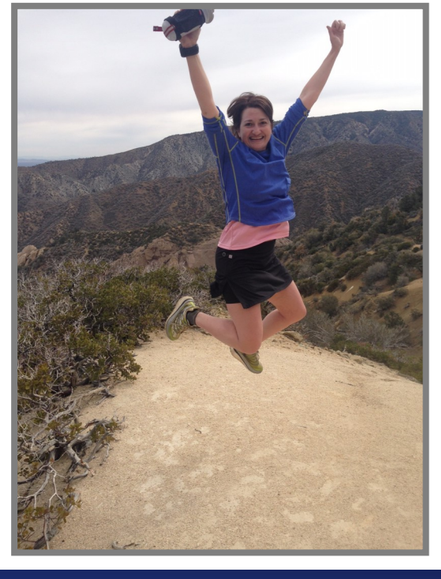
How much does it really cost to use salt keep our roads and other surfaces free of snow and ice? The costs for salt and its application are only about $225/ton, but when one considers the damage to infrastructure, automobiles, vegetation, human health and the environment, costs are much higher.



In literature from several sources, cost estimates for damage due to road salt range from $803 to $3341/ton. While estimates for damaged infrastructure or replacing contaminated wells are available, estimates for environmental damage are not as straightforward and do not account for all damages such as chloride toxicity to aquatic life and wildlife and changes in lake turnover.

It is not feasible to remove chlorides from our lakes and streams. Prevention (reducing salt use) is the best way to reduce these damages and will also result in financial savings. For example, by reducing salt use by 10%, the Twin Cities Metro Area would realize savings in material and application costs plus reduced environmental damages estimated at $36 to $124 million/year.

Source: "The Real Cost of Salt Use for Winter Maintenance in the Twin Cities Metro Area" Written by Fortin Consulting, Inc. and the Minnesota Pollution Control Agency. 2014.



Welcome Deanna Doohaluk, Watershed Project Manager

The Conservation Foundation is pleased to welcome Deanna Doohaluk, the newest addition to the TCF family! As the Watershed Project Manager, Deanna's time will be dedicated 100% to the DRSCW.

"I'm excited to be part of an organization that looks at the big picture, the scientific view, when it comes to the environment," Doohaluk said. "I'm really looking forward to working out strategies to improve water quality in the region."

Deanna brings 15 years experience in project management, previously working for Hey and Associates, Inc., of Chicago, as senior water resources planner; Carlson Environmental, Inc. of Chicago, as project manager; and for the North Carolina Department of Environment & Natural Resources, Water Quality Division, as an environmental specialist.

Deanna earned a bachelor of science degree in environmental science at Mercer University, Macon, Georgia; and a master of public health with a focus on environmental quality and management from the University of South Carolina, Columbia, South Carolina.

Advocate Good Samaritan Hospital Incorporates Anti-icing

At Advocate Good Samaritan Hospital, we know that by reducing the amount of salt we use to keep our roads, parking lots and sidewalks, free of snow and ice, we can reduce the amount of chloride that finds its way into our environment.

Advocate Good Samaritan Hospital is a 300 bed, acute-care facility located in Downers Grove, Illinois. As a community based hospital, we have a zero tolerance policy for snow accumulation. In addition to maintaining a bare pavement policy at our facility, we have been implementing chloride reduction strategies over the past two winter seasons.

Michael Zita, Snow Coordinator, Advocate Good Samaritan Hospital

During the winter of 2014/2015, we purchased new equipment and material to begin experimenting with anti-icing; we started with pretreating a few sidewalks. The pretreated areas achieved our desired outcome and prevented the snow/ice from forming a bond with the pavement. This reduced the amount of time and material we used to clear our pavement.

We expanded our anti-icing program during the winter of 2015/16. While unable to determine a baseline for the entire season, we did determine reduction levels for a one inch event. During previous years, we would deploy three workers with 600-800 pounds of treated salt for sidewalks; and a salt truck with around a ton of treated salt to treat our roads, lots and decks (one inch event). Per one inch event, total salt use was around 2500 pounds and it took about fifteen hours of labor to achieve a "safe condition."

Last winter we started pretreating all of our campus roads, lots and decks with a salt brine mixture prior to snow events; additionally we treated all of our walks weekly with liquid CMA (0% chloride). As soon as we started doing this consistently, we no longer had to do anything to manage a one inch (or dusting) snow event. Snow hits our treated surfaces and melts. Last season we enjoyed five such events, saving around 75 man hours, and over 10,000 pounds of materials.

Additionally, our "secondary" walks can be pretreated and left until after the snow stops during larger snow events. When we do this we are able to clear the walks of snow without using salt as the snow is easily removed, and the walks are clean and dry behind our crew. For many events today, we load our trucks with 600-800 pounds for our roads, lots and decks instead of our historical two tons.

Preparing for the 2016/17 snow season we are measuring all of our paved areas and sidewalks, and intend to calibrate all of our equipment. We will determine a "salting schedule" for each area, and bring a little more science into what we are doing. Our overall goal is to reduce salt use by 90% over the course of five years.

Additionally, Advocate's Corporate office has taken note of what we are doing and is fully committed to reducing our environmental impact as much as possible. Most of our Hospitals and clinics are under contract for snow removal, and we are now requiring our contractor(s) to pretreat and confirm that they are using chlorides in an effective and responsible manner.

Michael Zita, Snow Coordinator, Advocate Good Samaritan Hospital