

**CITY OF WINTERSET**

**SNOW & ICE  
CONTROL PLAN**

# CITY OF WINTERSET SNOW AND ICE CONTROL PLAN

## INTRODUCTION

The City of Winterset will provide such control in a safe and cost-effective manner, taking into account, safety, budget, personnel and environmental concerns. This plan does not guarantee that streets, sidewalks, parking areas, trails or other public property will be free of snow and ice after the execution of the snow and ice control plan. Bare, dry pavement should not be expected and will not always be provided. This plan attempts to maintain an adequate driving surface for properly equipped vehicles and drivers prepared for winter driving conditions, and to provide pedestrians with safe routes of travel.

The removal of snow and ice from public streets, public parking lots and other public areas is an emergency operation that take precedence over other non-emergency work from the Winterset Street Department and Winterset Parks Department.

## DISCLAIMER

To the extent that any previous rule, regulation, policy or past practice, written or unwritten, is in conflict with the provisions of this policy, such is hereby withdrawn, voided and all personnel should conduct themselves in conformity with this policy.

This Snow and Ice Control Policy is not intended to create and should not be construed in any manner as creating a guaranty that any driving hazard associated with winter driving conditions is eliminated by the City of Winterset's efforts to remove snow and ice from city streets in accordance with this policy. All or parts of this policy may be affected, by at least one or more of the following, which will delay all or some of the services provided:

- Available personnel
- Equipment breakdown
- Vehicles disabled in deep snow
- Storm severity may preclude all snow removal operations or seriously impede response
- Equipment rendered inadequate by the depth of the snow or drifts
- Shift changes; crew breaks and breaks required for refueling, refilling of material spreaders and installing chains and new blades
- Snow deposited back into the street after crews have completed snow removal operations
- Snow left on streets due to parked cars
- Unforeseen conditions and circumstances

## MONITORING AND NOTIFICATION OF ICE/SHOE EVENTS

The use of weather reports from radio, television, the internet and National Weather Service broadcast will be used concurrently, with existing street condition reports, to determine notification timing. The public notification will be made via City of Winterset's website when plows will begin snow removal.

## SNOW CONTROL PROCEDURES

The snow accumulation and volume of traffic will normally dictate when snow plowing operations will begin. Plowing and/or material spreading will take place during a storm as needed to keep the accumulation on the street surface less than the guidelines contained in this plan if possible. The normal procedure on arterial streets will be to operate the plow trucks in teams. Team plowing may consist of two or more plows operating simultaneously to provide for the rapid removal of snow from centerline to curb in one pass. These streets are John Wayne Drive, Clark Tower Road and Summit Street. All other streets will normally be plowed with a single plow unit making multiple passes in each direction to clear the street of accumulated snow from curb to curb.

The normal procedure on the priority streets will be to operate the plow trucks in teams. Team plowing may consist of two or more plows operating simultaneously to provide for the rapid removal of the snow making multiple passes in each direction to clear the street of accumulated snow from curb to curb.

#### PRIORITIES

In order to make the most efficient use of available resources it is necessary to establish priorities for snow and ice removal. The following is a list of arterial and collector streets that have been established as priority streets:

- John Wayne Drive, from Highway 92 to Clark Tower Road (arterial)
- Summit, from John Wayne Drive to Highway 169 (arterial)
- Clark Tower Road, from Summit to city limits (arterial)
- 8<sup>th</sup> Avenue, from Husky Drive to Highway 92
- Husky Drive, from 8<sup>th</sup> Avenue to 4<sup>th</sup> Avenue
- 4<sup>th</sup> Avenue, from School Street to Highway 92
- School Street, from 4<sup>th</sup> Avenue to end of street
- Jefferson Avenue, from 10<sup>th</sup> Street to 16<sup>th</sup> Avenue
- Court Street, from 8<sup>th</sup> Avenue to 10<sup>th</sup> Street
- Square (9 square blocks)
- Lane Street, from John Wayne Drive to 10<sup>th</sup> Street
- 2<sup>nd</sup> Avenue, from Washington to Hutchings Street
- Hutchings Street, from 4<sup>th</sup> Avenue to 2<sup>nd</sup> Avenue
- 3<sup>rd</sup> Avenue, from Summit Street to Hutchings Street
- South Street, from 4<sup>th</sup> Avenue to 2<sup>nd</sup> Avenue

Note: Plowing or material spreading on any streets may be stopped at any time to go back to higher priority areas to re-apply material or plow, if conditions warrant.

