



***iSWM* Resource Guide:**
GOOD HOUSEKEEPING
PRACTICES

October 2007

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NOTE: Although this resource guide primarily addresses the requirements of an MS4 as it pertains to their Storm Water Management Plan, the practices, approaches and procedures outlined herein are also very applicable and appropriate for non-MS4 communities.

SECTION1 – Introduction

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator to examine and modify their own actions to help ensure a reduction in the amount and type of pollution that:

- Collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and
- Results from actions such as environmentally damaging land development and floodplain management practices or poor maintenance of storm sewer systems.

Given the wide range of municipal activities that can affect storm water quantity and quality, local governments are encouraged to integrate pollution prevention measures into operations in multiple departments to reduce storm water pollution. These suggestions do not represent the complete universe of available options, nor do they represent an attempt to present a packaged storm water management plan. It is the responsibility of each city or county to develop a complete storm water management plan that meets or exceeds the regulatory requirements. Consider the regulatory goal of "maximum extent practicable" (MEP) when developing your storm water management plan and recognize that implementation of the plan and related ordinances becomes a condition of your storm water permit. Prepare a plan that is effective in reducing storm water pollution from municipal activities, but that is also functional and can be implemented effectively in your jurisdiction.

While the Pollution Prevention/Municipal Good Housekeeping measures of a community's Storm Water Management Plan (SWMP) is meant primarily to accomplish the goal of improving or protecting the quality of receiving waters by modifying municipal operations, it can also result in a cost savings for the small MS4 operator. Proper maintenance of systems and equipment, materials substitutions and process changes can derive multiple benefits to your community.

In developing the SWMP for your community, consider programs, procedures and activities already in place that can be incorporated, demonstrating a history of sound practices on the part of your community leaders and staff. Additionally, this measure presents a number of opportunities to develop and implement activities that can appropriately fall under additional measures. For example, many sound floodplain management features can also be included in your strategy for compliance on the post-construction control measure. Development of partnerships with educational institutions to develop and implement pollution prevention technologies and educational materials can appropriately be credited in your public education plan as well. This menu is designed to present the broad range of possible activities. It is the responsibility of the operator of the small MS4 to develop a municipal P2 plan and SWMP tailored to meet the specific needs and goals of the community.

1.1 EPA Rule Requirements

The text included below is the language for the "Pollution Prevention" Minimum Measure taken from EPA's Final Phase II Rule (Federal Register 68845), which established the minimum requirements that Texas Commission on Environmental Quality (TCEQ) used in drafting the corresponding storm water permit for small MS4s in Texas issued in August of 2007.

"Pollution prevention/good housekeeping for municipal operations.

(i) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance."

1.2 EPA Recommendations

The intent of this control measure is to ensure that municipal operations are performed in ways that will minimize contamination of storm water discharges. EPA encourages the small MS4 operator to consider the following components when developing their program for this measure:

- Maintenance activities, schedules and long-term inspection procedures for structural and non-structural controls to reduce floatables and other pollutants discharged from the separate storm sewers;
- Controls for reducing or eliminating discharge of pollutants from areas such as roads and parking lots, maintenance and storage yards and waste transfer stations. These controls could include program that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste;
- Procedures for the proper disposal of waste removed from the separate storm sewer systems and the areas listed in the bullet above, including dredge spoil, accumulated sediments, floatables, and other debris; and
- Ways to ensure that new flood damage reduction projects assess the impacts on water quality and examine existing projects for incorporation of additional water quality protection devices or practices. EPA encourages coordination with floodplain managers for the purpose of identifying and addressing environmental impacts from such projects.

SECTION 2 – Good Housekeeping BMPs

Best management practices (BMPs) are defined as general good housekeeping practices, schedules of activities, pollution prevention techniques, educational practices, maintenance procedures, prohibitions of practices and other management practices. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spills or leaks, sludge or water disposal, or drainage from raw material storage. Selected general pollution prevention plan options addressing rule requirements and recommendations are outlined below and are followed by more detailed BMPs, associated activities and helpful hints that will help a municipality achieve their goals of pollution prevention.

