

# IV

## RESIDENTIAL BEST MANAGEMENT PRACTICES

### **RESIDENTIAL BMP ACTIVITY SHEETS**

This chapter consists of a series of information sheets listing the best management practices (BMPs) that are either recommended or required for single family residential activities in unincorporated King County. The activity sheets in this chapter target typical household activities that have the potential to pollute stormwater, surface waters, and groundwater.

Stormwater pollution occurs when water runs over the ground, picks up pollutants, and washes the pollutants into surface and ground waters. Street storm drainage systems are designed to prevent local flooding by carrying stormwater runoff to nearby streams and rivers. These drainage systems do not remove pollutants such as motor oil or soap.

Even small amounts of commonly used household products such as motor oil, pesticides, paint waste, and soaps are harmful to aquatic life. Although individual activities may appear insignificant, runoff from urban areas is now a leading cause of water pollution in rivers, lakes, and coastal areas.

King County's goal is to reduce pollution by educating homeowners and residents to prevent the contamination of stormwater runoff and our streams, rivers, lakes, and groundwater.

## Residential Automobile and Boat Washing

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Automobile washing is one of the most common residential activities that pollutes surface water, streams, creeks, lakes, and Puget Sound. In addition to soap and dirt, vehicle wash water carries oil, grease, solvents, nutrients, and metals and to our local water bodies. The soaps and detergents that we use to wash automobiles can be more of a pollution threat than the grime washed off the automobiles. Even soaps that are labeled "biodegradable", "environmentally friendly" or "nontoxic" are harmful to aquatic life and water quality. The "nontoxic" label simply means the soap is less toxic to the user.

### **RECOMMENDED BMPS**

**The following BMPs, or equivalent measures, methods or practices are strongly recommended if you engage in automobile or boat washing at your home.**

1

It is acceptable to rinse down the body of a vehicle/boat with just water without doing any wash water BMPs.

2

If you wash your automobile or boat using mild detergents (pH neutral) on an area that allows for infiltration of the wash water, such as gravel, grass, or loose soil, it is acceptable to let the wash water infiltrate as long as you only wash the body of the vehicle (i.e. not the undercarriage or engine).

3

If you wash on a paved area such as your driveway and use soaps or other cleansers, you should do ONE of the following:

- Redirect the wash water to vegetated areas such as landscaping or your lawn. This can be accomplished by using temporary measures such as a berm, boom/socks, or other solid materials like a piece of lumber placed at the low point of where your vehicle is parked. This will direct the flow of water to your lawn or landscaping.
- Use a wet vacuum to collect the wash water and then dispose of the wash water to your sink or toilet for treatment at your local sewage treatment plant.

### **OTHER OPTIONS AND TIPS**

-  1 Take your vehicle to a commercial car wash where wash water is recycled and discharged to the sanitary sewer. This also reduces the amount of water used for vehicle washing.
-  2 Use a hose nozzle with a trigger and shut it off when you're not using it to conserve water.
-  3 Never clean or pressure wash the engine or undercarriage of your automobile at home. The oil, grease, and other pollutants from this activity can contaminate your property, as well as groundwater such as shallow aquifers. This is especially important in areas where wells provide potable water. For this type of cleaning, take the vehicle to a commercial car wash where wash water will be treated appropriately.
-  4 There are several waterless car wash products on the market. These products are designed to clean and protect your vehicle without using water.

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.

Reader Note: The County may require the above recommended BMPs in situations where the County determines that the discharge of wash water, whether singly or in combination with other discharges, is causing significant contamination of surface and storm water or ground water.

## Residential Storage of Solid and Food Wastes

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Improper storage of household garbage and other wastes can lead to a variety of pollutants in storm water runoff. Waste such as leaking garbage cans, yard waste containers without lids, scrap piles, and junk vehicles and equipment can cause polluted runoff from your property to drain to surface and groundwater. Contaminants such as oils, greases, nutrients, bacteria, pathogens, and suspended solids are carried to our creeks, streams, lakes, rivers, and Puget Sound.