#### SNOW REMOVAL OPERATIONS

The depth and timing of snow accumulations, along with traffic volumes, will normally dictate when snow removal operations begin. Removal will take place as needed to keep accumulations on the pavement service at a manageable level. It is likely that several passes will be made on most streets to clear accumulated snow from the roadway.

# **SECTION II**

## **SNOW AND ICE REMOVAL PLAN**

# CITY OF WINTERSET SNOW AND ICE REMOVAL PLAN

The implementation of this plan is subject to actual weather conditions.

## STORM CLASSIFICATIONS

### **CLASSIFICATION 0:**

Minor accumulations with warmer temps forecasted:

No operations will take place.

### **CLASSIFICATION 1:**

- Less than 1 inch of snow or any amount of ice accumulations:
  - Material spreading on first priority streets
  - Designee will determine if plowing of first priority streets would be beneficial to operations
  - Material spreading on streets with an emphasis on hills and intersections, especially those intersections leading to priority one streets, if necessary.

### **CLASSIFICATION 2:**

- 1 to 4 inches: Plowing and material spreading operations.
  - Same condition as Class I snows
  - One inch of snow on ground and snowing:
    - Discontinue material spreading operations and direct these units to plow routes as assigned, once priority one streets are complete.
    - All other trucks to begin plowing routes as assigned.
  - Over one inch of snow and up to four inches of snow has fallen.
    - All trucks to continue plowing in assigned areas.
    - Four-wheel drive units will plow dead end streets, cul-de-sacs and median crossings once two inches have accumulated.

### **CLASSIFICATION 3:**

- Over four inches, but less than eight inches of snow on the ground and still snowing with additional snow forecast.
  - All trucks may be periodically dispatched to conduct plowing operations on priority one streets only in order to maintain acceptable driving conditions on these streets. They shall pair up in teams to clear first priority streets in their zones.
  - After first priority streets are cleared, each operator will enter his or her route and plow second priority streets.
  - Four-wheel drive units will plow cul-de-sacs and other specified areas.

### **CLASSIFICATION 4:**

- Over eight inches of snow with additional snow predicted, high winds and night time
  - Restrict trucks to first priority streets only.
  - If plowing operations cannot keep a street segment open for an extended period of time, that road segment may be closed.
  - If visibility does not provide for safe operation of vehicles, that operator will be dispatched elsewhere.
  - Units shall work in teams in blizzard conditions when visibility is limited
  -

### **CLASSIFICATION 5:**

- Over eight inches of snow with additional snow predicted, high winds and daylight
  - Follow guidelines for Class III snowstorm as long as possible.
  - Shift from Class III to Class IV procedures, if necessary.

# **SECTION III**

# **PROCEDURES**

## **SNOW PLOW INSTRUCTIONS**

### TRAFFIC CONTROL SIGNALS AND SIGNS

All traffic signals, stop signs, speed limit and other traffic control signs and devices and any traffic regulations shall be observed at all times. Snow plows are not emergency vehicles and must yield to traffic.

### DEAD-END STREETS AND CUL-DE-SACS

Dead-end streets may be plowed from left to right if there are no driveways at the end on the right. Those trucks equipped with power-angle blades may straight blade all dead end streets in their area.

### SOD DAMAGE IN PARKING

If your plow jumps the curb and damages the sod, make note of the address and report it to your supervisor.

### MAIL BOXES

If you hit a mailbox while plowing or spreading material, make note of the address and report it to your supervisor.

### PLOWING

Keep your blade down as much as possible. If it very irritating to see a snow removal vehicle with its blade in the air and snow on the street. Do not curb any streets until you have made one pass down each side of every street. Your primary objective is to open streets. Widening them is secondary. Avoid making left turns wherever possible. Left turns leave snow piled up in the intersection.

Every time you turn right, you cut down on the amount of time you will have to spend cleaning intersections later.

### TOWING, PUSHING OR REMOVING VEHICLES

City of Winterset's equipment shall not be used to tow, push or remove private vehicles that are disabled or unable to move. If your plow truck or other pieces of equipment need to be towed or removed from the snow, contact a supervisor immediately. If you come upon a private vehicle that is disabled or stuck in no instances shall employees under the scope of this Snow and Ice Control Plan offer any type of physical assistance. The proper procedure is to check that all involved are safe and contact the Police Department/Street Superintendent

### REPORTS

The supervisor for each snow removal operation will complete the snow record as applicable. This record will contain operating times, weather conditions, resources committed and results.

