

CITY OF  
SOUTHLAKE



# Storm Water Management Plan

January 25, 2008

Prepared by the City of Southlake for application to the Texas Commission on  
Environmental Quality TPDES General Permit Number TXR04000

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## **ACRONYMS**

BMP	Best Management Practice
CWA	Clean Water Act
EPA	Environmental Protection Agency
GIS	Geographic Information Systems
KSB	Keep Southlake Beautiful
LID	Low Impact Development
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NCTCOG	North Central Texas Council of Governments
NPDES	National Pollutant Discharge Elimination System
SIC	Standard Industrial Classification
SPIN	Southlake Program for the Involvement of Neighborhoods
SSO	Sanitary Sewer Overflow
SWMP	Storm Water Management Plan
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollutant Discharge Elimination System

## Definitions

*Best Management Practices* – schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. Best management practices also include treatment requirements, operating procedures, practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

*Control Measure* – any best management practice or other method used to prevent or reduce the discharge of pollutants.

*Discharge* – when used without a qualifier, refers to the discharge of storm water runoff or certain non-storm water discharges as allowed under the authorization of this general permit.

*Illicit Connection* – any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

*Illicit Discharge* – any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a National Pollutant Discharge Elimination System permit (other than the municipal separate storm sewer).

*Municipal Separate Storm Sewer System* – a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curb, gutters, ditches, man-made channels, or storm drains.

*National Pollutant Discharge Elimination System* – National program for issuing, modifying, revoking and reissuing, terminating, imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA.

*Outfall* – a point source at the point where a municipal separate storm sewer discharges to waters of the United States.

*Permitting Authority* – for the purposes of this general permit, the Texas Commission on Environmental Quality.

*Storm Water* – storm water runoff, snow melt runoff, and surface runoff and drainage.

*Watershed* – The region draining into a river, river system, or other body of water.

*Waters of the United States* – Waters of the United States or waters of the U.S. means:

- (a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (b) all interstate waters, including interstate wetlands;
- (c) all other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interest or foreign commerce including any such waters:

- (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;
- (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (3) which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) all impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) tributaries of waters identified in paragraphs (a) through (d) of this definition;
- (f) the territorial seas; and
- (g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

# Regulatory Background

## Federal Regulation

The Clean Water Act (CWA) establishes environmental programs to address water pollution. This law establishes the National Pollutant Discharge Elimination System (NPDES) program to protect the Nation's waters. The law also directs the U.S. Environmental Protection Agency (EPA) to issue rules on how to implement this law. Under the NPDES program, a municipal storm water program was developed in two phases in an attempt to address pollution from non-point sources, or sources not easily identified. This program requires that the operator:

- reduce the discharge of pollutants to the maximum extent practicable;
- protect water quality;
- satisfy the appropriate water quality requirements of the Clean Water Act; and,
- manage storm water quality activities through a Storm Water Management Plan (SWMP).

Phase I of the EPA municipal storm water program was promulgated in 1990 under the authority of the Clean Water Act (CWA). Phase I relied on the National Pollutant Discharge Elimination System (NPDES) permit coverage to address storm water runoff from medium and large municipal separate storm sewer systems (MS4s), serving populations of 100,000 and greater.

The Phase II program requires additional operators (small MS4s in urbanized areas, as identified by the U.S. Census Bureau) to implement programs and practices to control polluted storm water runoff through a similar permit program. The EPA identified six minimum control measures that must be addressed by the Phase II operators:

- public education and outreach;
- public involvement and participation;
- illicit discharge detection and elimination;
- construction sites storm water runoff control;
- post-construction storm water management in new development and re-development; and
- good housekeeping measures/pollution prevention for municipal operations.

## State Regulation

On September 14, 1998, the EPA and Texas Commission on Environmental Quality (TCEQ) signed a memorandum of agreement for the TCEQ to assume the regulatory authority for the NPDES program as it applies to the State of Texas and through transfer became the Texas Pollutant Discharge Elimination System (TPDES).

