Village of Buffalo Grove

SNOW and ICE PLAN

Public Works Department
Operation Division
2018 – 2019
Chapter 1
Snow and Ice Control
Anti-Icing Program

Our Anti-icing program will cover all Village streets, including cul-de-sacs and blowouts, the Village campus, all three fire stations, and Pace/Metra.

The goal of the anti-icing program is to apply liquid blend on all Village streets prior to a snow event in order to prevent the bonding of the snow to the pavement. This process will allow time to call in our crews and have them out on their routes salting and/or plowing before the bonding of the snow to the pavement takes place. In some instances, it could save us from having to call out our salt crew for a light snow event. The liquid blend will be applied on the road in lines and has an effective rate of 7-10 days.

The Village has three (3) anti-icing vehicles and two (2) anti-icing tanks. Truck 43496 has a 1300 gallon liquid tank with a two lane sprayer system. This tank stays on this truck throughout the winter maintenance season.

Trucks 432 and 416 have the capability to carry and spray with our other anti-icing liquid tank. This tank is a 1050 gallon liquid tank with a three lane sprayer configuration. This tank will be installed on either truck when anti-icing activities are taking place and then removed after anti-icing so that the truck can be ready for other winter maintenance activities.

Route Assignments

During anti-icing activities, we will be anti-icing all main streets, secondary streets, cul-de-sacs and blowouts, as well as Pace/Metra, all fire stations, and our Village campus. Anti-icing will be done during regular business hours with the understanding that overtime might be needed to complete the task.

When anti-icing, we will be applying material at a rate of 20 gallons per lane mile with a blend rate of 67% brine and 33% Beet Heet. Both trucks will work together anti-icing from the south to the north. Each driver will fill out our Anti-icing Application form. This form is mandatory and needed to provide good reference data moving forward. Note- We are currently working on a form that will be installed in Cartegraph.

After each anti-icing task, both tanks will be drained and all systems cleaned. The tank located in truck 432 or 416 will be removed so that truck can be prepared for other snow and ice activities.
The Village of Buffalo Grove Public Works Department is responsible for the removal of snow and ice from 120.74 centerline miles (283 lane miles) of public streets, including 369 cul-de-sacs and Village parking lots. There are also 27.02 miles of additional roads within the municipal boundaries that are not part of this program and are maintained by a variety of State, County, and Township agencies.

The goal of the Snow and Ice Control Program is to maintain pavement surfaces on all Village streets throughout the winter season and to have all Village Streets cleared “curb to curb” within eight (8) hours of the snow ending for any given winter snow event.

The Village of Buffalo Grove Public Works Department Snow and Ice Control program is supported by all Sections that comprise the Public Works Department; and, all full time staff members will be trained in our program goals and operational procedures.

Route Assignments

The Public Works Department has divided the Village roads into ten (10) clearly defined route assignments. Eight (8) of these route assignments will have approximately twelve (12) centerline miles of Village roads to maintain during any response level of our snow and ice control operations. One (1) route will have thirty (30) centerline miles and will be shared by two wing trucks. The two (2) wing trucks each have their own route to plow besides a, shared route. In addition to the ten (10) route assignments assigned to Village roads, additional staff members are assigned to various other areas that are covered under our snow plan. These include one (1) shift Supervisor to oversee the operation, one (1) staff member assigned to Pace/Metra, one (1) staff member assigned to Campus and one (1) Floater driver who will cover difficult plowing areas. Note- The Floater driver will be needed for plowing events, not salting events and we will also bring in a second Pace/Metra staff member during plowing events to plow the parking lots. All of these assigned routes will be supported by one Central Garage mechanic working with each shift.

The Public Works Department has established two (2) snow and ice crews, who will each be responsible for snow and ice activities during a twelve (12) hour period each day. One crew will be responsible for after hours snow and ice activities between 12:00 am – 12:00 pm, while the second crew will be responsible for after hours snow and ice activities between 12:00 pm – 12:00 am. On a bi-weekly basis, these crews will rotate between the AM and PM responsibilities. In the event of a prolonged snow event, these crews will work successively in a “12 hours on – 12 hours off” sequence to maintain the service level on all roads.

During regular business hours, the salt/plow crew that is not on shift call will be available to back up the front line crew, helping plow designated court routes in 1 ton and pick up trucks. If determined by the Deputy Director of Public Works or designee, these support staff members that are assigned to specific routes will also be available to plow areas of greatest need during a storm event.

Additional support staff comprising of off duty Fire, Police, and Engineering staff members will be recruited before the snow season and take part in the training activities. The utilization of these support
personnel will be determined by the Deputy Director of Public Works or designee in the event that prolonged or severely heavy snow is forecast, or, as other factors affecting Public Works staff levels are encountered.

In the event of a major storm event, back up personnel, along with the front line staff members, will tandem plow their assigned routes. **This will take place during the most taxing time of the day (7:00 AM – 7:00 PM)** and be done by the front line plow driver moving into the secondary plow truck (1 ton or pick up truck) and leading the back up plow driver who will be driving the 5 ton truck. These two trucks will plow the route together staying in view of each other, so that our GPS system can continue to track our progress.

Our partner, C2Logix, has designed the ten (10) plow and salt routes with turn–by-turn directions. Each route has a tablet with all ten (10) routes downloaded on it so that any driver, in any truck, can salt/plow any route needed.
Chapter 3
Winter Maintenance Response Levels

Definitions and descriptions

The Public Works Department has multiple response levels suited to meet the needs of our community and plan. Management staff will evaluate the present and projected conditions of every snow event and determine which response level is appropriate to battle the storm.