### **MINIMUM REQUIREMENTS**

**The following BMPs, or equivalent measures, methods, or practices are required in storage of solid and food wastes at your home.**

1

Dispose of unwanted garbage or scrap in your regular garbage service pickup containers, or dispose of garbage and scrap at a landfill or transfer station. Do not let garbage accumulate at your residence. The accumulation of garbage is a surface water concern and a health issue. Accumulated garbage can attract rodents, rats, mosquitoes, and other pests that are also health hazards.

2

Waste stored outside should be kept in covered containers or be covered with a tarp. All waste containers that are outdoors must have lids or covers.

### **OTHER OPTIONS AND TIPS**

1

Recycle as much as possible. Someone else may be able to use leftover paints, finishes, cleaning materials, building materials, etc. Contact a neighbor, friend, school, church, or community group to see if your left over materials can be used. The King County Industrial Materials Exchange (IMEX) is a good resource for finding uses for your left over materials. Call IMEX at 206-296-4899 or send an e-mail to [imex@metrokc.gov](mailto:imex@metrokc.gov). Consult the IMEX Web site for more information, at <http://www.govlink.org/hazwaste/business/imex>. Another recycling resource is the King County Online Materials Exchange at <http://www.metrokc.gov/dnrp/swd/exchange>.

The King County Solid Waste Division provides waste disposal and recycling information at <http://www.metrokc.gov/dnrp/swd/index.asp>. Information regarding proper household hazardous waste disposal is available at <http://www.govlink.org/hazwaste/house>, or contact the Hazards Line at 206-296-4692. See Activity Sheet R-4, "Residential Hazardous Waste Use, Storage, and Disposal".



Compost biodegradable wastes rather than disposing of them as garbage. Contact the King County Solid Waste Division at <http://www.metrokc.gov/dnrp/swd/composting/index.asp> for more information on composting yard and kitchen waste.



Information on yard waste collection services is available at <http://www.metrokc.gov/dnrp/swd/garbage-recycling/yardwaste.asp>



Bury pet waste in your yard (not in vegetable gardens) or dispose of in sanitary sewer systems such as your toilet. See <http://www.metrokc.gov/dnrp/swd/composting/petwaste.asp>

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.

## Residential Automobile Repair and Maintenance

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Many people prefer to repair and maintain their vehicles at home. Those that do need to ensure that these activities do not pollute our streams, rivers, and lakes. Automobile maintenance and repair activities can introduce chemicals such as oil, grease, antifreeze, hydraulic and brake fluids, and metals to our surface and groundwater. A recent study estimated that the amount of oil running off our streets and driveways and ultimately flowing into the oceans is equal to an Exxon Valdez oil spill – 10.9 million gallons – every eight months (NRC, 2002).

### **MINIMUM REQUIREMENTS**

**The following best management practices (BMPs) or equivalent measures, methods, or practices are required if you engage in automobile repair and maintenance at your home.**

- 1** Collect all used oil, antifreeze, or other vehicle fluids in containers with tight fitting lids. Do not mix these fluids in the same container as this limits your ability to recycle the oil at your local auto parts store or service station.
- 2** Never dispose of used oil, antifreeze, or other fluids into a storm drain, into a ditch, or onto the ground. Oil should be recycled at an auto parts store or service station. Other fluids can be disposed of at a household hazardous waste collection site. Call the household hazardous waste line at 206-296-4692 or see <http://www.govlink.org/hazwaste/house/products/list.cfm> for recycling and disposal information and locations.
- 3** Never clean the engine or undercarriage of your vehicle at home. For this type of cleaning, take the vehicle to a commercial car wash facility.
- 4** Use drip pans, tarps, or even cardboard and newspaper under the vehicle to capture leaks or spills that may occur during maintenance and repair activities. This ensures spilled fluids won't be washed to the storm drainage system the next time it rains.



Clean up spills with rags or absorbent material, such as sand, dirt, or cat litter. Do not wash down or hose down these spills to the curbs, roadway, or storm drains. Sweep up absorbents and dispose of them in your garbage can.



