

**CITY OF CARROLLTON  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
STORM WATER MANAGEMENT PROGRAM**

## TABLE OF CONTENTS

Document Organization .....	3
-----------------------------	---

### **PART I CITY OF CARROLLTON BACKGROUND**

City of Carrollton's Background .....	5
---------------------------------------	---

### **PART II SELECTED MINIMUM CONTROL MEASURES**

1 Public Education and Outreach	
Regulatory Requirement .....	9
Current Programs .....	9
Selected BMPs Public Education and Outreach .....	9
2 Public Involvement in Storm Water Management Program Development	
Regulatory Requirement .....	23
Current Programs .....	23
Selected BMPs Public Involvement.....	24
3 Illicit Discharge Detection and Elimination	
Regulatory Requirement .....	29
Current Programs .....	30
Special Requirements.....	30
Selected BMPs Illicit Discharge Detection and Elimination .....	31
4 Pollution Prevention/Good Housekeeping for Municipal Operations	
Regulatory Requirement .....	44
Current Programs .....	45
Selected BMPs Construction Site Storm Water Controls .....	47
List of Municipal Operations Subject to the Pollution Prevention and Good Housekeeping Program.....	60
List of Municipal Owned or Operated Industrial Facilities that are Subject to TPDES Storm Water Regulations.....	60
5 Construction Site Storm Water Controls	
Regulatory Requirement.....	61
Current Programs .....	61
Selected BMPs Post Construction Storm Water Management for New Development/Redevelopment.....	62
6 Post Construction Storm Water Management for New Development/ Redevelopment	
Regulatory Requirement.....	70
Current Programs .....	70
Selected BMPs for Municipal Operations.....	71

## **Document Organization**

This Storm Water Management Program (SWMP) is organized in the following way:

Part I provides background information on the city of Carrollton. Part II addresses the six storm water pollution minimum control measures as required under the TXR040000 MS4 General Permit.

For each storm water pollution control measure, the following are discussed:

<b>Regulatory Requirement</b>	The specific regulatory requirement as it appears in the TPDES General Permit for storm water discharges from small MS4s.
<b>Selected BMPs</b>	A description of the best management practices the city of Carrollton will implement to address the regulatory requirement.
<b>Measurable Goals</b>	Measurable goals identified for each BMP.
<b>Schedule</b>	The implementation schedule for each BMP.
<b>Responsible Persons</b>	The person or position responsible for implementation of each BMP.

**PART I**  
**CITY OF CARROLLTON**  
**BACKGROUND**

## **City of Carrollton Background**

The city of Carrollton is located within the Dallas Metropolitan Area of the North Central Texas region, and occupies portions of Dallas, Denton, and Collin counties. With an approximate area of 36 square miles and a population of 120,150 according to the North Central Texas Council of Government's 2007 estimate, it has developed in a pattern from south to north (older developments in the south) (Environmental Computing Solutions, 1996).

The climate is humid subtropical with hot summers and mild winters. Average temperature varies from lows in the 20s°F in the winter to highs of over 100°F in the summer. Annual precipitation also varies considerably, ranging from less than 20" to more than 50" (National Weather Service Southern Region, 2004).

Carrollton is situated in the Blackland Prairie physiographic province of Texas, with elevations between 435-670 feet above mean sea level. The terrain is characterized by gently undulating hills and flat plains with a general surface gradient directed southwest towards the Elm Fork of the Trinity River. Predominant soils are black clay and silty clay, with slow permeability and a moderate to severe potential for erosion. When dry, black clays tend to crack to a depth of more than 30 inches. Groundwater is present in the area with shallow, perched ground water at a depth of less than 20 ft below ground surface (Environmental Computing Solutions, 1996).

Carrollton is drained by four major tributaries of the Elm Fork of the Trinity River: Indian Creek, Dudley Branch, Furneaux Creek and Hutton Branch. Most of the city is located within eight major drainage basins as defined by the US Geological Survey: Huffines Ranch, Indian Creek, Dudley Branch, Furneaux Creek, Frankford Drainage, Dallas Water Utilities, Hutton Branch and Valwood Drainage (Environmental Computing Solutions, 1996).

A complete map of the storm sewer system has not been completed at this time, but the city has 3,600 drainage outlets. Issues regarding storm water quantity and street maintenance are handled by the Departments of Engineering and Public Works. The Department of Environmental Services addresses storm water quality issues. The Departments of Building Inspection, Engineering and Environmental Services address enforcement of erosion controls at construction sites.

### **Organization**

Carrollton is a chartered home-rule city, operated by a City Council/City Manager structure. Elected officials include a Mayor and seven (7) City Council Members.

### **Legal Authority**

Carrollton currently has ordinances that address storm water quantity and quality issues but will enact an ordinance that specifically addresses the discharge of pollutants in storm water runoff.

## **Inspection and Enforcement**

Personnel in the Department of Environmental Services enforce most environmental regulations such as those addressing illicit discharges, hazardous materials spills, etc. Inspectors of the Building Inspection Department or the Department of Engineering conduct routine inspections of construction sites. Building Inspection staff also conducts inspections for compliance with Building Code. The Fire Marshall inspects for compliance with the Fire Code. Code Enforcement Officers of the Community Services Division of Environmental Services enforce illegal dumping, landscaping, residential sanitary sewer overflows, proper disposal of grass and leaves, parking lots at apartment complexes and other Health and Safety Codes.

## **Infrastructure and Municipal Operations**

The Public Works Department handles the maintenance of streets, sanitary sewers and water lines, as well as storm sewer pipes and channels. Sanitary and water lines are currently mapped through a GIS system. The storm sewer system is in the process of being mapped and updated. Completion of a storm sewer map will be accomplished during the first permit term.

## **Program Funding**

Carrollton will use monies from the General Fund and the Water & Sewer Operating Fund to finance activities for the Storm water Management Program. During the first permit term, the city may research other options for additional funding.

