

**DISTRICT OF HIGHLANDS
MEMORANDUM**

DATE: DECEMBER 10, 2009

TO: MAYOR AND COUNCIL

FROM: C. D. COATES, CAO

RE: WINTER ROAD MAINTENANCE

File: 5400-

BACKGROUND

The winter of 2008/09 presented a number of significant challenges to the maintenance of roads in the District resulting from excessive snowfall and cold temperatures over an extended period of time. These conditions resulted in a number of complaints and identification of specific issues of concern, as well as even more comments of a complimentary nature about the service that the District's road maintenance contractor provided in those difficult conditions.

The purpose of this report and subsequent discussion at the December 14, 2009 Committee of the Whole meeting where Mr. Mike Gibbins, Vice-President of Victoria Contracting and Municipal Maintenance Corporation will be present, is to address some of these issues and gain a better understanding amongst all parties, of the challenges that result from the weather conditions and the unique physical environment in the District.

Attached is a commentary submitted by residents of Ross-Durrance (and area) Road (s) identifying issues of concern.

DISCUSSION

The District's contract with Victoria Contracting establishes Service levels for winter maintenance. The excerpt applicable is attached for reference. Priorities are established for major roads, steep areas and school bus routes and response times are included.

During the winter season, Victoria Contracting has two 1 ton plow vehicles dedicated to Highlands 24 hours a day 7 days a week. These are supplemented by a larger plow vehicle whose primary usage is on Millstream and Munn Roads. In addition patrols monitoring winter conditions are undertaken on a full time basis as well.

ISSUES

It is recognized that emotions tend to run high during extreme winter conditions. To focus the discussion, the following issues are highlighted because of the frequency of their occurrence:

1. Driveways

An unfortunate but unavoidable result of snow clearing activity is snow being deposited at driveway entrances. This occurs constantly and is the responsibility of the resident to remove. In order for the District to remove this deposit significant extra equipment and significant extra cost would result. In addition, it would not be possible for this type of work to be in sync with the road clearing, meaning that even if the extra level of service were established and paid for, there would still be a delay in clearing driveways resulting in inconvenience or residents having to do the clearing due to timing issues. This issue is common not only to all snow accumulation conditions in Highlands but with minimal expectations, the absolute norm everywhere.

2. Widening

In many areas, widening to two lane width is consistently achievable within the response times specified in the contract regardless of the volume of snow. In other narrow right of way environments, it can be difficult to impossible, based on the volume of accumulation to achieve full clearance of the paved surface. Difficulties arise in areas where the terrain is such that there is nowhere to put the snow. This can and certainly has resulted in longer term, one-lane situations that are not desirable. Typically in these situations the snow has become hard and if plowing were undertaken where possible, additional very challenging accumulations would occur at driveways.

3. Daylight Only Roads

This refers to roads, predominantly local, low traffic roads, that are narrow and windy and dead end. In some case there is no ability to effectively turn around the plow vehicle without a multi-point maneuver that is not practical unless there is daylight. This is an issue where the lack of street lighting, desired for other purposes, conflicts with the desire for a plowed road. In these areas the crews attend to these roads during daylight hours only. This practice avoids damaging plow vehicles and the resultant down time and service reductions that can result from damage.

4. Response Times

Response times are specified in the contract, and based upon the designation of the roads in the District. District staff undertake periodic monitoring of both the conditions during business hours (especially when responding to complaints), as well as paying attention to the response times in the contract. In most situations the contractor exceeds both the response times and the service levels in the contract and should be, and have been, commended for their best efforts to do so. There are, as the contractor will acknowledge, situations for a variety of reasons where a road will be missed. This occurred last year and can be expected to occur again, albeit infrequently. When this does occur the contractor is generally very quick to address the issue. Staff rely heavily on calls from the public to address these matters as they tend to be exclusively on local (low traffic volume) roads.