Below is a description of each of the response levels and an explanation of how the staffing will adjust to meet the challenges of each response.

Level #1 Response

Level #1 Storm Event – this is defined by the Public Works Department as an event that should not require more than a standard application of Road Salt treated with a blend of liquid de-ice. Typically this event will have very little accumulation, or slightly higher accumulations with weather and road temperatures that are suitable for simply melting the snow from the pavement. The Crew Manager will have the option to plow as they salt if the conditions warrant it. When the salt crews drop plows, they will be making one (1) additional pass down each street and salting on the second pass as they go. However, they will not be curbing the streets. The additional pass is to clear the snow from the center of the road and the combination of salt, liquids, and traffic will melt the three feet of snow that is left on the curb line. Note – It is important to remember that road salt and liquid de-icer requires a combination of time, traffic, and sunlight to achieve a full melt off of any accumulated snow. The application of road salt will not achieve immediate bare pavement conditions.

Level #2 Response

Level #2 Storm Event – this is defined as a plowable snow event, not requiring more than the standard ten (10) 5-Ton plow trucks plowing snow and applying road salt with liquid de-icer once the road had been plowed. This response level is appropriate for steady, moderately accumulating snow events that do not typically exceed 24 hours in duration.

Level #3 Response

Level #3 Storm Events – this is defined as a plowable snow event, with larger and faster accumulating snow totals. This is a fast moving winter event not typically exceeding 24 hours in duration. For this response level, the Public Works Department would “overlap” the winter maintenance crews, and assign extra personnel and equipment during the normal working hours of 7:00 am – 3:30 pm, with the expectation that the largest part of the event was behind us when the original crew leaves work at 3:30 pm. Cul-de-sac vehicles or tandem plowing may be deployed during this type of storm event.
**Level #4 Response**

Level #4 Storm Events – this is defined as a plowable snow event that is expected to last for 36 hours or longer. The Public Works Department would initiate the 12 hours ON / 12 hours OFF call back procedure with split crews working from midnight – noon and noon – midnight for the duration of the event. This response level is appropriate for steady, moderately accumulating snow events that will persist for quite a while, and ultimately depositing a significant total amount of snow on the ground.

**Level #5 Response**

Level #5 Storm Events – this is defined the same way as a Level #4 with crew assignments similar. What differentiates a Level #5 response will be the rate of accumulation, the difficulty pushing the snow due to the weight of the snow, and other storm related challenges that slow down the overall cycle times for the program. If Management staff determines that storm conditions warrant a Level #5 response the following will be added to the existing Level #4 response:

  - Additional staff and equipment assigned to each residential Route; to work in tandem with the primary 5-Ton plow unit.
    - 7:00 am – 3:30 pm
    - 7:00 am – 7:00 pm (depending on the conditions and available manpower)

  - Rotating Winter Maintenance Supervisors working in 12 hour shifts along with split primary crews.

The current storm event response level will be posted in the front office during any given snow event. This is done so all staff is aware of the conditions, aware of all assignments, or any changes to assignments throughout the event. The winter maintenance supervisor will send out emails to management staff when any response level changes are made during an event.
Chapter 4
Snow and Ice Control
Performance Goals and Objectives

The Snow and Ice Control Plan has divided the streets maintained by the Public Works Department according to center line miles and anticipated plowable lane miles. The Public Works Department has assigned equipment for these routes targeted towards the anticipated plowable lane miles, the targeted needs of any given route, and the challenges of each. Leadership believes that given similar road conditions and snow accumulations throughout the community, each route will be completed in a similar time period.

During a Snow Event

The Public Works Department has established a 6 hour cycle time for each Snow Route. This means that every street maintained by the Village should be plowed from the center line of the street to the curb every 6 hours. This cycle includes at least 2 passes in and around cul-de-sacs as vehicles proceed through their assigned Route. This 6 hour cycle time does not include final clean up of intersections, final clean up of cul-de-sacs, or any miscellaneous spot cleaning of the streets.

As route cycles are completed, operators and equipment will start over and proceed through their assigned routes again. This pattern will continue for the duration of any snow event until the snow has stopped and clean up procedures can begin. (Note: Cycle times will be evaluated throughout the season to gauge route and driver performance.)

During a snow event, staff will utilize road salt and liquid deicer as instructed by the Crew Manager. In a prolonged snow event, the use of chemicals will be adjusted to the appropriate application rate to prevent snow from binding to the surface of the road. The Street Manager will evaluate road conditions throughout the snow event and communicate instructions and application rates, as needed.

Clean up Procedures

The Public Works Department has established 8 hours as the completion time of all snow and ice activities once the snow has stopped. Completion means that each route will have been plowed curb to curb, including clean up of courts and intersections, as well as salted.

When performing final clean up of cul-de-sac bulbs, staff will attempt to push and stack snow in the available parkway spaces in an effort to reduce the windrow deposited into driveway aprons. (Note: despite the stacking of snow in the parkways, it is reasonable that cul-de-sac driveway aprons will receive similar quantities of deposited snow as the aprons along the streets. Cul-de-sac driveway aprons WILL NOT be plowed by staff as part of routine snow and ice control maintenance)

During the clean up procedures, staff will utilize road salt and liquid deicer as instructed by the Crew Manager. The Crew Manager will evaluate conditions and communicate application rates to his crew. (Note: Staff will not apply chemicals to melt snow. Staff will plow off all surface snow and apply chemicals to prevent refreezing of the pavement.)