Store automotive parts, such as batteries, engines, transmissions, and other parts that may have oily or greasy residue on them, under cover and off the ground to minimize rainwater contact. Rainwater can wash pollutants off these parts and send pollutants to storm drainage systems and groundwater. Tarps are an inexpensive and easy solution to covering parts.

### **OTHER OPTIONS AND TIPS**



Take your vehicle to a commercial car repair facility where fluids are handled, recycled and disposed of correctly to avoid pollutants being introduced to our local water bodies. The EnviroStars Program certifies businesses for reducing, recycling, and properly managing hazardous waste. See <http://www.envirostars.com/> to search for businesses that have earned the EnviroStars rating.

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.

## Residential Hazardous Waste Use, Storage, and Disposal

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There are a variety of hazardous materials routinely used in and around our homes including chemical cleaners, pesticides, paints, solvents, lighter fluid, gasoline, antifreeze, brake fluid and other automotive products, wood preservatives and even batteries from our electronic equipment.

Improper disposal and failure to keep hazardous products from rainwater contact may cause surface and groundwater pollution. With so many hazardous compounds present in thousands of households in King County, the cumulative adverse effects of poor usage, storage and disposal practices are potentially severe to our environmental health.

### **MINIMUM REQUIREMENTS**

**The following best management practices (BMPs) or equivalent measures, methods, or practices are required when using or storing hazardous wastes at your home.**

-  1 Store all hazardous materials inside a building or shed or under cover. Do not expose hazardous materials to rainwater that can transport hazardous pollutants to surface and groundwater.
-  2 Use products only as specified on labeling directions.
-  3 Dispose of and recycle hazardous wastes through the Household Hazardous Waste Program or other recycling programs or businesses, or carefully follow disposal directions on containers of chemicals. There are three fixed hazardous waste collection sites for household hazardous waste in Seattle and King County. In addition, the Wastemobile travels to different areas of King County throughout the year. See <http://www.govlink.org/hazwaste/house> or call the Household Hazards Line at 206-296-4692 for more information.
-  4 Never allow hazardous chemicals to be discharged or dumped into storm drainage systems or on to the ground.

### **OTHER OPTIONS AND TIPS**

1

Reuse and recycle as much as possible. Someone else may be able to use leftover paints, finishes, cleaning materials, building materials, etc. Contact a neighbor, friend, school, church, or community group to see if your left over materials can be used. The King County Industrial Materials Exchange (IMEX) is a good resource for finding uses for your left over materials. Call IMEX at 206-296-4899 or send an e-mail to [imex@metrokc.gov](mailto:imex@metrokc.gov). Consult the IMEX Web site for more information, at <http://www.govlink.org/hazwaste/business/imex>.

2

Use the least toxic product available. See <http://www.govlink.org/hazwaste/house/alternatives> for information on finding alternatives to hazardous household products.

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.

## Residential Gardening and Lawn Care

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Many pollutants can enter stormwater systems, groundwater, and water bodies as a result of typical lawn and gardening work. Runoff that is contaminated by pesticides and fertilizers can severely degrade receiving waters and result in adverse effects on fish and other aquatic life. Recent studies in the Puget Sound region detected pesticides in urban streams at levels that exceed limits set to protect aquatic life. Some gardening chemicals are also harmful to children and pets. Fertilizers add nutrients to water bodies causing unwanted algal blooms and other aquatic plant growth. Disposal of grass clippings and other vegetation into storm drains, stormwater ponds, roadside ditches and other water bodies can lead to decreased oxygen levels in stormwater as the vegetation decomposes. Decreased oxygen levels can be lethal to fish and other aquatic life. Several simple practices can be used to prevent these problems, and may result in improved lawn and garden quality. These practices should also be shared with private landscapers that conduct gardening and lawn care on your property.

Note: The term pesticide includes insecticides, herbicides, fungicides, rodenticides, etc.