## **REFERENCES:**

National Weather Service web page, May 2004:

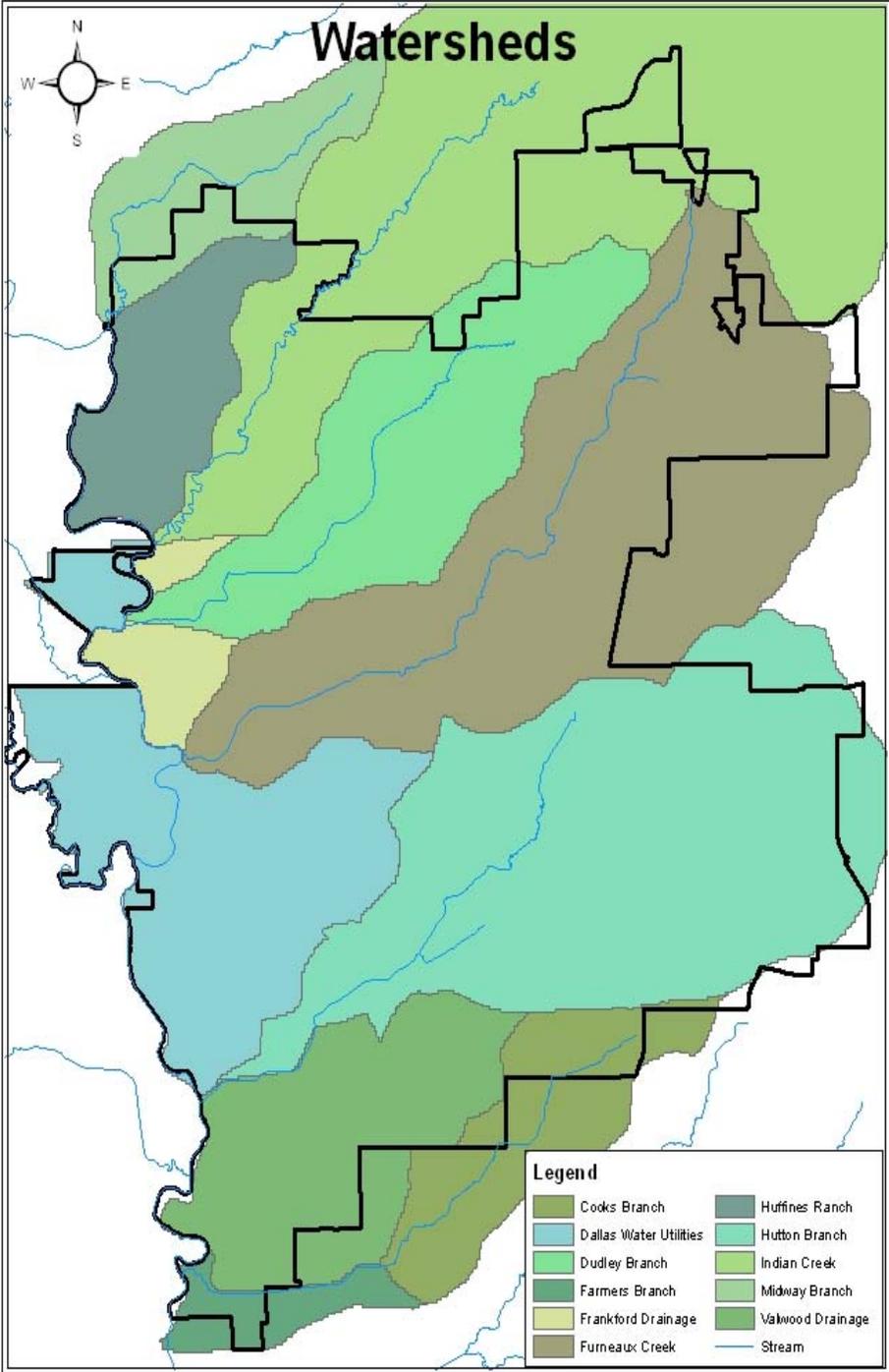
<http://www.srh.noaa.gov/fwd/CLIMO/dfw/annual/dnarritive.html>

Environmental Computing Solutions. December 1996. Watershed Prioritization Strategy and Database Development for the city of Carrollton, Texas. Final Report.

## **Special Provisions**

In the event that the city of Carrollton experiences a disaster, natural or man made, such as a flood or a tornado that disables the city, the implementation of the storm water management plan will be suspended. Once the city has recovered from the disaster, implementation of this plan will be resumed.

# CARROLTON TEXAS



**PART II**  
**CITY OF CARROLLTON**  
**STORM WATER POLLUTION**  
**CONTROL MEASURES**

## **1. Public Education and Outreach**

### **1.1 Regulatory Requirement**

**The city of Carrollton will:**

**(a) Develop and implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities that will be used to inform the following groups within the MS4 area:**

- (1) residents;**
- (2) visitors;**
- (3) public service employees;**
- (4) businesses;**
- (5) commercial and industrial facilities; and**
- (6) construction site personnel.**

**The outreach must inform the public about the impacts that storm water runoff can have on water quality, hazards associated with illegal discharges and improper disposal of wastes, and steps that they can take to reduce pollutants in storm water runoff.**

**(b) Document activities conducted and materials used to fulfill this control measure. Documentation shall be detailed enough to demonstrate the amount of resources used to address each group. This documentation shall be retained in the annual reports required in Part IV.B2 of this general permit.**

### **1.2 Current Programs**

The city of Carrollton provides general public education to residents by several means of communications including the internet, local cable channels, brochures, and utility bill inserts. A web site dedicated to the storm water program is located at the following URL and is updated periodically to ensure the information is current. ([www.cityofcarrollton.com/envservices/EnvQuality/Storm%20Water/swmhome.asp](http://www.cityofcarrollton.com/envservices/EnvQuality/Storm%20Water/swmhome.asp)).

The city also makes presentations at public events on water conservation and pollution prevention. With the help of volunteers, approximately 3000 storm drain inlets have been marked with a plastic disk that displays a pollution prevention message. This storm drain marking campaign is a regional effort coordinated by the North Central Texas Council of Governments.

### **1.3 Selected BMPs for Public Education and Outreach**

- 1.3.1 Storm Water Reading Materials
- 1.3.2 Public Presentations
- 1.3.3 Promotional Items
- 1.3.4 Annual "March is Texas SmartScape™ Month
- 1.3.5 Environmental Education for Commercial and Industrial Facilities

- 1.3.6 Environmental Education for Construction Site Personnel
- 1.3.7 Storm Drain Marking
- 1.3.8 Storm Water and Pollution Prevention Videos and Public Service Announcements
- 1.3.9 TCEQ FOG Initiative
- 1.3.10 Household Hazardous Waste Site
- 1.3.11 Pet Waste Education
- 1.3.12 Environmental Services websites
- 1.3.13 Electronic Newsletter for City Employees
- 1.3.14 Environmental Educational School Kit

#### 1.3.1 BMP1 Storm Water Reading Materials

The city will distribute different types of educational reading material that will include brochures, posters, news briefs and notice letters. The city currently has many different types of brochures, posters and notice letters that they distribute at city facilities, public presentations and events and will continue to do so during the first permit term.

