

SERIES #4: Maintaining Buildings and Pavement



Hands In for Healthy Streams is a cooperative effort between the City of Buford and the local business community.

HANDS IN FOR HEALTHY STREAMS

NOTE: This handbook is one in a series of handbooks that describe specific practices businesses can use to protect water quality. A complete list of all handbooks and fact sheets available through the *Hands In for Healthy Streams* program is provided on the back cover. To obtain other handbooks in this series, contact Buford City Hall at the address provided below.

City of Buford
2300 Buford Highway
Buford, GA 30518
www.cityofbuford.com

We hope you'll join with the City of Buford and other area businesses by participating in the *Hands In for Healthy Streams* program. Through this Program, you can help protect our local streams. To participate, review the enclosed Fact Sheets No. 4.1 through 4.5, and then fill out the self-assessment at the back of the Handbook. We appreciate your continued cooperation and stewardship in protection of our water quality.

This Program is modeled on the Community Partners for Clean Streams program created through a US EPA Clean Water Act Grant by the Office of Washtenaw County Drain Commissioner Janis A. Bobrin, Washtenaw County, Michigan. Portions of this Handbook are borrowed from the Community Partners for Clean Streams series, with designs and illustrations developed by David Zinn.

Fact Sheet No. 4.1

Outdoor Pressure Washing

Why be concerned?

Pressure washing is an effective way to clean buildings, pavement and equipment. However, it also dislodges pollutants such as paint chips, sealants, and automotive fluids and carries them into drainage systems that lead directly to local surface waters. Acids and other cleaners used when pressure washing are also carried with waste water to our rivers and streams.

Businesses that wash equipment or vehicles outdoors are to follow State and local ordinance requirements. In view of state permit requirements and potential threats to the environment, vehicles not washed *indoors* should be taken to a commercial washing facility. For more information about washing equipment and vehicles see **Series #3, Fact Sheet 3.2**.



Take the Pressure Out of Washing

Use dry cleaning methods such as absorbents, brooms or wire brushes to clean pavement, buildings, and equipment whenever possible. Prior to pressure washing, mechanically remove loose debris before applying water. Collect the dislodged material and dispose of it in an approved manner. To determine the proper disposal method, contact your trash hauler or the facility where the waste will be taken.

Managing Wash Water

- Contain wash water by temporarily blocking all storm drains (for example, with rubber mats) and constructing a berm around the area (for example, with sandbags). Then, pump or divert wash water to the sanitary sewer system. Check first to make sure that it will meet waste water treatment plant requirements. Be sure to remove debris and reopen storm drains as soon as possible – don't block storm drains if rain is expected.

- Alternatively, divert wash water to an open lawn or other vegetated area so that it can filter into the ground. Avoid compacted soils and make sure the area's large enough to completely contain wash water. *If this method is used, wash with water **only**. Be aware that dislodged pollutants or any cleaning products that are used can filter through to drinking water supplies.*



- Don't discharge wash water to roadside ditches. These are part of storm-water drainage systems, which lead directly to local rivers and streams.

- If it's not possible to divert wash water to the sanitary sewer or a vegetated area, protect storm drain inlets with filter fabric bags. These can be hung down into catch basins to filter solids from runoff and then removed when they're full.

- Avoid using acids and other harsh cleaners. Ask your product vendor for less toxic options, or call one of the numbers listed under "Getting Help."

Cleaning Up Solids

Sediment and other solids that remain on the ground should be cleaned up immediately to prevent them from blowing or washing away. To determine how to dispose of these solids, contact your trash hauler or disposal facility.



To Protect Water Quality

If contractors are hired to perform maintenance work, encourage them to implement these recommended practices as well.

GETTING HELP

GA Dept. of Natural Resources
 Pollution Prevention
 Assistance Division (404) 651-5120
 (P2AD) or (800) 685-2443

Fact Sheet No. 4.2 Maintaining Building Facades

Why be concerned?

A variety of pollutants accumulate on building facades including organic materials and heavy metals. These and other pollutants, like paint chips, can be dislodged by maintenance activities and carried into storm drains and streams.

In addition, cleaning and resurfacing products such as abrasives, acids, paints, sealants and solvents can enter storm drains and streams with rain or wash water.



Pressure washing: turn down the volume

Avoid pressure washing, as well as the use of acids, caustics and other harsh cleaners. If you must pressure wash, follow the recommendations in **Series #4, Fact Sheet 4.1**.