5. Un-opened Right of Ways Not Plowed

There are a few road right of ways for which multiple properties gain access that are not “developed” and appear predominantly as an extended common driveway. A policy discussion needs to occur at some point to determine what the desired service level is in these circumstances. These areas are not covered in the contract and the rare occasions where any work is done has been a result of excessive snowfall accumulations. This issue should be addressed prior to a new contract.

6. Ross-Durrance/Millstream Lake Road Pull Outs (Turn Outs)

The comments from area residents address the issue of the pull outs on this road. The contract has no provision in it for this work, nor is it particularly clear exactly what the expectation would be other than to create a spot where one vehicle can pull in to allow another to pass in a narrow zone. I understand this to be similar to the spots which exist along this road where pulling off can occur. In order to implement such a task, discussions would have to occur in some detail to understand how this may be accomplished and how to mitigate the issues that are similar to those of widening in some cases depending on specific locations.

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It is anticipated that the foregoing and attachments will serve the basis of a productive discussion on these issues.

Respectfully Submitted



Christopher D. Coates
Chief Administrative Officer

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CLARIFICATION OF WRITTEN RESPONSES

ROAD SNOW REMOVAL IN NORTHERN HIGHLANDS

The recent heavy snows of December 2008 and January 2009 showed road clearing inadequacies, especially for residents of Ross-Durrance, Hazlitt Creek and Old Mossy Roads.

Enclosed are suggestions for improvement:

- *As the roads are narrow, all roads should be cleared or plowed to a maximum width (not a single path);*
- *Because no turn-outs were created, this caused many dangerous backups. Frequent turn-outs should be provided (approximately every 100-150 feet) in the course of road clearing;*
- *Obvious driveways should not be covered or bermed by the road clearing crews; --in some cases, 2 to 3 foot berms were covering existing driveways.*
- *Main thoroughfares should be attended to promptly;*

For the benefit of all taxpayers in Highlands, ALL private or strata roads should be signposted and marked so that public funds are NOT spent on private roads, e.g. Rolla Place, Bukin Place, Deerfield Place, etc.

NAME	ADDRESS	COMMENTS
<i>William Carrilho</i>	<i>119 Ross-Durrance Road</i>	
<i>Rudy Van Der Bos</i>	<i>Ross-Durrance Road</i>	
<i>Sheila Herbert</i>	<i>137 Ross-Durrance Road</i>	
<i>Eric Herbert</i>	<i>137 Ross-Durrance Road</i>	
<i>P. Carrilho</i>	<i>Ross-Durrance Road</i>	<i>"...I would add that snow removal (sic) could be handled WAY better by LOCAL men & their own equipment looking after our roads: local responsibility/accountability instead of "fly-by-night" once a week! So, snow removal should be separate from the "general" contract: our muni. taxes would pay their bills." (652-2613)</i>
<i>Rick Hughes</i>	<i>176 Ross Durrance</i>	
<i>Janet Hughes</i>	<i>176 Ross Durrance</i>	<i>"...If another vehicle is encountered one may have to back up for several hundred metres—if you already have someone behind you it is very dangerous."</i>

