VILLAGE OF WABAMUN POLICY HANDBOOK TABLE OF CONTENTS

PUBLIC WORKS	POLICY #
SNOW REMOVAL POLICY	PW1:1
UTILITY SERVICE ACCOUNT - RESCINDED	PW 2.1
CRACK FILLING POLICY	PW 2.1
POTHOLE REPAIR POLICY	PW 2.2
UNSIGHTLY POLICY	PW XX

POLICY TITLE: SNOW REMOVAL POLICY

SECTION: PUBLIC WORKS POLICY NO: PW1:1

DECEMBER 15, 2015

RESOLUTION NO: 15-441

PURPOSE:

In order that public roadways within the corporate limits of the Village of Wabamun are maintained in a condition that:

- allows prompt response to emergencies by Fire, Police and Ambulance services AND
- allows prompt access to essential utility services AND
- minimizes accidents, injury or damage to persons, vehicles and property AND
- permits reasonable vehicular access to primary highways, businesses, industry, schools, residences, recreational facilities, public services and cemetery.

POLICY STATEMENT:

- A. The Village of Wabamun will undertake roadway sanding, snow plowing and snow removal in order of priority. There may be snowfall events which exceed the capacity of available manpower and equipment to carry out the work listed under each priority within the time allowed before another snowfall; the order of priority will not change in such a case.
- B. Fire Hydrants will be cleared as required to allow proper access in case of fire

DEFINITIONS:

- As Required A statement which means that the level of service is not set at a predetermined number of activity occurrences per season or year
- Boulevard Area between a roadway curb and property line
- Drifting Depositing of windblown snow on roadways or lanes which makes the passage of vehicles difficult or impossible
- Rutting The formation of troughs and ridges in excess of 10cm depth in compacted snow or ice
- Sanding The application of a sand/chips/salt/calcium or other mixture to a roadway surface to improve traction, reduce skidding or reduce ice formation
- Snow plowing and windrowing The grading of accumulated snow from roadway surfaces to the middle or sides of a roadway or lane
- Snow removal The loading and truck hauling of snow from roadway surfaces to a designated snow disposal site

PRIORITY 1

- A. Mandatory snow plowing and windrowing on the following roads following the accumulation of 10 cms of snow as follows:
 - 1. Fire Hall / ambulance zone including parking lot and 53rd Avenue from 50th to 52nd Street
- B. Mandatory snow plowing and windrowing following the accumulation of 10 cms of snow, plowing and windrowing will be completed prior to 9:00 am:
 - 1. 51st Avenue from 51st Street to 52nd Street
 - 2. 52nd Street from 53rd Avenue to 51st Avenue
- C. Mandatory clearing of sidewalks adjacent to village owned properties* see map attached *Except sidewalks in Osprey Estates until such time as development in that area proceeds



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DECEMBER 15, 2015 RESOLUTION NO: 15-441

PRIORITY 2

- A. Mandatory snow plowing and windrowing-on roadways following the accumulation of 10 cms of snow as follows:
 - 1. From the Highway 16 access heading south down 50th Street to 30m south of the CN tracks
 - 2. 51st Avenue from 50th Street to Point Alison
 - 3. School Zone 55th Avenue between 50th and 49th Streets and 49th Street between 54th and 55th Avenues, 54th Avenue between 50th and 49th Streets
 - 4. Village owned parking lots, excluding waterfront park
- B. Removal of windrows on priority 1 and 2 roads

PRIORITY 3

- A. Mandatory Snow plowing and windrowing on arterial roadways following the accumulation of a snowfall of 10 cm or greater:
 - 1. 52nd Street from 53rd to 56th Avenue
 - 2. 56th Avenue from 52nd to 50th Street
 - 3. 53rd Street from 51st to 52nd Avenue
 - 4. 52nd Avenue from 53rd St. to 46th St.
 - 5. 46th St. north to 54th Ave.
 - 6. 54th Ave. from 46th St. to 49th St.
- B. Removal of windrows on priority 3 roads

PRIORITY 4

- A. Snow Clearing from hard surfaced village recreational walking paths
- B. Snow plowing on areas noted below
 - 1. Alley east of 52nd Street from 51st to 53rd Avenue
 - 2. Alley west of 52nd Street from 51st to 52nd Avenue
 - 3. Waterfront park parking areas
- C. Snow plowing and windrowing on all remaining roads as time allows
- D. Removal of windrows on priority 4 roads
- **E.** Snow plowing and removal on local lanes as required when drifting occurs or when lanes become impassable due to accumulated snowfall.

