

The Borough of Highland Park Department of Public Works (DPW) currently provides snow and ice removal for over 31 miles of roads, several municipal parking lots, public sidewalks, and Borough-owned facilities.

DPW is preparing to implement standard-setting snow removal services for our community this winter. We developed this Snow and Ice Control Manual to help us continually refine our snow and ice removal program.

Included in the Manual are guidelines and instructions for carrying out the snow and ice control program for the Borough of Highland Park. For more detailed information concerning our snow-removal program, please do not hesitate to contact us.

*Mike Wieczorkiewicz, CPWM*

*Superintendent of Public Works*

*Highland Park, NJ*

# **SNOW AND ICE CONTROL PROCEDURES**

The purpose of this Snow and Ice Control Manual is to establish the Borough's policy and level of service in respect to clearance of snow or ice and maintenance of its road system during winter weather events. It will also serve as a practical guide for cost effective snow removal operations in the Borough. This Manual supersedes all previously written policies of the Borough on snow and ice control operations.

## **A. IMPLEMENTATION**

This Manual will be in effect during normal winter operations at times when weather conditions could cause accumulation of frost, sleet, ice, snow, or other occurrences on the streets and public parking lots in the Borough.

## **B. WEATHER FORECASTING**

Weather information is essential for good planning of snow and ice control operations and other weather-related emergencies.

The Borough will rely upon information from the National Weather Service office of Emergency Management (OEM), TV and radio stations, along with various Internet sites, will be monitored to gather current weather information.

## **C. MONITORING AND NOTIFICATION OF ICE AND SNOW ACTIVITY**

The Department of Public Works shall monitor anticipated inclement weather. During Borough working hours (6:30 A.M. to 3:00 P.M. Monday through Friday) the SUPERINTENDENT will initiate the appropriate response for snow and ice removal.

During off duty hours, weekends and holidays, SUPERINTENDENT in coordination with Police Department will monitor weather reports and road conditions. In the event of inclement weather, the SUPERINTENDENT will initiate the appropriate response action.

## **D. COMMUNICATIONS**

All operators of snow and ice control equipment will keep communication with the SUPERINTENDENT/FOREMAN at all times as necessary

The SUPERINTENDENT/FOREMAN will be the main line of communication between the snow plow operators, Borough staff, and Police Department. The Police Department at times will assist in advising the Department of Public Works with current road conditions. It will be the sole responsibility of the SUPERINTENDENT to direct the operations for the Department of Public Works. The media notification of emergency parking bans, snow emergency declarations, road closures, and other media contact for inquiries on road conditions will be made by the Borough Administrator.

## **E. CITIZEN INQUIRIES**

All citizen issues concerning snow and ice control efforts will be routed to the Department of Public Works. And will determine appropriate follow-up responses to citizen inquiries

and will make contact with each citizen within 72 hours of initial concern. All citizen inquiries will be documented.

## **F. INTERSECTION RIGHTS-OF-WAY**

After periods of extraordinary snow events, the Borough may elect to haul snow from designated intersection rights-of-way to minimize sight obstructions. The decision to initiate this operation will be dependent upon the depth and accumulation of snow and analysis by the SUPERINTENDENT/FOREMAN of any sight triangle issues.

Priorities will be assigned to intersections based on street classification, traffic volumes and severity of sight restrictions. Snow will only be removed from intersections where a public street intersects with another public street. This operation will typically be conducted after other higher priority post storm activities have been completed. Under normal circumstances, hauling of the snow will be conducted during normal Public Works work hours. On occasion, hauling of snow may be conducted at night during lower traffic volume hours for safety reasons. Snow removal from the rights-of-way into private property driveways will be the responsibility of the adjacent private property owner.