In preparation for their Phase II Storm Water permit, the city of Carrollton produced and printed two brochures on storm water issues. One of the brochures (Storm Water Management: Changes and Challenges in Carrollton) explains the Phase II requirements and the storm water management plan. This brochure intends to elicit the support of the community for the implementation of the storm water management plan. Public support and participation are indispensable for the success of a plan to reduce pollutants in storm water. The distribution of this brochure has two goals: to facilitate support and cooperation from the community and to recruit citizens who are willing to volunteer their time and expertise to the various programs that will be part of the storm water plan. The brochures will be made available to the public in the city's offices, and will also be distributed at public events and personal contacts during field investigations. They will also be mailed to selected individuals and groups.

The second brochure produced by the city (Storm Water Pollution: Keeping Our Creeks Clean Starts With You) contains information on sources of storm water pollution and tips on actions that citizens can take to minimize water pollution. The purpose of this brochure is to educate the average citizen on steps they can take, as individuals, to protect water resources.

The city also has educational brochures and posters on other specific topics, including: Illegal Dumping, Watersheds (3), Non-point Source Pollution (3), Texas Clean Rivers Program, Fat Free Sewers, Buy Recycled, Cool Energy and Develop Naturally. Many of these brochures are provided in both English and Spanish. The city may also add or replace brochures and posters to keep the message fresh and topical.

The city also mails letters addressing common violations that could affect storm water to every apartment manager yearly. The letters are provided prior to the yearly inspections. The city will place news briefs in the local paper and put mailers in utility bills at different times of the year to educate the public on current or relevant topics. The topics could include proper disposal or use of yard waste, disposal of household hazardous chemicals, or proper ways to drain a pool.

Justification

Brochures, posters, news briefs and notice letters can be a convenient way to convey a relatively long message to citizens. Because they can take the brochure with them, citizens can read the information at their leisure, and keep the brochure as a reminder. In deciding the information to be included in the city produced brochures, the city determined that providing information on the overall storm water plan would explain to the community the efforts by the city to protect water quality, and would foster public cooperation and involvement. The city chose to print a brochure with practical pollution prevention tips to encourage citizens to take specific steps to reduce pollutants in storm water. The other brochures and posters have been obtained through organizations and agencies such as North Central Texas Council of Governments, Water Environment Federation and the Texas Commission on Environmental Quality.

By placing news briefs in the local paper or mailers in utility bills, the city can reach those individuals that may not attend public events or visit many city buildings. The papers and mailers are delivered to residents and businesses, where they can read the articles at their leisure.

A notice letter is sent to apartment complex managers as a way of educating them on storm water related violations. By sending this every year, the city can educate new managers and current managers on the violations that may have a storm water impact.

Measurable Goals

The measurable goal for implementation of this BMP is to distribute 200 brochures during each year of the first permit term. Brochures will be placed at all city facilities. News briefs will be placed in the local paper or mailers will be sent out twice a year, starting with the second year of the permit term. Notice letters will continue to be sent to all apartment complexes currently in the database every year. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Water Brochures	1. Distribute copies of brochures to all display racks at city buildings and at all public events and presentations.	1-5	Environmental Services and Marketing
	2. News briefs in local paper or mailers/utility bill inserts twice a year	2-5	
	3. Continue to update and distribute the storm water letters to all apartment managers currently in the database.	0	

Responsible Persons

The Directors of Environmental Services and Marketing are responsible for the implementation of BMP1.

### 1.3.2 BMP2 Public Presentations

The city of Carrollton will conduct public presentations on storm water issues targeted to different sectors of the community. The presentations will take place during special events such as creek clean ups, in classrooms, and in meetings with businesses and other sectors of the community. Presentations may include a visual display of graphic information, hands on activities for school children, seminar-style presentations for businesses, etc.

At least four presentations a year will be conducted, with some of the options for these presentations being:

- Presentation to local industries in cooperation with the Industrial Pretreatment Program,
- Presentations to neighborhood associations, the government academy, and citizen patrol through the Police Department,
- Presentations to construction operators in cooperation with the Department of Building Inspection,
- Presentations to children through the Departments of Library Services and Parks and Recreation,
- Presentations to the general public during community events such as the Nature Fest, and
- Presentations to schools and youth group associations.

#### Justification

Public presentations are an opportunity to provide specifically tailored information to interested audiences. They also provide an opportunity for direct contact with the public, and establish an interactive relationship between the audience and city staff. By including a Questions & Answers session, city staff can explain complex technical issues and policies, or address issues of particular concern to the audience. Public presentations can also be adapted to the different audiences such as playing fun, educational games with kids, providing industry-specific pollution prevention information for businesses, and explaining legal requirements to permit holders.

#### Measurable Goals

The measurable goal for implementation of BMP2 is to conduct four presentations per year, starting with the first permit year. Development and implementation will be according to the schedule below.

#### Schedule

BMP	Activity	Year Due	Responsible Department
Public Presentations	1. Four presentations per year	1-5	Environmental Services
	2. Implementation Complete	5	

#### Responsible Persons

The Director of Environmental Services is responsible for the implementation of BMP2.

### 1.3.3 BMP3 Promotional Items

The city of Carrollton will distribute promotional items each year to the public. The promotional items will have a pollution prevention message. Promotional items or giveaways are a valuable tool in sending a message to the public, since they are highly desirable due to their usefulness and/or attractive presentation. The city has an assortment of items such as letter openers, crayons, pencils, and magnets with a variety of messages promoting environmental protection. Although a very effective tool, promotional items tend to be expensive and because of that, the number of items to be distributed is limited. The items will be distributed at public events, at school visits, and as recognition to volunteers.