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POLICY TITLE: SNOW REMOVAL POLICY

SECTION: PUBLIC WORKS POLICY NO: PW1:1

AMENDED DATE: DECEMBER 15, 2015 RESOLUTION NO: 15-441

PROCEDURES:

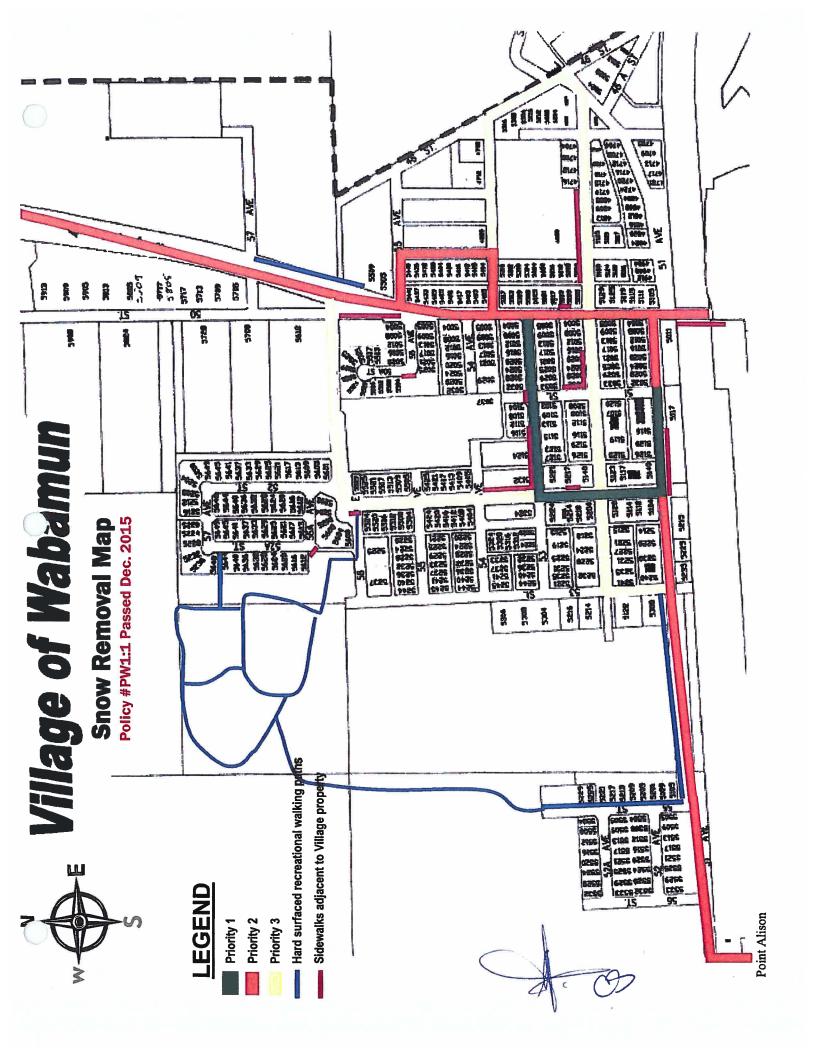
- C. The Village of Wabamun will take full advantage of the snow storage capacity of roadway right-of-ways in order to minimize the expenditures associated with snow removal and hauling.
- D. For all existing roadways, and all roadways developed in the future, snow removal and placement of snow plowing windrows shall be carried out in accordance with the following criteria:
 - a. On 50th Street, north of 56th Avenue, snow windrows shall be plowed to and stored on the boulevards on both sides of the street.
 - b. In all other areas of the Village the snow will be plowed and removed to the snow storage areas designated by the Public Works Foreman.
- E. Where a snow windrow is placed across a private driveway entrance, a public driveway entrance or a lane entrance, the Village will endeavor to reopen the area as soon as possible.
- F. Public Works Foreman may authorize removal and hauling away of snow at any location if two lanes of traffic cannot be accommodated on arterial or collector roadways or one lane of traffic cannot be accommodated on other roadways including the laneways.
- G. With the authorization of the CAO, the public works lead hand may be given the discretion to make minor adjustments to the above schedule, based on unique circumstances such as timing, rutting and drifting
- H. Sanding will be done as often and where required, based on the judgement of the public works lead hand or by direction of the CAO
- I. The priority areas and paths and sidewalks relevant to this policy are marked on the map attached and forming part of this policy

