	<h1 style="text-align: center;">Town of Cochrane Policy</h1>
<b>Policy No.:</b> <b>Policy Title:</b> <b>Approval Date:</b> <b>Revision Date:</b> <b>Department:</b>	<b>2301-02</b> <b>Snow &amp; Ice Control Policy</b> <b>September 13, 2004</b>  <b>Operational Services</b>

## **Policy Statement:**

The Town of Cochrane will provide snow and ice control on municipal streets and sidewalks according to pre-established priorities.

### **1. Reason for Policy**

- 1.1 To minimize economic loss to the community, prevent or reduce accident or injury by providing safe winter driving conditions.
- 1.2 Ensure that the hazards caused by accumulated snow are efficiently and safely addressed.
- 1.3 To fulfill the requirements under the Canadian Environmental Protection Act in accordance to the adverse effect road salts have on the environment.

### **2. Related Information**

- 2.1 Current Snow Removal Bylaw related information to snow and ice removal.
- 2.2 Road Salt Management is an additional document to this policy, dealing with four areas of Best Management Practices: general road salt usage, environmentally sensitive areas, salt storage, snow storage and disposal. (Copy of Schedule "C", Road Salt Management Plan attached).
- 2.3 Town of Cochrane Transportation Plan is available for reference from the Municipal Clerk's office.

### **3. Definitions**

- 1.1 Employee means any person employed by the Town of Cochrane
- 1.2 Emergency Routes means streets most commonly used by Fire/EMS and R.C.M.P.
- 1.3 Off-Duty/On-Call/Standby means that period of time other than regular working hours when an employee is expected to respond to a work related incident when called to do so as per established Departmental protocols.


- 1.4 Plow Snow means the pushing of accumulated snow from the roadway surface either to the sides of the roadway or to the center in order to maintain no less than one traffic lane in each direction.
- 1.5 Road Classification means roadways commonly classified according to their traffic volumes and road characteristics (Refer to the Town of Cochrane's Transportation Plan. Exhibit 3.1, page 8).
- 1.6 Road Right-of-Way means an area of land acquired for or devoted to the provision of a common or public thoroughfare. These include a highway, street, lane, alley, bridge and any other structure incidental thereto.
- 1.7 Snow Removal means the loading of snow onto trucks, casting snow from the carriageway onto adjacent land. Trucked snow is hauled to an approved snow storage site.
- 1.7 Town means the Corporation of the Town of Cochrane or any area contained from time to time within the boundaries of the Town of Cochrane.
- 1.9 Town Council means the Council of the Town of Cochrane.
- 1.10 Windrowing means the plowing of snow into a long continuous pile for storage or to facilitate removal or to provide protection from drifting
- 1.11 Downtown Core means roadways that include: First Street West, First Street east from Centre Avenue to Pope Avenue, Sixth Avenue, Fifth Avenue, Fourth Avenue, Third Avenue, Second Avenue, First Avenue, Centre Avenue, Second Street from Third Avenue to Centre Avenue.

#### **4. Responsibilities**

- 4.1 Town Council to:
  - 4.1.1 Approve by resolution this policy and any amendments.
  - 4.1.2 Consider the allocation of resources for successful implementation of this policy in the annual budget process.
  - 4.1.3 Approve the policy whereas Noise Bylaw No. 21/87 does not restrict and govern the hours snow and ice control operations can be conducted.
- 4.2 Chief Administrative Officer to:
  - 4.2.1 Implement this policy and approve procedures.
  - 4.2.2 Ensure policy and procedure reviews occur and verify the implementation of policies and procedures.

- 4.2.3 Make recommendations to the Chief Administrative Officer of necessary policy or procedure amendments.
- 4.3 Director of the Departments to:
  - 4.3.1 Ensure implementation of this policy and related procedures.
  - 4.3.2 Ensure that the application of this policy is reviewed periodically.
  - 4.3.3 Recommend to Chief Administrative Officer necessary policy and/or procedure amendments.
- 4.4 Supervisor to:
  - 4.4.1 Implement and review the success of the Snow and Ice Control policy while providing for safe road and sidewalk conditions during the winter.
  - 4.4.2 Ensure the Codes of Practice for Environmental Management of Road Salts are implemented and monitored.
- 4.5 Employees to:
  - 4.5.1 Understand and adhere to this policy.
  - 4.5.2 Conduct any assigned duties in accordance with this policy and related procedures.

#### **4. End of Policy**

	<h1 style="margin: 0;">Town of Cochrane Procedure</h1>
<b>Policy No.:</b> <b>Policy Title:</b> <b>Department:</b>	<b>2301-02</b> <b>Snow &amp; Ice Control Procedure</b> <b>Operational Services, Roads Division</b>

## 1. Snow Plowing

- 1.1 The Roads Division will implement snow plowing operations in accordance to priorities defined in Schedule “A” and “B” (Attached).
- 1.2 The priorities for plowing as designated on Schedule “A” and “B” (Attached).
  - Priority 1 Emergency Routes
  - Priority 2 Arterial Thoroughfares
  - Priority 3 Collectors
  - Priority 4 Designated hills and roads commonly used by Emergency Response Personnel
  - Priority 5 Industrial Area
  - Priority 6 Residential intersections connecting with arterial thoroughfares and collectors
  - Priority 7 Complaints and requests.
- 1.3 Plowing operations are governed by current weather conditions and by the priorities assigned to individual roadways.
- 1.4 Snow plowing will commence after three centimeters of snow has accumulated or when snow drifting impedes traffic movement.
- 1.5 Complaints and requests received will be investigated and appropriate action will be taken.
- 1.6 Plowing in residential roadways and alleys not designated in Schedule “A” and “B” will only be conducted in situations where roadways are rendered impassable as directed by the Roads Manager.