**Chapter 5**

**Pace / Metra and Municipal Campus**

**Winter Maintenance**

**PACE / METRA**

The Pace and Metra parking lots and sidewalks will be maintained throughout the winter season and during snow and ice events. The Public Works Department will assign a seasonal employee to perform ongoing winter maintenance in conjunction with the train schedule for all sidewalks and lots maintained at the facility.

The schedule for winter maintenance is as follows:

**Monday – Friday**

When it becomes necessary, the Public Works Department will have a full time staff member arrive to work at 5:00 am to inspect the walks and lots and perform salting on icy surfaces as needed.

During a snow and ice event, a seasonal staff member is assigned to the maintenance of walks and lots as part of the after hours call back. Staff will report to work to clear snow from walks and lots. Staff will apply salt as needed or as instructed by the crew supervisor. If it becomes necessary to plow accumulated snow, staff will clear snow from the walks and maintain opening plow passes in all of the parking lots, including access to the Park District dog park at the rear of the lots and the main entrances to both the Pace and Metra drop off locations. Staff will continue to perform winter maintenance activities until the final train has arrived and all passengers have been dropped off and depart the facility (10:00 PM).

Following any plowable snow event, the Public Works Department will staff a morning crew to clear and remove all snow from walks and parking lots before the arrival of the first train of the day. Staff members will arrive between 12:00 AM - 3:00 am and begin the removal of any accumulated snow. Employees will clear accumulated snow beginning at the entrance of the facility and work from the front lots towards the back lots. Staff will also apply salt to plowed surfaces as needed or as instructed by the crew supervisor. Signs will be posted at all entrances encouraging early arriving patrons to park in cleared lots during snow removal activities and not park in areas yet to be cleared.

**Weekends**

The weekend schedule for winter maintenance at Pace/Metra goes into effect every Friday at 10:00 pm. Winter maintenance activities will not necessarily be performed during the weekends. If plowable snow has accumulated over the weekend, the Public Works staff will report to work early the following Monday to clear all snow from walks and lots. Street Route plows will maintain access to the Park District dog park at the rear of the lots until the end of the snow event. (Note: When necessary, a weekend crew will be called in to clear and salt snow and ice. Temperatures and accumulation will determine these needs.)
MUNICIPAL CAMPUS WINTER MAINTENANCE

The Public Works Department is responsible for the winter maintenance activities for the following list of municipal parking lots and sidewalks:

- Public Service Center
- Village Hall parking
- Police Department
- Buffalo Grove Golf Course parking lots (SALTING ONLY)
- Arboretum Golf Course parking lot (SALTING ONLY)

During snow and ice events, the Public Works staff will maintain these identified parking lots and sidewalks completing salting and snow removal based on priority and greatest need.

The schedule for winter maintenance is as follows:

**Light Snow – Salting Application**
During a typical salt call out, the campus staff member on call will sensibly salt all identified campus parking lots and sidewalks. The Crew Manager will inspect the municipal campus during and at the end of each event.

**Accumulating Snow – Plowing Application**
When snow starts to accumulate the campus staff member will alternate from plowing the walks to plowing the parking lots. The Crew Manager will inspect the municipal campus during and at the end of each event.

**Normal business hours: Monday – Friday (7:00 am – 3:30 pm)**

Staff will keep all driving lanes open with clearing passes in each parking lot. Staff will attempt to clear parking stalls and piles of snow as time permits. Police lots will depend on the availability of staff to shuttle vehicles between lots. Public Works staff will maintain clearance of campus sidewalks.

**After hours and weekends:**
Following normal business hours, snow and ice maintenance will be completed by a seasonal employee. The seasonal staff member will plow all identified parking lots and sidewalks on the campus. All sidewalks leading up to the Police Station, Village Hall, and Public Service Center will be cleared using walk behind snow blowers or hand shovels only. Staff will coordinate with Police staff to shuttle cars between lots so that both lots can be cleared.
Primary Snow Fighting Equipment

(8) 5 – ton units with nose plow, undercarriage plow, and material spreader. (1) with 300 Gal. liquid spreader, (3) with 150 Gal. liquid spreader and (4) with 100 Gal. liquid spreader.

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>YEAR</th>
<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
</tr>
</thead>
</table>
| 432    | 2011 | International| 11 ft. Bonnell nose plow  
10 ft. Bonnell undercarriage  
150 gal. rear liquid tank |
| 416    | 2011 | International| 11 ft. Bonnell nose plow  
10 ft. Bonnell undercarriage  
150 gal. rear liquid tank |
| 424    | 2007 | International| 11 ft. Bonnell nose plow  
10 ft. Bonnell undercarriage  
150 Gal. Rear Liquid Tank |
| 426    | 2007 | International| 11 ft. Bonnell nose plow  
10 ft. Bonnell undercarriage  
150 Gal. Rear Liquid Tank |
| 428    | 2007 | International| 11 ft. Bonnell nose plow  
10 ft. Bonnell undercarriage  
150 Gal. Rear Liquid Tank |
| 422    | 2002 | International| 11 ft. Monroe nose plow  
10 ft. Monroe undercarriage  
100 gal. rear liquid tank |
| 41896  | 1996 | International| 11 ft. Monroe nose plow  
10 ft. Monroe undercarriage  
100 gal. rear liquid tank |
| 418    | 2017 | Peter Built  | 12 ft. Bonnell box nose plow  
10 ft. Bonnell undercarriage  
(2) 150 gal. side liquid tank |
(2) 5 – ton wing units with nose plow, wing plow, material spreader, and 300 gallon liquid material spreader (150 Gal. each side).