ROAD SNOW REMOVAL IN NORTHERN HIGHLANDS

NAME	ADDRESS	COMMENTS
<i>Muriel Sibley</i>	<i>178 Ross Durrance</i>	"...I thought the road was ploughed promptly, but the lack of pull outs was difficult—plow went too fast!!"
<i>Charlie Hanbury</i>	<i>183 Ross-Durrance</i>	"...They always close off my driveway."
<i>Tom Cove</i>	<i>207 Ross Durrance</i>	"...Driveway continuously Blocked worst than Past."
<i>Paul Cummins</i>	<i>375 Hazlitt Creek Rd</i>	
<i>Neville Winchester</i>	<i>215 Old Mossy Rd</i>	">width of plowed road—turnarounds needed."
<i>Andrew Fall</i>	<i>220 Old Mossy Rd</i>	"...The frequency of cleaning was good. Pullouts are very important."
<i>David Lees</i>	<i>240 Old Mossy Rd</i>	"...need more training in the use of plough."
<i>Pat Lees</i>	<i>240 Old Mossy Rd</i>	
<i>Isabelle Poirier</i>	<i>119 Ross-Durrance Rd.</i>	"...lack of turnouts."
<i>Coral Loy</i>	<i>707 Skyview Pl</i>	"...widen the plow path!"
<i>Rose Stanton</i>	<i>320 Ross-Durrance Rd.</i>	"...widen better, Pullouts essential Frequency good thought overall a good job."
<i>Bill Howell</i>	<i>Ross-Durrance</i>	"...needs to be looked at."
<i>Sheila McNeill</i>	<i>370 Hazlitt Creek</i>	"...pullouts would be much safer and wider than one plow width would be nice."
<i>Meri O'Hearn</i>	<i>390 Hazlitt Creek Rd</i>	"...much better this year."
<i>Cathy Reader</i>	<i>218 Ross-Durrance Rd.</i>	"...I was pleased by how promptly it was cleared, but greater width pull-outs and not blocking driveways as much would be appreciated I don't know how feasible this is"
<i>Kathy Falkiner</i>	<i>112 Ross Durrance</i>	"...Great job with timing and frequency of plowing and sanding. More pullouts please when snow deep."
<i>Mike Falkiner</i>	<i>112 Ross Durrance</i>	
<i>Andersen Nora</i>	<i>245 Old Mossy Rd</i>	"...The manner which the Highland Counsel (sic) still leaves a lot to be desired in this way they look after the roads in this area though they are somewhat better since the council has been changed. They still need to improve the snow removal I notice that going up Millstream Road it is kept plowed to a width of 60 ft where in

this area it was mostly single lane. And when meeting another car somebody had to back up until you came to another driveway

Speeds are not controlled at all + the dually trucks often run you off the road

Also I helped a lady to go for two New tires because she was forced off the narrow road (trail) + struck a sharp rock sticking out of the bank of the trail, a visitor after dark. Some places even now if you slip of the paved trail you are hung up by + dry Take a look council there are lots of these places along the trail."

HIGHWAY CLASSIFICATION

Major	Collector	Local A	Local B & C
1 months	2 months	3 months	3 months

- c. notwithstanding the response time in section C.1.b, the Contractor will remove any obstruction or repair or replace a damaged appliance restricting flow capacity by 50 percent or more, within seven days of detection by or notification to the Contractor.

2. Schedule

Drainage appliance maintenance will be performed by the Contractor in accordance with the Response Time set out in section C.1.

CHAPTER IV - WINTER MAINTENANCE

Highway Snow Removal

A. Maintenance Service

Highway snow removal will be performed by the Contractor as required on Highways to:

- clear snow and remove ice build-up from Travelled Lanes or Shoulders; and
- ensure Highways are kept smooth, safe and open to the travelling public;

in accordance with this Maintenance Standard.

B. Specifications

1. Performance Standard

- plowing will be performed to ensure that snow accumulations remain below the maximum allowable as set out in section C to the full width of the travelled lanes of the road surface within the response time (section C.1) consistent with the Highway Classification;

all loose snow and ice will be removed while plowing such that pavement surfaces or compacted surfaces are exposed;

- the contractor will be responsible for clearing all snow storm falls of less than 150 mm accumulation to the "Standards", even if the snow compacts;

- d. When the accumulated snowfall exceeds 150 mm, as measured at the Victoria Airport Weather Station, in any snow storm event; the contractor will notify the district. If requested by the District of Highlands the contractor will continue to perform all work necessary to meet the requirements of "Section C" and the Contractor will be entitled to a payment in accordance with the terms of Part II of the Fee Schedule, or the District may elect to cause another contractor(s) to undertake the work; and
- e. to apply this Standard, plowing routes and priorities will be established and submitted to the District of Highlands; then prepare a timetable in consultation with the District of Highlands, local school districts and the transit authority to ensure optimum bus service.