Justification

Promotional items are a good means for public education because their “free of charge” nature tends to appeal to the public who will voluntarily pick them up. The item’s usefulness will increase its appeal to the public and its effectiveness. Items of every day use, such as magnets, letter openers, etc., serve as a daily reminder of pollution prevention issues. Items suitable for children are an excellent means of encouraging environmental responsibility at a young age. Promotional items will hopefully be continuously updated depending on monies allocated.

Measurable Goals

The measurable goal for implementation of BMP3 is to distribute at least 1000 promotional items by the end of the first permit term. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Distribution of Promotional Items	1. Distribute 200 promotional items per year	1-5	Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP3.

1.3.4 BMP4 Annual “March is Texas SmartScape™ Month

The city of Carrollton will participate in the regional “March is Texas SmartScape™ Month” Campaign, a Storm Water Management Program Regionally Developed Initiative (RDI) that encourages landscaping with native and adapted species that have low water requirements and need little or no fertilizers or pesticides. By using SmartScape principles, citizens can assist in water conservation and pollution prevention by reducing the amount of fertilizers and pesticides discharged in runoff. March has been selected as the month to promote the Texas SmartScape™ principles of pollution prevention through reduced pesticide and fertilizer use, water conservation, mulching, composting, and yard waste reduction. Each March the city will determine the level of participation, based on available resources, and provide the information to NCTCOG. NCTCOG will send a press release to region-wide media outlets to promote all participating MS4s, and to demonstrate to citizens that the region is working together to

improve and protect local water resources. This BMP is targeted to residents, nursery and landscape businesses, and public service employees and has the added benefit of reaching out to visitors through greater regional exposure. This public education BMP may also serve as a public involvement BMP.

Justification

Texas SmartScape™ is a RDI coordinated by the North Central Texas Council of Governments. The program addresses three very important environmental issues in Texas, water conservation, pesticide use, and fertilizer use. In addition, Texas SmartScape™ provides an excellent opportunity for cooperation at the watershed and regional level.

Measurable Goals

The measurable goal for implementation of BMP4 is to participate in the Regional Storm Water Management Program to develop and support the annual “March is Texas SmartScape™ Month” in North Central Texas. At least one community outreach event will be conducted annually in our jurisdiction that communicates the SmartScape™ theme.

Schedule

BMP	Activity	Year Due	Responsible Department
Texas SmartScape	1. Determine a level of participation in the regional “March is Texas SmartScape™ Month” program based on available resources, and select an outreach activity to conduct. Complete coordination with NCTCOG annually in February and conduct the selected activity (ies) annually in March. Repeat each year	0-5	Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for conducting annual activities to participate in the “March is Texas SmartScape™ Month” regional campaign.

1.3.5 BMP5 Environmental Education for Commercial and Industrial Facilities

The city of Carrollton will prepare articles, focused on specific pollution prevention issues for commercial and industrial facilities. Articles will be electronically distributed to facilities in the city and will be accessible from the Environmental Services Storm Water web page.

Justification

Industries and businesses are an important component of our community to educate about their impacts on storm water pollution. Commercial and industrial activities with poor pollution prevention practices can be significant contributors of pollutants such as detergents, hydrocarbons, heavy metals and trash, to the city’s MS4. Therefore, it is important to specifically address these activities in an outreach campaign.

Measurable Goals

The measurable goal for implementation of BMP5 is to develop pertinent information on pollution prevention for commercial and industrial facilities. This information will be electronically distributed and posted on our web site. The city will also evaluate opportunities for cooperation with trade associations and the city Chamber of Commerce. City staff will be available for presentations to commercial and industrial facilities upon request. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Environmental Education for Commercial and Industrial Facilities	1. Develop educational items for distribution related to pollution prevention for industrial and commercial facilities.	1	Environmental Services
	2. Distribute information to facilities. Update as needed	1-5	
	3. Hold annual industry meeting	2-5	
	4. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP5.

1.3.6 BMP6 Environmental Education for Construction Site Personnel

The city of Carrollton has prepared an information package for construction site operators. The package is distributed to all individuals applying for a construction or grading permit with the city.

Justification

Sediment from construction sites has been identified as one of the major pollutants of surface water across the nation. In addition, storm water discharges from construction sites have been found to contain organic pollutants, heavy metals, and floatables. Under the Phase II regulations, any construction activity that will disturb one or more acres of land, or that it is part of a development that will disturb one or more acres of land, is required to comply with the conditions of the TPDES storm water permit for construction activities. Construction sites in the above category, must also apply for a city permit before any construction takes place. Because all operators must contact the city for the permit, this presents a good opportunity to provide the operators with pertinent information regarding pollution prevention for construction activities, and the permit requirements of the TCEQ.

Measurable Goals

A package will be developed with information on legal requirements for construction operators and with pollution prevention information for this activity. The package will be

distributed to permit applicants together with all other city requirements for a grading or building permit.

Schedule

BMP	Activity	Year Due	Responsible Department
Environmental Education for Construction Site Personnel	1. Distribute information packet to 100% applicants for a grading or building permit.	0-5	Building Inspection, Engineering and Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for preparation of the information package. The city’s Building Official and the Director of Engineering will be responsible for distribution of the package to new applicants.

1.3.7 BMP7 Storm Drain Marking

The city of Carrollton will continue to implement a storm drain marking and replacement marking program. Since 2000, the city has participated in a regional initiative to mark storm drains with plastic discs that display a “no dumping - drains to creek” message. This is another RDI coordinated by the North Central Texas Council of Governments. Since 2000, over 3000 markers have been placed in Carrollton, in both English and Spanish. Youth groups such as Boy and Girl Scouts, as well as concerned citizens and Home Owner Associations have participated. The city will begin to replace markers as the discs deteriorate.

Justification

Storm drain marking or labeling is an effective means to remind the community that pollutants discharged to storm drains end up in the nearest creek or river. An additional benefit is that by allowing volunteers to place the markers, the city provides opportunities for public involvement and participation and fosters a sense of ownership among the residents. By joining a regional initiative, the city established partnerships that went beyond the traditional jurisdictional limits and reached out to other watersheds, bringing the message regarding storm drains to a larger number of people.

Measurable Goals

The measurable goal for implementation of BMP7 is to place or replace 500 storm drain markers within the first permit term. To place the markers, the city will encourage volunteer participation, particularly from youth groups. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Drain Marking	1. Placement or replacement of 100 markers per year	1-5	Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP7.