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>YEAR</th>
<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
</tr>
</thead>
</table>
| 414    | 2015 | Freightliner | 12 ft. Bonnell nose blade  
10 ft. Bonnell wing blade  
(2) 150 gal. side liquid tanks |
| 434    | 2015 | Freightliner | 12 ft. Bonnell nose blade  
10 ft. Bonnell wing blade  
(2) 150 gal. side liquid tanks |
| 43496  | 1996 | International | Tanker for Anti-Icing |

(1) 1050 gallon anti-icing tank, with capabilities to spray three lanes, **(for 416/432)**.  
(1) 1300 gallon anti-icing tank, with capabilities to spray two lanes, **(for 43496)**.

**Secondary Snow Fighting Equipment**

(4) 1.5 Ton Dump Trucks with nose plows and dry material spreaders

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>YEAR</th>
<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>415</td>
<td>2011</td>
<td>Ford F450</td>
<td>9 ft. Western nose plow</td>
</tr>
<tr>
<td>420</td>
<td>2011</td>
<td>Ford F450</td>
<td>9 ft. Western nose plow</td>
</tr>
<tr>
<td>417</td>
<td>2011</td>
<td>Ford F450</td>
<td>9 ft. Western Pro V plow</td>
</tr>
<tr>
<td>419</td>
<td>2011</td>
<td>Ford F450</td>
<td>9 ft. Western Pro V plow</td>
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</tbody>
</table>

(5) 1 Ton Pick up Trucks with nose plow

<table>
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<tr>
<th>UNIT #</th>
<th>YEAR</th>
<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>460</td>
<td>2008</td>
<td>Ford F350</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>461</td>
<td>2008</td>
<td>Ford F350</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>470</td>
<td>2008</td>
<td>Ford F350</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>471</td>
<td>2008</td>
<td>Ford F350</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>472</td>
<td>2008</td>
<td>Ford F350</td>
<td>8 ft. Western nose plow</td>
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(3) ¾ Ton Pick up Trucks with nose plow

<table>
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<tr>
<th>UNIT #</th>
<th>YEAR</th>
<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
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<tbody>
<tr>
<td>450</td>
<td>2002</td>
<td>Chevrolet 2500</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>457</td>
<td>2002</td>
<td>Chevrolet 2500</td>
<td>8 ft. Western nose plow</td>
</tr>
<tr>
<td>441</td>
<td>2002</td>
<td>Chevrolet 2500</td>
<td>8 ft. Western nose plow</td>
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### Specialty Snow Fighting Equipment

<table>
<thead>
<tr>
<th>UNIT #</th>
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<th>MANUFACTURER</th>
<th>PLOW TYPE</th>
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</thead>
<tbody>
<tr>
<td>453</td>
<td>2008</td>
<td>Ford F350 Utility Body</td>
<td>8 ft. Western</td>
</tr>
</tbody>
</table>

### Additional Snow Fighting Equipment

<table>
<thead>
<tr>
<th>UNIT</th>
<th>YEAR</th>
<th>TRACTOR TYPE</th>
<th>BUCKET CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEL 1</td>
<td>2008</td>
<td>Atlas Bobcat S300</td>
<td>¾ cu.yds.</td>
</tr>
<tr>
<td>FEL 3</td>
<td>1998</td>
<td>Volvo L 90</td>
<td>3 cu.yds./5 cu.yds.</td>
</tr>
<tr>
<td>FEL 5</td>
<td>2008</td>
<td>Atlas Bobcat S70</td>
<td>¾ cu.yds</td>
</tr>
<tr>
<td>MT T1</td>
<td>2014</td>
<td>Trackless Snow Blower</td>
<td></td>
</tr>
</tbody>
</table>
The Village Board of Trustees has directed staff to remove snow on certain sidewalks in the Village. Sidewalks located near multi-family areas housing senior citizens and retail areas have been identified as sidewalks the Village will maintain during the snow season. In addition to the sidewalks near multi-family housing, the Village will also perform snow removal on sidewalks identified as school routes for children walking to/from school, or sidewalks leading to/from areas of mass transportation. These walks will be cleared when accumulated snow requires plowing. Sidewalk snow removal activities will be completed after all Village maintained streets have been completed. Maintenance on the sidewalks will only take place during normal business hours.

The Public Works Department utilizes a combination of three (3) pieces of equipment to complete the 27 miles of identified sidewalks. Two (2) Bobcat skid loaders (fitted with snow brooms, blowers, or plow blades) and one (1) MT Trackless tractor (fitted with a snow blower, broom, or plow blade). This activity will take 2 employees approximately 1 - 2 business days to complete.