2.1 Maintenance Activities, Schedules, and Long-Term Inspection Procedures

Develop and implement pollution prevention plans for all municipal fleet maintenance, fueling, service and storage facilities. Plans should include waste reduction, spills prevention and response, and fluids management. Additionally, an inspection schedule should be developed and implemented.

Fleet Maintenance

- Inspect all vehicles and heavy equipment frequently for leaks.
- Monitor parked vehicles closely for leaks and place pans under any leaks to collect the fluids for proper disposal or recycling.
- Conduct all vehicle and equipment maintenance at one location away from storm drains, preferably on a paved surface under cover.

Structural Devices

- Develop a program to regularly inspect and clean grease traps.
- Regularly maintain oil separators to keep them functioning as intended.
- If your separator has oil-absorbent pads, replace them in the spring, in the fall, and at other times, as needed. If your separator does not have oil-absorbent pads, consider installing them. With pads you might be able to reduce the need to clean out the entire oil separator as frequently.
- Track the number of catch basins that are cleaned regularly.
- Prevent pollution downstream of basins by regularly inspecting for and removing debris that can block grates and leads to localized flooding.
- Inspect catch basins at least twice a year to see if they need cleaning.

Municipal Facilities

- Inventory and track municipal facilities at risk for spills.
- Track all spills and document clean-up procedures.
- Inventory and track the number of leak detection devices installed at municipal facilities.
- Develop and implement a spill response plan for each municipal facility.
- Track inspections of higher-risk municipal facilities.
- Equip floor drains with valves that can be closed in the event of a spill. Regularly inspect these valves to ensure that they are functioning correctly.
- Inspect containers for signs of leaks or corrosion on a specified schedule and replace as necessary.
- Develop a written program for all loading, unloading and transfer operations. Ensure that all employees are properly trained in the program's specific tasks.
- Document all waste fluid spillage.
- Track the number of inspections pertaining to chlorinated water discharges from municipal swimming pools.
- Track all inspections and maintenance visits to hazardous materials-handling facilities.
- Track and map the number of regularly inspected storage units.
- Track and map the number of storage facilities equipped to store hazardous materials.
- Track and map the number of facilities actually storing hazardous materials.
- Track the amount of waste of all types generated by municipal operations by facility as an inventory and document reductions as goals met or exceeded.
- Identify all hazardous and nonhazardous substances present in a facility. Reviewing all purchase orders for the facility and walking through the facility itself can accomplish this. Compile a list of all chemicals present in a facility and obtain a Material Safety Data Sheet (MSDS) for each one.
- Develop and track inventory of parking lots and roads and prioritize for cleaning.
- Track the number of scheduled road cleanings.
- Track the pounds of debris collected from street sweeping.
- Routinely maintain storage areas to keep any drainage from reaching your site's storm water management system.

Storm Drainage System Maintenance

- Develop a program to regularly inspect and clean storm drains.
- Track the length of storm drain pipe cleaned regularly.
- Track the number of outfalls cleaned regularly.
- Track the amount of trash, sediment and other pollutants removed during cleaning.
- Track water quality at drain system outfalls.

Municipal Equipment

- Regularly inspect all tanks, containers and vessels to ensure their physical integrity.
- Inspect and clean equipment to prevent leaks and excessive buildup of contaminants.
- Track preventative maintenance procedures performed on tanks, valves, pumps, pipes and other equipment.
- Monitor use and maintenance procedures of pesticide and herbicide dispensing equipment at each location.

Parks and Open Space

- Implement monitoring, record keeping, and public notice procedures for pesticides and herbicides used.
- Establish procedures for reviewing pesticide and herbicide plans annually. Be sure to evaluate the effectiveness of all treatments used, public concerns, effects on sensitive areas and any recent toxicological information.
- Develop a pesticide and herbicide plan for each landscape that your facility is responsible for maintaining.
- Track the levels of toxic pollutants in receiving waters.