With passage of this policy, policy PW1:1 of January 7, 2014 is hereby repealed

Chief Administrative Officer

Chief Elected Offical







PART: PUBLIC WORKS
SECTION: CRACK FILLING POLICY

POLICY NO: PW2.1 EFFECTIVE DATE: APRIL 21, 2015

PURPOSE:

The Village of Wabamun Council enacts this Policy to provide staff in the Public Works department with guidelines for the maintenance and treatment of asphalt cracks within the Village.

GUIDELINES:

- 1. The Public Works department will use the attached 'Maintenance Guidelines and Procedures' from Alberta Transportation to guide the maintenance and treatment of cracks in the asphalt on the streets, avenues and alleys within the Village of Wabamun.
- 2. Cracks should be treated in the spring as soon as time allows.

Approved by Council as noted above:

Chief Elected Offical - Village of Wabamun

Chief Administrative Officer – Village of Wabamun

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11.1 INTRODUCTION

Preventative maintenance for pavement surfaces is essential if you wish to delay the deterioration and extend the service life of the structure. Cracking is one of the most common distress that occurs in asphalt concrete pavements. The presence of cracks on a pavement surface allows moisture to penetrate into the base material, which can cause premature failure of the pavement structure. In order to maximize life expectancy of a pavement it is desirable to minimize the detrimental effects of the cracks. This can be accomplished by treating the cracks prior to extensive deterioration, repairing cracks, or in extreme cases overlaying the pavement.

Not treating cracks can lead to increased maintenance costs as the crack deteriorates. Spalling and potholes are common secondary distresses for untreated cracks. Maintenance treatments to fix these distresses can be much more expensive than treatments used to fix the crack initially.

In an effort to provide a consistent approach to crack maintenance activities, the following guidelines have been developed.

11.2 MAINTENANCE TREATMENTS - CRACKING

The main purpose of a crack treatment is to seal or fill the crack in order to prevent moisture from penetrating the base and subgrade thereby preventing the weakening of the roadway structure. The secondary purpose is to prevent the loss of aggregate from the edges of the cracks. Moisture entering the crack can lead to accelerated fatigue, stripping, pumping and other pavement damage. Crack maintenance encompasses many treatment options ranging from the basic maintenance application of crack filling to more drastic measure of overlaying the pavement.

Crack Treatment

A Crack Treatment involves either sealing or filling the crack. Besides preventing moisture from penetrating the base and subgrade thereby weakening the roadway structure, it also slows crack deterioration caused by material spalling from the edges of the cracks. Cracks should be treated as early as possible in the spring. The earlier this function can be completed, the more successful it will be in minimizing moisture penetration and damage.

Surface Treatment

Although preventative in nature, surface treatments such as seal coats, slurry seals, fog seals, etc., generally seal the entire surface and are most appropriate on pavements with minor hairline cracks having little or no associated edge deterioration. A surface treatment can also be used in conjunction with individual repairs of selected cracks. They are used to treat surfaces which have segregated areas and porus surfaces due to loss of aggregate.

Crack Repair

The purpose of crack repair is corrective in nature and removes or repairs extreme depressed or tented (cupping or lipping) transverse cracks. Crack repairs reduce or

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eliminate roughness in pavements and may be performed in order to delay rehabilitation. Typically pavements that exhibit few other surface distresses are good candidates for crack repair strategies. Repairs are generally made with asphalt concrete pavement mix for Mill & Fill, spray patching or a sand/sulphur slurry mix.