List of sidewalks included in the program:

- The south side of Rt. 68 from village limit to Village limit.
- The north side of Rt. 68 from village limit to Village limit.
- The east side of Arlington Heights Rd. from Rt. 68 to Rt. 83.
- The west side of Arlington Heights Rd. from Nichols Rd. to south end of pond.
- The south side of Rt. 83 from Arlington Heights Rd. to Lake Cook Rd.
- The north side of Rt. 83 from Arlington Heights Rd. to Checker Rd.
- The west side of Buffalo Grove Rd. from Rt. 68 to Port Clinton Rd. except for portion of the segment between Hidden Lakes Dr. and the Indeck property along which a sidewalk has not yet been constructed.
- The south side of Deerfield Pkwy. from Buffalo Grove Rd. to Commerce Ct.
- The east side of Commerce Ct. from Deerfield Pkwy. to the Pace and Metra Commuter Stations.
- The west side of Weiland Rd. from Lake Cook Rd. to Aptakisic Rd.
- The north side of Lake Cook Rd. from Village Hall to Arlington Heights Rd.
- The north side of State Route 22 from Buffalo Grove Rd. to Easton Avenue.
- The west side of Checker Dr. from Old Checker Rd. to Rt. 83.
- The south side of Ivy Hall Ln. from Indian Spring Ln. to Aspen Dr.
- The north side of Golfview Tr. from Buffalo Grove Rd. to Dundee Rd.
- The west side of Horatio Blvd. From Pauline Ave. to Armstrong Dr.
- The west side of Prairie Rd. from Route 22. to Brandywyn Ln.
- The north side of Brandywyn Ln. from Buffalo Grove Rd. to Prairie Rd.
- The west side of Highland Grove Dr. from Deerfield Pkwy. to Fox Hill Drive.
- The north side of Newtown Drive from Weiland Rd. to Highland Grv. Dr.
- The west side of Brandywyn Ln. from Aptakisic Rd. to Thompson Blvd.
- The east side of Old Arlington Heights Rd. from Thornton Ln. to Dundee Rd.
- The east side of Weiland Rd. from Deerfield Pkwy. to Abbot Ct.
- The north side of Deerfield Pkwy. from Weiland Rd. to train tracks
- The north side of Lake Cook Rd. from Buffalo Grove Rd. to Weiland Rd.
- The east side of Buffalo Grove Rd. from Lake Cook Rd. to Port Clinton Rd.
- The south side of Route 22 from Buffalo Grove Rd. to Prairie Rd.

Certain areas may be temporarily suspended from snow removal due to higher than normal accumulation levels. Staff will advise the Office of the Village Manager if this becomes necessary.
Chapter 8
Public Works Staffing
and
Winter Maintenance Assignments

The Public Works Department is comprised of forty-five (45) full time staff members and five (5) seasonal staff members that will be included in the Snow and Ice Control Plan. All staff members will be assigned either a primary or secondary responsibility for winter maintenance activities based on program needs, as well as departmental responsibilities outside of the snow and ice control program.
## 2018-2019 OPERATIONS WINTER MAINTENANCE CREW ASSIGNMENTS

<table>
<thead>
<tr>
<th>CREW #1</th>
<th>ROUTE ASSIGNMENT &amp; EQUIPMENT</th>
<th>CREW #2</th>
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<tbody>
<tr>
<td>SCOTT FONTANEZ</td>
<td>SUPERVISOR TR 460</td>
<td>TOM MILAS</td>
</tr>
<tr>
<td>JEFF HENNIG</td>
<td>1 TR 418</td>
<td>TIM MALINOWSKI</td>
</tr>
<tr>
<td>MIKE WITT</td>
<td>2 TR 432</td>
<td>MIKE MCDONOUGH</td>
</tr>
<tr>
<td>RYAN CHAFFER</td>
<td>3 TR 424</td>
<td>JEFF WELLS</td>
</tr>
<tr>
<td>SCOTT PRANER</td>
<td>4 TR 416</td>
<td>PETE ROSENBERG</td>
</tr>
<tr>
<td>KARL ROSENBERG</td>
<td>5 TR 41896</td>
<td>FORREST THOMSON</td>
</tr>
<tr>
<td>JASON HARTMAN</td>
<td>6 TR 422</td>
<td>MIKE FLAHERTY</td>
</tr>
<tr>
<td>SCOTT TUCCORI</td>
<td>7 TR 426</td>
<td>ANDY DZIEKANSKI</td>
</tr>
<tr>
<td>COLIN WOTRING</td>
<td>8 TR 428</td>
<td>JEFF MAZUREK</td>
</tr>
<tr>
<td>DAVE GRETZ</td>
<td>9 TR Wing 414</td>
<td>RON WEINERT</td>
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<tr>
<td>TOM WISNIEWSKI</td>
<td>9 TR Wing 434</td>
<td>TYLER ANKNEY</td>
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<tr>
<td>DOMINICK TUNZI</td>
<td>MECHANIC *</td>
<td>DEAN GROBARCHIK</td>
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<tr>
<td>Seasonal #1</td>
<td>P/M WALKS TR 472 &amp; Trackless</td>
<td>Seasonal #3</td>
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<tr>
<td>Seasonal #2</td>
<td>CAMPUS Lots &amp; Walks Bobcat L/B</td>
<td>Seasonal #4</td>
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<tr>
<td>JIM WARGO</td>
<td>FLOATER * TR 461</td>
<td>STEVE JOHANSEN</td>
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<tr>
<td>BOB WHALEN</td>
<td>PACE/METRA PLOWING FEL 3</td>
<td>BOB WHALEN</td>
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<table>
<thead>
<tr>
<th>BACK UPS</th>
<th>UTILITY STAFF</th>
<th>SEE UTILITY SCHEDULE</th>
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*Note* - Crew Mechanic & Floater will rotate week to week.