General Permit # TXR040000 (Phase II Permit) was finalized and issued August 13, 2007. The City of Southlake must submit an application to the state within 180 days of this issuance date (February 11, 2008). By submitting an application to TCEQ, which includes a Notice of Intent (NOI) and Storm Water Management Plan (SWMP), the City of Southlake acknowledges the regulatory authority of the TCEQ and agrees to comply with TPDES # TXR040000 permitting requirements to discharge storm water into waters of the state. This permit and authorization shall expire five years after the date of issuance.

# Permit Applicability and Coverage

## MS4 Coverage and Eligibility

Almost all of the City of Southlake located within Tarrant County is identified as part of the Dallas/Fort Worth Urbanized Area, as defined by the 2000 Decennial Census by the U.S. Census Bureau. In addition to General Permit TXR040000 requirements for the SWMP to be implemented throughout the portions of the City within the identified Urbanized Area, the City of Southlake will implement the SWMP throughout the City limits. Should the City expand to new areas, the SWMP will apply to those new areas within the required time frame.

## Allowable Non-Storm Water Discharges

The following non-storm water discharges may be discharged from the City of Southlake and are not required to be addressed in the Illicit Discharge Detection and Elimination or other minimum control measure unless they are determined by the City of Southlake or the TCEQ to be significant contributors of pollutants:

- (a) water line flushing (excluding discharges of hyper-chlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);
- (b) runoff or return from landscape irrigation, lawn irrigation, and other irrigation utilizing potable water, groundwater or surface water resources;
- (c) discharges from potable water sources;
- (d) diverted stream flows;
- (e) rising ground waters and springs;
- (f) uncontaminated ground water infiltration;
- (g) uncontaminated pumped ground water;
- (h) foundation and footing drains;
- (i) air conditioner condensation;
- (j) water from crawl space pumps;
- (k) individual residential vehicle washing;
- (l) flows from wetlands and riparian habitats;
- (m) dechlorinated swimming pool discharges;
- (n) street wash water;
- (o) discharges or flows from fire fighting activities (fire fighting activities do not include washing of trucks, runoff water from training activities, test water from fire suppression systems, and similar activities);
- (p) other allowable non-storm water discharges listed in 40 CFR § 122.26(d)(2)(iv)(B)(1);
- (q) non-storm water discharges that are specifically listed in the TPDES Multi Sector General Permit (MSGP) and the TDES Construction General Permit (CGP); and,
- (r) other similar occasional incidental non-storm water discharges unless the TCEQ develops permits or regulations addressing these discharges.

## **Storm Water Management Plan**

The SWMP is a unique document developed for the City that describes specific actions, or best management practices (BMPs) used by the City that meet the requirements of each of the six minimum control measures. The SWMP must be developed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act and the Texas Water Code. The SWMP must also set measurable goals for each BMP and provide a schedule to fully implement the SWMP within five years of the date of issuance of the general permit.

### **Permit Term**

This general permit is effective for five years from the date of issuance, August 13, 2007. Authorizations for discharge under the provisions of this general permit may continue until the expiration date of the general permit. This general permit may be renewed by the TCEQ for an additional term or terms not to exceed five years.

### **Recordkeeping**

In accordance with the general permit TXR040000, Part IV, Section A, the City will retain all records, a copy of the TPDES general permit, and records of all data used to complete the application for the general permit. This information will be retained at:

Public Works Operations  
1950 E. Continental Blvd.  
Southlake, TX 76092

The City will make this information available to the public if a request is made in writing to the City Secretary.

### **Reporting**

The City will track all BMP activities, results, and changes to the SWMP through an annual report that will be submitted to the TCEQ for each year of the permit term. The annual report will include all information required by the general permit, including the status of the compliance with permit conditions, assessments of BMPs, and any changes to the SWMP, as determined to keep the City of Southlake in compliance with the general permit conditions.

Annual reports will be submitted to the TCEQ within 90 days of the end of each permit year. Each permit year for reporting purposes shall begin annually on the anniversary date of the issuance of the permit and last for one year.

Year 1	August 13, 2007 to August 12, 2008, report due November 11, 2008
Year 2	August 13, 2008 to August 12, 2009, report due November 11, 2009
Year 3	August 13, 2009 to August 12, 2010, report due November 11, 2010
Year 4	August 13, 2010 to August 12, 2011, report due November 11, 2011
Year 5	August 13, 2011 to August 12, 2012, report due November 11, 2012

# **Program Overview**

## **Background Information for the City of Southlake**

The City of Southlake is a community of 25,350 located northeast of Fort Worth and just south of Grapevine Lake. The majority of the City is located in Tarrant County and a small portion is located in Denton County. Incorporated in 1956, the City did not see major growth until the 1990's. The City now covers an area of 22 square miles and has a projected built-out population of 30,160.