2.2 Controls for Reducing or Eliminating Discharge Of Pollutants

Municipal facilities can contribute contaminants to runoff when vehicles and equipment are improperly operated, maintained or repaired. Facilities can contribute contaminants to runoff when loading, unloading and storing materials. Spills, improper storage and sloppy techniques may result in an illegal discharge. To address these impacts, municipalities can develop and implement pollution prevention plans for all municipal buildings and community owned grounds that incorporate minimization of water and chemical use, soil management practices and proper management of materials and chemicals. They can develop and implement procedures for street sweeping and litter removal from parking lots and other impervious surfaces. In addition, they can utilize alternatives to salt for deicing operations, develop and implement procedures to prevent spills, eliminate illegal discharges to the system, inspect and clean storm drain and catch basins, and to ensure the proper disposal of collected materials.

Structural Devices

- Use secondary containment measures for waste storage areas.
- Store liquids in a designated area on a paved impervious surface within a secondary containment. Keep outdoor storage containers in good condition.
- Use drip pans under areas that may leak (hose connections, filler nozzles, etc.).
- Use drip pans or drop cloths to catch drips and spills if you drain and replace motor oil, radiator coolant, or other fluids on site. Use catch basin infiltration inserts.
- Cover and berm waste storage areas.
- Use containers for outdoor storage that are watertight, rodent-proof and tamper resistant.
- Obtain and use drain mats to cover drains in the event of a spill.

Nonstructural Controls

- Clean up spills immediately to minimize safety hazards and deter spreading.
- Maintain sufficient distances between drums containing incompatible chemicals to prevent reactions in the event of container leak.
- Store materials away from high-traffic areas to reduce likelihood of accidents that might cause spills or damage to drums, bags or containers.
- Conduct maintenance work such as fluid changes indoors.
- Move activities indoors or cover equipment areas with a permanent roof. Conduct maintenance only in areas designed to prevent storm water pollution.
- Do all liquid cleaning at a centralized station to ensure that solvents and residues stay in one area.

Safer Alternatives

- Use non-toxic substitutes for chemicals when possible.
- Replace chlorinated organic solvents with nonchlorinated ones like kerosene or mineral spirits.
- For equipment, use detergent-based or water-based cleaning systems instead of organic solvent degreasers.

- Steam cleaning and pressure washing may be used instead of solvent parts cleaning. The wastewater generated from steam cleaning can be discharged to the on-site oil/water separator.
- Use oil separators to remove oil and grit from runoff before it enters the storm sewer system.

Vehicle and Equipment Fueling

- Cover fueling areas.
- Install perimeter drains or slope the surrounding pavement inward with drainage to a sump or an oil-water separator.
- Pave fueling areas with concrete rather than asphalt, or apply a sealant to protect asphalt from spilled fuels.
- Install vapor recovery nozzles to control drips.
- Park all vehicles so that spills or leaks can be contained.
- Discourage "topping off" fuel tanks.
- Use a drip pan to collect drips and avoid spills.
- Use absorbent materials or mop up small spills, and for general cleaning rather than hosing down the area. Remove the absorbent materials promptly.
- Use a rag cleaning service for contaminated rags used to clean up spills, which cannot be disposed of in trash.
- Transport industrial equipment to a designated fueling area rather than using mobile fueling.

Vehicle and Equipment Washing and Cleaning

- Track the number of designated municipal vehicle washing facilities.
- Use off-site commercial washing and steam cleaning whenever possible.
- Label all storm drain inlets "Don't Dump, Drains to Creek" using regional curb markers.
- Use designated wash areas, preferably covered, to prevent contact with storm water. Berm wash areas or use other measures to contain wash water.
- Designate a washing site for vehicles where water will drain by gravity to the sewer system.
- Protect curb gutter inlets with filter fabric to trap solids from the wash water runoff.
- Post signs in the washing area that state that oil changes and other maintenance activities are prohibited there.
- Wash vehicles with biodegradable, phosphate-free detergent.
- Use alternative washing and cleaning methods to reduce the potential for non-storm water discharges. If possible, use "dry" cleaning methods, such as wiping down, rather than hosing vehicles or equipment.
- Make sure that the drains at your facility are installed with grit traps and are routed through an oil separator.

