

Dust Management

5.3 Dust Management

Dust management activities include the application of dust control products to reduce the creation of airborne particulates (i.e., dust) during the operation and maintenance of unpaved road surfaces and the cleaning of winter aggregate from highway surfaces.



Highway Maintenance Specification Sections

1-140 Dust Control and Base Stabilization

1-180 Pavement Surface Cleaning

Available at:

http://www.th.gov.bc.ca/BCHighways/contracts/maintenance/Schedule_21_Maintenance_Specifications.pdf



Environmental Issues

Primary environmental issues relating to routine dust management activities are summarized in the following table. It should be noted that site-specific conditions might present additional issues you will need to address in planning and undertaking your works.

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Dust Control	May introduce sediment or other deleterious substances to a watercourse through runoff or by direct application of dust control chemicals to watercourses at crossings	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May damage roadside riparian vegetation or other significant habitats through the over-spraying of road shoulders	No harmful alteration, disruption or destruction of fish habitat without authorization (<i>Fisheries Act</i> , Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (<i>Water Act</i> , Section 9), or through a Notification (<i>Water Act</i> Regulation, Part 7).
	May contaminate surface waters, groundwater, and soils through improper storage or disposal of dust control palliatives	Disposal and storage of all waste materials in accordance with the <i>Act</i> and reporting of any hazardous materials spills (<i>Waste Management Act</i> , Special Wastes Regulation)

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Pavement Surface Cleaning	May degrade air quality and highway visibility, posing health and safety problems for highway users and nearby residents	Compliance with local air quality regulations and municipal bylaws
	May introduce sediment or other deleterious substances to roadside watercourses through the clearing of materials from the highway surface	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May contaminate surface waters, groundwater, and soils through improper storage or disposal of collected accumulated winter aggregate	Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act (<i>Environmental Management Act</i> , Waste Disposal Regulation).
Winter Traction Materials <i>See Section 6.9</i>	May degrade air quality and highway visibility, particularly in spring, posing health and safety problems for highway users and nearby residents	Compliance with local air quality regulations and municipal bylaws
	May introduce sediment or other deleterious substances (i.e., salt, sand, aggregates) to roadside watercourses through runoff or the cleaning of accumulated materials from the highway surface	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May damage roadside riparian vegetation or other significant habitats through the over-spraying of de-icing compounds	No harmful alteration, disruption or destruction of fish habitat without authorization (<i>Fisheries Act</i> , Section 35(1)).
	May contaminate surface waters, groundwater, and soils when snow banks melt and release accumulated de-icing and anti-icing compounds	Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act (<i>Environmental Management Act</i> , Waste Disposal Regulation).



Environmental Best Practices

The following BPs are provided as guidelines to help you ensure your works are completed in compliance with the performance standards and environmental legislation. Please note that the general BPs provided apply for most work activities within this category; if BPs specific to the activity are available they are also noted below.

Regulatory Agency Contact

- Prior to beginning your dust control activities identify any sensitive habitat areas, including watercourses—streams, lakes and marine foreshores, found within your work area.
- Determine how much impact your required works will have on the identified areas. What type of equipment are you planning to use to apply dust control measures? Are you applying dust palliatives immediately adjacent to any watercourse? Are you planning to clean accumulated winter aggregate from an area where air quality has been

Dust Management

a concern in the past? By asking these questions, you should be able to identify any planned works that may be of concern to regulatory agencies.

- Meet with the appropriate regulatory agency contact, as listed in Section 8, to discuss site-specific environmental protection measures. Refer to Section 7 for information on the Memorandum of Understanding with MoE and the recommended protocol for maintaining regular communications with regulatory agencies.

Timing of Works

- As dust palliatives are best applied to a pre-wetted surface, work should be scheduled after a rainfall, when unpaved road surfaces and accumulated aggregate are damp and better able to absorb control measures.
- While damp surfaces are desirable, working in rain is not. Avoid applying dust control palliatives to overly wet or saturated roadbeds. Under heavy rainfall, applied chemicals are more easily transported in runoff to roadside soils and nearby watercourses. Work should be halted if precipitation increases during dust control application.

Site Management

- Ensure the spray of dust palliatives is limited to the travelled road surface.
- Be cautious of applying dust control chemicals to road surfaces near watercourses or over watercourse crossings.

Materials Storage

- Store hazardous materials (dust palliatives) in accordance with applicable regulations and ensure that deleterious substances are handled with care.
- Mix any hazardous materials to be used in a contained area to reduce the risk of contaminating soils or surface waters adjacent to the road surface.
- Transfer and load dust control products at a designated site away from watercourses. Take care to avoid spilling chemicals during transfer and loading of applicator tanks.
- Clean equipment and tools off-site, if possible. Ensure that any wash water generated by cleaning tools and equipment is managed in a manner that will prevent its release to watercourses or road drains.
- Ensure all equipment used on site is well maintained and free of fluid leaks.

Waste and Materials Containment

- Have a spill response plan in place and a functional spill kit on each applicator.
- Do not overspray chemicals used for dust control. Recognized dust control palliatives including magnesium chloride, calcium chloride, calcium lignosulphonate, and sodium lignosulphonate, can seriously impact water quality through long-term use. Materials sprayed can also damage vegetation, soils and wildlife.



Key Information Sources

The documents and websites listed below are recommended resources for dust management. They can provide examples of existing protocols and management strategies, as well as additional information on specific operational BPs (e.g., erosion and sediment control techniques).

MoT Technical Circulars:

Dust Abatement Chemicals – MoT Technical Circular T-5/94

This and all other MoT Technical Circulars are available at:

http://www.th.gov.bc.ca/Publications/Circulars/Current_technical.asp

Locally Developed BPs

(Provide any locally-developed BPs):

-
-
-

Other Resources:

Fine Particulates: What They Are and How They Affect Us. Feb. 2007.

Environmental Quality Branch. BC Ministry of Environment.

<http://www.env.gov.bc.ca/air/particulates/fpwtaht.html>

Storm Water Management Fact Sheet – Dust Control. Sept. 1999. US EPA.

<http://www.epa.gov/owm/mtb/dustctr.pdf>

Dust Palliative Selection and Application Guide. Nov. 1999. Bolander, Peter and Alan Yamada. San Dimas Technology and Development Centre.

http://www.ecy.wa.gov/programs/air/pdfs/Dust_Palliative.pdf

Best Management Practices to Mitigate Road Dust from Winter Traction Materials. March 2005. BC Ministry of Water, Land and Air Protection.

http://www.env.gov.bc.ca/air/airquality/pdfs/roaddustbmp_june05.pdf

Dust Management

Roadsalt and Winter Maintenance for British Columbia Municipalities, Best Management Practices to Protect Water Quality. Dec. 1998. Water, Air and Climate Change Branch, Environmental Protection Division, BC Ministry of Environment.
<http://www.env.gov.bc.ca/wat/wq/bmps/roadsalt.html#22>



Checklist for Environmental Protection Requirements

- Is your proposed work considered a “routine” maintenance activity? If not, approvals or permits may be required. Contact your local municipal, provincial, or federal regulatory agency staff.
- Has this project been discussed with local environmental regulatory staff? In addition to the BP information presented, other site-specific conditions may apply.
- Have site-specific environmental protection requirements been identified? List below:
 - _____
 - _____
 - _____
 - _____