The City of Southlake's storm water drainage is divided in an east-west direction near the center of the city. The northern section of the City drains to Grapevine Lake and the southern portion drains to Bear Creek, a tributary of the West Fork of the Trinity River.

## **Municipal Setting and Responsibility of Implementation**

The City of Southlake is a Council-Manager form of government. The Mayor is elected at large and is recognized as head of the City Government. As designated by the city charter, the City Manager is appointed by the Mayor and City Council and serves as the chief administrative officer for the city organization.

The Public Works Department will be responsible for ensuring that all departments work closely to ensure that all BMPs are developed to the maximum extent practicable. Public Works will work with the Planning Department on the development of BMPs in the Construction and Post-Construction MCMs. The Environmental Coordinator in the Public Works Department will be responsible for implementing most BMPs, tracking all activities, and reporting.

## **Storm Water Management Plan Development Process**

The Storm Water Management Plan was developed by the Public Works Department. Originally, the Public Works Department worked with KSA Engineers of Longview, TX to develop a draft in 2003. In 2007 the Public Works Department revised the SWMP. During the revision process Public Works met with all departments in the City that might have the potential to impact the MS4. These departments included the Department of Public Safety (Police and Fire), the Community Services Department, and the Planning and Development Services Department.

Public Works staff and other department staff considered permit requirements for each of the six minimum control measures when selecting BMPs that can be implemented to the maximum extent practicable.

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## MCM 1. Public Education and Outreach

### TCEQ Regulatory Requirement

- (a) Develop and implement a program to distribute educational materials to the community or conduct equivalent outreach activities that will be used to inform the public. The MS4 operator must consider the following groups:
  - (1) residents;
  - (2) visitors;
  - (3) public service employees;
  - (4) businesses;
  - (5) commercial and industrial facilities; and
  - (6) construction site personnel.
- (b) The MS4 operator must document activities conducted and materials used to fulfill this control measure.

### Current programs

- (a) One of the methods the City provides information to the residents of Southlake through the website [www.ci.southlake.tx.us](http://www.ci.southlake.tx.us). The website is a useful tool for quickly providing information to all groups. The information currently provided on the website reduces the potential for illegal dumping of hazardous waste by providing information about how to dispose of such wastes. The City will continue to update the website to provide information to all groups.
- (b) The City has also used utility bill inserts as a means of disseminating information about pollution prevention and will consider this venue in the future.
- (c) The City also has provided information to the citizens of Southlake through the Southlake Program for the Involvement of Neighborhoods (SPIN) and will continue to utilize this group for providing information to citizens about pollution prevention.

### Selected BMPs for Public Education and Outreach

BMP	BMP Rationale Statement/Description	Measurable Goals	Method of Measurement	Implementation Schedule
<b>1.1 Participate in NCTCOG Educational Task Force</b>	<ul style="list-style-type: none"> <li>• Regional educational efforts coordinated through NCTCOG Educational Task Force impact all groups in the region, including Southlake.</li> <li>• The City will participate in Task Force efforts to promote a Storm Water message.</li> </ul>	1. Participate in Task Force efforts	Number of meetings attended by staff	<b>Years 1 – 5</b>

