

Highway Surface Management

5.1 Highway Surface Management

Highway surface management activities are undertaken to ensure public safety on our highways by maintaining clean, level, and unbroken road surface conditions through activities such as pavement cleaning, patching, application of surface treatments, and pavement crack sealing.



Highway Maintenance Specification Sections

1-100 Highway Pavement Patching and Crack Sealing

1-110 Highway Surface Treatment

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 highway surface 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
Patching and Sealing	May introduce deleterious substances to a watercourse through runoff of patching and sealing compounds and chemical surface treatments	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 materials on site and at work yards	Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the <i>Act</i> (<i>Environmental Management Act</i> , Waste Disposal Regulation).
Pavement Surface Cleaning	May pose air quality concerns during spring cleaning of winter aggregate	Compliance with regional or local air quality bylaws and regulations.
	May introduce sediment or other deleterious substances to roadside watercourses through the side casting of materials cleaned 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 disposal of collected winter aggregate that may contain hazardous materials (e.g., de-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 <i>Act</i> (<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 surface management 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. Are you repairing a large area of paved surface immediately adjacent to a watercourse? Are you planning to clean accumulated winter aggregate from an area where air quality has been a concern in the past? Where will you place the material you have cleaned from the road surface? 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

For most work activities the following general BPs apply:

- Works are preferably undertaken during periods of dry weather (e.g., summer) as this allows easier control of deleterious materials and runoff. Typically this is also a less sensitive period for fish and wildlife than other seasons.
- If the work schedule requires working in the rain, take steps to install appropriate site isolation and sediment controls. You must ensure that any disturbance you create is contained and that the release of sediment-laden water or any other deleterious substances to nearby watercourses is prevented, particularly for surface repair works requiring the application of patching and sealing compounds, tar, asphalt, and chemical surface sealants.

Surface Cleaning:

- Surface cleaning activities are best scheduled after a rainfall, when accumulated aggregate is damp, easier to collect and less likely to generate dust.

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- While a little rain may be helpful to crews cleaning pavement surfaces, work should be halted if precipitation continues or increases. Under heavy rainfall, disturbed materials are more likely to release sediment and other deleterious substances to nearby watercourses.

Site Management

- When your works involve the disturbance of soils or the use or storage of erodible materials (e.g., sands, topsoil), prevent the transport of sediment through the installation of appropriate erosion and sediment control BPs and devices.

Materials Storage

- Use temporary covers to keep erodible construction materials dry if they are stored on site near watercourses.
- Store hazardous materials (chemicals, sealants, patching materials) in accordance with applicable regulations and ensure that deleterious substances are handled with care.
- Mix concrete compounds, sealants or other chemicals used in a contained area and away from any watercourse if there is the potential for materials used in your work to contaminate soils or surface waters adjacent to the road surface.
- 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 spill kits on site.
- If potentially deleterious materials (e.g., cement-based products) are used for repair works, ensure raw material and wash water will not be released to any watercourse.
- Where possible, sweep up loose material or debris. Any material thought to pose a risk of contamination to soils, surface water or groundwater should be disposed of appropriately off-site. Any clean material should be removed to an area where it will not enter any watercourse, ditch, or channel.
- Inspect drain blocks, sediment controls and wash water runoff areas regularly to ensure they are functioning. Repair as required.

Surface Cleaning:

- Keep aggregate from entering road drains, gutters and watercourses by cleaning or sweeping material away from these areas rather than using these structures as collection and disposal routes.

- Consider the potential impacts of side casting collected materials. Collected winter aggregate and other materials accumulated on the road surface may contain deleterious substances and have the potential to cause harm to surrounding soils, groundwater, and surface water. In some areas, collected aggregate is recovered and recycled for future use, while in other regions complete removal from the highway right of way is the preferred option for managing collected material. If collected material is to be disposed of on the highway right of way, designate disposal sites away from sensitive habitats and watercourses. Ensure that materials are placed in a manner that will prevent their future introduction to any watercourse.
- Consider the use of a cleaning system such as a vacuum sweeper or sweeper with applied water if dust generated by cleaning activities is a concern.



Key Information Sources

The documents and websites listed below are recommended resources for highway surface 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

Crack Sealing Asphalt Pavements – MoT Technical Circular T-1/99

These 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):

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Other Resources:

Roadway and Bridge Maintenance Water Quality BMPs.

Environmental Protection Division, BC Ministry of Environment.

http://www.env.gov.bc.ca/wat/wq/nps/BMP_Compendum/nps_bmp.htm

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Catalogue of Stormwater Best Management Practices. September 2005.
Idaho Department of Environmental Quality.

http://www.deq.state.id.us/water/data_reports/storm_water/catalog/index.cfm

Paving and Grinding Operations. March 2003. CALTRANS Storm Water Quality Handbook: Construction Site Best Management Practices Manual.
<http://www.dot.ca.gov/hq/construc/stormwater/NS-03.pdf>

Asphalt – Pollution Prevention Best Management Practices. Asphalt Pavement Association of West Virginia, West Virginia Department of Highways, West Virginia Department of Environmental Protection.
<http://www.asphaltwv.com/apa00%20bmp.pdf>

Storm Water Management Fact Sheet – Dust Control. Sept. 1999. US EPA.
<http://www.epa.gov/OW-OWM.html/mtb/dustctr.pdf>



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:
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