## **G. PRIORITIES FOR SNOW AND ICE CONTROL OPERATIONS**

In order to make the most efficient use of available resources, we have established priorities using the assumption that the severity of a storm is not beyond the normal capabilities of the Borough's snow removal resources. Depending on the nature of the snow storm, deviations could occur. The established priority areas follows:

**1<sup>st</sup> Priority:** Primary and secondary roads, Fire House, First Aid Building, and Police Department

**2<sup>nd</sup> Priority:** All remaining residential roads including Cul-de-Sacs and private lanes

**3<sup>rd</sup> Priority:** Public sidewalks and other facilities

The Borough's goal is to maintain the roads in as good winter driving conditions as weather, equipment and budget allow. This does not mean bare/dry pavement should be expected after each snowfall or ice storm. Furthermore, this does not mean the roads will be free of ice and snow.

## **H. EMERGENCIES**

Emergencies are defined as follows, but not necessarily limited to:

Immediate need for Police, Fire and/or Emergency Medical assistance. If Borough emergency personnel must leave the public right-of-way to respond to an emergency, snow removal crews may provide necessary assistance such as opening a driveway or parking area to give access to them.

Isolated problem areas where access is urgently needed before all other areas are handled.

Icy conditions due to a water main break or clearing of streets due to debris blocking streets or access.

## **I. ICE CONTROL PROCEDURES**

The objective of ice control is to provide a safe pavement surface for vehicular traffic by attempting to prevent a build-up of snow and ice on the pavement. Ice control also includes attempting to remove any build-up that may occur. This is typically done through an application of NJDEP approved chemicals and the use of snowplows.

The Borough may also apply liquid chemical deicers (brine) on designated streets prior to, and during storm conditions, to prevent the bonding of snow and ice to the pavement. This activity is known as anti-icing. The effectiveness of deicers used in this process is directly related to pavement temperatures. Based upon conditions, the SUPERINTENDENT will have discretion as to when to implement this activity.

The Borough will apply ice control materials in accordance with their recommended use. Application rates and locations may vary depending upon the type of storm. The SUPERINTENDENT/FOREMAN will have discretion as to what materials are used and when they are applied.

**Primary** roads will generally be treated the entire length of the road with the treatment being applied down the center of the road. The goal on Primary roads is to have 75% of the road bare pavement within 24 hours after the end of the storm.

**Secondary** roads will generally be spot treated throughout the length of the road, including curves, intersections, and sharply sloped and inclined areas. Treatment will be applied at the center of the road. The goal on Secondary roads is to have 50% of the road bare pavement within 24 hours after the end of the storm.

**Residential roads and cul-de-sacs** will generally be treated at the intersection only. The roads will be navigable and may still have snow or packed ice. The goal on Residential roads and cul- de-sacs is to provide adequate movement by a properly equipped and prudently operational vehicle.

## **J. USE OF SALT AND ABRASIVE MATERIALS**

The Borough will typically use rock salt for deicing applications. However, under certain conditions it may be desirable to use abrasives when pavement temperatures inhibit the melting action of rock salt. Abrasives may be utilized to provide traction. Different proportions may be used depending on the temperature, time, and nature of the storm and road conditions.

Using salt or a salt/sand mix, pre-wetted with liquid deicers has several advantages such as quicker snow melting; melting at lower temperatures, reduction in the amount of material needed and less salt waste. Based upon conditions,

## **K. SNOW CONTROL PROCEDURES**

The depth and time of snow accumulation, along with volume of traffic, will normally dictate when snow plowing operations will begin. Plowing will take place during a storm as needed in an attempt to keep the accumulation on the pavement surface less than desired guidelines.

Snow plowing operations will be carried out in accordance with the guidelines established for the various street classifications as set forth in the Snow Manual. Such plowing operations may often times be done in conjunction with ice control activities.

**Snow in excess of 2 inches** or more will generally be the rule followed for starting snowplow operations on **Primary** and **Secondary** roads before the end of the storm. Primary and Secondary roads will be plowed first, during initial start of the storm and maintained until the storm has ended and Borough wide plowing has started. Once Borough wide plowing has started, all snowplows will plow the full width of the roadway whenever possible. Primary and Secondary roads will be cleared and treated within 8 hours of the storm ending.