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>1.2 Find or Create Educational Printed Material and Distribute to the Public</b>	<ul style="list-style-type: none"> <li>• Educational printed materials can be easily exhibited and distributed to a large population. Furthermore, these displays can be made for any age levels, in any language, or for specific audiences. This activity will address all groups to be considered.</li> <li>• Printed educational materials with a message to reduce storm water pollution will be made available at Town Hall. The brochures will either be created or purchased through an agency.</li> </ul>	1. Distribute printed materials with a storm water pollution prevention message.	Number of printed materials distributed	Years 2 – 5
<b>1.3 Children’s Education Programs</b>	<ul style="list-style-type: none"> <li>• Providing storm water education through schools conveys the message to students who can have an impact on future social understanding of environmental problems and solutions. The message can also be taken home to the parents of students. This activity addresses residents.</li> <li>• Educational programs will be provided for the schools as an opportunity to widen their understanding of the current problems and how they might improve the environment.</li> </ul>	1. Produce or purchase educational packets with storm water information for teachers to present to students and distribute to the school district.	Number of packets distributed	Year 5
		2. Make storm water presentations at local ISD teacher meetings	Number of presentations made	Year 5
<b>1.4 Install Watershed Signs</b>	<ul style="list-style-type: none"> <li>• Watershed signs bring awareness to the public about the fact that they live in a watershed and that their activities might have an impact on the local waterways. This activity addresses all groups.</li> <li>• Signs will be installed that will help raise awareness of watersheds for citizens and visitors.</li> </ul>	1. Develop sign design	Design created	Year 3
		2. Select sites the signs will be posted	A map of sites for posting	Year 4
		3. Install watershed signs along watershed boundaries	Number of signs installed	Year 5

## MCM 2. Public Involvement and Participation

### TCEQ Regulatory Requirement

- (a) At a minimum, comply with any state and local public notice requirements when implementing a public involvement/participation program.
- (b) It is recommended that the program include provisions to allow members of the public within the small MS4 the opportunity to participate in SWMP development and implementation.

### Current programs

Southlake citizens are actively involved in Keep Southlake Beautiful, which has an Adopt-A-Street program. A Community Services Coordinator serves as the liaison between the City and KSB.

### Selected BMPs for Public Education and Outreach

BMP	BMP Rationale Statement/Description	Measurable Goals	Method of Measurement	Implementation Schedule
<b>2.1 Public Involvement in Development of SWMP</b>	<ul style="list-style-type: none"> <li>• The TCEQ encourages cities to include the public in the development of the SWMP. The City can take into account the citizens' input in finalizing which BMPs are selected that would best fit the needs of the citizens.</li> <li>• The public will be invited to make comments about storm water concerns during the development of the SWMP. The City will make presentations to Southlake Program for the Involvement of Neighborhoods (SPIN) and invite comment. This complies with the intent of the Public Participation MCM to include the public in the development of the SWMP.</li> </ul>	1. Make the document available for comments on the city website	Document is posted	Year 1
		2. Present the SWMP during development to SPIN and invite SPIN to make comments	Number of citizens attend meeting	Year 1

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>2.2 Administer Survey on Attitude toward Storm Water</b>	<ul style="list-style-type: none"> <li>Surveys of how the public perceives storm water management can foster better planning and management programs. Program planners can use this information to determine how best to incorporate the public's needs and desires into the overall goals of a storm water management program.</li> <li>A survey of the general citizens will be conducted to gain an understanding of their perception and knowledge of storm water. This will help the City identify successes and failures in raising public awareness about storm water issues.</li> </ul>	1. Develop and implement survey near the beginning of the permit term	Number of participants	Year 3
		2. Implement survey at the end of the permit term	Number of participants	Year 5
		3. Analyze surveys for changes in perception and knowledge	Documentation of analysis	Year 5
<b>2.3 Volunteer Programs</b>	<ul style="list-style-type: none"> <li>Volunteer programs are an excellent public outreach tool for municipalities to involve citizens of all ages and abilities. Through programs, such as Adopt-A-Stream, the group or organization becomes vested in the care of the environment.</li> <li>Volunteer groups, such as Keep Southlake Beautiful, will continue to participate in Adopt-A-Stream and other projects related to environmental awareness. The Community Services Department will be involved in this BMP.</li> </ul>	1. Continue to be involved in Keep Southlake Beautiful programs.	Number of participants and types of activities	Years 2 – 5

## **MCM 3. Illicit Discharge Detection and Elimination**

### **TCEQ Regulatory Requirement**

- (a) Develop a program to detect and eliminate illicit discharges to the small MS4. The program must list the techniques used for detecting illicit discharges. The program must also include the manner and process to be used to effectively prohibit illicit discharges using an ordinance or other enforcement procedures to the extent allowable under state and local law.
- (b) A storm sewer map must be developed and include:
  - (1) the location of outfalls;
  - (2) the names and locations of all waters of the U.S. that receive discharges from the outfalls; and
  - (3) any additional information used to develop the storm sewer map, including how the outfalls are verified and how the map will be regularly updated.

