

POLICY NAME: Road Management Plan

DATE OF IMPLEMENTATION: September, 2009

PURPOSE:

The Road Management Act 2004 requires Council (as a Road Authority) to Inspect, Repair and Maintain Public Roads (cl. 40) for which it is the Road Authority – including: roadways, pathways, road shoulders and road infrastructure. Council must establish achievable and reasonable standards regarding the construction, inspection, maintenance and repair of its public road network. An inspection schedule shall be implemented, as determined by Council, which indentifies:

- Intervention action required for defects;
- The period of time within which intervention action is to be taken; and
- The priority to be given to the intervention action.

The Village of Nakusp currently has 32 km of paved roads; 2 km of unpaved roads; and 6.6 kms of laneways. The CPR right-of-way, which skirts the Village, has been converted into a linear walking trail, which has been linked to the waterfront walkway and connected to the "Rails to Trails" network in the Regional District of Central Kootenay. The Village also has responsibility for the trail network and foot bridge in the Hot Springs area.

ROUTINE ROAD MAINTENANCE PLAN:

The Routine Road Maintenance Plan establishes key routine road maintenance practices for Council managed roads including:

- Inspections;
- Defect target levels of service
- Maintenance target levels of service.

Inspections:

Council has developed a systematic inspection process, including unscheduled inspections in response to the community's advice.

The inspections will identify defects and key maintenance items. Defects requiring attention will be treating in accordance with the defect table timeframes, following a risk assessment.

The maintenance items identified will be assessed, prioritized and added to maintenance works programs, to ensure that the highest risk maintenance items are attended to in order of priority, taking into account road hierarchy and traffic volume.

Council's field staff will report any risk or maintenance issues they observe as they move around the municipality in the course of their work. Council's inspectors will respond to urgent works generally within 1 hour of a report.



Defect & Routine Maintenance Target Levels of Service

The Service Levels have been developed taking into account current work and inspection regimes in conjunction with the outcomes identified through Council's review of the Road Maintenance Service.

Maintenance Programs:

Council, through its' proactive maint4enance system, will endeavor to ensure that the target levels of service are achieved, within the constraints of available resources.

Emergency Works:

Emergency works are works required to be undertaken immediately, outside routine maintenance and works programs, to ensure the safety of road users and the public as a result of emergency incidents. Emergency works include traffic incident management, responses to fires, floods, storms and spillages, and assistance under the Provincial Emergency Program.

In the event of emergencies works, these works shall take precedence over other maintenance and inspection regimes and may require a variation in the respective timeframes of those other regimes.

Storms & Flooding:

In the case of a storm or flooding event Council will respond to, and prioritize identified hazards in accordance to their severity and the availability of Council resources. Refer to Road Management Plan.

Road Management Plan:

Council's Road Management Plan (RMP) is the overarching public document that is Council's "service agreement" with the community for its' public road network.

The Road Management Plan integrates the Routine Road Maintenance Plan, along with the Register of Public Roads and the Local Road Hierarchy into a suite of cohesive and effective documents enabling practical and progressive management of the road network.

Register of Public Roads

The Village of Nakusp has a Register of Public Roads that records the details of all local roads for which it is responsible and also includes references to each roads classification within Council's adopted Local Road Hierarchy.

Schedule A - Definitions

Schedule B - Inspection Schedule

Schedule C - Target Levels of Service

Schedule D - Maintenance Table

Schedule E – Register of Public Roads

Schedule F - Winter Streets Maintenance Policy

Schedule G - Public Works Annual Schedule for Road Maintenance



SCHEDULE A – DEFINITIONS

Arterial Road is that part of the roadways system serving as the principle network for through traffic flow. The routes connect areas of principle traffic generation and important rural highways entering the Village.

Cable Bridge

Collector Road is that part of the roadway system servicing traffic between major and local roadways.

Condition Assessments inspections are undertaken to determine the condition of an asset, its relative life and where relevant, any asset renewal requirements.

Condition & Risk Inspections are undertaken to identify defects against standards set out in this Plan. Defects are rectified in accordance with the Defect Table in this document. Significant maintenance issues are also identified as part of this inspection process.

Drainage (Rural) covers the cleaning and minor reshaping of table drains and verge drains. Also covers the inspection and cleaning of cross road culverts.

Edge Breaks are sealed edges that have become fretted. The result is a reduced seal width – usually associated with eroded or weak shoulders in the vicinity of the bitumen edge.