Protecting Storm Drains from Dust and Debris

Keep dust and debris off the pavement and out of storm drains:

- Place a tarp on the ground during remodeling, painting prep work, sandblasting or other operations that can create dust or debris so that these wastes can be collected and disposed of properly.
- When sandblasting or spraypainting, hang tarps or drop cloths to enclose the area (use temporary scaffolding if necessary). Arrange the drapes to protect the area from wind and to capture airborne particles.

Before sandblasting, determine whether the size and type of blasting medium are regulated by local building and construction codes.

- Clean up frequently: collect debris from tarps and drop cloths in amounts that are easily bundled. Be sure to properly dispose of the collected materials. To determine proper disposal, contact your trash hauler or disposal facility.



Painting a Brighter Future

- Use water-based paints instead of oil-based ones whenever possible.
- When spray painting, use smaller paint containers to minimize waste. Low volume, high pressure sprayers control over-spray and also reduce paint waste.

- Mix paint indoors prior to starting work to reduce the opportunity for spills to enter the stormwater management system.

- Use impermeable ground cloths while painting. Place paint cans in larger pans to contain drips and spills.

- For large jobs, provide additional spill containment by surrounding the work area with a temporary berm; portable, inflatable berms can be purchased.

- Immediately clean up any spills that occur. Try to capture spills before they enter storm drains and clean them up using absorbents or other dry methods. For more information about spill prevention and clean-up, see **Series #1, Fact Sheet 1.2**.

- *Never* pour paint, solvent, clean-up water or any other wastes into a storm drain or onto the ground. Recycle solvents, use excess paints elsewhere on-site, or donate them to a community group who has need for them.

- Completely empty paint cans and let them air dry prior to disposal. Once they are empty and dry, latex paint cans can be disposed of with regular solid waste: other paint containers may need to be disposed of as hazardous waste.

- If you're using water-based paint, clean brushes and equipment in a sink connected to the sanitary sewer. If you're using oil-based paint, contain waste paint and solvents for reuse, recycling or disposal as hazardous waste.

- Use water-based thinners instead of petroleum-based ones whenever possible. Filter and reuse paint thinners until they're no longer effective and recycle them through a commercial or local recycling service.



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Managing Runoff from Rooftops

- Screen drain inlets at the lower end of each downspout to filter solids from stormwater runoff.
- Use dry methods such as sweeping and absorbents to clean roofs. If you must wash with water, sweep the surface first using dry methods.

- Regularly inspect air compressors, air conditioners and other rooftop equipment for leaking oil and other fluids. Immediately repair equipment and clean up any leaks that are found.

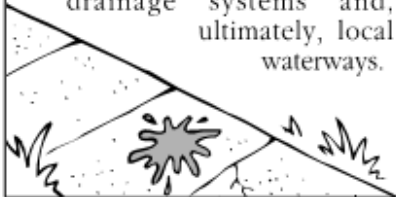
- If treating a roof with a preservative or sealant, precisely follow the label directions. Use absorbent booms to contain and soak up waste. Stuff rags into gutters and storm drain openings to prevent product escape or migration. If the substance used is hazardous, dispose of used booms, rags and applicators with other hazardous waste.

Fact Sheet No. 4.3 Maintaining Paved Areas

Why be concerned?

Accumulated, trash, road salts, vehicle fluids and other pollutants can be washed off pavement and into drainage systems, increasing maintenance costs and pollution downstream.

Cleaning and other maintenance activities can cause dislodged pollutants, as well as acids and other products to be washed into drainage systems and, ultimately, local waterways.



Clean and Leak-Free Equipment and Vehicles

Properly maintaining equipment and vehicles will prevent oil, grit, fluids, and other pollutants from being deposited onto the ground. Proper vehicle maintenance will also extend the life of asphalt, since fuels cause it to deteriorate.

Pavement cleaning schedules will depend upon use and the materials being stored, transported, or handled. If possible, clean outside areas before heavy rains are forecasted. Remove trash and debris in the early spring and in the fall, when trees shed their leaves. Leaves are a pollutant if large quantities enter surface waters.

“Dry Cleaning”

Washing paved areas can cause dislodged debris, vehicle fluids, and other pollutants to be carried into drainage systems with wash water. Sweep and use other dry methods to clean pavement instead of wet washing. Be sure to pick up and dispose of the accumulated materials properly. If you aren't sure how to dispose of solid materials, call your trash hauler for direction.