### **Current Programs**

- (a) Household hazardous waste collection events reduce the likelihood of such wastes from being improperly disposed of, possibly entering waterways. HHW events are held for citizens two times a year. This event is administered with assistance from the Environmental Collection Center in Fort Worth.
- (b) Illegal dumping has been identified by the EPA as a source of illicit discharges. Solid and liquid wastes from illegal dumping can enter waterways, causing pollution. Code enforcement officers address illegal dumping through inspections and information from the public.
- (c) Recycling programs further reduce pollution originating from waste streams from entering the environment. A recycling program has been established for residents through a contract with the disposal company. Residents can recycle cardboard, paper, glass and plastic. In addition, the disposal company picks up large items for residents regularly.
- (d) Sanitary sewer overflows have been identified as a significant contribution to illicit discharges to the storm drain system. Grease in the sanitary sewer system can stop sewer lines and cause sewage to overflow and enter the storm drain system. An ordinance and enforcement procedures have been established to reduce or eliminate grease in the sanitary sewer system.

### Selected BMPs for Illicit Discharge Detection and Elimination

BMP	BMP Rationale Statement/Description	Measurable Goals	Method of Measurement	Implementation Schedule
<b>3.1 Illicit Discharge Ordinance and Enforcement</b>	<ul style="list-style-type: none"> <li>Through an ordinance and enforcement program the City will be able to effectively enforce the elimination of illicit discharges.</li> <li>An ordinance that effectively prohibits illicit discharges into the storm sewer system will be developed. Enforcement procedures and actions will be adopted and enforcement of the elimination of illicit discharges will be implemented.</li> </ul>	1. Develop a draft ordinance	Draft document produced	Year 3
		2. Finalize and implement ordinance	Ordinance approved by council	Year 4
		3. Establish enforcement procedures	Produce and approve written procedures	Year 4
		4. Implement enforcement of illicit discharge elimination	Number of enforcement activities	Years 4 – 5
<b>3.2 Identify and Track Discharges</b>	<ul style="list-style-type: none"> <li>The City must actively try to identify illicit discharges. By giving general staff direction in looking for potential sources and giving the public a way to report possible problems, the City will be better able to identify illicit discharges. Written procedures will improve the City’s ability to track and eliminate sources.</li> <li>Develop a program for the detection of illicit discharges and illegal dumping to the MS4. All complaints received by either staff or general public will be documented along with the appropriate response that was taken to eliminate the discharge.</li> </ul>	1. Provide field-based staff with water quality observation cards to be carried in each City vehicle	Number of observation cards	Year 4
		2. Develop written procedures for responding to information received by staff or citizens	Produce and approve written procedures	Year 4
		3. Document received information and response	Number of responses to calls made by citizens and staff	Year 4 – 5

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>3.3 Create a GIS Database of the MS4</b>	<ul style="list-style-type: none"> <li>• A map of the storm sewer system must be developed according to regulation. This map will be used to help identify locations where an illicit discharge might drain to waters of the US.</li> </ul>	1. Update map to include outfalls identified each permit year through field observations.	Number of outfalls identified	Years 1 – 5
	<ul style="list-style-type: none"> <li>• An updated GIS database of the MS4 will be created and updated as necessary</li> </ul>	2. Make continual updates to the storm sewer system database when necessary	Annual document review of system	Years 2 – 5

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## **MCM 4. Construction Site Storm Water Runoff Control**

### **TCEQ Regulatory Requirement**

- (a) Develop a program to address storm water runoff from construction sites one acre and greater in size. The program must include the manner and process to be used to require erosion and sediment controls using an ordinance or other enforcement procedures to the extent allowable under state and local law.
- (b) The ordinance must require the construction site contractor to:
  - a. Implement appropriate erosion and sediment control BMPs;
  - b. Control waste at the construction site that may cause adverse impacts to water quality.
- (c) Develop procedures for:
  - a. Site plan review which incorporate consideration of potential water quality impacts;
  - b. Receipt and consideration of information submitted by the public; and
  - c. Site inspection and enforcement of control measures to the extent allowable under state and local law.