Footpaths are highways intended to carry pedestrian and non-motorized traffic.

Grading & Patrol Works is the regular maintenance, grading and reshaping of gravel surfaced roads, in accordance with appropriate intervention standards, to remove corrugations, rutting and potholes and provide for proper drainage of the unsealed surface.

Highway includes a street, road, lane, bridge, viaduct and any other way open to public use, but does not include a private right-of-way on private property.

Highway, Arterial is a street which carries large volumes of all types of traffic between the principle areas of traffic generation to collector or other arterial highways.

Highway, Collector is a street which carries traffic from local highway to arterial highway and includes the principle entrance streets for circulation of traffic within such a subdivision.

Highway, Local means a street used primarily for travel and access to and from the parcels of land contiguous thereto.



Inspections are the undertaking by suitably qualified and experienced staff regular inspections of the road asset to determine condition, compliance with maintenance standards and risk.

Lane means a highway more than 3 metres but not greater than 8 metres in width, intended to provide secondary access to parcels of land.

Level of Service is the programmed and systematic inspection regime for the road network.

Linear Trail means the network of CPR right-of-way and waterfront walkway that connect the the RDCK Rails for Trails.

Local Roads are roadways used primarily for direct access to residential, commercial, industrial or other abutting property.

Major Patching is failed areas of pavement and seal up to 100 square metres requiring excavation of pavement by plant and reinstatement to original design standards.

Potholes are defined as small breaks and depressions in the sealed surface where loss of pavement wearing surface has occurred.

Regulatory Signs are traffic signs, which may require repair or replacement.

Resealing is the rejuvenation of a sealed surface by the application of a fresh application of bitumen and aggregate or asphalt overlay.

Re-sheeting, Spot Gravelling and Patching (Rural) is the application of gravel or crushed rock to the wearing surface to strengthen and reshape the surface.

Responsive Inspections are undertaken in response to customer reports, officer reports or maintenance staff reports. Identified defect works are rectified in accordance with the Defect Table. Identified maintenance works are programmed in accordance with the Maintenance Table in this document.

Roadside Vegetation – Trees refers to the cyclic maintenance of trees and shrubs within the road reserves (outside of urban areas) to maintain vehicle clearance limits of 4.9 m vertically and sight distances at intersections and curves.

Routine Maintenance Inspections are undertaken in conjunction with routine maintenance patrols to determine compliance with maintenance target intervention standards set out in this Plan. Maintenance works are programmed in accordance with the Maintenance Table in this document.



Rural Roads are roadways used primarily for direct access to rural property.

Shoulder "Drop-Off" is the result of erosion of the unsealed road shoulder adjacent to the seal edge, resulting in a "drop-off" effect.

Shoulder Maintenance is the regular maintenance of unsealed shoulders in accordance with the appropriate intervention level, including the reworking of existing materials to maintain shape and cross-fall and the spot gravelling to large "bare" patches.

Signs & Delineation covers the replacement of damaged or missing signs, guideposts, marker posts and delineators. Also covers the regular painting of all pavement markings, including line marking.

Slippery Surfaces require the application of gravel or crushed rock to the wearing surface to improve skid resistance of road surface.

Street Drainage (Urban) refers to the cleaning of curb and channel and side entry pits. Also covers the inspection and cleaning of stormwater drains, pits and miscellaneous stormwater drainage infrastructure.

Surface Condition covers the repair of potholes, pavement cracking, edge breaks, edge "drop offs" and "bumps" that exceed the prescribed intervention levels.

Potholes are breaks and depressions where loss of pavement wearing surface has occurred.

Pavement Cracking – are small linear breaks in the pavement/surface with no vertical displacement.

Edge Breaks – are breaks in the edge of the seal resulting in reduced seal width and exposed pavement.

Edge "Drop offs" – are vertical differentials between the pavement wearing surface and adjacent natural surface, which has eroded or worn away.

"Bumps" – are localized breaks and /or raised sections of the pavement wearing surface, often as a result of tree root activity.

Surface Defects are rough surfaces caused by rutting, depressions or failed areas of pavement.

Water Over Road are areas where isolated localized flooding makes roads impassable or may obscure hazards. [Note: Does not include water over road from storm/flood emergency events.