Rehabilitation

Pavement rehabilitation is corrective in nature and is used to cover over all surface distresses and used to strengthen the pavement structure. Surface rehabilitation strategies include Hot In-place Recycling (HIR), Cold Mill and Inlay and overlay. Individual repairs of selected cracks such as, reinforcement, Mill & Fill, spray patching, etc. can be done in conjunction with and prior to rehabilitation.

In general, rehabilitation with or without a crack treatment/repair will improve the resistance to reflective cracking for non-working cracks. However, rehabilitation on working cracks will experience reflective cracking within 1-3 years without crack repair and 2-5 years with crack repair.

Non-working cracks are defined as cracks that have less than 2.5 mm movement during a given year. These are typically longidutindinal cracks. Working cracks are defined as cracks that have 2.5 mm movement or greater in a given year. These are typically transverse cracks.

11.3 EFFECT OF PAVEMENT CONDITION

Careful consideration must be given to existing pavement condition to ensure a successful treatment. Crack density and edge deterioration are two major factors in deciding what treatments to apply. If a pavement is badly deteriorated, and has significant cracking, crack filling or crack sealing may not be the most effective treatment on a life cycle cost basis.

Crack Density

Crack density is a measure as to how closely spaced the transverse cracks are on a given length of roadway. The following table was developed by the Michigan Department of Transportation to determine crack density.

Linear Crack Length per 100 m Pavement Section	Density
< 10 meter	Low
10 meter to 135 meter	Moderate
> 135 meter	High

Table 1.1 - Crack Density (MDOT)

Crack Edge Deterioration

Edge deterioration is a measure of how much the crack edge has deteriorated. The following table from the Surface Condition Rating Manual for Alberta Transportation can be used to determine severity of Edge Deterioration.

Edge Deterioration	Severity
Crack width < 3mm	Slight
Crack width 3 to 10 mm or Secondary Cracking	Moderate
Crack width > 10 mm or Block Cracking	Extreme

Table 11.2 Edge Severity (Surface Condition Rating Manual)

11.4 DETERMINING THE APPROPRIATE CRACK MAINTENANCE APPLICATION

When the Surface Condition Rating indicates that there is cracking in an asphalt pavement, the complete circumstances of the pavement should be carefully assessed prior to taking action. The type and orientation of the cracks to be treated should be established, along with the climatic conditions, pavement structure composition, traffic characteristics, and future rehabilitation plans. This will help determine the frequency and amount of annual crack movement that can be expected, and consequently the quality of the material required, and whether a short, medium, or long term treatment of the cracks is most appropriate.

Crack Density	Average Level of Edge Deterioration (percent of crack length)				
	Slight (0 to 25)	Moderate (26 to 50)	Extreme (51 to 100)		
Low	Monitor or Crack Treatment	Crack Treatment	Crack Treatment or Crack Repair		
Moderate	Crack Treatment	Crack Treatment	Crack Repair		
High	Surface treatment	Surface Treatment	Rehabilitation		

Table 11.3 Guidelines for Determining Crack Maintenance Activities

11.5 CRACK TREATMENT OPTIONS - SEALING VERSUS FILLING

Crack sealing and crack filling are two distinct activities and it is important to understand the differences between the two treatments to effectively treat the cracks.

"Crack sealing" is a more intensive operation that is intended to prevent water from entering the pavement structure. The treatment involves routing the crack to a specific configuration and placing a high-quality sealant in it.

"Crack filling" is a less intensive operation and is intended to reduce the amount of water infiltration into the pavement and reinforce the adjacent pavement. This treatment involves placing a crack filler, generally a cold-pour bituminous emulsion, into the crack without affecting the crack geometry.

<u>Crack Sealing</u> is carried out to seal ordinary working cracks (greater than 2.5 mm of horizontal crack movement).