### **Current Programs**

- (a) Storm water runoff from a construction site should be free from sediments and debris from the site. Construction site owners/operators are held responsible for compliance with construction permits, including the Construction General Permit. In addition, the construction site is issued either a civil construction permit, a building permit, or an earth disturbance permit before commencement of the construction. This permitting allows the City the authority to inspect for erosion and sediment controls during operation.
- (b) City staff must be trained in inspection of erosion and sediment controls in order for the staff to properly inspect said controls at a construction site for potential failures and need of maintenance. Engineering inspectors who are responsible for development sites have attended training in the past in erosion and sediment controls and currently inspect the controls while at a site.
- (c) During pre-construction meetings with the Public Works Department, construction site operators are given direction and advice on applying for a general construction permit.
- (d) Storm water site plans must be reviewed by municipal staff to ensure they address local requirements and protect water quality. Public Works does require the receipt and informal review of the sediment and erosion control practices indicated by the operator during site plan reviews.
- (e) Enforcement procedures are an important component of a program to address storm water runoff from construction sites. While developing erosion control plans, the Building Inspections Department has used a red tag during the construction of a building as a form of enforcement when the inspector finds that the operator has not maintaining proper erosion or sediment controls.

**Selected BMPs for Construction Site Storm Water Runoff Control**

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>4.1 Erosion and Sediment Control Ordinance and Enforcement</b>	<ul style="list-style-type: none"> <li>• Through an ordinance and enforcement program the City will be able to effectively enforce the use of erosion and sediment controls at construction sites disturbing at least one acre.</li> <li>• An ordinance that effectively enforces the use of sediment and erosion controls on sites that disturb at least one acre will be developed. Enforcement procedures and actions will be adopted.</li> </ul>	1. Develop a draft ordinance or revise current ordinance	Draft document produced	Year 1
		2. Finalize and implement ordinance	Ordinance approved by council	Year 2
		3. Establish enforcement procedures	Approve written procedures	Year 3
		4. Implement enforcement of sediment and erosion control	Number of enforcement activities	Years 3 – 5
<b>4.2 Construction Site Plan Review and Approval Process</b>	<ul style="list-style-type: none"> <li>• Storm water site plans must be reviewed by municipal staff to ensure they address local requirements and protect water quality.</li> <li>• Current site plan review procedures will be evaluated and redeveloped to include procedures that consider potential water quality impacts. Municipal staff will consider adoption of the NCTCOG iSWM manual for Construction as guidance for construction activities.</li> </ul>	1. Evaluate existing site plan review procedures	Evaluation documented	Year 2
		2. Adopt iSWM or develop criteria checklists or other procedures for site plan reviews	Approve written procedures	Year 3
		3. Implement changes to site plan review program	Number of permits issued meeting requirements	Years 2 – 5

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>4.3 Site Inspection Program</b>	<ul style="list-style-type: none"> <li>• Construction sites must be inspected as part of an enforcement program to ensure that operators protect water quality through proper maintenance of controls.</li> <li>• Procedures for construction site inspections will be developed that will include inspection of erosion and sediment controls. Site inspectors will be trained to inspect control measures.</li> </ul>	1. Adopt standard procedures for inspection of construction site erosion and sediment controls	Produce and approve written procedures	Year 3
		2. Municipal staff training on inspection of erosion and sediment controls	Number of training events attended by each staff member	Years 3
		3. Implement inspection program	Number of sites inspected for storm water controls	Years 3 – 5
<b>4.4 Construction Site Operators Education Program</b>	<ul style="list-style-type: none"> <li>• Raising awareness among construction site personnel helps to ensure that erosion and sediment plans are properly implemented and that BMPs are properly installed and maintained.</li> <li>• Conduct an outreach program and prepare informational outreach materials for the development community. Incorporate erosion and sediment control procedures into pre-construction meetings.</li> </ul>	1. Produce or purchase printed materials	Number of printed materials purchased	Year 3
		2. Distribute materials to site operators and personnel	Number of materials distributed	Years 3 – 5

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## **MCM 5. Post-Construction Management in New Development and Redevelopment**

### **TCEQ Regulatory Requirement**

- (a) Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for the community. This will address runoff from new development/redevelopment activities of one acre and greater (including larger common plan developments).
- (b) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state and local law.
- (c) Ensure adequate long-term operation and maintenance of BMPs.

