Preventing Storm Water Pollution:

What We Can Do

Instructor's Guide

North Central Texas Council of Governments

August 2005

North Central Texas Council of Governments
616 Six Flags Drive, Suite 200, Centerpoint Two
P.O. Box 5888, Arlington, TX 76005-5888
817.695.9210; 817.695.9191 (fax);
www.nctcog.org

PREPARED IN COOPERATION WITH THE Texas Commission on Environmental Quality AND
U.S. ENVIRONMENTAL PROTECTION AGENCY
The preparation of this report was financed through grants from the
U.S Environmental Protection Agency through the Texas Commission on Environmental Quality.

Preventing Storm Water Pollution: *What We Can Do*
Instructor's Guide

Table of Contents

Preventing Storm Water Pollution: *What We Can Do*
Instructor's Guide

Introduction

This guide provides information to support presentation of the "Preventing Storm Water Pollution: *What We Can Do*" video and accompanying Storm Water Pollution Prevention Training Module Series. The video and modules have been developed by the North Central Texas Council of Governments to assist local governments and state agencies in training their employees on storm water pollution prevention.

Storm water pollution prevention training for employees is required by the proposed TPDES General Permit for Small Municipal Separate Storm Sewer Systems (TXR040000) and may also be required by individual medium and large MS4s permits. The frequency and type of training required, recordkeeping requirements, etc. will vary depending on the Storm Water Management Plan (SWMP) submitted by the operator. Be sure to check your particular SWMP (or individual permit) to determine specific training requirements.

The video provides a brief introduction to storm water pollution, possible storm water pollution impacts from municipal, county, or state government operations, and basic Best Management Practices (BMPs) for preventing storm water pollution. The video (total run time - 10 minutes) is appropriate for all employees of government entities and may be used as a stand-alone training piece (e.g., new employee orientation) or may be supplemented by one or more training modules and/or locality-specific information.

The training modules consist of a series of PowerPoint (or transparency overheads) modules that provide more detailed training on pollution prevention BMPs for various government activities. The modules cover the following activities:

- materials storage and spill cleanup,
- fleet maintenance,
- streets and drainage maintenance,
- parks and grounds maintenance,
- land disturbances, and
- solid waste operations.

Additional Resources

The Pollution Prevention (P2) / Good Housekeeping page of the Regional Storm Water Management Program website at www.dfwstormwater.com contains additional information including:

- NCTCOG's Menu of Management Program Options for Pollution Prevention / Good Housekeeping;
- links to EPA and TCEQ storm water pollution prevention resources and regulations; and
- links to pollution prevention information and training resources from other sources.

Municipal Storm Water Pollution Prevention Regulatory Requirements

The "Pollution Prevention/Good Housekeeping for Municipal Operations" minimum control measure is one of the six measures required by the proposed TPDES General Permit for Small Municipal Separate Storm Sewer Systems (TXR040000). An excerpt from the TPDES permit is contained on the following page for reference. Large MS4 operators may also be required to conduct training of employees depending on the specific requirements of their individual MS4 permits.

Pollution Prevention/Good Housekeeping is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from operations and maintenance activities related to functions such as vehicle maintenance, parks and open space maintenance, waste transfer stations, etc.

In general, operators of regulated small MS4s are required to:

- Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal, county, or state operations into the storm sewer system;
- Include employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.
- Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

Excerpt from Proposed TPDES General Permit TXR040000
Small Municipal Separate Storm Sewer Systems

Pollution Prevention/Good Housekeeping for Municipal Operations

A section within the SWMP must be developed to establish an operation and maintenance program, including an employee training component, that has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

(a) Good Housekeeping and Best Management Practices (BMPs)
Housekeeping measures and BMPs (which may include new or existing structural and non-structural controls) must be identified and either continued or implemented with the goal of preventing or reducing pollutant runoff from municipal operations. Examples of municipal operations and municipally owned areas include, but are not limited to:

(1) park and open space maintenance;
(2) street, road, or highway maintenance;
(3) fleet and building maintenance;
(4) storm water system maintenance;
(5) new construction and land disturbances.
(6) municipal parking lots;
(7) vehicle and equipment maintenance and storage yards;
(8) waste transfer stations; and
(9) salt/sand storage locations.