- For cost-effective, short-term crack treatment performance (between 1 and 3 years) in pavement with ordinary working cracks and moderate traffic levels (5000 AADT or less), a crack sealant applied as a filler (i.e. an overband or flush-fill configuration) is considered most appropriate.
- For cost-effective medium-term crack treatment performance (between 3 and 5 years) under the above conditions, a modified rubberized sealant placed in a shallow (40X10 mm) or standard (19X19 mm) reservoir with overband configuration (Rout & Seal) is considered most appropriate.
- For cost-effective, long-term crack treatment performance (say, between 5 and 8 years) under the above conditions, a modified low modulus rubberized asphalt sealant installed in a standard or shallow reservoir with overband configuration should be used. These materials provide a high level of flexibility and adhesiveness, so that annual crack movements can be accommodated. Moreover, the combination of a reservoir and an overband helps to maximize sealant performance.

Crack Sealing (Rout and Seal) is recommended if:

- Crack opening between 3-12 mm and pavement is less than five year old. Pavements with crack opening between 12-20 mm should be evaluated to determine whether or not routing is appropriate. Pavements with crack openings greater than 19 mm should be cleaned and filled without routing. Types of cracks considered for routing and sealing are:
 - > Transverse cracks.
 - > Edge cracks.
 - ➤ Longitudinal cracks on low volume roads. (Avoid wheel path cracking, unless treatment is followed up with a chip seal that year)

Crack Sealing (Rout and Seal) is not recommended if:

- Crack opening is less than 3 mm.
- Cracks are alligator (or map) type.
- Crack is severe in density. It is assumed that rout and seal would be ineffective in delaying further deterioration.
- Pavement is more than 10 years old, or is being considered for rehabilitation.
- Longitudinal cracks with moderate to high traffic unless treatment is followed up with a chip seal that same year (centre line, midlane, wheel track single crack, and meandering cracks).

<u>Crack Filling</u> is carried out to fill non-working cracks (less than 2.5 mm of horizontal movement).

 For cost-effective, short-term crack filler performance (1 to 3 years) in pavements with non-working cracks and low to moderate traffic levels, asphalt

cement, cold pour or hot pour sealant placed in a flush-fill or overband configuration is considered most appropriate.

For cost-effective, long-term crack filler performance (say, between 5 and 8 years) under the above conditions, an asphalt rubber or rubberized asphalt placed in either a flush-fill or overband configuration is considered most appropriate. The higher quality of these materials and the added life provided by the overband make for the most cost effective options in this scenario.

The following Table provides recommended <u>Crack Treatment Criteria</u> for determining which cracks to seal and which to fill, given various crack characteristics. In comparison to crack filling, crack sealing involves much more planning and uses specially formulated materials and more sophisticated equipment.

Crack	Crack Treatment Activity		
Characteristics	Crack Sealing	Crack Filling	
Width, mm	5 to 25	5 to 25	
Edge Deterioration (i.e., spalls, secondary	Minimal to None (≤25% of crack length)	Moderate to None (≤50% of crack length)	
Annual Horizontal Movement, mm	≥2.5	<2.5	
Type of Cracks	Transverse thermal cracks Transverse reflective cracks Diagonal/meandering cracks	Longitudinal reflective cracks Longitudinal cold-joint cracks Longitudinal edge cracks Distantly spaced blocked crack	

Table 11.4 - Crack Sealing Versus Crack Filling

11.6 CRACK PERFORMANCE

Central and Northern Alberta can experience horizontal crack movements in excess of 20 mm. This extreme amount of crack movement requires a high level of workmanship to ensure that the crack is located in the centre of the rout and the use of high quality modified rubberized asphalt materials.

Performance of the crack treatment is dependent on three factors: initial pavement condition, product selection, and production installation. It is very important that the crack/rout be as clean and dry as possible. Sealant should be applied soon after the crack has been routed and cleaned with the hot-air lance. Air temperature, AC surface temperature and humidity all need to be considered during the product installation. Route and seal should not be applied following a rain event. The pavement must be as dry as possible. In addition to that, the selection of what time of the season the crack sealant should be applied is often a compromise between the effect of crack movement on sealant performance and sealant installation.

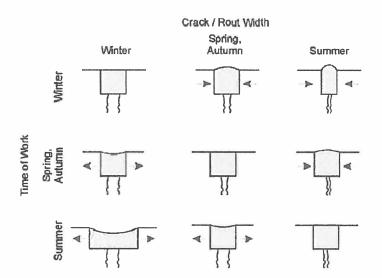


Figure 11 –1 Effect of Crack opening and time of work of sealant strain (National Guide to Sustainable Municipal Infrastructure.