Spills and Leaks

- Avoid spills through spills prevention program and good housekeeping.
- Develop a spill response plan with the following components:
 - Identify individuals responsible for implementing the plan.
 - Define safety measures to be taken with each kind of waste.
 - Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or publicly owned treatment works for assistance.
 - State procedures for containing, diverting, isolating, and cleaning up the spill.
 - Describe spill response equipment to be used, including safety and cleanup equipment.

- Install the following control measures:
 - Leak detection devices, overflow controls and diversion berms.
 - Spill basins or dikes in storage areas.
 - Splashguards and drip boards on tanks and faucets.
 - Overflow control devices on process and storage tanks.
 - Secondary containment areas or structures where waste fluids are managed.
- Make spill containment and cleanup kits easy to find and use. Conduct initial employee training with periodic refresher training.
- Substitute non- or less-toxic materials for more toxic materials.
- Require appropriate signage on hazardous material storage containers that indicate the dangers associated with each substance.
- Delegate the responsibility of hazardous substances management to trained and experienced personnel.
- Label all waste fluid containers.
- Keep waste fluid containers protected from weather.
- Use properly designated tanks, containers, and vessels.

Municipal Building Operation and Maintenance

- Enclose painting operations, consistent with local air quality operations.
- Properly store materials that are normally used in repair and remodeling such as paints and solvents.
- Control litter by sweeping and picking up trash around work sites on a regular basis.
- Maintain good housekeeping practices while work is underway.
- Require that all hazardous waste handling sites be indoors or adequately sheltered to reduce potential contact with wind and rain.
- Protect materials from rainfall, run-on, run-off and wind dispersal. For example, cover loading docks to reduce the exposure of materials to rain.
- Store materials away from high-traffic areas to reduce likelihood of accidents that might cause spills or damage to drums, bags or containers.
- Require appropriate signage on hazardous material storage containers that indicate the dangers associated with each substance.
- Position roof downspouts to direct storm water away from loading, unloading and storage areas, but towards permeable areas (lawns or landscaped areas).

Grounds Maintenance and Lawn Care Activities

- Utilize native and adapted vegetation to reduce water, fertilizer and pesticide needs and utilize the Texas SmartScape™ CD to train employees and as a plant selection and plant care tool.
- Consider drainage, light and soil conditions, as well as desired maintenance level.
- Use soil erosion control techniques if bare ground is temporarily or permanently exposed.
- Limit the amount of grass area. Use drought-resistant seed mixes or plant groundcovers such as those recommended in the Texas SmartScape™ CD.
- Install drip or trickle irrigation systems to use water more efficiently.
- Avoid over-watering to prevent excess runoff.
- Install rain sensors to prevent over-watering during storm events.

- Use landscaping pesticides and fertilizers only as needed.
- Use integrated pest management (IPM) where appropriate.
- Track the number of local departments, staff and publicly owned sites participating in organized efforts to reduce contaminated runoff from grounds maintenance activities.
- Conduct and document results of a community self-audit of landscaping methods used by the community.
- Store pesticides and herbicides indoors, unless doing so will increase risks to health and safety. Indoor storage is preferred because it prevents containers from weathering, keeps precipitation out, and prevents spills directly into the ground.
- Implement safety, storage and disposal methods for pesticides and herbicides, and their empty containers at each location.
- Manually clean up granular pesticides and fertilizers from sidewalks and pavements after over applications.

Pet Waste Management on Municipal Property

- Adopt and enforce an ordinance prohibiting deposition of pet wastes in public parks, grounds or streets. Require pet owners to pick up pet wastes and deposit in designated receptacles.
- Post signage in public parks stating pet waste prohibition. Track the number of posted signs.
- Ensure dog parks are designed and sited to address storm water runoff.
- Document the number of dog parks.
- Track the number of educational materials distributed on proper disposal of pet waste.