## 2. Snow Removal

- 2.1 The Roads Division will implement snow removal operations when the accumulation of snow significantly impedes traffic flow and on-street parking.
- 2.2 Town of Cochrane fire hydrants will be continually assessed throughout the winter season for accessibility to ensure fire protection for the community. During major snow falls where accumulation and windrows produced from equipment restricts accessibility, operational staff will commence removal of snow.

2.3 Priorities for snow removal on designated roadways are:

- First Emergency Routes and Fire Hydrants
- Second Downtown Core
- Third School Zones

2.4 Due to safety concerns and traffic congestion, the downtown core snow removal will be restricted to the hours of 10:00 p.m. to 8:00 a.m.

2.5 Windrows produced from plowing operations will be placed at curb side on arterial thoroughfares and residential collectors. Accumulated snow in front of private driveway entrances and/or emergency (fire lanes) accesses caused by Town plowing operations will only be removed for the following reasons:

- When the natural flow of storm water is caused to be blocked from snow or ice.
- In the event where roadways and boulevards have exceeded snow storage capacity.

2.6 Roads Manager may authorize additional private contractor's equipment in emergency situations.

2.7 Snow removal in residential roadways not designated in Schedule "A" or "B" will only be initiated in extreme conditions where street snow storage exceeds 100 centimeters and impedes storm water run off.

2.8 In the event where extreme conditions exist, the Roads Division will utilize road right-of-ways and public sidewalks in residential and commercial areas for snow storage. Public sidewalks within the road right-of-way will be cleared off when equipment and manpower become available and road conditions are stabilized.

### **3 Sanding and Salting**

3.1 Sanding and/or salting of streets, lanes and sidewalks shall be undertaken in designated areas to ensure a reasonable level of safety to motorists and pedestrians as surface conditions dictate.

3.1.1 The priorities for sanding and salting as designated on Schedule "A" and 'B" (Attached).

- |            |  |
|------------|--|
| Priority 1 | Emergency Routes   |
| Priority 2 | Arterial Thoroughfares   |
| Priority 3 | Collectors   |
| Priority 4 | Residential intersections connecting with arterials thoroughfares and collectors |
| Priority 5 | Designated hills and roads commonly used by Emergency Response Personnel         |
| Priority 6 | Industrial Area  |

Priority 7     Town owned parking lots  
Priority 8     Complaints and Requests

- 3.1.2 The Reference Guide Table is to be utilized by operators in generating consistent decision making. (Reference Guide Table attached as Schedule “D”).
- 3.1.3 Application of straight 7.0mm sanding chips will be used when road temperatures range from -12°C and lower and forecasted temperatures are falling.
- 3.1.4 Application of sand and salt at a ratio of 15% salt and 85% sand will be used when road temperatures range from -5 °C to -12°C and forecasted temperatures are constant.
- 3.1.5 Applications of salt will be used when road temperatures range from 0°C and -5°C and forecasted temperatures are rising within a five hour period from time of application.
- 3.1.6 Sanding and salting in residential roadways and alleys not designated in Schedule “A” and “B” will only be initiated in extreme icy conditions at the discretion of the On-call Operator.
- 3.1.7 Intersections which are designated by Schedule “A” and “B” and are controlled by a traffic control device will receive an appropriate application approximately 20 metres back through to the traffic control device.
- 3.1.8 Designated roadways, hills and curves will be spot sanded in intervals of approximately thirty meters apart.
- 3.1.9 Free sand will be offered to the public upon request only when public sidewalks are caused to be iced from poor drainage and plowing operations.

#### **4. Snow Storage Site**

- 4.1 Roadways that have exceeded snow storage capacity and require removal shall be disposed of at #700 Griffin Road East as approved by Alberta Environment.
- 4.2 Roads Division will manage the discharge of melt water to comply with Alberta Environment Water Quality Regulations and protect surface and ground water resources.
- 4.3 Commercial and general public snow haulers will not be given permission to utilize the Town’s storage sites.

#### **5. Sand and Salt Storage**

- 5.1 Roads Division will ensure that all functions in stockpiling of sand and salt, sander loading, deliveries and off-loading of excess of materials be conducted completely within the facility provided.
- 5.2 The amount of required sand and salt for a normal winter season shall be in storage prior to September in each calendar year.
- 5.3 Roads Division will implement Best Management Practices outlined in the attached document, "Schedule C", to minimize effects on the environment.
- 5.4 A facility inspection shall be conducted annually to ensure no infiltration of salt into the soils adjacent to the site.