On the basis of crack movement spring and autumn would appear to be the most effective time to do crack sealing. However in the spring, frost is usually coming out of the ground and pavement moisture is normally high.

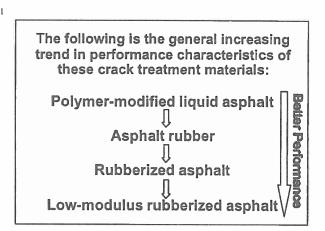
Cool air temperatures can reduce the temperature of the pavement surface thus causing a hot-pour sealant to gel more quickly. As a result of this, sealant penetration is reduced which can then lead to lower than expected adhesion and performance. Crack sealant should not be applied when the pavement temperature is below 10 $^{\circ}$ Celsius. Crack sealing in the summer months reduces the effect of air temperature.

Crack filling with cold-pour bituminous emulsions should be applied in late spring when the air temperature is 10 ° Celsius or higher. This will permit sufficient time for the emulsion to shed its residual water. Low temperatures and high relative humidity will extend curing time. In addition, a filler that experiences freezing temperatures or rain within 24 hours of application will be adversely effective. Crack filling can be done on non-working cracks during the summer months.

Material

There are many different crack sealing/filling materials, each with distinct characteristics. The principal material families and types are as follows:

- · Cold-applied thermoplastic materials
 - Liquid asphalt (emulsion, cutback)¹
 - Polymer-modified liquid asphalt
- Hot-applied thermoplastic materials
 - Asphalt cement¹
 - Mineral-filled asphalt cement¹
 - Fiberized asphalt
 - Asphalt rubber
 - Rubberized asphalt
 - Low-modulus rubberized asphalt
- Chemically cured thermosetting materials
 - Self-leveling silicone



In order to provide for proper accommodation of traffic, crack maintenance must be carried out on one lane at a time with signs and properly attired flagpersons directing traffic. Signing must be in place in accordance with the appropriate signing diagram in the Traffic Accommodation manual.

11.7 SURFACE TREATMENT OPTIONS

Surface treatments are used to eliminate hairline cracking.

- For cost-effective, long-term performance (8+ years) seal coating, micro surfacing or slurry sealing are considered most appropriate.
- Fogging of slight deteriorated cracks is also an very effective treatment.

11.8 CRACK REPAIR OPTIONS

Crack repair is carried out on cracks with extreme edge deterioration (cupping or lipping). Spray Patching and Mill & Fill are two treatments that can be considered for crack repair.

- For cost-effective, medium-term crack repair performance (3 to 4 years)
 with low to moderate traffic levels, spray patch and sand/sulphur slurry patch
 (thermo patch) are considered most appropriate. Spray patching should only
 be considered if cracks are depressed more than 10 mm. It can be used as a preoverlay treatment.
- For cost-effective, long-term crack repair performance (5 to 8 years) with low

¹ Crack Filling only

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to moderate traffic levels, Mill & Fill is considered most appropriate. Mill & Fill should be used at locations were tented, or failed transverse cracks exist. This treatment will improve the ride and restore structural integrity at the repaired locations. Note, Mill & Fill can be used as a pre-overlay repair. It should not be considered if the base of the structure is weak. A more extensive repair is required.

11.9 REFERENCES

Alberta Transportation and Utilities "Failures Definition" Handbook.

- Crack Sealing; Hot and Cold Pour Emulsion (Code 1680)
- Crack Sealing; Rubberized Asphalt Crack (Code 1690)
- Spray Patch (Code 1790)
- Transverse Crack Repair Mill and Fill (Code 1870)
- Transverse Crack Repair Spray Patch (Code 1880)
- Transverse Crack Repair Sand (Sulphur Slurry Patch) (Code 1890)

SHRP-H-348 "Asphalt Pavement Repair Manuals and Practice".