If it is necessary to wash a paved area, remove as much residue and debris as possible before applying water. Protect storm drain inlets with filter fabric to filter out solids.

Pressure washing: turn down the volume

Avoid pressure washing, as well as the use of acids and other harsh cleaners. If you must pressure wash, follow the recommendations in **Series #4, Fact Sheet 4.1**.



Using and Disposing of Maintenance Products

When purchasing deicers, cleaners, curing agents, paints or other products, select the least hazardous option for each situation. Ask your vendor for less toxic options to the products you currently use or contact one of the agencies listed under “Getting Help.”

Never direct unused products or waste water onto the pavement or down a storm drain!

*For more information about managing wastes, see **Series #7**. For information about using deicing materials, see **Series #4, Fact Sheet 4.4**.*

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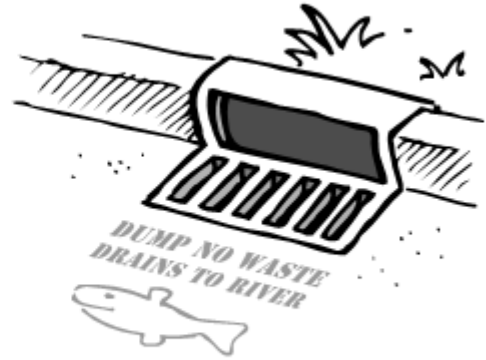
Cleaning Up Paved Areas

Any trash or residue on surfaces that drain to the stormwater management system will ultimately be washed into local rivers and streams.

- Routinely clean up debris in outside areas. Pay special attention to parking lots, loading docks, waste storage areas, drain inlets, and the area around stockpiles.
- Regularly remove any fluids that accumulate on pavement. (If possible, use absorbant materials that can be reused or recycled.)

Stencilling Storm Drains

Locate storm drains and stencil them or apply decals with the message "Keep It Clean - Drains to Stream." This will let employees know that dumping wastes down these drains is not permitted.



A Concrete Solution

Concrete and other cement-related mortars that enter a drainage system can cover fish spawning areas and can also be ingested by fish and other aquatic life. In addition to environmental impacts, the cost of cleaning and reopening drains that are clogged by concrete will be assessed to the responsible party.

Don't wash fresh concrete onto a surface that drains to a storm drain or stream:

- Let unused concrete harden and dispose of it with construction debris.
- Wash shutes, vehicles, wheelbarrows and other equipment in an area that will hold wash water until the concrete settles out. After the concrete hardens, it can then be collected and disposed of with your construction debris.

If equipment wash water must enter a storm drain, protect the drain inlet with a fabric bag to filter concrete deposits. The bag and its contents can then be disposed of as construction material.

Take care when constructing concrete aggregate driveways. Filter fine sediment out of runoff by washing it to the side, not down the driveway. If the driveway is sloped, place straw bales at the bottom or divert the flow to a depression where the sediment can collect and be removed later.

Fact Sheet No. 4.4

Using and Storing Deicing Chemicals

Why be concerned?

Overuse of deicing chemicals on roads, sidewalks and parking lots can:

- destroy roadside vegetation;
- corrode pavement, cars and bridges;
- degrade aquatic ecosystems, and;
- contaminate drinking water supplies.

The most commonly used deicer is sodium chloride: high sodium levels in drinking water can cause hypertension and aggravate heart disease.

Storing Deicers

Most deicers are highly soluble. Extra precautions must be taken to keep them dry and contained.

- Store stockpiled deicers within a permanent, roofed structure to prevent rain and snow from coming into contact with them.
- Keep deicers that are not stockpiled in water-proof containers. This will not only reduce runoff, but also prevent materials from solidifying and reduce waste.
- Store deicers on an impermeable surface to avoid infiltration to groundwater. Asphalt is the most widely used material for this purpose, since salt has little effect on it. While concrete is sometimes used, it must be high quality, air-entrained and treated with linseed oil or asphalt-type coatings to reduce chloride penetration and prevent scaling or spalling.

- If necessary, construct a berm around stockpiles to contain fines and prevent stormwater from washing through the area.



- Avoid storing deicers or piling snow near streams or other sensitive areas, such as wells, wetlands, sandy soils and important vegetation. Ideally, snow piles should drain to a detention basin so that soil and other debris can settle out before the snowmelt is discharged to surface waters.

Responding to Winter Weather

Winter precipitation can take many forms, including sleet, hail, freezing rain and snow; each can produce different road conditions. Maintenance personnel should consider the precipitation type and apply only the amount of deicer necessary to achieve safe driving conditions.