(b) Training
A training program must be developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The training program must include training materials directed at preventing and reducing storm water pollution from municipal operations. Materials may be developed, or obtained from the EPA, states, or other organizations and sources. Examples or descriptions of training materials being used must be included in the SWMP.

(c) Structural Control Maintenance
If BMPs include structural controls, maintenance of the controls must be performed at a frequency determined by the MS4 operator and consistent with maintaining the effectiveness of the BMP. The SWMP must list all of the following:
(1) maintenance activities;
(2) maintenance schedules; and
(3) long-term inspection procedures for controls used to reduce floatables and other pollutants.

(d) Disposal of Waste
Waste removed from the MS4 and waste that is collected as a result of maintenance of storm water structural controls must be properly disposed. A section within the SWMP must be developed to include procedures for the proper disposal of waste, including:
(1) dredge spoil;
(2) accumulated sediments; and
(3) floatables.

(e) Municipal Operations and Industrial Activities
The SWMP must include a list of all:
(1) municipal operations that are subject to the operation, maintenance, or training program developed under the conditions of this section; and
(2) municipally owned or operated industrial activities that are subject to TPDES storm water regulations.

Complete text available at
www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr040000.pdf

Training Guidelines

The trainer should obtain a copy of the jurisdiction or agency's Storm Water Management Plan that was developed in accordance with the TPDES General Permit for Small Municipal Separate Storm Sewer Systems. The SWMP should specify the training requirements (personnel to be trained, frequency, schedule, etc.) that have been established by the jurisdiction in compliance with the permit.

The jurisdiction or agency may want to create employee-training procedures for each department where employees must receive storm water pollution prevention training. The procedures, which must be based on the requirements of the Storm Water Management Plan, should provide additional details to trainers and managers and may include schedules, forms for recording training attendance, and other training-related details.

The trainer should review and become familiar with the Preventing Storm Water Pollution: *What We Can Do* video, the Storm Water Pollution Prevention Training Modules, and the Instructor's Guide. The trainer should also become familiar with the activities performed by the department personnel to be trained. Identify specific activities that have the potential to cause storm water pollution, materials are that are used, materials storage practices, procedures for chemical usage, and procedures for spill cleanup.

The trainer should tailor the training modules to provide additional information that is specific to the jurisdiction. For example, pictures, contact information, storm water Best Management Practice (BMP) maintenance or inspection schedules, waste disposal instructions, or other facility-specific information may be used in place of or in addition to the standard content.

Employee attendance at training sessions must be documented by the trainer. A sign-in sheet is provided in the Instructor's Guide to document attendee names, training subject matter, date, and trainer's name.

Preventing Storm Water Pollution: *What We Can Do* Video

The "Preventing Storm Water Pollution: *What We Can Do*" video is intended to be a general introduction to the topic of storm water pollution prevention related to local government or state operations. The video may be used alone or as an introductory piece followed by one or more training modules (and/or other information specific to local or state government entity).

The video discusses the following topics:

- the importance of protecting the water quality of the region's lakes, streams and rivers to maintain clean water for drinking and to support water recreation activities;
- the potential impact of storm water pollution on the quality of receiving waters;
- operations and maintenance activities performed by government entities that have the potential to cause storm water pollution and the associated pollutants;
- the responsibility of governments in protecting water quality and in setting a good example for citizens;
- regulatory requirement to prevent storm water pollution that might result from operations and maintenance activities; and
- basic storm water pollution prevention Best Management Practices (good housekeeping practices).

Discussion Points

After viewing the video, participants should understand how and why storm water runoff is regulated, common sources of storm water pollution, basic storm water pollution prevention BMPs, and the importance of employee actions to prevent storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session following the presentation of the video. The following questions may be asked by the instructor to stimulate discussion by the participants:

- Why is it important to protect water quality?
- How does storm water runoff cause water pollution?
- What problems can result from pollution in storm water runoff?
- What possible consequences might result if the [city, county, or state] entity fails to follow regulations to prevent storm water pollution?
- What activities performed by participants have the potential to pollute storm water runoff?
- What are some of the good housekeeping practices discussed in the video?