2. Miscellaneous

- a. plow speeds will be such that snow is thrown well off the Travelled Lanes, except in built-up areas where plow speeds will be adjusted to minimize inconvenience and prevent damage to persons or property or both;
- b. if the temperatures are within the effective range of the De-Icing Chemical during and after plowing of paved Highway surfaces, then spreading of De-Icing Chemicals will immediately follow plowing. On all Highway surfaces if temperatures are below the effective range of the De-Icing Chemical being used, then Winter Abrasives will be applied as specified in the Maintenance Standard for Winter Abrasive and De-Icing Application;
- c. the Contractor will make a reasonable attempt to avoid depositing snow at driveways and other entrances and around intersections;
- d. snowbanks will be kept to the outside edge of gravel Shoulder surfaces as set out in section C to ensure that any water created by thawing conditions can readily drain from Highway surfaces; and
- e. all efforts will be made to minimize damage to Highways, District property or private property; such as, but not limited to Signs, Reflective Pavement Markers, fences, Roadside barrier, curbs, Bridge Abutments and railing, lamp standards, etc. The Contractor, at his sole expense, will be responsible for repairing any damage to Highways, District or private property caused as a result of plowing operations.

C. Scheduling

1. Response Time

a. Highway surface plowing

- (i) all Highways will have the Travelled Lanes surface plowed within 24 hours of the last measurable snowfall; and
- (ii) subject to section C.1.a. (i) the following table of maximum allowable total accumulations on each Highway Travelled Lane and maximum snow depths at which point plowing will have started, will determine response timing by the Contractor during snow fall:

Highway Classification	Snow Depth When Plowing Will Have Started on Each Highway	Maximum Allowable Accumulation	
		One Lane Each Direction	All Other Lanes
Major	2.0 centimetres	6.0 cm	10.0 cm
Collector	4.0 centimetres	8.0 cm	10.0 cm
Local A	6.0 centimetres	10.0 cm	n/a
Local B & C	10.0 centimetres	15.0 cm	n/a

- NOTES:** - to apply this Standard, plowing routes and priorities will be established and submitted to the District of Highlands. The appropriate amount of equipment will be provided so that by starting to plow after a depth as shown in the second column, all the Highways in that Class will be plowed before the maximum accumulation depth is reached,
- the Contractor will develop and follow a timetable for plowing bus routes in consultation with the appropriate School District and transit Authority to ensure optimum bus service,
 - levels of service exceeding this Standard may also be required where, due to terrain and climatic variations, snow accumulations will vary at any one time along a Highway, and
 - any other work the contractor may undertake independently, such as driveway plowing, will not compromise achievement of this Standard or the Maintenance Standard for Winter Abrasives and De-Icing Application in any way;

b. compacted snow or ice on pavement surfaces

The following table represents maximum periods of time from the end of storm snowfall within which the removal of compacted snow or ice from paved Highway surfaces will be performed by the Contractor if requested by the District.

Highway Classification			
Major	Collector	Local A	Local B & C
48 hours	48 hours	3 days	5 days

NOTE: - the use of De-Icing Chemicals may be required if the temperatures are at or above the minimum effective temperature of the De-Icing Chemical being used and rising (see the Maintenance Standard for Winter Abrasive and De-Icing Application);

c. Shoulder Clearing

The following table represents maximum periods of time from the end of storm snowfall within which snow clearing operations by the Contractor will have pushed snow and ice back beyond the Shoulders edge:

Highway Classification			
Major	Collector	Local A	Local B & C
3 days	3 days	5 days	5 days

NOTE: notwithstanding the above, on Major and Collector Roads at all Superelevated curves or locations where the Shoulder edge is higher than the Travelled Lanes, snow and ice will be pushed fully beyond the Shoulder edge within 48 hours of the end of snowfall to prevent snowmelt drainage onto the pavement.

2. Schedule

Highway snow removal will be performed by the Contractor as required in accordance with the applicable Response Time set out in section C.1.