## **6. Sidewalk / Pathway Snow and Ice Clearing**

- 6.1 The Parks and Facilities Division will clear snow from sidewalks and pathways within the time frame outlined in the current Snow Removal Bylaw, from the following areas:

- Sidewalks adjacent to Town owned buildings
- Sidewalks adjacent to Town owned properties
- Sidewalks adjacent to Town maintained parks
- Sidewalks adjacent to schools
- Town maintained stairway links within communities
- The bridge walkways across the Bow and Jumping Pound Creek
- The sidewalk route from the Big Hill Lodge into the downtown core
- Asphalt pathways and sidewalks adjacent to roadways allowing pedestrian access to the downtown core
- Alley entrances will only be done in consultation with the Roads Manager
- The Parks and Facilities Division will assist with snow removal in the downtown core when requested by the Roads Manager

- 6.2 Areas not designated to be cleared of snow:

- Residential pathway links
- Pathways within parks and Environmental Reserves

## **7. Town Owned Parking Lots to be Maintained during Winter Season**

- 7.1 Town owned parking lots to be maintained by the Roads Division during winter season. *(Not listed in a prioritized manner):*
  - Administration Building (Cochrane RanchHouse)
  - Big Hill Leisure Pool
  - Family and Community Support Services
  - Fire Hall
  - Gleneagles Booster Station
  - Griffin Road Lift Station
  - Lions Centennial Park
  - Nan Boothby Library

- Operational Services Building
- Recycling Depot
- Sunterra Booster Station
- Water Treatment Plant

7.2 The Roads Division or Parks and Facilities Division will initiate sanding and snow plowing as required to ensure a reasonable level of safety for facility user groups.

7.2.1 Accumulation of snow of three centimeters or less will be managed by the application of sand and/or salt.

7.2.2 Accumulation of snow three centimeters or greater will be managed by snow plowing equipment and sanded as required.

7.3 The current weather conditions will govern when the required maintenance is performed on parking lots. The prime objective is to schedule this maintenance to be completed prior to 7:00 a.m. on regular work days.

## 8. Staff On-Call Shift Rotation

8.1 Roads Division on-call staff will consist of twenty-four hour coverage. Split into two shifts.

8.1.1 Normal work day hours 6:30 am to 5:00 p.m.

8.1.2 Monday to Friday (PM shift) - 5:00 p.m. to 12:00 a.m.  
(AM shift) - 12:00 a.m. to 6:30 a.m.

8.1.3 Weekends and statutory holidays switch at 12:00 a.m. and 12:00 p.m. respectively.

8.1.4 Two operators will be on-call per shift at all times from Mid-October to the end of April.

8.1.5 One operator per shift will carry a pager for emergency calls and it is the responsibility of that operator to call in additional equipment and manpower when required.

8.1.6 The A.M. shift from 12:00 a.m. to 6:30 a.m. will ensure two visual road checks are performed at 2:00 a.m. and 4:00 a.m.

8.1.7 On-call staff will ensure current weather reports from Environment Canada are utilized on a regular basis.

**End of Procedure**

**Approval**

Julian deCocq, C.A.O.

Date January 10 2008





*Town of Cochrane*  
*Operational Services Department*  
*Roads Division*

Schedule "C"



*Roads Salt  
Management  
Plan*



*2004*



# **Town of Cochrane**

## **Salt Management Plan**

### **1. Introduction**

#### **1.1 Overview**

A comprehensive five year scientific assessment on road salts by Environment Canada determined that in sufficient concentrations, road salts pose a risk to plants, animals and the aquatic environment. A Risk Management Strategy for road salts was subsequently developed to outline the measures that Environment Canada proposed in order to manage the risks associated with road salts. The Strategy culminated into the Syntheses of Best Practices for Road Salt Management which were developed by the Transportation Association of Canada (TAC).

On April 3, 2004, the Government of Canada published, under the Canadian Environmental Protection Act, a Code of Practice for the Environmental Management of Road Salts. The Code is designed to help municipalities and other road authorities better manage their use of road salts in a way that reduces the impact that salts cause to the environment while still maintaining road safety.

The Code of Practice was developed in consultation with a multi-stakeholder working group for road salts. Road authorities that use more than five hundred tonnes of road salt in a winter season (five year rolling average) and that have vulnerable areas in their territory will have to prepare and implement a Salt Management Plan. The Management Plan shall cover all activities which may result in release of road salts to the environment, such as salt storage, application of salts on roads, and the disposal of snow containing road salts.

Currently the Town of Cochrane's, Roads Division, utilizes approximately two hundred and fifty-two tonnes of road salts per year to maintain road safety. Organizations that do not meet the criteria of five hundred tonnes of road salt usage or who have determined that there are no vulnerable areas within their territory are encouraged to implement Best Management Practices. Roadway authorities have an obligation to reduce the adverse effects that road salts have on the environment.

The Town of Cochrane will provide effective winter maintenance to ensure the safety of users of our road network in keeping with Provincial Legislation and accepted standards while striving to minimize the adverse effects that the use of road salt can have on our environment.

### **2 Objective**

- 2.1 The objective of the Town of Cochrane's Salt Management Plan is to set a procedural framework to ensure safe, efficient and cost-effective roadway systems. Furthermore, in

recognition of the adverse effects that excessive use of road salt can have on the environment, the Salt Management Plan contains Best Management Practices that will optimize an effective and measurable approach for strategies relative to snow and ice control and strive to minimize the amount of road salt entering the environment.