Storm Water Pollution Prevention Training Module Series

The Training Module Series consists of six PowerPoint modules that supplement and reinforce the training objectives of the Preventing Storm Water Pollution: *What We Can Do* video. The modules provide more detailed information on pollution prevention BMPs for various activities typically carried out by government entities. The Training Module Series includes the following training modules:

- Materials Storage and Spill Cleanup
- Parks and Grounds Maintenance
- Fleet Maintenance
- Streets and Drainage Maintenance
- Land Disturbances
- Solid Waste Operations

The modules are designed to follow the video or an introduction by the instructor. One or more modules may be presented in combination depending on the audience. In addition to the flexibility offered by various combinations of modules, the content of individual modules may be tailored by the jurisdiction to meet locality-specific needs. For example, pictures, contact information, storm water Best Management Practice (BMP) maintenance and inspection schedules, waste disposal instructions, or other facility-specific information may be used in place of or in addition to the standard content.

The trainer should prepare by reviewing the individual modules and respective Instructor's Guide sections. In addition, the trainer should become familiar with the activities of the employees to be trained, what materials are used, how the materials are stored, procedures for chemical usage, and procedures for spill cleanup. The modules should be tailored to address the specific requirements for the particular department activity as described above.

Materials Storage and Spill Cleanup Module

The Materials Storage and Spill Cleanup presentation module is intended to provide information to employees on how to store and handle materials safely and how to clean up spills properly. This module is appropriate for employees in all departments that handle materials that could pollute surface waters if spilled or washed into a storm drain. For many audiences, it is appropriate to present the Materials Storage and Spill Cleanup Module along with other modules that address related functions or activities.

Discussion Points

After completing this module, participants should understand basic material storage and handling and spill cleanup procedures that prevent or reduce the possibility of storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- What materials are used that could contaminate storm water pollution?
- Why is it important to keep materials in original containers or clearly labeled replacement containers?
- What is the best location for storage of hazardous materials?
- What are the basic steps for cleaning up a liquid spill?
- What are the basic steps for cleaning up a powder (dry) spill?
- Where can specific information on how to clean up spills be found?

Parks and Grounds Maintenance Module

Parks and grounds maintenance activities are potential sources of storm water pollution. Organic matter such as lawn clippings and leaves decay in water, which consumes oxygen and may kill plants and animals. Fertilizers are major sources of nutrients. Added nutrients may lead to excess algae growth, a nuisance that is unsightly, causes bad odors when it decomposes, and may impact wildlife habitat. Additionally, pesticide residues that are washed or blown into storm drains may harm wildlife and degrade water quality.

This module is intended to provide information to parks and grounds employees on how to conduct their activities in a manner that helps to reduce storm water pollution. The module is organized into five topic areas. The topics and a brief discussion are as follows:

Plant Selection
Many perennial plants that are native or adapted to the area are naturally drought tolerant and appropriate for soil pH and nutrient levels, and have developed resistance to common pests. As a result, native and adapted perennials use less water and require less use of fertilizer, pesticides, and herbicides, thus reducing the possibility of water pollution resulting from chemical use. Use of Texas SmartScape™ for design and maintenance of landscape areas is highly recommended.

Texas SmartScape™ utilizes xeriscape principles, but goes beyond the basics by providing design, care and plant search tools that are "Smart" for North Central Texas, meaning the information was specifically tailored to fit regional climate and local conditions. SmartScape™ provides informational tools on landscape design and maintenance, as well as a searchable database that includes over 200 plants, shrubs and trees that will thrive in North Central Texas. The plant search Garden Tool Box displays a photograph of the plant and relevant information, such as water and light requirements, plant height and spread, to help select the best plant for the right location. The Texas SmartScape program is available on CD from your storm water contact or on the internet at www.txsmartscape.com.

Watering
Runoff from lawns or flowerbeds may contain pollutants from fertilizer, pesticides, or herbicides that have been applied to the area. Sprinkler runoff also wastes water demanding extra treatment from water utility providers wasting energy and taxpayers dollars. This section includes suggestions such as reducing watering time, turning sprinklers off during rainy weather, installing rain sensors on automated irrigation systems, and watering only when the top 4" to 5" of soil are dry.