### **MINIMUM REQUIREMENTS**

**The following BMPs, or equivalent measures, methods, or practices, are required if you are engaged in gardening and lawn care at your home:**

- 1** Never apply herbicides, insecticides, rodenticides, or fungicides along the banks of stream and drainage channels with flowing water, or along the shores of lakes and wetlands. Never apply these chemicals when it is raining.
- 2** Manually or mechanically remove weeds and other pests rather than using pesticides in areas of running or standing water.
- 3** Store all bags or piles of fertilizers and containers of pesticides in a covered location such as a garden shed.
- 4** Do not sweep or dump grass clippings, leaves, or twigs into any street, drainage ditch, or stormwater facility or pond.

- 5 Store piles of beauty bark and other erodible materials on lawns or other pervious areas. If these materials are stored on impervious areas such as driveways, cover them with a tarp so that rainwater does not wash the materials into storm drains or ditches.

### **OTHER OPTIONS AND TIPS**

- 1 Purchase and use the least amount of pesticides necessary and always follow the label directions for application. Try pest control measures that do not require chemicals first. See <http://www.govlink.org/hazwaste/house/yard/problems> for information on how to reduce or avoid the use of pesticides.
- 2 Compost your yard wastes, or use yard waste as mulch in your yard or garden. Contact your local solid waste utility to see if yard waste pickup service is available. See <http://www.metrokc.gov/dnrp/swd/garbage-recycling/yardwaste.asp> for more information on yard waste collection and recycling services.
- 3 Educate yourself about alternatives to chemical pesticides and fertilizers such as integrated pest management techniques. Contact the Local Hazardous Waste Management Program at 206-296-4692, or visit <http://www.govlink.org/hazwaste/house/yard>.
- 4 Limit the amount of lawn and garden watering so that surface runoff does not leave your property. Check automatic sprinkler systems to ensure water is dispersed to landscaped areas and not to hard surfaces such as driveways and sidewalks that drain to storm drainage systems.

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.

Reader Note: The above requirements are the minimum required BMPs. If these BMPs fail to prevent discharges to the storm drainage system, you will be asked to take additional measures to correct the continued pollution discharges.

## Residential Maintenance and Repairs

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There are a variety of home maintenance and repair activities routinely carried out by homeowners in King County that have the potential to adversely affect our streams, rivers, and lakes. Pollutants generated from these activities can affect whether a lake or water body is swimmable or fishable. Painting, pressure washing, carpet cleaning, moss control, and concrete repair and maintenance are a few examples of activities homeowners conduct that can result in pollutants being discharged to drainage systems, surface water, and ground water. Wash water from these activities contain chemicals, suspended solids, organic compounds, detergents, solvents, abnormal pH, and other toxins that have a detrimental and toxic effect on fish and other aquatic life.

### **MINIMUM REQUIREMENTS**

**The following BMPs, or equivalent measures, methods or practices are required when conducting residential maintenance and repairs at your home.**

1

Do not dispose of any wastewater into the street, gutter, storm drain, or drainage ditch, or into a stream, creek, or other body of water.

2

**PAINTING:** Do not dispose of wash water from cleaning brushes, paint rollers, paint buckets, or containers to surface water, storm drains, or ditches. Wash water from latex paints can be disposed of to the sanitary sewer. Empty containers of latex paint can be left open to dry out any residual paint, and then disposed of in your normal garbage or taken to a transfer station for disposal. Residual oil based paint, paint thinners, and solvents must be disposed of as hazardous waste.

See <http://www.govlink.org/hazwaste/house/products/list.cfm> and [http://www.govlink.org/hazwaste/publications/Paint\\_CommonWastes.pdf](http://www.govlink.org/hazwaste/publications/Paint_CommonWastes.pdf) for information on the proper disposal of paint and solvent waste.