- FHWA-RD-99-143 "LTPP Pavement Maintenance Materials: SHRP Crack Treatment Experiment, Final Report".
- "Sealing and Filling of Crack For Bituminous Concrete Pavements Selection and Installation Procedures", Michigan Department of Transportation, 1999.
- "Guidelines for Sealing and Filling Cracks in Asphalt Concrete Pavement", Issue No. 10, National Guide to Sustainable Municipal Infrastructure, March 2003
- "Guidelines for Assessing Pavement Preservation Strategies", Alberta Transportation, June 2002

POLICY NO: PW2.2

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PART: PUBLIC WORKS

SECTION: POTHOLE REPAIR POLICY EFFECTIVE DATE: APRIL 21, 2015

PURPOSE:

The Village of Wabamun Council enacts this Policy to provide staff in the Public Works department with guidelines for the treatment of potholes in asphalt roads, parking lots and alleys within the Village of Wabamun.

GUIDELINES:

The Public Works department will supply asphalt stabilized base course material from a suitable supplier and shall supply tack coat materials suitable for the repair.

The staff shall remove all loose material from the hole and tack coat the hole and the surrounding area to 0.15 m outside of the broken area.

The patching material shall be placed and compacted in the hole such that the completed patch provides a hard, stable surface which does not rut or otherwise distort under traffic loading and provides a smooth transition to the surrounding pavement surface.

Potholes should be repaired in the spring as soon as time allows.

Approved by Council as noted above:

Chief Elected Offical - Village of Wabamun

Chief Administrative Officer - Village of Wabamun

PART: PUBLIC WORKS
SECTION: UNSIGHTLY POLICY

POLICY NO: PWXX EFFECTIVE DATE: JUNE 10, 2013

Motion #13-189

<u>PURPOSE</u>: the Village of Wabamun Council enacts this Policy to provide property owners with further information to encourage compliance with the Community Standards Bylaw 03-2012 and/or any other enactment that the municipality is entitled to enforce. If, in the opinion of the Designated Officer, contravention occurs the Designated Officer may by written order require the person responsible to remedy in accordance to the *Municipal Government Act*, RSA 2000, C.M-26, as amended, Division 4 Enforcement of Municipal Law

UNSIGHTLY CONDITION:

- 1. Detrimental to the surrounding area includes causing the decline of the market value of the property in the surrounding area MGA 546(0.1)a
- 2. In respect of a structure includes a structure whose exterior shows signs of significant physical deterioration MGA 546(0.1) b.i
- 3. In respect of land includes land that shows signs of a serious disregard for general maintenance or upkeep MGA 546(0.1) b.ii
- 4. In regards to weeds, all noxious, nuisance, and/or restricted weeds as described in the Weed Control Act, RSA 2000, C. W-5 and its regulations, as amended

GUIDELINES:

An owner or occupier of a property

- 1. directly adjacent to a public owned boulevard and/or road right of way shall be responsible to maintain all grass, grasses and weeds on said boulevard and/or road right of way subject to this Policy and Community Standards Bylaw
- 2. shall eradicate and control the spread of all weeds located on their property and any adjacent publicly owned boulevard and/or road right of way as regulated under the Weed Control Act; weeds removed from the property shall be disposed of accordingly
- 3. shall not allow grass to exceed a height (length) of fifteen (15) centimeters
- shall take such steps as deemed necessary or as directed by the Designated Officer to remove or prune any trees or shrubbery on their property at the property owner's expense that may in any way
 - a. interfere with or cause damage and/or destruction to the lines, poles, conduit, pipes, sewers, waterline or other works of a municipal and/or public utility
 - b. cause endangerment to public safety and/or property
 - c. impede safe pedestrian and/or public traffic from proceeding on a roadway or sidewalk due to overgrowth blocking passage and/or signage
- 5. shall not direct the flow of water from a hose, sump pump or similar device on their property towards an adjacent property if it is likely that the water from the hose or similar device will enter the adjacent property
- 6. shall direct any rainwater downspout or eaves trough on the property to the front or rear of the premises

- 7. shall not allow an accessory building, structure or fence to become detrimental to the surrounding properties, unsightly and/or an endangerment public safety; including the use of materials not approved by the Development Authority such as a snow fence or chicken wire for fencing
- 8. shall not allow an excavation hole dug for a temporary period of time to endanger public safety