1.3.8 BMP8 Storm Water and Pollution Prevention Videos and Public Service Announcements

The city of Carrollton will prepare a collection of storm water-related videos and public service announcements for public exhibition. Presently, the city has several videos available. One video was prepared in cooperation with the North Central Texas Council of Government, discussing the storm water program. The city has three public service announcements that target specific practices such as disposal of yard waste and painting, and will purchase additional topics through the permit year. The city also purchased an animated video directed towards young children. The videos and public service announcements will be transmitted on public access channels of the local cable providers and displayed at various city-owned facilities at kiosks set up in locations accessible to the public.

Justification

Videos, although expensive, are an effective means to distribute information and to secure public interest in storm water issues. In 2000, the city made a significant investment in the preparation of a video, targeting an adult audience, that explains the Phase II regulations and permit requirements. To foster support for the Storm water Management Program within the community, the city will continue to request showing this video on the public access channels of the local cable providers, and in kiosks throughout the city during the first permit year. Due to budgetary constraints, the city does not plan to produce additional videos. However, the city will continue to look for opportunities for exhibition of the videos already available and possible acquisition of new ones, such as the Fort Worth video and the public service announcements. Animated characters are very effective in relating messages to young audiences.

Measurable Goals

The measurable goal for implementation of BMP8 is to make storm water videos available to the community. The city will also evaluate the acquisition of new videos to prepare a video library available to residents, or to use them as tools to enhance public presentations. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Water and Pollution Prevention Videos	1. Continue broadcast of Storm Water Management video on local cable public access channel	2-5	Environmental Services and Marketing
	2. Evaluate acquisition of other videos, incorporate to video library if appropriate	1-5	
	3. Prepare library of videos. Include information on web site and possibly provide copies of videos to libraries	2-5	
	4. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for preparation of video library and making videos available to the community. The Director of Marketing Services is responsible for requesting broadcast of the video on cable access channel.

1.3.9 BMP9 TCEQ FOG Initiative

Fats, oils and grease are a contributing factor to many sanitary sewer overflows, which can have a negative impact on storm water. In an agreement with the Texas Commission on Environmental Quality, the city must educate the public on grease control. As stated in this agreement, restaurants will be inspected and the TCEQ posters will be distributed annually. The posters will be required to be posted in restaurants. Also once a year, grease control informational brochures must be distributed to all multifamily complexes and industries. Grease control information will be sent to residents, businesses and employees in the water bills and/or in the city's newsletter. On the city's website, grease control information will also be provided.

Justification

Brochures, posters, websites, water bill inserts are a great way to provide information to all restaurant employees, apartment complex managers and tenants, residents and businesses. The TCEQ posters are laminated so the restaurants can display them in the kitchen area. The posters are printed in both English and Spanish.

Measurable Goals

The measurable goal for implementation of BMP9 is to distribute at least one poster to all new and existing restaurants currently in the database, posters will be given in both languages as needed. After the initial distribution, restaurants will be required to display the posters. Posters will be redistributed as needed. Inspections will be performed yearly for the posters being displayed. Posters will be distributed at least once a year to every manager of an apartment complex currently in the database. Pamphlets will be distributed to each unit in multifamily complexes and distributed to industries. Three times a year water bill inserts and or the city newsletter will contain grease control information. The city website will be available every day of the year. Grease posters are already being distributed and will continue throughout the permit term. Every year three presentations will be given related to FOG, water conservation or other relevant topics.

Schedule

BMP	Activity	Year Due	Responsible Department
TCEQ FOG Initiative	1. Distribute one to every new and existing restaurant currently in database listed as having a grease trap	1-5	Environmental Services
	2. Distribute one to every manager of an apartment complex currently in the database at least once every year.	1-5	Environmental Services
	3. Routine inspections for posters displayed and redistribute posters as needed for every restaurant currently in database	1-5	Environmental Services
	4. Distribute grease control information to tenants in multifamily complexes yearly	1-5	Public Works
	5. Distribute grease control information to industries yearly	1-5	Public Works
	6. Grease control information provided in water bills and/or in the city newsletter three times a year	2-5	Public Works
	7. Information posted on the city website	1-5	Public Works
	8. Three Presentations per year	1-5	Public Works
	9. Implementation complete	5	

Responsible Persons

The Directors of Public Works and Environmental Services have the responsibility for the implementation of BMP 9.

1.3.10 BMP10 Household Hazardous Waste Site

The city of Carrollton will develop and distribute one mailer yearly with information on the household hazardous waste site and storm water or pollution prevention issues that will be mailed to every resident. The city will develop and maintain a Household Hazardous Waste information topic on the website. The website will be available every day of the year. The city will also develop a call scripted sheet for employees to use when citizens call regarding disposal and use of toxic items.

Justification

A mailer or a water bill insert and posting the information on the Environmental Services web page is a great way to reach the largest number of residents with information about the household hazardous waste collection site. Having a scripted call sheet to answer questions about what to do with empty containers, partial containers or use will ensure that employees are providing correct information to the public.

Measurable Goals

The measurable goal for the implementation of BMP10 is to develop a mailer or water bill insert on the household hazardous waste site and post the information on our website. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Household Hazardous Waste Collection Center	1. Develop one mailer or water bill insert per year	1	Environmental Services and Marketing
	2. Develop call sheet to respond to citizens' request for information.	1	
	3. Distribute mailer or water bill insert yearly	2-5	
	4. Post information on the web page for every day of the year	1-5	

Responsible Persons

The Directors of Environmental Services and Marketing are responsible for implementing BMP10.

1.3.11 BMP11 Pet Waste Education

The city of Carrollton will develop brochures, bookmarks or other effective tools to distribute to pet owners and the community about the importance of cleaning up after their pets. BMP11 will compliment the section on Pest Waste Management in the section on Illicit Discharge and Elimination. All city parks and most greenbelt areas have signs that say “pick up after your pet” along with the city ordinance. These signs will be maintained and replaced as needed.

Justification

As with BMP1, brochures, bookmarks, handout materials and signs are a convenient way to convey information to citizens.

Measurable Goals

The measurable goal for this BMP is to distribute the brochures, bookmarks or other items to every person who adopts or reclaims an animal from the Animal Shelter. Items will also be given out at presentations and public events. Signs in parks will be maintained as needed.