SCHEDULE B – ROAD INSPECTIONS

Road Classification	Inspection Regime	Inspection Schedule
ARTERIAL	Condition Assessment	3 years
	Condition & Risk Assessment	months
	Routine Maintenance	
	Responsive Inspections	
COLLECTOR	Conditional Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
***************************************	Responsive Inspections	
LOCAL	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	

SCHEDULE B – BRIDGE INSPECTIONS

Road Classification	Inspection Regime	Inspection Schedule
LINK	Condition Assessment	3 years
	Condition & Risk Assessment	months
	Routine Maintenance	
	Responsive Inspections	
COLLECTOR	Conditional Assessment	
COLLECTOR	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	
URBAN ACCESS	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	
LIMITED ACCESS	Condition Assessment	
	Condition & Risk Assessment	



	Routine Maintenance	
	Responsive Inspections	
FOOT BRIDGES	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	



SCHEDULE B – FOOTPATH/LINEAR TRAIL INSPECTIONS

Road Classification	Inspection Regime	Inspection Schedule
LINK	Condition Assessment	3 years
	Condition & Risk Assessment	months
	Routine Maintenance	
	Responsive Inspections	
COLLECTOR	Conditional Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	
URBAN ACCESS	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	
LIMITED ACCESS	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	
FOOT BRIDGES	Condition Assessment	
	Condition & Risk Assessment	
	Routine Maintenance	
	Responsive Inspections	



SCHEDULE C – TARGET LEVELS OF SERVICE DEFECT TABLES

Roadway	Activity/ Defect	Level of Service	Intervention Levels	Timeliness of Repairs
Sealed Roads	Potholes	Reasonably smooth sealed driving surface with no dangerous deformations	When pothole >75 mm in depth & >300mm in width or rapid deterioration is likely.	Safety Sign – 2 days Local Hwy – Collector -
	Surface Defects	Reasonably smooth sealed driving surface with no dangerous deformations. Sealed surface shall provide reasonable friction level for vehicles.	Rectify when the failed area reaches the following intervention levels: a) Rutting & depressions >5 m sq. b) Broken out pavement >5 m sq. c) Loose stones >10msq. at intersections	Safety sign: a) 2 days b) 2 days Local: a) 2 wks b) 2 wks c) 5 days (sweep) Collector: a) 3 wks b) 3 wks c) 5 days (sweep)
	Water Over Rd	Provision of warning to road users of hazard or potential hazards.	 a) Localized flooding where road is still trafficable. b) Localized flooding where road is not trafficable c) 	Local & Collector: a) Warning sign within 24 hrs b) Close road within 24 hrs
	Edge Breaks	Consistent nominal sealed width with no dangerous deformations.	When edge break exceeds 150mm laterally, for a 20 m length	Collector: 2 weeks Local: 8 weeks
"Drop-off" surface level betwee seal and the edge of the adjacent road shoulder. Regulatory Regulatory signs to		When the drop off from pavement exceeds 100 mm (vert.) for a 20 m length.	Safety Sign: next day Local: 2 weeks Collector: 3 weeks	
		Regulatory signs to be visible and legible	Missing or illegible regulatory signs.	Local: 5 days Collector: 5 days



Roadway	Activity/ Defect	Level of Service	Intervention Levels	Timeliness of Repairs
Gravel Roads	Grading & Patrol Works	Provide a smooth riding surface with good drainage.	Road surface scoured, potholed, rutted, corrugated to a depth of 100mm in excess of 20 m length.	Safety sign: 5 days Local & Collector: Add to program, in addition to safety signing
	Regulatory Signs	Regulatory signs to be visible and legible	Missing regulatory signs or signs that are illegible	Local & Collector: 5 days
	Water Over Rd	Provision of warning to road users of hazard or potential hazards.	 a) Localized flooding where road is still trafficable. b) Localized flooding where road is not trafficable. 	Local & Collector: a) Warning sign within 24 hrs b) Close road within 24 hrs

Roadway	Activity/ Defect	Level of Service	Intervention Levels	Timeliness of Repairs
Bridges				

Roadway	Activity/Defect	Level of Service	Intervention Levels	Timeliness of Repairs
Footpaths				
/Linear				
Walkway				



SCHEDULE D – MAINTENANCE TABLES

SEALED ROADS

Activity/Maintenance	Level of Service
Edge Breaks	Consistent nominal sealed width with no dangerous deformations
Major patching	Reasonably smooth sealed driving surface with no dangerous deformations.
Potholes	Reasonably smooth sealed driving surface with no dangerous deformations.
Resealing	Road surface will provide a safe running surface. Road surface to be waterproof to protect road substructure.
Roadside Vegetation - Trees	Provide safe clearance for large vehicles. Provide sufficient unobstructed view to ensure vision and safe entry to intersections. Provide unobstructed view of regulatory and cautionary signs.
Shoulder "Drop-off"	Relatively consistent surface level between seal and the edge of the adjacent road shoulder.
Shoulder Maintenance	Relatively consistent cross-fall and shape of the road shoulder.
Signs and Delineation	Delineation as necessary to enhance safety, shall be visible. Signs to be visible and legible. Line marking as necessary to enhance safety, shall be visible.
Street Drainage (Urban)	Roads shall provide a safe running surface.