### **3. Best Management Practices**

The Best Management Practices that will be implemented under the Salt Management Plan are the following:

- (a) Training
- (b) Winter Maintenance – Equipment and Technologies
- (c) Road Salt Usage (Deicing Methods)
- (d) Sand and Salt Storage
- (e) Stormwater Management
- (f) Snow Disposal
- (g) Operations Maintenance Yard
- (h) Vehicle Washing
- (i) Identifying and Monitoring Environmentally Sensitive Areas; and
- (j) Record Keeping

#### **3.1 Training**

The Town of Cochrane will maintain a comprehensive salt management training program that demonstrates the purpose and value of new procedures and ensure that personnel are competent to carry out their duties and are aware of the environmental impact of road salts.

All Roads Operational staff directly involved in winter maintenance will be required to complete courses available through TAC, the Salt Institute and the Canadian Public Works Association, to provide assurance of the competency level for all operators.

Specific learning goals shall include the following:

- Salt Management Plan
- Principles of ice formation
- Science of freeze point depressants
- Road salt usage
- Brine production and use
- Pre-wetting
- Anti-icing
- Plowing techniques
- Environmental Protection including the familiarity with the Town's Environmental Policy and the EMS document
- Maintenance Yards
- Spreader controls and calibrations
- Drift control
- Weather forecasts and decision-making
- Pavement temperatures

- Record keeping
- Snow Removal Equipment
- Snow Disposal
- 4-R's of Salt Management: right material, right amount, right time, right place.

### 3.2 Winter Maintenance - Equipment and Technologies

The Roads Division will continuously identify and assess new and innovative technologies to improve snow removal efficiency and significantly reduce the amount of road salts being applied to the roads.

#### (a) Equipment and Technology Purchases from 1980 to 2004 (Accomplishments)

- 1996 F-800 single axle and 1997 Ford tandem axle equipped with:
  - underbody two way plow
  - sander
  - truck mounted infrared temperature thermometers
  - electronic ground speed spreader controllers with down loadable data capabilities
- 1997 Case wheel loader equipped with:
  - loader mounted snow blower
  - snow bucket
- 1980 John Deere Road Grader
- 2004 Volvo Road Grader
- 2001 Front Mount Snowplow for Three-Quarter Ton Truck
- Two handheld infrared temperature thermometers

Equipment purchases over the years has demonstrated the Town of Cochrane's commitment to the safety of road users and the protection of the environment. Through product innovation, operators can continue making consistent decisions to achieve desired objectives.

### 3.3 Road Salt Usage (Deicing Methods)

Application of the 4-R's of Salt Management right material, right amounts, right place and right time will be governed by pavement temperatures, which can fluctuate depending upon time of day, degree of cloud cover and sub-surface conditions.

Operators will be familiar with the Snow and Ice Control Policy and will utilize the Snow and Ice Control Procedure and its attached Reference Guide Table to generate consistent decision making.

Specified calibration and application rates of all electronic spreader controls will be consistent throughout winter operations to achieve the specified application rate:

$$\text{Salt application spreader rate} = 131\text{kg per km/gate setting } 4.6 \text{ cm}$$

*Sand application spreader rate = 100 - 350kg per km/gate setting 9.4 cm  
(Average 345 kg per km)*

Salt placement will be on the crown or high side of the driving surface where there is a good cross fall allowing traffic to distribute the resulting brine over the road.

### 3.4 Sand and Salt Storage

In 2003 the Roads Division constructed a multi-functional facility to store all required road maintenance materials, including salt and sand. To meet all requirements of Alberta Environment, this facility was designed to facilitate deliveries, stock piling and loading of sanders inside the facility. The storage facility will avoid directing salt-laden runoff through dry well storm sewers and onto the ground surface where leaching into the shallow groundwater could occur.

Operators will maintain good housekeeping practices in and around the facility to avoid infiltration of salt into the soils adjacent to the site.

Excess mixture of salt and sand will be off loaded into the confined mixing area to maintain a zero percentage of salt in the sand stock pile. Sand and salt storage piles will be stored separately to maintain a zero percent of salt in the sand stock pile.

To avoid a high percentage of moisture in the sand, stockpiling will be performed in July of each year.

### 3.5 Stormwater Management

A large percentage of the subsurface geology within the Town of Cochrane consist of highly permeable coarse material. Therefore infiltration of salt-laden surface runoff can and may already be impacting groundwater quality. The general groundwater flow direction is to the Bow River and local flows are to the smaller streams (Jumping Pound Creek, Big Hill Creek).

Impact to receiving streams and groundwater will be reduced by the implementation of this Salt Management Plan through:

1. training staff to understand the impacts of salt on the environment;
2. modifying road salt application methods with existing equipment and acquiring new technology to improve these methods;
3. investigating reductions in % salt required for pickled sand; and
4. promoting the key message of using the right material in the right amount in the right place at the right time, while still maintaining road safety.

### 3.6 Snow Disposal

As is similarly mentioned in Section 3.8, there is currently no practical or economical way of removing the chlorides, including those found in snow. Therefore protection of water quality is very important. The following practices will be adhered to for the disposal of snow:

1. Melt water shall not be discharged to salt vulnerable areas – an assessment of the potential impacts should be undertaken;
2. Melt water shall not be discharged into groundwater recharge areas and areas over shallow aquifers.