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## EXEMPT BACK UP PERSONNEL

<table>
<thead>
<tr>
<th>STREET SECTION</th>
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The Public Works Department will staff two (2) Winter Maintenance Crews; each of which will cover twelve (12) hours of the 24 hour day. As employees assigned to primary winter maintenance activities are away from work on leave, employees from the secondary winter maintenance pool will be moved to the primary assignments. Each of the crews will be supported by two (2) mechanics that will rotate mechanic duties weekly. The alternate assigned mechanic will move to the floater plow driver duties.

Alternate Winter Maintenance Assignments – Staffing

Additional support staff comprising of off-duty Fire, off-duty Police, and Engineering staff members may be utilized during the winter season. Many factors contribute to the unique characteristics of every winter storm event that could result in this level of staffing. If determined by the Deputy Director of Public Works or his designee, this additional support staff may be called upon to assist with winter maintenance activities.
Chapter 9
The Future of Snow and Ice Control
Winter Maintenance 5-year Plan

The responsibility of performing winter maintenance activities does not begin when the first snow flakes fall. Nor does it end in the spring as temperatures warm and the snow melts. Winter maintenance is a year long activity that requires planning, preparation and both short-term and long-term vision. Winter Maintenance is an activity that experiences change and growth on a yearly basis, and our Snow and Ice Control Plan must incorporate our vision for our future.

The five (5) year plan for our departmental goals and objectives outlines both our short-term and long-term vision to succeed in winter maintenance activities.

Equipment
Over the past seven (7) years, half of the primary plowing fleet has been replaced with International 5-ton plowing units fitted with 11 foot plow blades and 10 foot undercarriage plow blades. These new units represent a significant improvement to our overall fleet and plowing capability. The improved turning radius allows for the larger trucks to perform cul-de-sac plowing maintenance more efficiently, while also performing primary and secondary street plowing at the same high level we expect. While these new units operate more effectively, they do not increase the plow cut per pass, nor do they cut down on the amount of plowed lane miles necessary to complete winter maintenance. For that reason, we have equipped new units #414 and #434 with a 12 foot nose plow and a 10 foot patrol wing plow as well as a new pre-wet system consisting of (2) two 125 gallon liquid tanks and the capabilities to prewet salt at 50 gallons per ton. These units will allow the single operator to make a plow cut of approximately 17 feet on every pass, thereby almost doubling the units effectiveness in removing snow. One third of the Village’s streets measure 34 feet in width; these new units will be able to curb primary streets with a single pass in each direction.

During the winter season of 2016-2017 we took delivery of a new Peterbilt 5-ton plowing unit fitted with a newly designed plow--a 12 foot box plow-- that will be able to box in snow as it is being plowed. Along with this plow, the new truck has a new undercarriage plow and a 300 gallon liquid tank capacity. This new unit will also have a 6100 series Force America salter unit and the capability to apply liquids to the salt at rates up to 50 gallons per ton of salt.

In the winter season of 2017-2018 we began to replace our older liquid units on our 5-ton trucks with 150 gallon liquid tank units that have the capability to pre-wet our salt at a rates up to 50 gallons per ton of salt. Units 424, 426, and 428 have been re-fitted with these new liquid systems this year.

Technology
The Public Works has purchased AVL software from Precise. This software will provide real time data and tracking of all snow fighting units while, at the same time, providing comprehensive
data collection and reporting during and following each storm event. The implementation of software such as this will provide real world answers to complaint/concerns reported by motorists or residents throughout our community; and, it will greatly increase the speed and accuracy of storm reporting and material tracking. Incorporating this technology with our existing equipment and integrating the software with existing operating systems is essential.

In the world of snow and ice control, pavement temperature is everything. Response levels, application rates, route cycle times, and driving conditions are all regulated by pavement temperature. Accurately reading and incorporating pavement temperatures into the snow and ice control activities allows a calculated response to any storm event. Fitting our primary plow fleet with pavement temperature gauges allows critical information to be collected by the operators before and during a snow event, and allows the shift Supervisor to direct the application rates for both solid and liquid deicers. When implemented, this technology should allow for material savings and conservation which translates into winter cost savings. At present, staff is looking to include this technology on certain units within our fleet for the 2016 – 2017 winter season.

Up-to-date weather tracking information is essential for winter maintenance activities. Air temperature, road temperature, dew point, and accurate predicted levels of precipitation have become crucial data points for effective winter maintenance. The variables of these data points determine the response and application rates for winter maintenance materials. Having accurate data allows for winter maintenance responders to apply the appropriate quantities of materials, without applying more than is necessary.

The Public Works Department is utilizing DTN Road Cast, provided by MX Sentry, for real time weather information. This system, as well as all of our applications, will be evaluated throughout the winter maintenance season.

For the 2017-2018 winter season we have purchased a route optimization system that designs our plow routes and salt routes to discover the most efficient routes. All of our plow trucks will have turn–by-turn navigation so that travel through each of the routes is at optimal efficiency. This system reaches optimization for each route by taking into consideration each routes total miles, distance from shop, and difficulty of streets being plowed.