### **Current Programs**

- (a) Non-structural controls for storm water runoff include a guidance document for developers to utilize in planning a development that will reduce pollution potential. The Comprehensive Plan, Southlake 2025, was approved by city council on August 2, 2005. The purpose of the plan is to serve as the community's vision for future development by allocating the appropriate location, concentration, and intensity of future development by land use categories. Southlake 2025 states both creating an atmosphere for environmental sustainability and open space preservation as central goals, which protects storm water and creates strategies for discharges from development that will minimize the impact to waterways:
  - (1) Environmental Resource Protection Recommendations of the Parks, Recreation, and Open Space Master Plan addresses environmental concerns and provides environmental protection recommendations for private property.
    - i. Of special consideration is protection of Bob Jones Park, a park close in proximity to U.S. Army Corps of Engineers property along Grapevine Lake.
    - ii. Also, recommendations for protection of floodplains, wetlands, and streams are considered during development.
    - iii. Water quality source protection is recommended during development through minimization of impervious surfaces, development of regional retention areas, and encouragement of tree preservation and use of native vegetation.
    - iv. An identification of Environmental Sensitive Areas has been made. There is an emphasis on establishing a contiguous network of open spaces between floodplains, city parks, private parks, linear parks, and greenways.
  - (2) Environmental resource protection has been identified in sections of the city, and while these sections are not based on watersheds, each section identifies key water resource areas that will be protected from development or encouragement will be made to minimize impact on these resources.
- (b) The City reduces water quality degradation through tree preservation regulations. Ordinance 585-C, adopted April 18, 2006, requires development and construction sites to preserve existing tree cover. During the planning phase, a developer must provide a tree conservation analysis and tree conservation plan.

**Selected BMPs for Post-Construction Management in New Developments and Redevelopment**

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>5.1 Post Construction Runoff Control Ordinance</b>	<ul style="list-style-type: none"> <li>The goal of a storm water management ordinance for post-construction runoff is to limit surface runoff volumes and reduce water runoff pollutant loadings.</li> <li>An ordinance will be developed that addresses post-construction runoff controls and provide for sanctions to ensure compliance with the requirements.</li> </ul>	1. Develop a draft ordinance	Draft document produced	Year 2
		2. Finalize and implement the ordinance	Ordinance approved by council	Years 3
		3. Implement enforcement of post-construction control ordinance	Number of enforcement activities	Years 3 – 5
<b>5.2 Post-Construction Plan Review and Approval Process</b>	<ul style="list-style-type: none"> <li>Plan review includes documenting the BMPs considered at a development site and evaluating the effectiveness of the BMP to ensure that the established water quality standards are preserved after construction.</li> <li>Municipal staff will consider adoption all or portions of the NCTCOG iSWM manual for post-construction guidance and develop procedures for site plan review and approval process that includes addressing water quality issues.</li> </ul>	1. Evaluate the current plan review and approval process	Written evaluation of current process	Year 2
		2. Adopt iSWM standards for post-construction controls or develop procedures for plan review	Approve written procedures	Year 3
		3. Implement site plan review program	Number of sites reviewed meeting requirements	Years 3 – 5
<b>5.3 Post-Construction BMP Inventory and Inspection</b>	<ul style="list-style-type: none"> <li>Structural post-construction BMPs should be identified and inventoried in order to facilitate inspection of the BMP for effectiveness.</li> <li>Municipal staff will develop a strategy for identifying and creating a database for tracking and inspecting structural BMPs in the future.</li> </ul>	1. Develop written procedures for identifying and creating an inventory of post-construction BMPs	Approve written procedures	Year 3
		3. Develop a database of post-construction BMPs	Number of BMPs inventoried	Years 4 – 5

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>5.4 Encourage Low Impact Development (LID)</b>	<ul style="list-style-type: none"> <li>• LID seeks to control storm water at its source. Rather than moving storm water offsite through a conveyance system, the goal of LID is to restore the natural, pre-developed ability of an urban site to absorb storm water. By encouraging the use of low impact development, water quality may be addressed at the source.</li> <li>• The City will encourage developers to consider low impact development. Information will be disseminated to developers through developers informational meetings.</li> </ul>	1. Include information about LID during developer community information meetings at least once per year.	Number of developers attending meeting	Years 3 – 5