Melt water analysis should include chlorides, sodium, TSS and TPH, be conducted annually and recorded for tracking purposes.

Off season maintenance of the snow disposal site should include:

1. Removal and proper disposal of any accumulated contaminants left behind.
2. Inspect and repair any damage to the site surface and base.

### 3.7 Operations Maintenance Yard

Baseline conditions of the maintenance yard and surrounding area will be developed for future monitoring comparisons for the following environmental indicators:

- Chloride concentrations in groundwater wells located in the maintenance yard;
- Visible salt staining on surface of soils; and
- Areas of stressed vegetation both within the yard and adjacent properties.

Monitoring of these areas, including groundwater analysis for chlorides and sodium will be conducted annually.

### 3.8 Vehicle Washing

To minimize corrosion, spreaders are often washed following a storm. The wastewater is likely contaminated with dirt, oil, grease and salt (chlorides). If not properly handled this wash water can harm groundwater quality, receiving streams and adjacent vegetation.

Presently the Town of Cochrane does not have specialized wash bays. These facilities will be incorporated in planned additions to equipment storage space.

All vehicle wash should be directed through an oil/grit separator prior to discharge to a sanitary sewer connection. (Note: Chlorides are not treated to any significant extent by conventional methods of wastewater treatment plants and thus directing wash water to the sanitary sewer only relocates the impact. However, this alternative may be considered to be reasonable at this time since it should eliminate further impacts to groundwater from chlorides). In addition, further reduction of salt usage should mean less salt being washed from vehicles.

### 3.9 Identifying and Monitoring Environmentally Sensitive Areas

Currently the salt vulnerable areas within the Town of Cochrane have been identified as:

- The Bow River particularly at low flow (flows in the Bow River are controlled by the Ghost Dam and impacts from the discharge of salt laden run-off could be more pronounced during these periods);
- Jumping Pound Creek;
- Big Hill Springs;
- Horse Creek;
- Areas associated with groundwater recharge zones or shallow water table, with medium to high permeability soils; and
- Salt vulnerable vegetation along roadways.

Reducing salt-laden runoff to these areas will be the result of successfully implementing the 4-R's of Salt Management: right material, right amount, right time, right place.

### 3.10 Record Keeping

The Roads Division will maintain an annual log that contains total quantities of sand and salt usage along with weather data reports from Environment Canada. Shift reports shall comprise of the following:

- (a) areas maintained;
- (b) material used (sand and/or salt);
- (c) quantities of material used;
- (d) specified operator;
- (e) shift hours; and
- (f) pavement and air temperature.