## SUPERVISOR'S CHECKLIST FOR SNOW REMOVAL OPERATIONS

	Check with each employee and be sure that they start out with all of the spare parts and equipment necessary and also be sure that they replace anything they use after each storm.
	Get personnel and equipment out on the street and into their assigned areas as quickly as possible.
	Carry a pen and pad in your clipboard with you at all times so that you can write down items that need to be taken care of later. Usually there are several, and you cannot remember them all.
	Check to make sure all intersections are as clean as possible.
	Check for incomplete plow routes or routes that have not been cleaned completely or properly.
	Check for parked cars that need to be moved.
	Make a list of damaged signs or mailboxes. <b>WRITE THEM DOWN.</b>
	Make sure all shoulders are pushed back to the ditch on the rural sections and main roads.
	Have each unit washed and repaired as required.
	Have each unit checked for loose bolts, broken welds, and any other damage on the plows and plow frames.
	Have the sanders cleaned, repaired, greased and adjusted after each use.
	Make a list of the yearly problem areas such as drifting, dead ends, snow piled at intersections, school bus routes, slick hills, and check them frequently.
	Before leaving, see that all building doors are closed, vehicles are parked properly, and the shop tools and cabinets are locked.
	Make sure that all necessary vehicle keys are returned to the shop office.

## Recommended Application Rates for Solid and Liquid Sodium Chloride (Road Salt)

### ICE CONTROL DILUTION POTENTIAL

Probable Pavement Temperature at Treatment and Trend	Ice Control Chemical Dilution Potential	Ice-Pavement Bond Characteristics Before Treatment	Application Rate		Precipitation Rate				
			Solid (note 5)	Liquid (Note 6)	Type	Light	Medium		
Greater than 32° F (0° C)	Low	Bonded/Packed	50 - 100	41 - 28	NR	Low	Medium		
		Unbonded	Note 7	Note 7	Note 7	Medium	High		
		Bonded/Packed	100 - 200	28 - 55	NR	Low	Medium		
	Medium	Unbonded	Note 8	Note 8	Note 8	Medium	High		
		Bonded/Packed	200 - 300	55 - 83	NR	Low	Medium		
		Unbonded	50 - 100	14 - 28	22 - 44	52 - 104	---		
	High	Bonded/Packed	100 - 200	28 - 55	NR	Low	Low		
		Unbonded	50 - 150	14 - 42	22 - 66	52 - 155	Low		
		Bonded/Packed	200 - 300	55 - 83	NR	NR	Low		
	Medium	Unbonded	150 - 200	42 - 55	66 - 88	155 - 207	0		
		Bonded/Packed	300 - 400	83 - 100	NR	NR	1		
		Unbonded	200 - 300	55 - 83	88 - 134	207 - 319	2		
23° F to 32° F (-5° C to 0° C)	Low	Bonded/Packed	250 - 400	70 - 110	NR	NR	NR		
		Unbonded	100 - 250	28 - 70	NR	NR	NR		
		Bonded/Packed	350 - 450	98 - 125	NR	NR	NR		
	Medium	Unbonded	250 - 400	70 - 110	NR	NR	NR		
		Bonded/Packed	400 - 500	110 - 140	NR	NR	NR		
		Unbonded	350 - 450	98 - 125	NR	NR	NR		
	High	A. If unbonded, try mechanical removal without chemical.							
		B. If bonded, apply chemical @ 450 to 500 pounds per lane mile. Plow when slushy and retreat when necessary.							
		C. Apply abrasives when necessary.							
Below 12° F (-11° C)	NR = NOT RECOMMENDED				Residual Loose Snow/Ice on Road, Inches				
				Levels to Add					
					0	0			
					1	1			

### Notes:

1. These are starting points. Local experience should refine these recommendations.
2. Pre-wetting chemicals should allow applications rates to be reduced.
3. Application rates for chemicals other than sodium chloride will have to be adjusted.
4. Before applying any ice control chemical, the surface should be cleared of as much snow and ice as possible.
5. Values include the equivalent dry chemical weight in pre-wetting solutions.
6. Liquid values are shown for the 23% concentration solution.
7. In unbonded, try mechanical removal without applying chemicals. If pretreating, use 25-75 lb/ln-mi of solid or prewet solid chemical or 11-13 gal/ln-mi of liquid chemical.
8. In unbonded, try mechanical removal without applying chemicals. If pretreating, use 38-88 lb/ln-mi of solid or prewet solid chemical or 17-39 gal/ln-mi of liquid chemical.