Debris Management
Large quantities of leaves, grass clippings, and plant trimmings can cause low dissolved oxygen as they decompose in lakes and streams. Therefore, these organic materials should not be disposed of in storm drains where they may be washed into receiving waters.

Using a mulching mower and leaving clippings on the lawn is the preferred method for grass. Leaves and trimmings may be composted and used as a soil amendment or shredded and used as mulch for flowerbeds. These methods also avoid disposal of clippings in landfills, which wastes landfill space.

Soil Management

Addition of compost along with aeration can correct poor drainage, require less fertilizer, and promote root growth in clay soils. Compost and aeration will also increase nutrient and water holding capacity and reduce fertilizer needs in sandy soil. Fertilizer should only be added based on the results of an analysis of the nutrient levels in the soil. Bare soil should be protected from erosion by establishing vegetation and/or using mulch or erosion control matting.

Pesticide and Herbicide Practices

Pesticides and herbicides contain toxic materials that pose both environmental and human health risks. Humans, animals, aquatic organisms, and plants can be severely threatened by these chemicals. The toxins found in pesticides and herbicides can be washed from grass areas and flowerbeds into storm drains and streams by storm water runoff. Proper handling, application, and disposal of pesticides and herbicides can reduce the potential for contamination of water resources. Non-toxic substitutes should be considered for use in place of toxic chemicals where practical.

Refer to the Pollution Prevention (P2) / Good Housekeeping page of the Regional Storm Water Management Program website at www.dfwstormwater.com/P2 for links to more information on pesticide and herbicide practices (Michigan DEQ's "Pesticide Management for Turfgrass and Ornamentals" guide is a valuable resource) or ask your storm water representative to provide you with printed material.

Note that local government employees may not purchase or use a restricted-use or state-limited-use pesticide or regulated herbicides unless the person is:

- licensed as a commercial, noncommercial or noncommercial political subdivision applicator in the use categories covering the proposed pesticide use; or
- an individual acting under the direct supervision of a licensed applicator.

Refer to the Texas Department of Agriculture at http://www.agr.state.tx.us/pesticide/index.htm for licensing information or discuss the requirements with your human resources department and supervisors.

Discussion Points

After completing this module, participants should understand basic landscaping techniques and procedures for handling pesticides and herbicides that prevent or reduce the possibility of storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- Why do native and adapted plants require less water, fertilizer and pesticides?
- Why is important to prevent irrigation water from running off grass or landscaped areas?
- What are the preferred ways to manage grass clippings, plant trimmings, and leaves?
- Why should paved surfaces and storm drains be kept free from debris and chemicals?
- What weather-related factors should be considered when determining whether it's OK to apply pesticides or herbicides?
- What are some of the practices for safe pesticide and herbicide usage?

Fleet Maintenance Module

Automotive maintenance facilities are considered to be storm water "hot spots" where significant loads of hydrocarbons, trace metals, and other pollutants can be produced that can affect the quality of storm water runoff. Some of the waste types generated at vehicle and equipment maintenance facilities include antifreeze, motor oil, fuels (gasoline, diesel, kerosene), brake, transmission, and hydraulic fluid, oil and fluid filters, batteries, solvents, and grease.

Fluid spills and improper disposal of materials may result in petroleum, heavy metals, and toxic materials entering ground and surface water supplies, creating public health and environmental risks. This module is intended to provide information to fleet maintenance employees on how to conduct their activities in a manner that helps to reduce storm water pollution. The module is organized into five topic areas. The topics and a brief discussion are as follows:

Maintenance Activities
Generally, maintenance activities should be conducted indoors or on a paved, covered surface to prevent spilled fluids and other pollutants from coming in contact with storm water. Maintenance areas should always be kept clean of trash, debris, used absorbents, etcetera to prevent scattering by traffic or wind. Fluids in drip pans or other open containers should be properly disposed of as soon as possible to prevent spills. Basic information on containing leaks and cleaning spills is presented in this module to emphasize the importance of these activities; however, there is a reference to the Materials Storage and Spill Cleanup Training Module for more detail.