#### 4. Salt Management Plan Goals

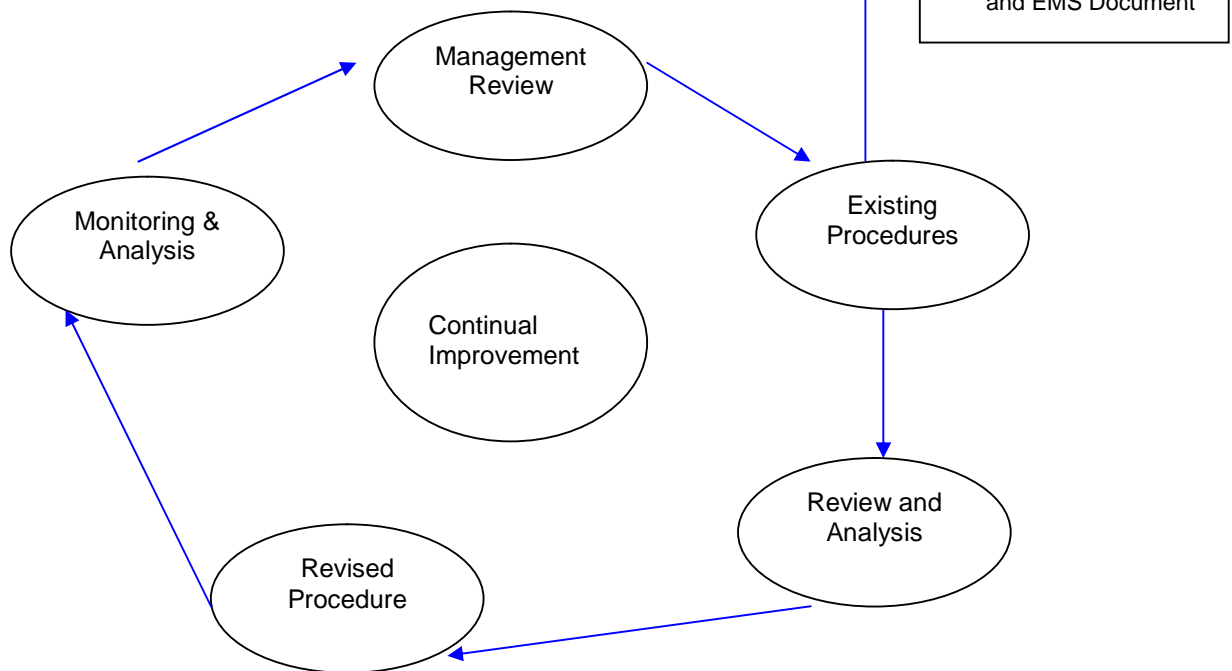
Activity	Goals
<b>Communications</b>	The Town of Cochrane approach to winter maintenance and salt management will be presented to Alberta Transportation to ensure the coordination of both organizations are working together in reducing the impacts that road salts have on the environment within the Town of Cochrane boundaries.
<b>Monitoring Program</b>	Tracking the performance of the required objectives identified in the snow and ice control program and the Salt Management Plan will be ongoing to ensure roads are properly maintained in accordance with it's level of priority while being committed to the reduction of road salts.
<b>Electronic Spreader Controls</b>	By fall 2004 all plow trucks will be equipped with SSC5100 – Force controllers
<b>Spreader Calibration</b>	<ul style="list-style-type: none"> <li>• All spreaders will be properly calibrated each fall.</li> <li>• Calibration will be checked regularly and recalibrated as needed.</li> <li>• Standardized spreader rates for salt and sand have been developed and will be maintained by all operators.</li> </ul>
<b>Equipment Technology</b>	<p>Over the next five years the Roads Division will implement the following pending budget approval:</p> <ul style="list-style-type: none"> <li>- Loader mount electronic material scale (measure sand and salt quantities)</li> <li>- Snow wing for grader</li> <li>- Advanced road weather information system (pavement sensor monitor)</li> <li>- Front mount tandem axle plow</li> <li>- Pre-wetting and anti-icing equipment</li> </ul>
<b>Equipment Washing</b>	By 2006 all equipment and vehicle washing shall be carried out indoors and wastewater shall pass through oil/grit separator before being discharged into the sanitary sewer.
<b>Weather Forecasting</b>	Roads Division will continue to access all available weather information and provide training to all operators on interpreting weather information when making snow and ice control decisions.
<b>Environmentally Sensitive Areas</b>	The Roads Division will continue to identify any other environmentally sensitive areas that need to be addressed in future upgrades to this Plan.
<b>Training</b>	On going training and improved technologies will be investigated and implemented to ensure an effective management of road salt during winter maintenance activities.
<b>Snow Storage Facility</b>	By fall of 2005, a new snow storage facility will be constructed at 700 Griffin Road East. Under the Alberta Environment Regulations, the Town of Cochrane is required to have the facility in place by 2005 to comply with Alberta Environmental Water Quality Regulations to protect surface and ground water resources.



## 5. Conclusion

The Salt Management Plan as a continual improvement document will recognize that change will be incremental and ongoing. The following diagram summarizes how this continual improvement will occur.

Monitoring and reviewing the Town of Cochrane's technology needs and salt management strategies will be required to achieve continued safety for road users and the protection of the environment



**Schedule “D”**  
**Roads Division - Sanding and Salting - Reference Guide Table**

	Pavement Temperature Range °C	Type of Precipitation	Road Condition	Activity	Recommended Treatment		
					Beginning of Storm	During Storm /1	After Storm /2
1.	Below -18°	Dry Snow	No Packing	Plowing	After 3 cm of snow accumulation	Continuously	Bare pavement/wing back shoulders/cleanup
			Dry Pavement	Sanding	If Slippery	Follow after plowing; if slippery	Slippery sections only
				Salting	No	No	If temperature rising, to bare or assist in baring pavement
2.	-18° to -12°	Dry Snow	No Packing	Plowing	After 3 cm of snow accumulation	Continuously	Bare pavement/wing back shoulders/clean-up
			Dry Pavement	Sanding	If Slippery	No	Slippery sections only
				Salting	No	No	If temperature rising, to bare or assist in baring pavement
3.	-18° to -12°	Dry Snow	Packing	Plowing	If temperature rising, after salting If temperature falling, after 2 cm accumulation	Continuously	Bare pavement/wing back shoulders/clean-up
				Sanding	If temperature falling, if slippery	If temperature fall, follow after plowing, if slippery	If temperature falling, slippery section
				Salting	If temperature rising before 0.5 cm accumulation	If temperature rising, as necessary after plowing	If temperature rising, to bare or assist in baring pavement.
4.	-12° to -7°	Dry Snow	No Packing	Plowing	After 3 cm of snow accumulation	Continuously	Bare pavement/wing back shoulder/clean-up
				Sanding	If temperature falling, if slippery	Follow after plowing, if slippery	Slippery section only
				Salting	No	No	If temperature rising, to bare or assist in baring pavement
5.	-12° to -7°	Dry Snow	Packing	Plowing	0.5 hours after salting	Continuously	Bare pavement/wing back shoulders/clean-up
				Sanding	No	Follow after plowing, if slippery	Slippery sections only
				Salting	If temperature rising, before 0.5 cm of snow accumulates	As necessary after plowing, to assist plowing	If temperature rising, to bare or assist in baring pavement
6	Above -7°	Wet Snow	Packing	Plowing	0.5 hours after salting	Continuously	Bare pavement/wing back shoulders/clean-up
			Wet Pavement	Sanding	No	Follow after plowing, if slippery	Slippery sections only
				Salting	Before 0.5 cm of snow accumulates	As necessary after plowing	To bare or assist in baring pavement
7.	Above -7°	Sleet or Freezing Rain	Possible Icing	Plowing	No	No	Remove any slush
			Wet Pavement	Sanding	No	Yes	Slippery sections only
				Salting	When icing starts	Yes	Slippery sections only