Streets, Parking Lots, Floors and Other Impervious Surfaces

- Sweep paved surfaces, rather than hosing down or using blowers.
- Control litter by sweeping and picking up trash on a regular basis.
- Sweep parking lots or other surfaces to remove debris blown or washed from loading, unloading and storage areas.
- Use "dry" cleaning methods (absorbents, sweeping, vacuuming, etc.) on sidewalks and parking lots and dispose of waste properly.
- Keep outside areas (dumpsters, parking lots, etc.) free of trash and debris, and regularly clean them to prevent pollutant buildup.
- Store liquids in a designated area on a paved impervious surface within a secondary containment. Keep outdoor storage containers in good condition.
- Procure equipment or contract to have streets swept on a regular basis and use the most sophisticated sweepers available to take advantage of innovations in technology.
- Outdoor stockpiles of road salts or pavement deicers should be covered and/or provide treatment through an appropriate storm water treatment device for runoff from the area.

Incorporate use of road salt alternatives for roadway deicing. Ensure deicing materials are stored and handled properly.

2.3 Disposal of Waste

Your municipal facilities can contribute contaminants to storm water runoff if wastes are not managed and disposed of properly. Poor waste management may result in an illegal discharge. There are certain restrictions on what your facility can discharge to a sanitary sewer. Every sanitary sewer ultimately connects to a wastewater treatment plant that is regulated by state and federal permits.

General Disposal Practices

- Use a solvent disposal service to supply cleaning solvents and to collect the spent solvent.
- Store wastes indoors when possible.
- Keep outside areas (dumpsters, parking lots, etc.) free of trash and debris.
- Clean up sediments and other solids from parking lots immediately to prevent them from blowing or washing away.
- Ensure materials collected from street sweeping activities are disposed of properly.
- Properly contain and dispose of clean up materials (rags, towels, absorbent materials, etc.).
- Develop cleanup instructions for each material that is handled at municipal facilities, along with safety requirements and persons designated for spill response and cleanup.
- Implement appropriate measures to dispose of spill-contaminated soil properly.
- Install tall-grass areas or sandy areas and on-site composting systems where pet waste can be deposited.
- Track the number of "pooper-scooper" stations installed around the city.

Reduce, Reuse, Recycle

- Participate in regional used-oil and household hazardous waste collection and develop promotional materials for their use.
- Reduce, reuse and recycle (R3) hazardous and non-hazardous wastes when possible, to lower your disposal costs and the amount of waste going into landfills.
- Reduce the number of solvents used to a minimum to make recycling easier and to reduce hazardous waste management cost.
- Empty all drums and containers properly and completely before cleaning or disposing of them to minimize the amount of waste you generate.
- Promptly transfer used fluids to recycling drums or hazardous waste containers.
- Recycle greases, oil and filters, antifreeze, cleaning solutions, batteries, hydraulic fluid and transmission fluid.
- Collect the used oil, antifreeze and brake fluid from fleet maintenance operations for recycling through registered recyclers.
- Recycle oil filters through a TCEQ–registered recycler. For more information on registered recyclers, call the Used Oil and Used Oil Filter Recycling Program at (512) 239-6695. Also refer to TCEQ document RG-257, Used Oil Filter Generators, Collection Centers, and Handlers.
- Recycle all fluids to the maximum extent possible.
- Recycle food grease, cleaning solutions, oil, antifreeze, batteries, and fluids.
- Properly dispose of wastes (fluids and materials), and recycle when possible, to eliminate illegal discharges.
- Participate in waste exchange opportunities to decrease the waste you generate and save money.
- Recycle what you must: oil and batteries.
- Recycle what you can: metal, water-based paints, used tires, paper and cardboard, glass, aluminum and tin.
- Track the number of recycling facilities that collect oil from municipal operations.
- Track the number of gallons of used oil collected from municipal operations.

Waste Water Disposal

- Prohibit discharge of wash water to the storm drain. Discharge it to the sanitary sewer after contacting your local wastewater agency to find out if pre-treatment is required, or if possible, filter and recycle it.