Schedule

BMP	Activity	Year Due	Responsible Department
Pet Waste Education	1. Develop brochures, bookmarks, or other effective tools, including posting information on the web page.	1	Environmental Services
	2. Distribute to all residents adopting or reclaiming a pet, at presentations, and public events.	2-5	Environmental Services
	3. Maintain signs in parks and greenbelts as needed	0	Parks
	4. Implementation Complete	5	

Responsible Persons

The Directors of Environmental Services and Parks and Recreation have the responsibility for implementing of BMP11.

1.3.12 BMP12 Environmental Services Website

The city of Carrollton currently has an Environmental Services website that contains information on Animal Services, Code Enforcement, Food Safety, Industrial Pretreatment, Pollution Prevention and Storm Water. The website is accessible every day of the year to citizens, industries, businesses, and visitors. Each department will add to their sites, brochures and other information that is important to storm water issues.

Justification

The Environmental Services Website will be able to reach the greatest number of people (including visitors, residents and businesses) with minimal effort. Once we get brochures and other informational items designed we will add those to the website for people to view or download. The website can be updated immediately with the most current information.

Measurable Goals

Having the website available every day of the year is the measurable goal for BMP12.

Schedule

BMP	Activity	Year Due	Responsible Department
Environmental Services Web Page	1. Update the information on the web page	1	Environmental Services
	2. Add additional information as it becomes available.	1-5	Environmental Services

Responsible Persons

The Director of Environmental Services has the responsibility for implementation of BMP12.

1.3.13 BMP13 Electronic Newsletter for City Employees

The city of Carrollton will develop two annual pieces of information on storm water issues and/or pollution prevention to be distributed as an electronic email to city employees. Newsletters will also be posted by each department for employees without access to email.

Justification

Through environmental newsletters, public employees will be encouraged to change behaviors, both at work and at home, that can have an impact on storm water quality. Although employees working in high risk areas, such as vehicle repair and maintenance, will receive specifically tailored training in pollution prevention, employees working in other areas can also have an impact on storm water pollution. For example, the newsletter

can inform employees of the steps to be taken if they discover an oil leak in their assigned city vehicle.

Measurable Goals

The measurable goal for implementation of BMP13 is to prepare and distribute to city employees two (2) electronic newsletters a year, starting with the second permit year. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Electronic Newsletter for City Employees	1. Distribution of two electronic newsletters per year	2-5	Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for preparation and electronic distribution of newsletter. Each department Director is responsible for posting the newsletter to provide access to employees with no email.

1.3.14 BMP14 Environmental Educational Bags

The city of Carrollton will prepare educational bags with a variety of materials that could be used by teachers. The bags will include materials and lessons and/or experiments. The bags will be made available at presentations and public events.

Justification

An environmental education bag for schools is an inexpensive way of carrying the pollution prevention message to our children. According to experts, by starting the education process early in life, the likelihood of influencing the community to induce permanent changes in behavior is increased. Furthermore, the U.S.EPA guidelines recommend public education efforts targeting children. Also, by making the bags available to teachers at no cost, the city encourages partnerships with our community.

Measurable Goals

The measurable goal for implementation of BMP14 is to prepare at least one Environmental Education bags available to teachers in schools. Once a year, the lessons and or experiments will be reviewed, and additions or changes will be made. Written material will be posted on the web site for teachers to be able to download. An evaluation form will be given to the teacher to assess the usefulness of bag. Used materials will be replaced as needed, pending available funding. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
1.3.14 Environmental Education School Kit	1. Design bags and selection of materials to be included	1	Environmental Services
	2. Distribute bags at events and or presentations	2	
	3. Review and update bags as needed	2-5	
	4. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP14.

**2. Public Involvement in Storm water Management Program Development**

***2.1 Regulatory Requirement***

**The city of Carrollton will:**

- (a) Comply with any State and local public notice requirements when implementing the public involvement/participation portion of the Storm water Management Program (SWMP).**
- (b) Develop the program to include opportunities for a wide variety of constituents within the MS4 to participate in the SWMP development and implementation.**
- (c) Document efforts to ensure that sufficient opportunities were allotted to involve all constituents interested in participating in the program process.**

***2.2 Current Programs***

Public participation can add important benefits to the program. First, a community actively involved in the development and implementation of the plan is more likely to adopt behavioral changes that will ultimately reduce the amount of pollutants in the storm drainage system. Prevention of pollution is more cost-effective than treatment to remove pollutants from runoff. Second, volunteer citizens can perform tasks that could not otherwise be conducted by the city due to limitations in staff and budget.

Currently, the city of Carrollton receives citizen input in environmental issues through the Neighborhood Advisory Committee. Additional opportunities for volunteer participation are creek clean up events and the city's storm drain marking program. Since 2000, volunteers have placed over 3000 plastic markers on storm inlets.

The city also has a phone line to report illicit discharges and other environmental complaints, including storm water violations, and a contact email on the published on the

website for all web visitors to access. Environmental Services staff is contacted to respond to such complaints as necessary.

***2.3 Selected BMPs for Public Involvement***

- 2.3.1 Comply with State and Local Public Notice Requirements
- 2.3.2 Public Meetings
- 2.3.3 Storm Drain Marking
- 2.3.4 Illicit Discharge Reporting Line
- 2.3.5 Volunteer Creek Cleanup
- 2.3.6 Citizens Advisory Committee

2.3.1 BMP1 Comply with State and Local Public Notice Requirements

The city of Carrollton does, and will continue to comply with state and local public notice requirements when implementing the public involvement/participation component of this program. A notice describing any item to be decided by the City Council will be published in the local newspaper seventy- two (72) hours before schedule for discussion by Council. After approval of the Storm Water Ordinance by Council, sections of the ordinance that specify penalties will be published once in a newspaper with local circulation. In addition, the city will comply with the public notice requirements stipulated in the permit.

Justification

Public notices allow the city to inform the community of changes in policies, operations, and/or ordinances that will have a direct impact on the citizens.

Measurable Goals

The measurable goal for implementation of this BMP is to provide state and local required public notice in the process of adopting a Storm Water Pollution Control Ordinance. As well as provide notice as stipulated in the permit. Implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Public Notice	1. Publish notice of TCEQ determination on NOI and SWMP	1-2	Environmental Services
	2. Publish notice of Public Meeting if determined to be necessary by TCEQ	1-2	
	3. Include Ordinance proposal in Council Agenda and publish notice	2	
	4. Publication in newspaper of passing of new Storm Water Ordinance	2	
	5. Implementation Complete	2	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP1.