## **Schedule "A"**

### **Road Infrastructure East of Fifth Avenue West**

#### **Emergency Routes**

- Grande Boulevard (*Fire Hall*)
- First Street West to Centre Ave. North to 1A Hwy (*RCMP Station*)

#### **Arterial Thoroughfares** (*Not listed in a prioritized manner*)

- Fifth Avenue
- First Street West (*Including Holy Spirit School Zone*)
- River Avenue (*Including Ecole Notre Dame Des Vallees Francophone School - Annex School Zone*)
- Gleneagles Drive
- Griffin Road - *Switch to West Rock*

#### **Collectors** (*Not listed in a prioritized manner*)

- First Avenue West
- Second Avenue West
- Fourth Avenue West
- Fourth Avenue North
- Remaining Downtown Core (*2<sup>nd</sup> Street West, 3<sup>rd</sup> Avenue West, 6<sup>th</sup> Avenue West*)
- Chiniki Drive (*Including Manachaban School and Cochrane High School Zones*)
- Chinook Drive (*Including Elizabeth Barrett School Zone*)
- Riverview Drive (*Including Ecole Notre Dame Des Vallees Francophone School - Annex School Zone*)
- Baird Avenue
- First Street East
- Gleneagles Gate
- Gleneagles Boulevard
- Gleneagles View
- Gleneagles Close
- Powell Street (*Holy Spirit School*)

#### **Designated Hills and Roads commonly used by Emergency Response Personnel** (*Not listed in a prioritized manner*)

- Headlands
- Carolina Drive (*including Big Hill Lodge*)
- Ross Avenue (*Including Evergreen Manor*)
- Sunterra Road
- William Street from Pope Avenue to Baird Avenue
- Centre Avenue (*Cemetery Access*)
- Sunterra Booster Station Road

- River Height's Rise (*Bow River bridge south*)
- Gleneagles Terrace

**Industrial Area** (*Not listed in a prioritized manner*)

- Bow Street
- Charlesworth Avenue
- Fisher Avenue
- Second Street East

**Residential Intersections** (*Not Listed in a prioritized manner*)

- Intersections connecting with arterial thoroughfares
- Intersections connecting with collectors

**Residential Spot Sanding and Plowing Impassable Roadways**

- Complaints and Requests - Investigated and appropriate action taken, if deemed necessary.

## Schedule "B"

### Road Infrastructure West of Fifth Avenue West

#### Emergency Routes

- Grande Boulevard
- Horse Creek (*Emergency Access Road Allowance*)
- Sunset Boulevard from Sunset Square West to Highway 22 (New Fire Station)

#### Arterial Thoroughfares (*Not listed in a prioritized manner*)

- Quigley Drive (*Including Mitford Middle School Zone*)
- Glenbow Drive
- Railway Street
- George Fox Trail
- Towers Trail
- Rolling Range Drive
- River Height's Drive
- Horse Creek Road
- Ranche Road
- Carlson Trail (*Including St. Timothy's school zone – from Ranche to Hwy 22 Access*)

#### Collectors (*Not listed in a prioritized manner*)

- Bow Meadows Drive
- Bow Ridge Drive
- Bow Ridge Road
- Glenpatrick Drive
- Glenpatrick Road (*Including Glenbow School Zone*)
- West Aarsby Road
- West Edge Road
- West McDougal Road (*Including Mitford Middle School Zone*)
- West Rock Road
- Westside Drive
- West Terrace Drive (*East Entrance #1 to #32*) - Water Treatment Plant)
- West Terrace Point (*Including Water Treatment Plant*)
- River Heights Lane
- River Heights Rise
- TWP Road 262
- Carlson Trail (*From Hwy 22 East to Town Limits*)
- Rolling Range Estates
- Rolling Range Place
- Gate into Sunset Place

**Designated Hills** *(Not listed in a prioritized Manner)*

- Bow Ridge Crescent
- Bow Ridge Lane
- Bow Ridge Link
- West Mitford Crescent *(from #31 to #71)*
- Cascade Place
- Castle Place
- RancheHouse Road
- Sunset Point

**Residential Intersections** *(Not listed in a prioritized manner)*

- Intersections connecting with Arterial Thoroughfares
- Intersections connecting with Collectors

**Residential Spot Sanding and Plowing Impassable Roadways**

- Complaints and Requests  
*(Investigated and appropriate action taken, if deemed necessary)*

**Approval**

  
Julian deCocq, C.A.O.