Probable Pavement Temperature at Treatment and Trend	Ice Control Chemical Dilution Potential	Ice-Pavement Bond Characteristics Before Treatment	Application Rate		Precipitation Rate				
			Solid (note 5)	Liquid (Note 6)	Type	Light	Medium		
Greater than 32° F (0° C)	Low	Bonded/Packed	50 - 100	41 - 28	NR	Low	Medium		
		Unbonded	Note 7	Note 7	Note 7	Medium	High		
		Bonded/Packed	100 - 200	28 - 55	NR	Low	Medium		
	Medium	Unbonded	Note 8	Note 8	Note 8	Medium	High		
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		Unbonded	50 - 150	14 - 42	22 - 66	52 - 155	Low		
		Bonded/Packed	200 - 300	55 - 83	NR	NR	NR		
	Medium	Unbonded	150 - 200	42 - 55	66 - 88	155 - 207	0		
		Bonded/Packed	300 - 400	83 - 100	NR	NR	1		
		Unbonded	200 - 300	55 - 83	88 - 134	207 - 319	2		
23° F to 32° F (-5° C to 0° C)	Low	Bonded/Packed	250 - 400	70 - 110	NR	NR	NR		
		Unbonded	100 - 250	28 - 70	NR	NR	NR		
		Bonded/Packed	350 - 450	98 - 125	NR	NR	NR		
	Medium	Unbonded	250 - 400	70 - 110	NR	NR	NR		
		Bonded/Packed	400 - 500	110 - 140	NR	NR	NR		
		Unbonded	350 - 450	98 - 125	NR	NR	NR		
	High	A. If unbonded, try mechanical removal without chemical.							
		B. If bonded, apply chemical @ 450 to 500 pounds per lane mile. Plow when slushy and retreat when necessary.							
		C. Apply abrasives when necessary.							
Below 12° F (-11° C)	NR = NOT RECOMMENDED				Residual Loose Snow/Ice on Road, Inches				
				Levels to Add					
					0	0			
					1	1			

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		Bonded/Packed	200 - 300	55 - 83	NR	NR	NR		
	Medium	Unbonded	150 - 200	42 - 55	66 - 88	155 - 207	0		
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		Bonded/Packed	350 - 450	98 - 125	NR	NR	NR		
	Medium	Unbonded	250 - 400	70 - 110	NR	NR	NR		
		Bonded/Packed	400 - 500	110 - 140	NR	NR	NR		
		Unbonded	350 - 450	98 - 125	NR	NR	NR		
	High	A. If unbonded, try mechanical removal without chemical.							
		B. If bonded, apply chemical @ 450 to 500 pounds per lane mile. Plow when slushy and retreat when necessary.							
		C. Apply abrasives when necessary.							
Below 12° F (-11° C)	NR = NOT RECOMMENDED				Residual Loose Snow/Ice on Road, Inches				
				Levels to Add					
					0	0			
					1	1			

## CITY OF WINTERSET STORM RECORD - EMPLOYEE STREET DEPARTMENT

DATE

**EMPLOYEE NAME:**

TYPE OF ROUTE	ANTI - ICE	INFORMATION	VEHICLE #
	SALT/SAND		ROUTE #
	PLOWING		START TIME
	CUL-DE-SAC		STOP TIME

**COMMENTS:**

**ACTION STARTED** A.M./P.M.

**ACTION ENDED**      **A.M./P.M.**

**SIGNATURE OF EMPLOYEE FILLING OUT REPORT:**

NOTE: THIS REPORT IS TO BE FILLED OUT AT THE END OF EACH EVENT, SHIFT OR DAY

**CITY OF WINTERSET STORM RECORD - SUPERVISOR  
STREET DEPARTMENT**

**DATE**

**SUPERVISOR(S) ON DUTY:**

<b>TYPE OF PRECIPITATION</b>	DRY SNOW		<b>CONDITIONS</b>	MIN TEMP	
	WET SNOW			MAX TEMP	
	SLEET			WIND VEL	
	FR. RAIN			WIND DIR	
<b>EXTENT OF PRECIPITATION</b>	START TIME		<b>VISIBILITY</b>	GOOD	
	END TIME			FAIR	
	DEPTH			POOR	

<b>ACTION TAKEN</b>	FROM	TO	<b>PERSONNEL CALLED</b>	A.M./P.M.
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ANTI-ICING			<b>RESULTS</b>	
SALT/SAND			(DESCRIBE AS	
PRE-WETTING			GOOD/FAIR/POOR)	
PLOWING				

<b>PERSONNEL</b>	HOURS	UNIT #	<b>PERSONNEL</b>	HOURS	UNIT #

**COMMENTS:**

ACTION STARTED	A.M./P.M.	ACTION ENDED	A.M./P.M.
<b>SIGNATURE OF SUPERVISOR FILLING OUT REPORT:</b>			

**NOTE: THIS REPORT IS TO BE FILLED OUT AT THE END OF EACH EVENT, SHIFT OR DAY**