Wind conditions can also effect deicer application. Be aware of wind conditions and spread accordingly on the up-wind side.

More Ideas for Reducing Deicer Use

- When purchasing deicer, check your inventory, calculate how much you need and buy only that amount.
- Mechanically remove as much snow and ice as possible before applying deicer.
- Maintain application equipment and calibrate it before each use to avoid scatter and waste.

- Limit deicers or select an alternate product for use on low traffic and straight, level areas. (Critical areas such as intersections, hills or high traffic roads will need higher levels of deicer application.)

- Concentrate application in the crown or high side of paved areas. As they melt, deicers flow downhill. Traffic flow will also disperse deicers toward the edge of paved areas.

- Sweep up excess deicing materials for later use.

Alternatives to Road Salt

A variety of alternatives to road salt (sodium chloride) are currently available; however, many of these can still cause environmental problems. Chemicals containing sodium or chloride cause damage similar to road salt. Chemicals containing glycol can be toxic to humans and aquatic life. Urea can cause nitrogen contamination. While sand is an inexpensive alternative to road salt, it can clog drains and settle out in streams, smothering aquatic organisms.

To date, calcium magnesium acetate (CMA) is the best choice. Although it is more expensive than some alternatives, it is as effective as salt, and CMA has little or no impact on human health, soils, vegetation, water supplies, vehicles or infrastructure.

Prevent storage areas from draining to the stormwater management system.

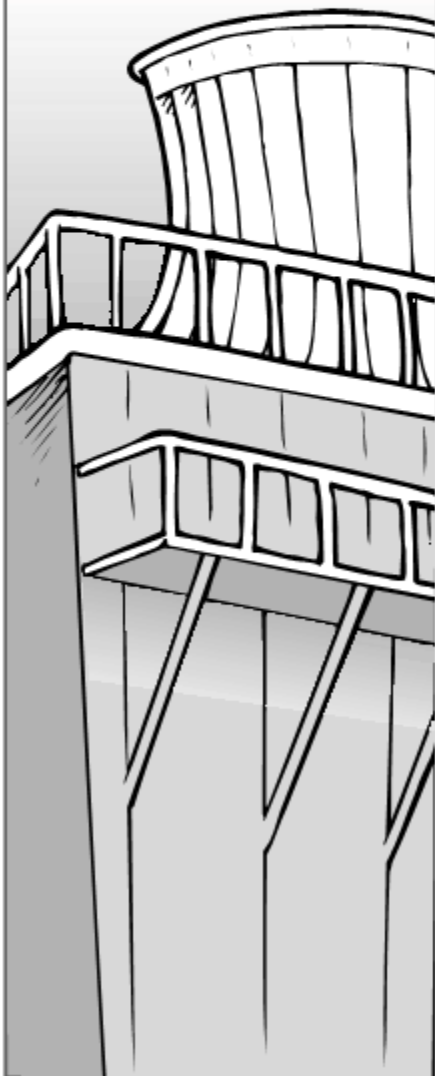
GETTING HELP

GA Dept. of Natural Resources
Pollution Prevention
Assistance Division (404) 651-5120
(P2AD) or (800) 685-2443

Fact Sheet No. 4.5 Cooling Water Systems

Why be concerned?

Cooling water can contain a variety of toxic materials. Copper and zinc can enter cooling water through the corrosion of pipes and other system components. Chemical additives used to control corrosion, bacteria, algae, and scale deposits are also a source of metals, as well as other toxins.



Conserving Water Count\$

Conserving water saves money and reduces waste. Consequently, cooling systems that recirculate water are preferred. Non-recirculating systems (also known as “single-pass” or “once-through” systems) should be replaced with systems that recycle cooling water when replacement is planned.

Water can also be conserved by maximizing the “cycles of concentration” for your cooling system. Keeping cycles of concentration as high as possible (within the recommended operating range) not only conserves water but also reduces the need for chemical additives. For more information about how to calculate cycles of concentration, contact one of the agencies listed under “Getting Help.”

Whenever possible, reuse waste water as cooling water in recycling systems and systems that discharge to a sanitary sewer. If you switch to a new source of cooling water, re-evaluate and modify your corrosion control program as necessary.

If recycling wash water is not an option, discharge it to the sanitary sewer system only after receiving approval from the City of Buford Sewer Department.