**Snow in excess of 4 inches** or more will generally be the rule followed for starting snow plowing operation on **Residential** roads before the end of the storm. Cul-de-sac bulbs and private lanes will not be plowed until the storm has ended. Snowplow trucks will plow into and out of the cu-de-sac bulbs to keep the road open. Once the storm has ended, and Borough wide plowing has started, Residential roads, including cul-de-sacs and private lanes will be plowed the full width of the roadway whenever possible. Residential roads, including cul-de-sacs and private lanes will be cleared and treated within 12 hours of the storm ending.

## **L. EQUIPMENT AVAILABLE**

The primary equipment available to remove snow and ice will be supplied by the Department of Public Works.

## **M. MANPOWER AVAILABLE**

The primary staffing for snow removal and ice control will be supplied by the Department of Public Works.

## **N. TYPE OF EQUIPMENT**

The Borough utilizes many different types of equipment during snow and ice control operations. The equipment utilized is chosen to fit the job that must be performed at that time. For ice control operations the Borough typically utilizes tailgate spreaders.

For snow plowing activities the Borough typically utilizes plows mounted on pickup trucks and dump trucks as well as front end loaders.

#### **O. EQUIPMENT MAINTENANCE AND REPAIR**

As in all maintenance operations, successful snow and ice control depends upon the skillful use of manpower, personnel, equipment, and material. The efficient and economical control of ice and snow depends on the availability and use of the proper equipment. This availability does not just happen. It involves a well-planned program that is in progress during each season of the year. It also includes a program of routine inspection, maintenance, and repair of equipment utilized in snow removal operations.

#### **P. TOWING VEHICLES ILLEGALLY PARKED– DECLARATION EMERGENCY PARKING BAN**

Cars parked on the streets during a snow removal effort may be ticketed and/or towed away in accordance with §7-3.8. A snow emergency parking ban may be declared by the Borough Administrator or designee. The Police Department and media will be notified when the parking ban is initiated.

#### **Q. SIDEWALK– PRIVATE RESPONSIBILITY**

All sidewalks adjacent to private property are the responsibility of the property owner. The Borough's responsibility is to plow the streets and keep them open to traffic. Due to the location of some sidewalks and the volume of snow being moved off of the streets, there may be occurrences when plowing operations may deposit significant amounts of snow onto the

Sidewalks. When this occurs, it is the responsibility of the adjacent property owner to remove all snow from the sidewalk. All complaint calls about private sidewalks not being cleared will be routed to the Code Enforcement Officer for complaint follow-up and enforcement.

#### **R. DRIVEWAYS – PRIVATE**

Borough snowplows will not clear private driveways except under emergency conditions and with the approval of the SUPERINTENDENT. The snow placed in driveways by Borough plows is the responsibility of the property owner to remove. Snow from a private driveway may not be placed on or pushed across a Borough Street in accordance with §368-2.

#### **S. PLOWING PRIVATE PROPERTY**

The Borough will not plow or clear snow or ice from private property unless it must be done to allow emergency vehicles access to private property for Fire, Police, or EMS calls.

#### **T. REPORTS**

A storm record will be completed by the Department of Public Works for each snow event. This record should contain operating times, weather conditions, and resources committed.

#### **U. DISCLAIMER**

This Manual may be affected by at least one or more of the following events which could delay or alter snow and ice control by the Borough:

- Equipment breakdown
- Vehicles disabled in deep snow.
- Weather so severe as to cause work to be stopped for the safety of all personnel.
- Unforeseen conditions and emergencies.
- Lack of DPW personnel.