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- Divert wash water to an open lawn or other vegetated areas so that it can percolate into the ground.
 - If it is not possible to divert wash water to the sanitary sewer or a vegetated area, use at-grade storm drains fitted with filter fabric bags. These bags can be hung down into the drains' catch basins to filter out solids from the wash water runoff. The solids can be removed when the bags are full.
 - Prohibit direct discharge of chlorinated water from public swimming pools. Alternatively, discharge chlorinated water to land, where it will not drain to local surface waters. Ideally, pool water should be dechlorinated before draining the pool and water quality should comply with applicable criteria.
 - Fire department use of fire suppressant foams specifically for training exercises should be done in an area where runoff can be controlled and treated. Many of the foams break down after use into hazardous residues that can flow into the storm drain system.

2.4 Municipal Employee Training

Employee training for continuous improvement is recognized as one of the best methods to improve performance, employee morale, and reduce waste and pollution generation. Train appropriate staff associated with park maintenance, fleet and building maintenance and storm water system maintenance. Specifically address prevention and response to spills and leaks. These activities can be measured by tracking presentations at meetings, signs posted, video training sessions and print materials distribution.

General Training

- Take advantage of cooperative training opportunities, such as those available through NCTCOG, TML or other associations.
- Orient new elected officials and new staff on the community pollution prevention program.
- Target identified entities as priorities for partnered P2 efforts and education, including universities, major employers with large campuses, airports and other permitted facilities.
- Require appropriate certification of staff, contractors and subcontractors.
- Develop employee or facility recognition program for maintaining a clean record, scoring well in inspections and implementing recommended practices.
- Train employees about safe handling of materials and wastes.
- Educate employees on proper waste disposal.
- Educate employees on pollution measures.
- Track all associated employee training sessions and materials distribution.
- Track educational materials distribution to city staff.
- Track the numbers of educational materials distributed, training sessions held, and materials/process modifications as goals met and exceeded.
- Track the number of facilities, sites, teams or organizations recognized or awarded for their pollution prevention accomplishments.

Parks and Open Space

- Educate employees in erosion controls.
- Train employees on the use of native and adapted plants to landscape municipally owned properties, and use the Texas SmartScape™ CD as a training tool.
- Train employees on integrated pest management (IPM).
- Train employees on proper use and disposal of pesticides, herbicides and fertilizers.
- Train employees on proper watering techniques.

- Train public swimming pool staff on proper pool maintenance and pool water discharge.
- Write procedures for using equipment and materials in simple form and post them for quick reference.
- Track the number of classes/seminars offered or sponsored by the community in landscaping and pest management.
- Track employee training and educational materials distribution for staff that maintain public lands.

Spill Prevention and Handling

- Provide training to employees on spill prevention, containment and cleanup and track number trained.
- Train all employees on BMPs, good housekeeping practices and spill response.
- Train employees on leak prevention and detection.
- Train employees on discharge prohibitions.
- Train employees to recognize and understand the meaning of storm drain stenciling signs.
- Track all employees trained in hazardous materials handling, storage and inspections, materials distributed and sessions conducted.

Fleet Maintenance

- Train employees on proper fueling and cleanup procedures.
- Educate employees on proper vehicle washing methods to prevent pollution.
- Track all employee training activities (number of staff, materials, sessions) associated with fleet maintenance.

2.5 Other Local Practices

In addition to the Good Housekeeping Practices discussed in the previous sections, there are several other appropriate practices that can have a positive impact on the overall area water quality. These practices are discussed below:

Dry Weather Outfall Screening / Illicit Connection Removal

A community should have an active dry weather outfall screening program to identify and eliminate illicit or illegal discharges from entering the storm water drainage system. These discharges can include a variety of commercial, industrial or manufacturing process water discharges, floor drains from businesses or industrial locations, or even illicit sanitary sewer connections. They are generally characterized by continuous or periodic discharges which occur during dry and wet weather and contain pollutants that should not be discharged to surface waters.

A number of different procedures can be utilized to identify illicit connections and discharges into the storm water drainage system. Once they have been identified, they should be eliminated under the authority of existing local ordinances or by referring the matter to the appropriate state agency. Information on what are appropriate connections to the storm water drainage system should be provided to developers and contractors to prevent future illicit connections.