Proper disposal of used fluids and filters is important for pollution prevention and for resource recovery. Used anti-freeze, motor oil, transmission fluid, and hydraulic fluid should be collected and stored in separate containers. Recycling of used fluids is the preferred method of disposal, since most automotive fluids may be reprocessed and reused. Oil, transmission, and hydraulic filters may also be recycled. Drain all filters completely prior to placing them in leak-proof containers for pick up or disposal.

Parts cleaning should be conducted indoors where fluid, debris, and solvents are less likely to come into contact with storm water. Parts should be brushed or wiped to remove heavy grime prior to using a parts cleaning sink. Cleaned parts should be drained thoroughly prior to removal from the cleaning sink to prevent drips of cleaning fluid on the floor. Aqueous parts washers are preferred over solvent parts washers due to the environmental hazards associated with petroleum based solvents. Lids should be kept closed on parts sinks when not in use.

Cleaning of shop floors and outdoor pavement should be done using dry methods such as sweeping to the greatest extent possible. Mopping of shop floors should be conducted only after absorbents have been used to clean spills and the floor has been swept thoroughly. Mop water must be disposed properly, usually by pouring into a sanitary sewer drain. Never dispose of mop water in a storm drain or by dumping outdoors. Outside work areas should not be hosed down. Pressure washing may be used if wash water is collected and properly disposed.

Fueling
Fuel dispensing can result in spills of gasoline or diesel. Employees should be instructed to use care when fueling vehicles or equipment and particularly should be instructed not to top off the tank after the automatic nozzle has shut off.

Ideally, fuel-dispensing areas should be covered to prevent storm water from coming into contact with spilled fuel. Absorbents should be kept near dispensing equipment for use in the prompt cleanup of spills. Accumulated deposits of fuel and oil and grease deposits should be cleaned periodically using pressure washing equipment. Wash water MUST be contained and properly disposed of and NOT allowed to run into a storm drain inlet.

Washing
Vehicle and equipment must be washed in a facility designed for that purpose. Wash water should be collected for recycling or routed through an oil/grit separator prior to discharge to the sanitary sewer.

Notes regarding facilities that discharge to the sanitary sewer system: 1) Discharges to the sanitary sewer system must be authorized by the treatment facility; 2) Wash facilities should be covered or other precautions taken to prevent rainwater from entering the sanitary sewer; 3) Oil/water separators should be installed in the drain system.

Additional Information

There is an abundance of additional information available from the Environmental Protection Agency.

- Fact Sheets on Pollution Prevention for Fleet Maintenance
  http://www.epa.gov/region09/cross_pr/p2/autofleet/factfleet.html

- National Menu of Best Management Practices for Storm Water Phase II, Automotive Maintenance and Vehicle Washing Sections
  http://cfpub.epa.gov/npdes/stormwater/menuofbmps/pdf/final/sec-6_new.pdf

- Profile of Local Government Operations, Section 3.10, Vehicle/Equipment Maintenance
  http://www.epa.gov/Compliance/resources/publications/assistance/sectors/notebooks/chapter3.pdf

Discussion Points

After completing this module, participants should understand basic procedures for conducting fleet maintenance activities in a manner that prevents or reduces the possibility of storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- Why is it important not to top off fuel tanks when fueling vehicles and equipment?
- Where should vehicle maintenance activities be conducted?
- What potential pollutants do you handle in your daily activities?
- What is the proper disposal method for fluids? Used filters? Old parts? Absorbents? Batteries?
- What is the proper procedure for cleaning shop floors? Pavement?
- Is it OK to allow wash water from vehicle washing activities to run into the storm drain?

Streets and Drainage Maintenance Module

Various activities associated with maintenance of streets and drainage facilities may result in storm water pollution if not conducted properly.

Pavement Repair

Slurry containing fines resulting from pavement sawcutting operations should not be permitted to flow into storm drains where they may eventually settle in slow moving sections of streams or in lakes. Vacuuming the slurry using a wet/dry vacuum is the preferred collection method. Creating a pool of slurry by blocking the flow along the curb using sand bags or other material may aid in vacuuming the slurry. The slurry may be poured into open containers and the fines disposed in the trash after the water has evaporated, disposed in a designated concrete washout area (discussed below), or dispersed over a wide area of grassy vegetation away from storm drain facilities or surface waters.