# **USE OF ABRASIVES AND CHEMICALS**

**(DEICING APPLICATION RATE GUIDELINES)**

Pavement Temp (°F) and trend(↑↓)	Weather Condition	Maintenance Actions	Lbs / Two-lane mile			
			Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand(abrasives)
>30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not Recommended
	Freezing Rain	Apply chemical	80- 160	70- 140	100- 200*	Not Recommended
30° ↓	Snow	Plow and apply chemical	80- 160	70- 140	100- 200*	Not Recommended
	Freezing Rain	Apply chemical	150- 200	130- 180	180- 240*	Not Recommended
25- 30° ↑	Snow	Plow and apply chemical	120- 160	100-140	150- 200*	Not Recommended
	Freezing Rain	Apply chemical	150- 200	130- 180	180- 240*	Not Recommended
25- 30° ↓	Snow	Plow and apply chemical	120- 160	100- 140	150- 200*	Not Recommended
	Freezing Rain	Apply chemical	160- 240	140- 210	200- 300*	400
20- 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160- 240	140- 210	200- 300*	400
20- 25° ↓	Snow	Plow and apply chemical	200- 280	175- 250	250- 350*	Not Recommended
	Freezing Rain	Apply chemical	240- 320	210- 280	300- 400*	400
15- 20° ↑	Snow	Plow and apply chemical	200- 280	175- 250	250- 350*	Not Recommended
	Freezing Rain	Apply chemical	240- 320	210- 280	300- 400*	400
15- 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240- 320	210- 280	300- 400*	500for frz. Rain
0- 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not Recommended	300- 400	Not Recommended	500- 750 spot treat as needed

< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not Recommended	400- 600**	Not Recommended	500- 750 spot treat as needed
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**SNOW  
PLOWING  
GUIDELINES  
FOR STREETS**

The table below outlines what depth of snow is needed to begin snow removal and the maximum amount of accumulation desired:

	<b>Starting Depth</b>	<b>Maximum Depth</b>
<b>Primary &amp; Secondary</b>	2"	4"
<b>Residential</b>	4"	6"
<b>Borough Lots</b>	3"	6"

# **ANTI-ICING GUIDELINES**

Anti-icing— a proactive approach— should be first in a series of strategies for most winter storms. By applying chemical freezing-point-depressant materials before a storm, you can prevent snow and ice from bonding to the pavement.

Anti-icing requires about one fourth the material of deicing at one tenth the overall cost, making it the least expensive option for improving traffic safety. Anti-icing is effective and cost-effective when used correctly and approached with realistic expectations.

#### **A. Guidelines for anti-icing:**

- Anti-icing is often effective for heavy frosts.
- Anti-icing works best when combined with accurate road weather information.
- Early application is particularly important for frost or light freezing drizzle.
- Liquids are the most efficient and maybe applied days in advance of an event.
- Pretreated salts will work at lower applications (lowest possible setting, less than 100 lbs/two-lane mile) closer to the expected event.

#### **B. What to do:**

- Apply only with stream nozzles to maintain some bare pavement between sprayed areas to reduce slipperiness. Fan spray is not recommended.
- Consider spot-applications on hills, curves, and intersections if predicted conditions warrant.
- Apply an anti-ice product during non-rush-hour traffic periods.

#### **C. What NOT to do:**

- Don't anti-ice under blowing conditions, in areas prone to drifting, and anywhere else you would refrain from using salt. Be aware of areas that are prone to wind issues.
- Reapplication isn't always necessary if there is still residual. The residual effect can remain for up to five days after application if precipitation or traffic wear-off does not dilute the initial application.
- Remember that the surface can refreeze when precipitation or moisture in the air dilutes the chemical.
- Don't apply to a warm road (above 28° F pavement temperature). It can become slippery and cause crashes.
- Don't apply before predicted rain.
- For the first application or after a prolonged dry spell, apply liquids at half the rate (not half the concentration). On dry roads, liquids tend to mix with oil from vehicles and cause slippery conditions.
- Don't apply too much or the road way may become slippery. Less is better. Always follow application recommendations.