Materials and Application Rates
Our standard application rates during salting and plowing events are 15 gallons of liquid for every 1 ton of salt. Moving forward, our goal is to have a rate of 20 gallons of liquid for every 1 ton of salt with the capabilities to add even more liquid and less salt. Currently, our two wing trucks are applying chemicals at the 20 to 1 rate and our new units coming within the next year will also have those capabilities. As we replace our older liquid units, the entire fleet will be capable of spreading more liquids and less salt. As technology improves, so does our ability to target application rates for specific temperatures and specific storm events. And with the targeted application of materials, our ability to conserve materials will translate into winter cost savings.
For the winter season of 2018-2019, eight (8) of our ten (10) plow trucks are equipped with optimal liquid applications. This optimization means we will use more liquids and less salt; this translates into more efficient and economical salting and plowing. The application rate for the updated liquid systems will be the new standard of 20 gallons of liquid to every one ton of salt. Material application rates on the road surface will continue to be around 200 to 300 pounds of salt per lane mile.

The Public Works Department has implemented the following since updating the plan in the winter of 2014 – 2015:

- The purchase of a third liquid storage tank.
- The purchase of a salt brine maker.
- The purchase of a replacement liquid pump with blending capability.
- The purchases of blended liquid deicer concentrate (BEET HEET) to replace liquid calcium chloride
- The increase of liquid application rates from 10 gallons to 15 gallons per ton of salt in the bulk of the fleet and an increase to 20 gallons in the two wing truck unit.
- The decrease of application rates for road salt from 450 lbs. to 300 and 200 lbs. per mile.
- Standardized liquid deicer application in the material spreader box on all units.
- Equipped three 5-ton trucks for anti-icing all Village streets with two new liquid tanks; one truck is equipped with three lane spraying capabilities (1050 gallon tank) and the other truck with two lane spraying capabilities (1300 gallon tank)
- Six extra fins on all spinners for a total of twelve for improved salt spread across the road.
- AVL system for the state of the art tracking of all snow routes.
- Additional “twinkie” curb shoes for more protection when curbing.

New items for the 2017-2018 season are:

- New 12 foot box plow.
- New liquid system for the new 2017 Peter Built Plow truck.
- Three new additional updated liquid systems and tanks.
- Route Optimization software with turn–by-turn directions.
- New design for curb shoes designed in conjunction with our vendor partners.

New items for the 2018-2019 season are:

- Two (2) new rear 150 gallon liquid tank systems for trucks 416 and 432.

Plow Blade Components and Wear Parts

The Public Works Department was able to field test a carbide cutting edge system for one of the 5-Ton units. This carbide system has demonstrated a wear life far superior to that of its steel counterpart. For this reason, during the winter of 2014 – 2015, carbide cutting edge systems were purchased and installed on all 5-Ton units. These systems, known as blockbuster blade systems, have been a great benefit to our program. This system has proven to be a cost savings during the wear life of the blade and has also saved countless man hours changing
blades during the winter seasons. The increased value of these carbide systems is something that Public Works staff will be looking at as all future cutting edges are purchased regardless of size and type of plow utilized for winter maintenance activities.

Also, with the new blockbuster plow blades, we were able to eliminate the use of plow shoes. This saves thousands of dollars on repairs, replacement of the shoes, and the labor hours associated with this task.

New curb shoes is another item we will be using for the 2017-2018 season. With help from our various vendors, we have designed a better curb shoe that will last longer and wear slower, keeping up with the slow wear life of the blockbuster plow blades.
Chapter 10
Snow and Ice Control
Route Mapping

Village of Buffalo Grove Maintenance Responsibilities

The Village of Buffalo Grove Public Works Department has divided streets maintained as part of our annual snow and ice control program into eight (8) similarly sized maintenance routes and one (1) large route that is covered with two (2) wing trucks. Eight (8) of these route assignments will have approximately twelve (12) centerline miles of Village road to maintain during any response level of our snow and ice control operations. One (1) route will have thirty (30) centerline miles that will be shared by two wing trucks. Operators are responsible for all streets and cul-de-sacs within their assigned routes during both salting and plowing operations.

In addition to the nine (9) street routes assigned to perform winter maintenance, the Public Works Department has also assigned a designated route for snow and ice control at the Pace / Metra stations and parking lots. Staff will perform snow and ice control maintenance on the sidewalks leading in and around the stations, as well as parking lot and entryway maintenance throughout the winter season.

Maps denoting the Village of Buffalo Grove (full view), nine (9) street route and (5) five cul-de-sac routes
County and State Agencies Responsibilities

In addition to the streets maintained by the Buffalo Grove Public Works Department, there are multiple County and State agencies that perform snow and ice control maintenance on streets throughout the Village of Buffalo Grove. The Buffalo Grove Public Works Department does not perform snow and ice control maintenance on any of these streets. All snow and ice related questions, comments, or concerns should be directly communicated with the agencies responsible for snow and ice control maintenance on the given streets.