Sanitary Sewer Maintenance

Leaking sanitary sewer lines located near storm sewer pipes and streams can add pathogens as well as nutrients such as nitrogen and phosphorus to storm water and surface waters. Human waste also contributes to biological oxygen demand (BOD). Inspections and leak detection of sanitary sewer lines should be conducted on a regular basis as part of an operations and maintenance program for a local wastewater utility, public works department, or other responsible entity.

Septic Tank Maintenance

Effluent from poorly maintained or failing septic systems can rise to the surface and contaminate storm water. Improperly maintained septic systems can be potentially significant sources of pathogens and nutrients, especially

nitrogen to storm water runoff. In order to combat this problem, communities need to promote or require the regular maintenance of septic tank systems. A local jurisdiction can track septic tanks in a database, and send out notices at the required interval for septic tank inspections and maintenance. Septic tanks can also be permitted by a local jurisdiction, with permit renewal contingent on certification of septic tank maintenance.

Landfills

Improperly maintained landfills can allow litter, nutrients, pathogens and toxic contaminants to reach or stay on the surface of the landfill, allowing runoff to carry these pollutants to nearby waterbodies. Therefore it is important that a community regulate landfills to require the appropriate management measures to keep contaminated runoff from leaving the landfill site.

Public Information and Education

Educating the general public on what causes pollution, what are the indicators of water pollution and what they can do to reduce and/or prevent pollution of storm water runoff is a critical element of a comprehensive storm water management program. Some areas of focus for a local public information and education program include:

- Fertilizer and Pesticide Application
- Clipping / Leaf Disposal
- Household Hazardous Waste Management
- Automotive Care / Used Motor Oil Disposal
- Pet Waste

Information can be distributed to residents and businesses through a variety of methods, including:

- Brochures and Fact Sheets
- Utility Bill Inserts
- Internet Website
- Education Programs
- Special Events
- School Curricula
- Volunteer Educators

Additionally, a community can coordinate programs to engage citizens in storm water pollution prevention and watershed management activities, such as:

- Stream Monitoring
- Stream Clean-ups
- Adopt-a-stream Programs
- Tree Planting Days
- Storm Drain Stenciling

Pollution Reporting Hotline / Spill Response

Local citizens can be helpful eyes and ears by reporting water quality problems and polluting activities. A community should have procedures for reporting storm water polluters and promptly responding to emergencies such as hazardous materials spills. A telephone hotline could be established for receiving calls on water pollution, polluters and spills. It would be preferable for this number to be manned 24 hours a day or extended daily hours.

What is iSWM?

integrated Storm Water Management (iSWM) is a new way of managing storm water in North Central Texas by looking to mitigate the negative impacts of development by integrating the management of the quality and quantity of storm water, as well as integrating storm water considerations into the earliest stages of the development and site planning process. iSWM is an avenue to provide comprehensive and practical guidance oriented to implementation in everyday practice.

Why iSWM?

Comprehensive guidance is needed for the region in order to integrate the management of storm water quantity and quality throughout the planning, design, construction, operation, and maintenance of storm water infrastructure that will protect water quality, minimize streambank erosion and provide flood control both onsite and downstream. iSWM guidelines will greatly enhance the storm water management initiatives of North Central Texas area communities by improving and streamlining the development process for communities, developers, and consultants. The short-term and long-term impacts on the storm water quality and quantity improvements brought about by these guidelines will prove invaluable for the region.

What iSWM documents are available?

iSWM Design Manual for Construction – December 2003

Provides guidance on the control of sediment and other pollutants on during construction activities.

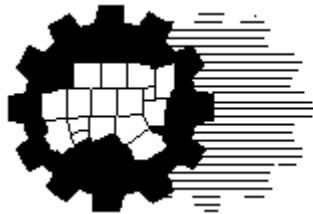
iSWM Design Manual for Site Development – January 2006

A detailed design document to guide developers, consultants, and government agencies on the preparation of an *integrated* Storm Water Management Site Plan to control and manage storm water quality and quantity for new developments and redevelopments.

iSWM Resource Guides – October 2007

Provide guidance for local jurisdictions and developers on various aspects of effective urban storm water management.

These documents can be found at <http://iswm.nctcog.org/>.



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