Concrete trucks must be washed out in designated facilities where wash water will be contained and not permitted to flow into storm drains or surface waters. It is recommended that a washdown area with a minimum of 6 cubic feet of containment volume for every 10 cubic yards of concrete poured. See the iSWM Design Manual for Construction BMP Fact Sheet M-3 for additional information.

Stockpiles of asphalt patching material should be located on an impervious surface and covered to prevent contact with rain. A dedicated facility with a roof and containment is preferred; alternatively, complete coverage with heavy plastic sheeting may be acceptable for short-term storage.

Loose material that is not compacted during pavement patching should be swept up and properly disposed of. Clean trucks, paving equipment, and tools in wash facilities that are equipped with oil/water separators and grit traps and discharge to the sanitary sewer. If no such facility is available, equipment may be cleaned on an impervious surface such as concrete or asphalt or heavy plastic sheeting (6 mil). Spread absorbent over the impervious surface to absorb liquids used in cleaning. Use biodegradable products as cleaners and release agents rather than diesel. Promptly dispose of used absorbent and waste asphalt (see Appendix A).

Paint Striping

Good housekeeping associated with painting roadway stripes involves proper handling and disposal of unused paint and equipment cleaning wash water or solvents.

Small quantities of unused water-based (latex) paint may be poured into open containers and allowed to dry. The dried paint may be disposed of in regular trash. Wash water used for cleaning equipment should be discharged to the sanitary sewer and not allowed to flow into storm drains or surface waters.

Unused oil based paint and solvents used for cleaning must be handled in accordance with appropriate state and federal regulations (see Appendix A).

Storm Drain Inlet Cleaning
Trash and debris removed from inlets and catch basins may be disposed of in a sanitary landfill unless there is evidence of contamination with oil or other pollutants. Employees should be instructed to notify supervisory personnel if there is evidence of pollution or illegal dumping. Consider applying markers with a no dumping message to inlets in areas where there is evidence of dumping.

Ditch Maintenance
Ditch maintenance activities include vegetation removal, sediment removal, or reshaping the line and grade. Soils that are exposed during the maintenance activities should be protected from erosion. Grass seed should be applied after maintenance activities are complete. A compost/mulch mixture applied with the seed helps speed vegetation growth and also protects the soil from erosion until the vegetation is established. See the iSWM Design Manual for Construction BMP Fact Sheets for additional information. For channels that experience high flow velocities, turf reinforcement mats should be used to provide stabilization for the soil and vegetation. See the iSWM Design Manual for Construction BMP Fact Sheets E-4, E-5, and or E- 7 for additional information.

Sediment in ditches has the potential for contamination due to oil or fuel spills or dumping. If material that has been removed from ditches appears to be contaminated, it should be analyzed. Contaminated sediments must be disposed in accordance appropriate state and federal regulations (see Appendix A). Uncontaminated soil may be used onsite in shaping the contours of the ditch or may be stockpiled and used as fill in other locations. Cover soil stockpiles to prevent erosion and/or install silt fencing or a compost filter berm around the base of the stockpile to keep sediment from being washed from the area.

Additional Information
Information on Best Management Practices for erosion and sediment control, as well as concrete waste management, is available in the *integrated* Storm Water Management (*i*SWM) Design Manual for Construction. The Manual may be downloaded from the North Central Texas Council of Governments web site at http://www.iswm.dfwinfo.com/Documents/Construction.asp.

Discussion Points
After completing this module, participants should understand basic procedures for conducting street and drainage facility maintenance activities in a manner that prevents or reduces the possibility of storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- Why is sediment considered a pollutant? Sawcutting fines?
- Why are biodegradable products favorable over diesel for cleaning tools and equipment used for asphalt patching.
- Why should oil-based paint and solvents be handled differently than water-based paint?
- How should soil removed from ditches be handled and used?
- What are some signs of pollution to look for when conducting daily activities?