#### **D. Anti-Icing Application Rate Guidelines:**

Do not apply liquid unless:

- Pavement temps are 15 degrees and rising
- Dew points are at least 2 points apart
- Relative humidity is 70% or less
- Sky and wind speed are 15 MPH or less when loose snow is present
- If the event is going to start as rain do NOT apply liquids

<b>Condition</b>	<b>Gallons/ Lane Mile</b>	<b>Other Products</b>
	<b>Salt Brine</b>	
Regularly Scheduled Application	20 – 40	Follow manufacturer recommendations
Prior to Frost or Black Ice Event	20 – 40	
Prior to Light or Moderate Snow	20 – 50	



# **SHOVELING ASSIGNMENTS**

The chart below lists the sidewalks that are the responsibility of the Borough to shovel. They will be addressed in priority order.

	<b>Location</b>	<b>Shovel</b>	<b>Salt</b>
B	Albany Street Bridge (Southbound Side, going into NB)		
A	Police Department		
A	Fire Department		
B	Borough Hall		
B	Community Services Building		
C	Library		
B	No. 6 <sup>th</sup> Avenue Parking Lot		
A	First Aid Squad Building		
C	Teen Center		
B	Environmental Center/ River Road		
C	Centennial Park (River Road & Lincoln Avenue)		
C	101 So. 1 <sup>st</sup> Ave Parking Lot		
B	Farmer's Market Lot		
B	Main Street Building		
C	Veteran's Park		
B	So. 3 <sup>rd</sup> & Raritan Avenue Crosswalk		
B	No. 4 <sup>th</sup> & Raritan Crosswalk		
B	So. 3 <sup>rd</sup> Ave Parking Lot		
B	No. 4 <sup>th</sup> & Madison		
C	Karsey Street Park		
C	Felton St. Lot		
C	So. Adelaide Avenue (by Valley Pl.)		
B	Valentine St. (sidewalk at bottom of So. 4 <sup>th</sup> Hill)		
C	Volkert Street (off of So. 9 <sup>th</sup> Ave)		
A	Public Works Building		
C	So. 5 <sup>th</sup> & Valentine (corner property & fence)		

**OPERATING  
INSTRUCTIONS  
AND SAFETY  
RULES**

## **A. WORK HOURS**

For major storm events, shifts will be established at the discretion of the Public Works SUPERINTENDENT. No employee will work more than a 16 hour shift without having a 2 hour break before working another shift.

## **B. SAFETY PROCEDURES**

Safety is paramount during any snow storm. The following safety rules will be observed by all equipment operators.

Check your snow removal equipment prior to leaving the yard and also the following:

- All work lights and emergency lights
- Snow plow and frame for damage
- Sander/Salter
- Rear view mirrors
- Flags and reflectors
- Windshield wipers
- Heater and defroster
- All necessary mapping for snow and ice removal
- Report any non-working equipment to a SUPERINTENDENT/FOREMAN immediately.
- Use reasonable caution in operation of snow removal equipment.
- Drive cautiously.
- Utilize caution when operating in cramped quarters with parked cars on a street.
- Know your route and any fixed objects covered by snow.
- Obey all traffic laws.
- Do not follow traffic and other snow removal equipment too closely.
- Slow down prior to turning - your plow will tend to push you where it wants to go.
- Equipment involved in snow and ice control operations is emergency equipment, but you as the operator, must obey all traffic laws and give right-of-way to other vehicles.
- Do not attempt to tow private automobiles—offer assistance by way of radio contact.
- Utilize caution when operating deicing equipment. Watch for overhead obstructions. Lower box when necessary.

## **C. ACCIDENTS**

Report all moving vehicle accidents immediately to your SUPERINTENDENT.

Police Department will typically be called to evaluate the accident. Prior to leaving duty on the shift, a Motor Vehicle Accident Report & Review form and the internal Vehicle Damage Claim Report, should be filled out.