### 2.3.2 BMP2 Public Meetings

The city of Carrollton will hold one public meeting at the beginning of the permit term to introduce the SWMP and request input from the community. The city will also hold one public meeting every subsequent year of permit to evaluate the SWMP.

#### Justification

Public meetings are an excellent way to interact with citizens about storm water issues and encourage citizen participation and support for the proposed storm water management plan. Citizen “buy in” is imperative if the goal of changing behaviors that impact storm water quality is to be realized. Interactive discussions on key issues that concern the public can help focus the city’s attention on issues the public sees as priorities as well as provide an opportunity for the city to communicate its priorities.

#### Measurable Goals

The measurable goal for implementation of BMP2 is to conduct one introductory public meeting in the first permit year, and one public meeting for evaluation and update of the program at the end of the first permit term. Development and implementation will be according to the schedule below.

#### Schedule

BMP	Activity	Year Due	Responsible Department
Public Meetings	1. Public meeting to introduce SWMP	1	Environmental Services
	2. A public meeting to update/evaluate SWMP for the next permit term.	5	
	3. Implementation Complete	5	

#### Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP2.

### 2.3.3 BMP3 Storm Drain Marking

This BMP has been discussed in the previous section on the Public Education Minimum Control Measure, as BMP1.3.9. Measurable goals and schedule are described there.

### 2.3.4 BMP4 Illicit Discharge Reporting Line

The city of Carrollton will maintain the present departmental reporting line (972-466-3060) for citizens who wish to report storm water quality problems. A call center receives the calls Monday through Friday from 7 am to 7 pm. Calls regarding hazardous materials spills or releases are forwarded to Environmental Services personnel to address any cleanup or enforcement requirements. After hours callers are given the option to leave a message to be received on the next business day, or dial the non emergency number for Police dispatch (972-466-3333), which is answered 24 hours a day, 7 days a week. For after hour calls reporting an illicit discharge or spill, Police dispatch personnel contact the designated on-call spill response staff member. On-call, spill response personnel are

Environmental Services staff members on after-hours duty (on call duty) on a rotational basis. All qualified members of the staff can address calls received during regular business hours. The departmental reporting line is promoted through our web site, and with promotional items that are distributed to the public free of charge. Reporting is also available through email provided in the Environmental Quality webpage.

In addition to storm water quality problems, the departmental line receives complaints on illegal dumping, pretreatment violations, and miscellaneous complaints regarding health and safety.

Justification

Community “hotlines” provide a means for the public to report water quality problems that would otherwise go unnoticed by municipalities. By quickly responding to reports of illicit discharges and/or spills, the environmental impact of such incidents can be minimized.

Measurable Goals

The measurable goal for implementation of BMP4 is to maintain the present hotline (or an equivalent number), and the present response policy in place for the first permit term. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Illicit Discharge Reporting Line	1. Implementation of reporting line and response policy in place.	0	Environmental Services
	2. Implementation Complete	0	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP4.

2.3.5 BMP5 Volunteer Creek and Greenbelt Cleanup, Recycling and Chemical Collection

The city will organize or participate in one annual volunteer creek cleanup event or recycling day. The city will actively encourage the participation of youth groups, church groups, and neighborhood associations in this effort. Events and participants could include:

- Carrollton Cares Day
- Trinity River Clean Up (partnership with the city)
- Dallas Down River (partnership with the city)
- Texas Recycles
- Partnerships with Green Teams in local schools
- Partnership with TEAM ME USA
- Chemical Collection Day

Justification

Stream cleanups are an effective way of improving water quality, and increasing public awareness of pollutant sources and fates. Furthermore, by taking an acting role, citizens

develop a sense of responsibility for protecting their water resources, and become more involved with their community.

Measurable Goals

The measurable goal for implementation of BMP5 is to conduct one annual volunteer creek cleanup event. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Volunteer Creek Clean-up	1. One annual creek clean up with volunteers	1-5	Environmental Services and
	2. Implementation Complete	5	Parks and Recreation

Responsible Persons

The Directors of Parks and Recreation and Environmental Services have the responsibility for the implementation of BMP5.

2.3.6 BMP6 Citizens Advisory Committee

The city of Carrollton will solicit citizen’s input to the SWMP through a Citizens Advisory Committee. The city may use the presently existing advisory committees, or create a new Storm Water Citizen Advisory Committee, depending upon interest from the public and resource limitations.

Justification

A citizen advisory committee can provide important citizen input while minimizing friction and controversy frequently present in larger groups. By limiting the number of participants, the amount of time spent in discussing issues is reduced, and specific tasks can be accomplished more efficiently. Furthermore, citizens volunteering for advisory committees usually are interested in the issues and are willing to make the time commitment necessary to assist the city. Advisory Committees are also good avenues to take advantage of valuable expertise in the community.

Measurable Goals

The measurable goal for implementation of BMP6 is to form or identify a Citizen Advisory Committee and conduct at least one annual meeting to evaluate implementation of the SWMP and solicit advice in changes as necessary. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Citizen Advisory Committee	1. Form/Identify Citizen Advisory Committee	1-2	Environmental Services
	2. Annual meetings with Citizen Advisory Committee.	3-5	
	3. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP6.

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

#### ***3.1 Regulatory Requirement***

**The city of Carrollton will:**

**(a) Develop a program to detect and eliminate illicit discharges to the MS4. The city will include the manner and process to be used to effectively prohibit illicit discharges. To the extent allowable under state and local law, an ordinance or other regulatory mechanism will be utilized to prohibit and eliminate illicit discharges. Elements will include:**

- (1) Detection – the SWMP will list the techniques used for detecting illicit discharges**
- (2) Elimination – The SWMP will include appropriate actions and, to the extent allowable under state and local law, establish enforcement procedures for removing the source of an illicit discharge.**