Land Disturbances Module

Soil erosion and the resulting sedimentation caused by land disturbances impacts the environment, damaging aquatic and recreational resources as well as aesthetic qualities. Common examples of the impacts of erosion and sedimentation are:

- Sediment fills swales, culverts and storm drains, decreasing capacities and increasing flooding risk and maintenance frequency.
- Retention/detention facilities fill rapidly with sediment, decreasing storage capacity and requiring more frequent maintenance.
- Reservoirs must be dredged to remove accumulated sediment in order to restore storage capacity.
- Sedimentation may affect fish populations by reducing food-chain organisms and impairing fish spawning.

Construction site waste such as building materials, packaging, and trash and are also subject to transport off of construction sites through neglect, wind, or rain. Chemicals used in the construction process including paints, solvents, herbicides, pesticides, fertilizer, and fuels may pollute adjacent waterbodies if not stored, used, and cleaned up properly.

This module is intended to provide basic information to municipal employees on how to conduct activities that result in small areas of land disturbance in a manner that helps to reduce storm water pollution. Larger construction projects, particularly those that result in land disturbances of one acre or more will require additional information and may require permit coverage (refer to the corresponding sections below).

Small-scale land disturbing activities include utility repairs (water and sanitary sewer lines, storm drain system), street repairs, sidewalk construction and repairs, landscaping (parks, buildings, medians), and power pole installation and replacement. Some general principles for effective management these land disturbing activities include:

- Preventing erosion is more effective than trying to remove sediment from runoff.
- Minimize the amount of disturbed area.
- Divert runoff or flowing water away from disturbed areas.
- Locate dirt stockpiles out of the street to prevent sediment from washing into storm drains.
- Locate stockpiles away from runoff or flowing water.

In addition, installation of Best Management Practices (BMPs) can help to prevent erosion from disturbed areas and/or remove sediment in runoff. Common BMPs used on small projects are listed below. See the reference to the *integrated* Storm Water Management (*i*SWM) Design Manual for Construction under Additional Information for detailed information on these and other BMPs.

<u>Erosion Control BMPs</u>

- Vegetation - Provide natural soil protection through seeding, hydromulch or phasing
- Mulching - Protect disturbed soil with a layer of hay, straw, or other material
- Erosion Control Blankets - Protect disturbed soil or slopes with geotextile and biodegradable fabrics

- Plastic Sheeting - May be used for short-term protection of disturbed areas or dirt stockpiles

Sediment Control BMPs

- Organic filter berm - A 1 to 3 foot high berm of mulch and compost placed around a disturbed area
- Silt fence - Filter fabric trenched into the soil and attached to supporting posts
- Triangular sediment dike - Filter fabric placed over welded wire shaped into a triangle
- Inlet protection - Filter fabric or stone placed around or in front of a storm drain inlet

Waste Management BMPs:

- Debris and trash control - use covered trash cans, bins, and/or roll-off boxes for disposing trash and debris.
- Chemical management - Follow proper material storage and spill cleanup procedures for chemicals used on construction sites
- Concrete washout - Use designated facilities to capture wash water from concrete truck cleaning

Regulatory Requirements

Construction activities that result in one or more acres of land disturbance are required to comply with the Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Storm Water Runoff, TXR 150000, issued on March 5, 2003. The "Construction General Permit" establishes the procedures and activities required for proper coverage for construction activities that disturb one or more acres. Failure to properly submit the required information or comply with the permit provisions may result in enforcement by the State of Texas or federal prosecution under the Water Quality Act of 1987.

Regardless of whether a project is required to obtain permit coverage, all projects must be managed to prevent or reduce soil or other pollutants from being washed into storm drains, creeks, or lakes.

Additional Information

Information on permit compliance and Best Management Practices for erosion and sediment control, debris and trash management, and concrete waste management, is available in the *integrated* Storm Water Management (*i*SWM) Design Manual for Construction. The Manual may be downloaded from the North Central Texas Council of Governments web site at http://www.iswm.dfwinfo.com/Documents/Construction.asp.

Discussion Points

After completing this module, participants should understand basic methods to effectively manage land-disturbing activities and apply Best Management Practices (BMPs) to reduce pollutants in construction site storm water runoff. The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- Why is sediment considered a pollutant?
- What precautions should be used regarding dirt stockpiles?
- Why is erosion prevention more effective than sediment removal?
- What BMPs can be used for preventing erosion?
- What BMPs can be used for removing sediment in runoff?