Winter Abrasive and De-Icing Chemical Application

A. Maintenance Service

Winter Abrasive and De-Icing chemical application will be performed by the contractor as required on Highways to maintain the Highways in a safe condition for the travelling public by eliminating hazardous, slippery surface conditions in accordance with this Maintenance Standard.

B. Specifications

1. Material

Materials to be supplied by the District of Highlands and used by the Contractor are:

a. Winter Abrasive

The maximum allowable particle size for Winter Abrasive materials, and the mean Gradation limits for these materials when tested according to ASTM Designation C117, is as follows:

	HIGHWAY CLASSIFICATION	
	Major	All Other Roads
[i] maximum particle size	9.5 mm	12.5 mm
[ii] metric screen size		
12.50 mm	--	100
9.50 mm	100	--
4.75 mm	50-95	50-95
2.36 mm	30-80	30-80
.600 mm	10-50	10-50
.300 mm	0-25	0-25
.075 mm	0-6	0-6

NOTE: the figures shown under item [ii] represent the percent of material which passes that particular screen size; and

b. Salt

Salt will conform to CGSB Specification 15-GP-9M "Sodium Chloride Pavement Deicer" and be within the following gradation limits for particle size:

<u>Screen</u>	<u>Percentage Passing</u>
12.00 mm	100
9.00 mm	90-100
4.75 mm	35-85
2.40 mm	15-55
1.20 mm	5-30
0.60 mm	0-10

NOTE: CGSB Specifications may be obtained from:
Canadian Government Specifications Board
Ottawa, Ontario, K1A 0S5.

2. Performance Standards

a. general

- [i] all travelled lanes will be kept free of slippery or hazardous conditions in accordance with the Response Time set out in section C.1.b.,
- [ii] De-Icing Chemicals are to prevent the development of slippery surfaces while Winter Abrasives are to provide improved traction on an already slippery surface. Winter Abrasives will be applied regardless of temperatures if surface conditions are slippery and hazardous,
- [iii] to apply this Standard, routes and priorities will be established and submitted to the District of Highlands; then prepare a timetable in consultation with the District of Highlands, local school districts and transit authority to ensure optimum bus service, and
- [iv] removal of compact snow and ice, if requested by the District, will be removed from paved highway surfaces, as set out in section C.1.a(ii) and the contractor will be entitled to a payment in accordance with the terms of Part II of the Fee Schedule, or the District may elect to cause another contractor to undertake the work.

- b. Winter Abrasive (slippery, icy sections...all Highways) will be applied at the following recommended rates:

Description	Application Rate
[i] re-applications on slippery or icy surfaces	500 kilograms per two-lane kilometre (light),
[ii] initial continuous application or for compact snow, ice or freezing rain.	700 kilograms per two-lane kilometre (medium),
[iii] initial application on hills over 5% and on curves	1000 kilograms per two-lane kilometre (heavy),
[iv] the spreading of Winter Abrasives will not stop in the middle of a curve, halfway up a hill or at the location of any other Highway hazard, and	
[v] Winter Abrasives will always be used, instead of De-Icing Chemicals if pavement is dry and snow is Drifting or blowing off; and	

c. De-Icing Chemical

A heavy application of Salt as specified below is required to melt packed snow and ice after a snowfall but a much lighter application can be used to prevent ice and snow accumulations from sticking initially by allowing a brine of Salt and water to form on the pavement surface. Therefore, Salt will be applied before a snowfall, if the temperature is minus 6° Celsius and above, as a preventative measure instead of as an after-the-fact treatment. Heed should be paid to weather forecasts so that applications are well timed. The following minimum application rates will be used:

	Description	Application Rate
[i]	light application surface temperature near freezing with light snow or sleet or to prevent Black Ice	50 kilograms per two-lane kilometre (approx. 1/25 cubic metre),
[ii]	average application early in day with surface temp -4° Celsius & rising; conditions with snow, sleet or freezing rain	80 kilograms per two-lane kilometre (approx. 1/15 cubic metre),
[iii]	heavy application early in day with surface temp. -4° Celsius & stable or -6° Celsius & temp. rising or late in day with temp. -4° Celsius & rising; accumulation of packed snow or ice on travelled surfaces	120 kilograms per two-lane kilometre (approx. 1/10 cubic metre).
[iv]	the effect of any De-Icing Chemical is dependent on pavement temperature. If the temperature, when using Salt, is not minus 6° Celsius or above then a Winter Abrasive material will be used to prevent slippery surface conditions, and	
[v]	de-icing will not be performed under the following circumstances:	
	- if pavement temperature is below minus 4° Celsius, if air temperature is below minus 6° Celsius or if temperatures are falling, and/or	
	- if pavement is dry and snow is Drifting or blowing off.	

3. Methods

Automated equipment with electronic spreader and hydraulic controls will be used to spread materials at controlled application rates.

a. Winter Abrasive application

- [i] Winter Abrasives will be spread in a band of three or four metres in width, keeping the vehicle in a position to apply Winter Abrasive to both lanes of a two-lane Highway,
- [ii] spinners should be shut off when meeting approaching traffic to avoid causing a hazard on the Highway, except on curves or hills as described in section B.2.b.[iii] and C 1.b.[i], and

- [iii] speeds while spreading Winter Abrasives will be kept low enough that Winter Abrasives will not be distributed beyond the Travelled Lanes.
- b. De-Icing Chemical application
- [i] Salt will be spread in a two metre wide strip if removing compact snow and ice, so the melting brine can spread laterally across the pavement,
 - [ii] Salt will be spread in a strip at least 2 metres wide if applying before snow fall or for Black Ice removal, and
 - [iii] Salt will be spread on the high side of Superelevated curves so that the melting brine can spread across the full pavement.

NOTE: chemical applications early in the day can take advantage of the normal warming daytime trend. In addition, the action of the sun and traffic help Salt work by increasing the temperature and by mixing actions.

4. Miscellaneous

- a. additional winter patrols for inspection of Highway surface conditions will be required to ensure Travelled Lanes are not slippery. Slippery conditions or icing may occur at shaded Highway sections and Bridge decks, particularly at night. Patrol vehicles will be prepared to deal with conditions when detected, by carrying Winter Abrasive or De-Icing Chemical;
- b. pre-snowfall or early snowfall application will greatly reduce snow and ice removal operations later due to the brine layer on the pavement. This will also ensure that no Black Ice forms on pavement surfaces;
- c. curves, hills over 5%, school zones, intersections and Bridge deck locations will be given priority response;
- d. sufficient stockpiles of Winter Abrasive and De-Icing Chemical materials will be available at all times prior to and throughout the winter season, to meet ongoing requirements; and
- e. pavement surface and air temperature sensing thermometers will be used to determine the difference in temperature between the air and the paved surface when deciding whether to use De-Icing Chemicals or Winter Abrasives.

C. Scheduling

1. Response Time

a. De-Icing Chemical application

- [i] to prevent Black Ice and for pre-snowfall application

When temperatures are near-zero and falling and pavements are wet or when storm snowfalls are forecast or are just starting, the following are maximum response times for De-Icing Chemical application by the Contractor on paved Highway surfaces:

HIGHWAY CLASSIFICATION

Major	Collector	Local A	Local B & C
2 hours	3 hours	5 hours (if still preventable)	n/a

- [ii] to remove compact snow and ice on paved surfaces:

The Contractor will, after snowfalls have ended and plowing operations on each Highway have been completed, treat paved Highway surfaces with De-Icing Chemicals within the following maximum response times to remove any compacted snow or ice remaining. When requested by the District, the Contractor will remove the compact snow and ice and the Contractor will be entitled to a payment in accordance with the terms of Part II of the Fee Schedule, or the District may elect to cause another Contractor to undertake the work.