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## **MCM 6. Pollution Prevention/Good Housekeeping for Municipal Operations**

### **TCEQ Regulatory Requirement**

- (a) Housekeeping measures and BMPs must be identified and either continued or implemented with the goal of preventing or reducing pollutant runoff from municipal operations.
- (b) A training program must be developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program.
- (c) 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.
- (d) Waste removed from the small MS4 and waste that is collected as a result of maintenance of storm water structural controls must be properly disposed.
- (e) 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 industrial storm water regulations.

### **Current Programs**

- (a) Chemicals used during municipal operations can be a source of pollution and must be handled and disposed of properly. The City inventories chemicals at the service center annually and makes plans to properly dispose of unused or waste chemicals annually.
- (b) The City has also elected to reduce the amount of hazardous chemicals used during municipal operations. When possible, employees are encouraged to purchase and use alternative chemicals that are less hazardous or would have less of a potential to cause pollution.
- (c) The City is currently analyzing how improvements can be made to activities at the service center that may have the potential to pollute. Any future improvements to the service center will take into account best management practices and structures that would reduce the potential to impact storm water quality.

**Selected BMPs for Pollution Prevention/Good Housekeeping for Municipal Operations**

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>6.1 Storm Water Pollution Prevention Training for City Activities</b>	<ul style="list-style-type: none"> <li>Municipal employee training programs should be designed to teach staff about potential sources of storm water contamination and ways to minimize the water quality impact of municipal activities.</li> <li>Identify and present pollution prevention material for selected city activities. A training program will be developed for selected employees that includes information on preventing pollution and the effects of municipal activities on storm water quality.</li> </ul>	1. Purchase educational materials as needed and disseminate information to selected city employees.	Number of employees that receive material	Years 2 – 5
		2. Develop a training program that includes video modules from NCTCOG	Number of employees that attend training events	Years 2 – 5
<b>6.2 Audit Municipal Facilities for Environmental Management</b>	<ul style="list-style-type: none"> <li>Municipal activities include operations that can have an impact on storm water quality. Municipalities must identify those activities that have a potential to cause pollution and identify ways to eliminate that potential.</li> <li>All municipally-owned facilities will be audited to identify municipal activities and potential sources of pollution. This audit will include an inventory of BMPs currently in place and identify needs for structural and non-structural controls that will reduce storm water pollution from municipal operations. Implement BMP where a need has been identified and a BMP is applicable.</li> </ul>	1. Inventory all municipal activities and BMPs that might impact water quality	List of all known municipal activities	Year 2
		2. Identify facilities and actions that may degrade water quality and identify a need for further action, if applicable	Evaluation of facilities/activities and need for further action	Year 3
		3. Develop implementation schedule for BMPs that have been identified	Approve implementation schedule	Years 4 – 5

<b>BMP</b>	<b>BMP Rationale Statement/Description</b>	<b>Measurable Goals</b>	<b>Method of Measurement</b>	<b>Implementation Schedule</b>
<b>6.3 Disposal of Waste Removed from the MS4</b>	<ul style="list-style-type: none"> <li>• During the maintenance of the MS4 wastes are removed. Written procedures for disposal of such wastes will prevent improper disposal and inadvertent illicit discharges from municipal operations.</li> <li>• A written procedure will be developed for the disposal of waste removed from the MS4, including any dredged soil, accumulated sediments, and floatables.</li> </ul>	1. Develop written procedures for waste disposal	Approved written procedures	Year 2
<b>6.4 Street Sweeping</b>	<ul style="list-style-type: none"> <li>• Streets, roads, highways and parking lots accumulate significant amounts of pollutants that contribute to storm water pollutant runoff to surface waters. Street sweeping can improve the aesthetics of municipal roadways, control dust and decrease the accumulation of pollutants in catch basins.</li> <li>• The City will contract to have the streets swept on an as-needed basis</li> </ul>	1. Sweep city streets on as-needed basis	Amount of linear distance swept annually	Years 1 – 5