	Minimize damage to residential properties from overland flows as a result of blocked or surcharging drainage structures.
	Aim to keep curbs, drains, culverts and pits at 75% operating capacity.
Surface Condition	Reasonably smooth sealed driving surface with no dangerous deformations.
	Sealed surface shall provide reasonable friction level for vehicles.

GRAVEL ROADS

Drainage (Rural)	Roads shall provide a safe running surface.
	Table drains operating sufficiently to drain water from the road surface and to protect road subgrade.
Grading & Patrols Works	Provide a smooth riding surface with good drainage.
Resheeting, Spot Gravelling & Patching (Rural)	Restore loss of pavement/running surface to a smooth and safe condition.
Roadside Vegetation - Trees	Provide safe clearance for large vehicles.
	Provide sufficient unobstructed view to ensure vision and safe entry to intersections.
	Provide unobstructed view of regulatory and cautionary signs.
Signs and Delineation	Delineation as necessary to enhance safety, shall be visible.
	Signs to be visible and legible.
Slippery Surface	Restore loss of pavement/running surface to safe condition.



BRIDGES	
FOOTPATHS/LINEAR TRAILS	

SCHEDULE E – REGISTER OF PUBLIC ROADS

3rd Street SE

Broadway Street

1st Street NW

2nd Street NW

3rd Street NW

4th Street NW

5th Street NW

6th Street NW

Columbia Crescent

23rd Street NW

1st Avenue SE

Nelson Avenue South

1st Avenue SW

2nd Avenue SW

3rd Avenue SW

4th Avenue SW

5th Avenue SW

6th Avenue SW

7th Avenue SW

8th Avenue SW

1st Avenue NE

2nd Avenue NE

Nelson Avenue North

1st Avenue NW

2nd Avenue NW

3rd Avenue NW

4th Avenue NW

5th Avenue NW

6th Avenue NW

7th Avenue NW

8th Avenue NW

9th Avenue NW

9A Avenue NW

10th Avenue NW

10A Avenue NW

13th Avenue NW

15th Avenue NW

16th Avenue NW



Highway 23 Highway 6 Highway 6 South

Government Hill Rd. Churchill Rd Glenacres Rd Shakespeare Rd. Nakusp East Rd. Alexander Rd. Cotswold Rd Gensich Rd Zacks Rd

Hot Springs Rd Airport Rd



SCHEDULE F – WINTER STREETS MAINTENANCE POLICY

PREAMBLE:

The Village shall ensure, within fiscal restraints, that safe passage for traffic and pedestrians is provided, over the major transportation corridors within the Village, during the winter season.

POLICY:

Snow Plowing & Sanding - First Priority Roads

(1) A combination of snow plowing and sanding shall be done, commencing with a ten centimetre (10 cm.) accumulation or equivalent conditions. Snow-ploughed roads will be continuously scraped, on an on-going basis in following weeks, to further reduce the snow surface.

During heavy snowfall situations, where it is apparent snowfall accumulations may exceed twelve inches/thirty centimetres (12 in. / 30 cm.), snow plowing and sanding will be done on a continuous basis, to ensure traffic can safely and easily use the first priority roads.

Following overnight snowfalls, snow plowing shall commence no later than 5:00 a.m. Clearing of first priority sidewalks shall be co-ordinated with first priority street snow plowing operations, in order to ensure all snow pushed into the street is appropriately accumulated for later removal (e.g. snow from Broadway Street sidewalks is cleared onto the street; then pushed to the centre of Broadway Street, when street plowing is done).

- (2) Snow will be ploughed in the following fashion, dependent on snow-fall forecasts for the area, from Environment Canada Weather Information offices:
 - to the centre of Broadway Street;
 - away from private property in areas where open public space is available across the street (e.g. Tenth Avenue bordering the Nakusp Sports Complex grounds/park).
- (3) Sanding will be done when required to facilitate safe passage. Intersections will be sanded initially, but sanding may be continuous if icy conditions persist.