Making Chemical Control Automatic

Automated chemical feed systems rapidly adjust to changing conditions. Therefore, automatic controls can both reduce chemical costs and prevent corrosion caused by overfeeding corrosive chemicals or underfeeding protective ones.

Automatic monitoring and alarm systems, with or without automatic chemical controls, are encouraged since these systems quickly alert operators to problems.

Choosing the Least Toxic Additives

Avoid cooling water additives that contain copper, chromium, tri-butyl tin, and zinc, since all of these metals are toxic to aquatic life. Ask your product vendor to recommend the least toxic additive to control a specific problem.

Maintaining Your System

Proper care will prolong the life of cooling systems and reduce the discharge of pollutants. If you don't have a trained cooling system operator on staff, contract with a system expert (for example, a Certified Operating Engineer). Require contractors to implement practices compliant with State and local regulations.

Cleaning Cooling Water Systems

Regular cleaning with brushes, pressurized water, or steam can eliminate the need for cleaning with harsh chemicals. Cleaning should be done quarterly or on the schedule recommended by a system expert. Cleaning should always be done while the system is off-line.

Disposing of Cleaning Wastes

Cleaning wastes (including filter backwash) should not be discharged to a street, rooftop, or storm drain. Discharge these wastes to the sanitary sewer with prior approval from the wastewater treatment plant. If waste water doesn't meet local treatment plant requirements, it must be pre-treated

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before being discharged to the sanitary sewer or else transported to an approved disposal site. Collect any solids that remain after cleaning and dispose of them with your solid waste - don't wash them down the sanitary or storm drain.

Storing Chemicals

Store treatment and cleaning chemicals so that accidental spills are prevented and contained. For more information about proper storage practices, see **Series #1, Fact Sheet 1.1.**

Filtering Particulates

Sand filters, filter discs or other filtration devices can be used to remove particulates from larger cooling water systems. Filtering out particulates reduces scouring and corrosion in blowdown water. If you use a sand filter, direct backwash to the sanitary sewer.

Buying New System Components

When purchasing a new cooling system or replacing components for existing systems, make sure that non-corrosive materials (such as stainless steel or anodized aluminum) are used in the equipment purchased. In addition, ensure that the new materials are compatible with, or isolated from, existing materials to avoid galvanic corrosion (for example, steel parts must be insulated from copper parts).

GETTING HELP

GA Dept. of Natural Resources
Pollution Prevention
Assistance Division (404) 651-5120
(P2AD) or (800) 685-2443

Preventing Pollution from Dehumidifiers and Air Conditioners

Condensate from dehumidifiers and air conditioners may be contaminated with dirt, metals and oil.

- Reuse condensate flows whenever possible (for example in cooling towers). If necessary, replumb condensate drain lines to facilitate recycling or discharge to the sanitary sewer.
- For new construction, condensate lines must be routed to the sanitary sewer - *not* a storm drain.
- Regularly check for oil and other leaking fluids. When changing the oil in motors or pumps, properly dispose of waste oil.

This concludes Fact Sheets 4.1, 4.2, 4.3, 4.4, and 4.5 of the Housekeeping Practices series.

To create your own Water Quality Action Plan, please complete the Water Quality Assessment provided on the following page.

SERIES #4 Assessment

The following Assessment and Action Plan asks you to evaluate your current activities and identify any specific actions needed to prevent pollution. For each question, check the appropriate box in the Assessment column. Next, in the corresponding box in the Action Plan column, fill in the proposed *date* by which the activity will be completed. Thank you for your good faith commitment to water quality.

Series #4, Housekeeping Practices: Maintaining Buildings and Pavement	ASSESSMENT			ACTION PLAN	
	Not Applicable	Needs Improvement	Always	Plan to Improve	Plan to Continue
1. The least hazardous products and procedures are identified and used whenever possible.					
2. Steps are taken to prevent paints, sealants, mortars and other products from entering the stormwater system.					
3. Dust and debris created by sand-blasting and prep work are contained, collected, and disposed of properly.					
4. Paved surfaces are regularly cleaned using dry methods.					
5. Pressure washing is avoided. If pressure washing must take place, wash water is kept out of the stormwater management system. Any residue is collected and disposed of properly.					
6. Steps are taken to minimize deicer use and waste.					
7. Runoff from rooftops is managed to protect water quality.					
8. Steps are taken to reduce the quantity and pollutant loading of cooling system wastewater.					
9. Contractors are encouraged to implement practices recommended by the <i>Hands In for Healthy Streams</i> .					