HIGHWAY CLASSIFICATION

	Major	Collector	Local A	Local B & C
initial application	24 hours	48 hours	3 days	3 days
completely bare	48 hours	72 hours	5 days	5 days

- NOTES:** - the above response times are for temperature conditions at or above minus 6° Celsius and rising when using Salt. Otherwise traction Winter Abrasives will continue to be applied in accordance with section C.1.b.,
- notwithstanding the foregoing if hazardous Black Ice or slippery conditions are encountered during patrols immediate application of Winter Abrasives or De-Icing Chemicals will be undertaken,

b. Winter Abrasive application to provide traction on icy or slippery surfaces

During and after snowfalls any icy or slippery Highway surface conditions will be treated by the Contractor within the following maximum response times from initial detection by or notification to the Contractor.

HIGHWAY CLASSIFICATION

	Major	Collector	Local A	Local B & C
<u>[i] during snowfall</u>				
- hills over 5% gradient (one lane each direction)	2 hours	2 hours	3 hours	6 hours
- curves under 40 kilometres per hour	2 hours	2 hours	3 hours	6 hours
- school zones & intersections	2 hours	2 hours	3 hours	6 hours
- other locations	3 hours	3 hours	6 hours	8 hours
<u>[ii] freezing rain (all locations)</u>				
	1 hours	2 hours	4 hours	5 hours
<u>[iii] Black Ice (all locations)</u>				
	1 hours	2 hours	4 hours	5 hours
<u>[iv] after snowfall</u>				
- hills (all lanes)	8 hours	8 hours	24 hours	48 hours
- all curves	8 hours	8 hours	24 hours	48 hours
- all other locations	24 hours	24 hours	36 hours	n/a

- NOTES:** - notwithstanding the foregoing, if Black Ice or slippery conditions are encountered during patrols immediate application of Winter Abrasives or De-Icing Chemicals is expected, and
- this Maintenance Standard is to be performed by the Contractor in conjunction with the Maintenance Standard for Highway Snow Removal

2. Schedule

Winter Abrasive and De-Icing Chemical application will be performed as required by the Contractor in accordance with the applicable Response Time set out in section C.1

Roadside Snow and Ice Control

A. Maintenance Service

Roadside snow and ice control will be performed by the Contractor as required on Highways to:

- a. remove snow and ice from sidewalks on Bridges; and
- b. clear snow accumulations from intersections, Roadside barrier and around signs;

in accordance with the following priorities and time constraints.

B. Specifications

1. Material

Winter Abrasive materials and De-Icing Chemicals will be provided by the District of Highlands and used by the Contractor as follows:

Winter Abrasive materials and De-Icing Chemicals will be required to provide traction against slippery conditions and to remove ice. See the Maintenance Standard for Winter Abrasives and De-Icing Application.

2. Performance Standards

- a. removal of all loose snow, slush and ice on Bridge sidewalks and walkways leading to these structures after Highway plowing operations, and
- b. where snow has been piled high enough to restrict Sight Distance at intersections, around Highway signs, the snow will be cleared following snow plowing operations on the Highway.

3. Miscellaneous

- a. Salt will be used in removing ice buildup when temperatures are at or above minus 6° Celsius and rising; and
- b. traffic control will be performed by the Contractor as required in accordance with the Maintenance Standard for Highway Traffic Control.

C. Scheduling

1. Response Time

- a. The following are maximum response times for the clearing of snow and ice on the facility noted, by the Contractor from the time first snowfall ceased or Highway snow plowing operations have finished:

	HIGHWAY CLASSIFICATION			
	Major	Collector	Local A	Local B & C
[i] Bridge Sidewalks	24 hours	48 hours	72 hours	n/a
[ii] Sight Distance obstructions	3 days	3 days	3 days	5 days

- b. ice and snow, overhanging the Highway will be removed within 8 hours from the time first detected by or reported to the contractor.

2. Schedule

Roadside snow and ice control will be performed as required by the Contractor in accordance with the applicable Response Time set out in section C.1.