Agency Contact Information

- Illinois Department of Transportation  847-705-4226
- Lake County Highway Department  847-377-7498
- Cook County Highway Department – District 1  847-397-4145
- Cook County Highway Department – District 2  847-827-1164
- Village of Wheeling  847-279-6900
- Village of Arlington Heights  847-368-5800
- Vernon Township  847-634-4600

County and State Roads not maintained by Village of Buffalo Grove

- Buffalo Grove Rd
- Rt. 22 (Half Day Rd)
- Aptakisic Rd
- Deerfield Pkwy
- Rt. 83 (McHenry Rd)
- Lake-Cook Rd
- Arlington Heights Rd
- Rt. 68 (Dundee Rd)
- Rt. 21 (Milwaukee Ave)
Chapter 11
Municipal Codes – Village Ordinances
Mailbox Damage Policy

Village of Buffalo Grove Municipal Code

Chapter 10.08.010 Parking Restrictions

It is unlawful to park any vehicle on any public highway for a period of three minutes at any time after snow begins to fall and for a period of twenty four hours after snow stops falling if the snow on the street exceeds two inches in depth; provided, that said twenty four hour parking restriction shall continue during snow removal operations until completed. As an exception to the provisions of this Chapter, any vehicle may park for a period of time not to exceed thirty minutes while actually engaged in loading and unloading property.

Chapter 10.08.020 Deposit of snow upon public highway

It is unlawful to plow or remove or cause to be plowed or removed ice or snow from any shopping center, parking lot, commercial or institutional service area or driveway or any other public or private service area or driveway and deposits such ice or snow upon a public highway or along the shoulder or edge of a public highway. Such prohibition shall also pertain to a residential driveway or sidewalk.
(Ord. 95-35 § 3 (part), 1995).

Mailbox Replacement Policy

It shall be the policy of the Public Works Department to repair all mailboxes that have been damaged by DIRECT CONTACT WITH THE SNOW PLOW during snow removal operations. Before the snow season begins, plow operators will drive their assigned routes and make note of those mail boxes that may be a hazard. The driver will also note those mailboxes that are already in state of disrepair for future consideration, if contact is made with snow plow. Residences identified as having mailboxes in disrepair will be notified with a deficient mailbox door tag explaining the mailbox replacement policy. Occasionally during winter plowing when snow has accumulated at the curb to a height greater than three feet, the windrow of snow coming off the snow plow blade will have a wave effect across the top of the snow. This wave effect will dislodge mailboxes from the post. If this occurs, it shall be the responsibility of the resident to replace his/her mailbox.
If a mailbox and/or post are damaged by direct contact by the snow plow blade and is beyond repair, it is standard Village policy for the mailbox and/or post to be replaced by the Village with the Village of Buffalo Grove standard mailbox and wooden wolanized 4” x 4” post as illustrated on the attached installation document.
If a decorator mailbox and/or post are damaged by direct contact by the snow plow blade and is beyond repair, the standard procedure is that the Village will replace the mailbox and/or post with the approved standard mailbox and/or post. If the resident chooses to have the decorator or standard mailbox and/or post replaced, the Village will reimburse the resident the cost of materials for the approved standard
mailbox and/or post up the amount of $50.00 and it shall be the responsibility of the resident to purchase and install the decorator or standard mailbox and/or post.

The following procedure is required for reimbursement

- The resident will call the Public Works Department to report the damage within 1 working day of the end of a plowable snow event.
- The Public Works will send staff to inspect the damage for a direct plow blade strike
- Once the damage has been investigated Public Works staff will respond to the resident and inform them of the Public Works response. If the damage is due to a direct plow blade strike the resident will have the option to buy and install a new mailbox and/or post and submit for reimbursement up to $50.00. The resident will also have the option to have the Public Works Department install the standard mailbox and/or post.
- If the damage is not due to a direct plow blade strike, the resident will be informed that any repairs or replacement will be done at the resident’s expense.
- The Public Works will set up a temporary mailbox and/or post for all reported instances of damage so that residents will continue to receive mail. Once the permanent repairs / replacements are completed the temporary mailboxes and/or posts will be collected.
- Mailbox repairs that can be completed prior to the Spring time snow melt and thaw will be completed as soon as possible. Mailbox post replacements will take place following the winter season when snow melt and thaw allows for new post installations.
- Residents that have mailbox and/or post damage that choose to repair/replace themselves are responsible to submit receipts for materials to the Public Works Department. Once the repairs and/or replacements have been completed, Public Works staff will inspect the completed work to make sure the installation was done properly. Pending proper installation confirmation, reimbursement will be made to the residents for materials purchased to make the repair up to $50.00. Reimbursement checks will be processed as a purchase order, and will follow the same purchase order procedures as an invoice.

Proper Installation of mailbox and/or post

Installation requirements for mailboxes and/or mailbox posts have been established by the Village of Buffalo Grove Engineer. Any reimbursement for mailbox repairs or replacements must follow the established installation requirements.

The installation of the post and box must be mounted so the face of the box is 12 inches behind the back of curb and set to a height of 42 inches from the top of the curb to the bottom of the box. The post should be set in a hole 10 inches in diameter and 30 inches deep.
Concrete should be placed around the post and up to 6 inches from the finished surface. The remaining 6 inches should be back filled with dirt once the concrete has hardened.
The material used for the post shall be a 4” x 4” pressure treated post of 1-1/2” I.D. minimum to a 2” I.D. maximum steel or aluminum post, maximum wall thickness 0.154”.

Installation diagram attached on the following page.
The installation of the post and box must be mounted so the face of the box is 12 inches behind the back of curb and set to a height of 42 inches from the top of the curb to the bottom of the box. The post should be set in a hole 10 inches in diameter and 30 inches deep.

Concrete should be placed around the post and up to 6 inches from the finished surface.

The material used for the post shall be a 4" x 4" pressure treated post or 1 1/2" i.d. minimum to a 2" i.d. maximum steel or aluminum post, maximum wall thickness 0.154".

Mailbox Installation