3

**PRESSURE WASHING:** Water from pressure washing decks, driveways, roofs, or other hard surfaces may contain suspended solids and other pollutants that should not be directly discharged to drainage systems. Redirect pressure washing wastewater to vegetated areas or areas such as gravel, lawns, landscaping, or bare soil where the water will infiltrate slowly into the ground. If this cannot be accomplished, filter the wash water through filter fabric, or other filtering media to collect the

suspended solids before discharging the water to a drainage system. If any chemicals are used during the pressure washing process, the wastewater must be collected and disposed of in a sanitary sewer system or infiltrated on site. If moss control or another chemical treatment is used during pressure washing of roofs, disconnect the downspouts so the chemicals do not discharge to the storm drainage system, and disperse the wash water onto adjacent lawns and landscaping.

4

**CARPET CLEANING:** Most commercial carpet cleaners have onboard wastewater recycling systems. If you do your own carpet cleaning, the wash water must be discharged to the sanitary sewer or your septic system. Filter the water if it contains lint or other particles to avoid clogging the drains. If you prefer not to discharge the water to your septic system, you may also discharge the water to your lawn or a landscaped area to allow the washwater to infiltrate slowly into the ground. Be aware that detergents and other cleaning chemicals such as solvents can be harmful to vegetation and septic systems. Discharging wash water to the ground may not be allowed if you live in a Critical Aquifer Recharge Area (CARA). Never dispose of carpet cleaning wash water to a storm drain, drainage ditch, or surface water. Carpet cleaning wastewater contains chemicals, detergents, and suspended solids that adversely impact the quality of surface and ground waters.

5

**CEMENT/CONCRETE WORK:** Concrete/cement wash water has a pH level that is toxic to aquatic life. Do not allow wash water from concrete work to discharge into storm drainage systems or adjacent roadways. This is especially important when installing washed aggregate driveways or patios. Direct the wash water to vegetated areas or dig a hole where the wash water can settle and infiltrate slowly into the ground. The cement residue can be mixed into the soil where the wash water is infiltrated with no detrimental effects, and the pH will be neutralized.

### **OTHER OPTIONS AND TIPS**

1

Hire a professional home maintenance and repair company that follows the approved BMPs for home repair and maintenance, as adopted by King County. If you have questions about which Best Management Practices a business must comply with contact King County Water and Land Resources at 206-296-1900 or see <http://dnr.metrokc.gov/wlr/stormwater>.

Remember, as a homeowner, you have a responsibility to ensure your contractors follow the required Best Management Practices. As part of your agreement with contractors, require them to follow all King County Codes and regulations.

## Residential Swimming Pool and Hot Tub Maintenance

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Many residents in King County have swimming pools, spas, or hot tubs. Improper drainage or discharge of pool water to storm drains or ditches during maintenance activities can lead to nutrients, suspended solids, chlorine, abnormal pH, and other chemicals entering our streams, rivers, and lakes. Chemicals used in pool, spa, and hot tub maintenance can contaminate stormwater and surface water if they are not stored, used, and disposed of correctly.

### **MINIMUM REQUIREMENTS**

**The following BMPs, or equivalent measures, methods or practices are required when draining or maintaining your pool, spa, or hot tub.**

-  1 Dechlorinate pool, hot tub, and spa water if it is to be discharged to the ground. Neutralizing chemicals are available. Letting the pool, hot tub, or spa “sit” with no chemicals may reduce chlorine levels. State law allows discharges of pool water to the ground if the chlorine level is below 3 ppm (parts per million). The pool water must be drained to the ground in a manner so that it does not cross property lines or cause erosion problems. Never discharge pool water directly to storm drains or ditches.
-  2 If pool or spa water cannot be dechlorinated, the water must be drained to the sanitary sewer or collected by a pool maintenance company for off-site disposal.
-  3 Diatomaceous earth (commonly used as a filtering agent) and water from backflushing filter systems cannot be discharged to surface waters, storm drainage systems, septic systems, or the ground.
-  4 Pool water that has been treated with copper based algaecides may not be discharged to the ground.

**OTHER OPTIONS AND TIPS**



Hire a professional pool maintenance company to service your pool, hot tub or spa.

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For more information or assistance in implementing these best management practices, contact the King County Department of Natural Resources and Parks Water and Land Resources Division at 206-296-1900.