- (4) Removal of snow accumulations from snow plowing operations (on Broadway Street; and Fourth, Fifth and Sixth Avenues [between Broadway and First Streets]) will commence as soon as possible, after all streets have been widened and made safe for vehicular traffic.
- (5) Snow hauling shall be done in a fashion that ensures that all equipment work is completed by 6:00 a.m.

Snow Plowing & Sanding - All Other Roads

- (1) A combination of snow plowing and sanding shall be done, commencing with a ten centimetre (10 cm.) accumulation or equivalent conditions. Snow-ploughed roads will be continuously scraped, on an on-going basis in following weeks, to further reduce the snow surface.
- (2) Snow will be ploughed to the outside of carriageways on roads, with all efforts being made to ensure there is at least one traffic lane open on all streets.
- (3) Sanding will be done only at intersections, curves, and steep stretches of road.
- (4) Accumulated snow will not be hauled away.

Sidewalks

Village crews will clear snow from Village sidewalks, when snow has reached an accumulation of ten centimetres or deeper in a single snowfall. When snowfalls are less than ten centimetres, it shall be up to the adjoining property owner to clear snow from the sidewalks adjacent to their property.

- (1) Village crews/contractors will clear the following sidewalks on a first priority basis as follows:
 - -Broadway Street, from 8th Avenue to Nelson Avenue (both sides);
 - -First Street, from 6th Avenue to Nelson Avenue (north side);
 - -Fourth Avenue, from Broadway Street to Fourth Street (west side);
 - -Sixth Avenue, from Broadway Street to Fourth Street (east side);
 - -Columbia Heights.

Other sidewalks within the Village will be cleared, after the first priority sidewalks are done; and as manpower, finances and other resources permit.

General



- Windrow across private driveways accesses, or private sidewalks, (1)produced by snow-plowing operations, will not be removed by Village crews.
- (2)Fire hydrants shall be cleared at the first available opportunity after streets and laneways have been initially cleared (but not widened).

Definitions

"First Priority Roads" shall be the following Village streets, and shall be done in the orders as noted:

- 1. As listed, depending on availability of man-power, equipment and snowfall levels:
 - -Hot Springs Road (from Village yard back to Highway)

 - -4th Street, from Highway to 8th Avenue -8th Avenue, from 4th Street to Broadway Street -Broadway Street, from 8th Avenue to Nelson Avenue, with sidestreets:
 - -Seventh Avenue, from Broadway Street to First Street (BC Ambulance)
 - -Sixth Avenue, between First and Broadway Streets
 - -Fifth Avenue, from Broadway Street to First Street (Fire Hall)
 - -First Avenue NE and First Street NE (adjacent to Arrow Lakes a Hospital)
 - -Churchill Road (School Bus route)
 - -Nakusp East Road (School Bus route)
 - -Spane's Road to Sixth Street (School Bus route)
 - -First Avenue, from First Street to Fourth Street (School Bus route)
- 2. As equipment completes the roads noted in (1) above
 - -Fourth Street, from Tenth Avenue to Nelson Avenue (School Bus route)
 - -Alexander Road
 - -Nelson Avenue
 - Thirteenth Street (Sewage Lagoons)
 - -Fourth Avenue, between First and Broadway Streets
 - -Nelson Avenue, from Broadway Street to Marina/Wharf
 - -2nd Street N.E.
 - -Marshall Road
 - -1st & 2nd Avenues NE

"Sanding" shall be a mixture of salt and sand/crushed gravel, as circumstances warrant. Salt shall be of a sufficient quantity to ensure adhesion of the sand/crushed gravel to the snow surface.



SCHEDULE G – PUBLIC WORKS ANNUAL SCHEDULE FOR ROAD MAINTENANCE

MONTH	JOB FUNCTION
January	- Snow Removal
February	- Snow Removal
March	- Prepare & Begin Street Sweeping
	 Prepare Road Cuts/Pot Holes
April	- Storm Drain Spooning
1.50	- Pot Hole Repairs
	- Brushing
	- Sidewalk Inspections
May	- Sidewalk Repairs
June	- Dust Control
	- Ditching
	- Flailing
	- Line Painting
July	
August	- Dust Control
September	- Paving
October	- Sidewalk maintenance & Inspections
	- Ditching
November	
December	- Snow Removal

Inspections – roads, lanes, footpaths, bridges, etc.