**Date**

 17/08



# Town of Cochrane Roads

Snow Routes 2016/17

3 Truck System

### West Truck

- Sunset Ridge
- Ranchehouse
- Gas Plant
- Horse Creek Rd
- 262
- Heritage Hills
- West Valley / Quigley
- Glenbow Dr / Glenbow
- Railway
- Heartland

### Ford - Front Mount Plow

- Ridge View Place
- Richards Road
- Gravel Hill Past Old Bridge
- Back Side of 4th
- Grave Yard Road
- Gravel Parking Lots
- Drifted Areas
- Toyota - Catholic Church
- Corner of 5th and Railway (Move Snow East)

### Graders

- Widen Main Roads
- Work with Plow Trucks
- Gravel Roads
- Emergency Access Roads

### East/Downtown Truck

- 5th Ave commercial
- Downtown S of tracks
- Riverview
- River Av bridge
- Industrial
- Downtown N of tracks
- East End
- Cochrane Heights
- Sunterra
- Glen Eagles

### South Truck

- George Fox Tr
- Bow Ridge
- Bow Meadows
- James Walker Tr
- Riversong
- Towers Trail
- Jumping Pound Ridge
- Fireside
- Griffin RD to Arena and Campground
- Griffin Industrial Point

### Priority

- Arterial
- Collectors
- Emergency Route
- Hills
- Industrial

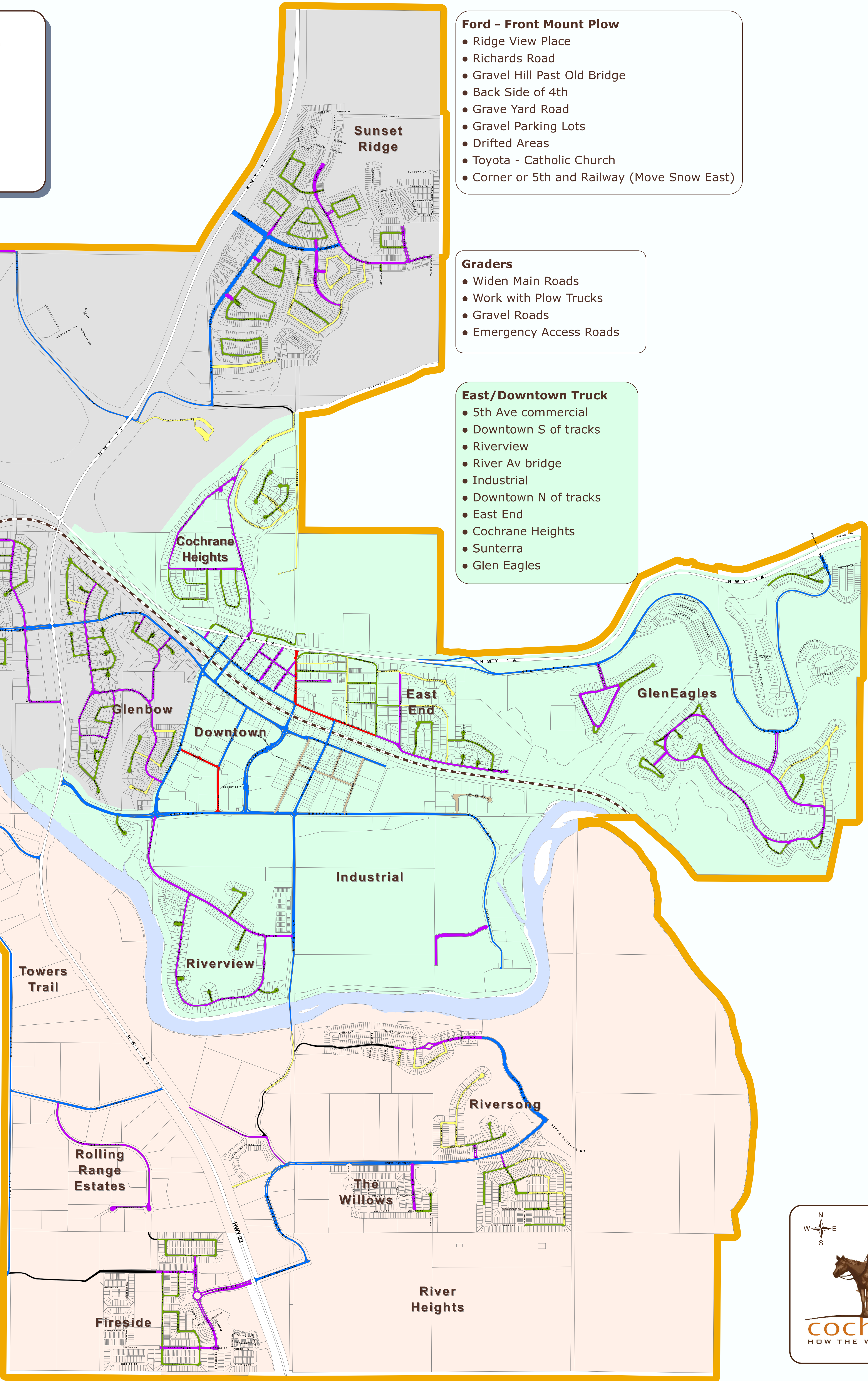
### Not Maintained

- Residential
- Provincial Highways\*
- Emergency Access

\* Provincial Highways are maintained by the AB government through the services of Volker Stevin 1-888-877-6237

Any unclassified roads will not be cleared by the town.

The Town of Cochrane provides this information in good faith but it provides no warranty, nor accepts any liability arising from any incorrect, incomplete or misleading information or its improper use. This information may be updated on a daily basis as changes occur. Current as of 2016-10-21.



Updated By: patricia.langevin@cochrane.ca  
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