Solid Waste Operations Module

The Solid Waste Operations presentation module is intended to inform employees on how they can reduce water pollution by taking precautions in their daily activities. This module emphasizes good housekeeping practices that should be practiced both in the field as well as at transfer stations, drop off locations, and other solid waste facilities. The information in this module is aimed at instructing employees on the types of wastes they should not pickup during trash collection. It also provides a list of pollution prevention equipment that can help reduce and prevent water pollution. Another purpose of this module is to notify the employee that hazardous wastes need to be redirected if they make it to the solid waste facility. The module provides general pollution prevention practices and may need to be supplemented with site-specific registration or permit requirements.

The module also includes a slide that refers to solid waste landfill and composting operations. For jurisdictions with landfill operations, this module may be used for training landfill personnel if the slides are supplemented with additional information in accordance with the facility's specific permit requirements.

Additional Information

There is an abundance of additional information available from the Environmental Protection Agency.

- Fact Sheets on Pollution Prevention for Solid Waste Management
  http://www.epa.gov/epaoswer/non-hw/muncpl/index.htm

- Profile of Local Government Operations, Section 3.6, Solid Waste Management
  http://www.epa.gov/Compliance/resources/publications/assistance/sectors/notebooks/chapter3.pdf

- Fact Sheets on Pollution Prevention for Waste Transfer Station
  http://www.epa.gov/epaoswer/non-hw/transfer.htm

Discussion Points

After completing this module, employees should understand how their daily activities could help reduce water pollution. They should be able to recognize the hazardous wastes materials that they should not pickup during trash collection activities; they should also be able to identify which materials need to be redirected from the landfill at the transfer station. Employees should know what pollution prevention equipment should be available both on collection trucks and at transfer stations. They should also become familiar with and apply good housekeeping practices that prevent or reduce the possibility of storm water pollution.

The instructor should reinforce the learning objectives by facilitating a discussion session during and/or after the presentation of the module. The following questions may be asked by the instructor to stimulate discussion by the participants:

- What types of materials are included in the hazardous waste category?
- Why is it important not to pickup hazardous waste during trash collection activities?
- What should be done with hazardous materials that make it to the transfer station?
- What kinds of equipment can be used to reduce and prevent storm water pollution?
- What are some good housekeeping practices that should be followed to prevent and reduce storm water pollution?

Appendix A: Waste Disposal Information

The regulations that apply to waste disposal depends on the classification of the waste. A complete explanation of how to classify waste and determine proper disposal methods is beyond the scope of this guide. However, there are numerous resources to assist local governments with this important task. Appropriate staff with the local government should establish procedures for handling all anticipated wastes. These procedures should be developed to meet all regulatory requirements and should be available to all personnel that may handle or dispose of wastes.

The TCEQ publication *Guidelines for the Classification and Coding of Industrial Wastes and Hazardous Wastes* (RG-22) has a thorough discussion of this topic. The document is available at http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/rg/rg-022_476238.pdf

Small Business and Local Government Assistance
The TCEQ's (SBLGA) program provides confidential technical assistance on air, water, waste, and pollution prevention issues without the threat of enforcement. There are SBLGA staff located throughout the state to assist local governments. Receive confidential technical assistance for your local government on air, water, waste, and pollution prevention issues without the threat of enforcement. Call the hotline at 1-800-447-2827 to find a compliance assistance specialist with the Small Business and Local Government Assistance Program who can provide assistance on classifying waste and related regulations. The SBLGA website for local governments is at www.tceq.state.tx.us/nav/cec/lg_compliance.html.

Recycle Texas Online
Recycle Texas Online is an online database provided by TNRCC that contains continuously updated information on recycling businesses in Texas and the specific recyclable materials they handle. The Recycle Texas Online database is located at www.tnrcc.state.tx.us/exec/sbea/rtol/index.html.

Storm Water Pollution Prevention Training

Organization Name _____ Date _____

Employee Name	Department	Signature

Training Topics Covered: _____

_____

Trainer's Name _____ Signature _____