**(b) Incorporate the allowable non-storm water flows listed in Part II.B and Part VI.B as not being an illicit discharge requiring elimination unless the operator of the small MS4 or the executive director identifies the flow as a significant source of pollutants to the small MS4. In lieu of considering non-storm water sources on a case-by-case basis, the MS4 operator may develop a list of common and incidental non-storm water discharges that will not be addressed as illicit discharges requiring elimination. If developed, the listed sources must not be reasonably expected to be significant sources of pollutants either because of the nature of the discharge or the conditions that are established by the MS4 operator prior to accepting the discharge to the small MS4. If this list is developed, then all local controls and conditions established for these listed discharges must be described in the SWMP and any changes to the SWMP must be included in the annual report described in part IV.B.2 of this general permit, and must meet the requirements of Part II.D.3. of the general permit.**

**(c) Develop a map of the storm sewer system.**

- (1) The map of the storm sewer system will be developed and will include the following:**
  - (i) the location of all outfalls;**
  - (ii) the names and locations of all waters of the U.S. that receive discharges from the outfalls; and**
  - (iii) any additional information necessary to implement the SWMP.**
- (2) The city will include in the SWMP the source of information used to develop the storm sewer map, including how the**

**outfalls are verified and how the map will be regularly updated.**

### ***3.2 Current Programs***

The city of Carrollton is working on completing a map of its storm sewer system, in a GIS-compatible format. The map will include underground infrastructure, outfalls, inlets, and open channels and ditches. Several city ordinances have been used in the past to control illicit discharges to the storm sewer system. However, consolidation of these provisions, and additional prohibitions, into a single storm water protection ordinance is expected.

The Department of Environmental Services administers the Pretreatment program and conducts periodic inspections of those facilities that have limitations on their effluent discharges to the POTW, and monitor compliance with provisions established in 40 CFR Part 403. Similarly, the department administers the Liquid Waste program to ensure proper maintenance of grease/grit traps and proper disposal of recovered liquid wastes, in compliance with 30 TAC Chap.312 (Sludge Use Disposal and Transportation) and 40 CFR Sec. 256 and 257.

The Department of Environmental Services investigates complaints of illicit discharges and spills, and coordinates site clean up operations or other remediation actions needed. Citizens can call the City at any time of the day to report a spill, and the department has a 24-hr spill response team formed by staff on a rotational basis. The department also investigates and enforces ordinances concerning illegal dumping, trash and debris, and pet waste. The Fire Department also assists with spills.

The city has maintenance programs for sewer infrastructure owned by the city. Segments of sanitary sewers are prioritized for inspection and repair/maintenance work. Storm water inlets are also inspected based on priority areas. Both these maintenance programs are administered by the Department of Public Works. Parks and Recreation maintains and cleans open channels and drainage ditches located on public property.

All new construction must undergo a site plan review and field verification by city inspectors, including video inspection of storm drain piping, to avoid illicit connections to the storm sewer system.

### ***3.3 Special Requirements***

#### **3.3.1 Non-Storm Water Discharges**

The following non-storm water sources may be discharged from the MS4 and have been determined not to be a significant contributor of pollutants to the MS4:

- a) water line flushing (excluding discharges of hyperchlorinated water, unless first dechlorinated and discharges are not expected to adversely affect aquatic life);
- b) runoff or return flow from landscape irrigation, lawn irrigation, and other irrigation utilizing potable water, groundwater, or surface water sources;

- 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 conditioning condensation;
- j) water from crawl space pumps;
- k) individual residential vehicle washing;
- l) flows from wetlands and riparian habitats;
  
- m) street wash water;
- n) discharges or flows from emergency fire fighting activities (fire fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, and similar activities);
- o) other allowable non-storm water discharges listed in 40 CFR §122.26(d)(2)(iv)(B)(1);
- p) non-storm water discharges that are specifically listed in the TPDES Multi Sector General Permit (MSGP) or the TPDES Construction General Permit (CGP); and
- q) other similar occasional incidental non-storm water discharges, unless the TCEQ develops permits or regulations addressing these discharges.

### ***3.4 Selected BMP's for Illicit Discharge Detection and Elimination***

- 3.4.1 Storm Sewer System Map
- 3.4.2 Storm Water Pollution Control Ordinance
- 3.4.3 Spill Response
- 3.4.4 Inspection of Industrial Facilities
- 3.4.5 Illicit Discharge Reporting Line
- 3.4.6 Construction Plans Review and Site Inspection for Illicit Connections
- 3.4.7 Illegal Dumping and Litter Control
- 3.4.8 Inventory/Inspection of Commercial Facilities
- 3.4.9 Liquid Waste Program
- 3.4.10 Maintenance Program for Sanitary Sewers
- 3.4.11 Pet Waste Management
- 3.4.12 Dry Weather Discharge Screening
- 3.4.13 Household Hazardous Waste Program
- 3.4.14 Water Main Breaks

#### **3.4.1 BMP1 Storm Sewer System Map**

Currently, the city of Carrollton has a storm sewer system map that is 80% complete. The city of Carrollton will complete a storm sewer system map, showing the location of storm sewer pipes, ditches, and other conveyances, the location of, or drainage area for each outfall, and the names and locations of all waters of the U.S. that receive discharges from those outfalls. The sources of the map are the as-built construction plans. Verification will be done using air photos and field inspections.

#### **Justification**

The map will aid the municipality in targeting outfalls with dry weather flows and other

suspicious discharges for investigation and abatement. Knowing the locations of outfalls and receiving waters will assist in conducting inspection of the MS4 and responding to illicit discharge reports from the public.

Measurable Goals

The measurable goal for implementation of BMP1 is to complete and verify the storm system map in the first permit term. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Sewer Map	1. Identify information gaps in the present map and determine the procedure to complete it	1	IT Department, Engineering, Environmental Services and Public Works
	2. Update map to include missing information.	1-2	
	3. Verification of the storm sewer map.	2-5	
	4. Map continuously updated as new data is obtained	2-5	

Responsible Persons

The Director of Environmental Services, Director of Engineering, Director of Public Works and the IT Department are responsible for implementing BMP1.

3.4.2 BMP2 Storm Water Pollution Control Ordinance

The city of Carrollton will develop an ordinance to effectively prohibit non-storm water discharges into the storm sewer system and implement appropriate enforcement procedures and actions.

Justification

An ordinance provides the municipality with the legal authority to prohibit non-storm water discharges, and to enforce such prohibitions.

Measurable Goals

The measurable goal for implementation of BMP2 is to develop a draft ordinance in Year 1 of the permit period and finalize and implement the ordinance in Year 2. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Water Pollution Control Ordinance	1 Develop a draft ordinance	1	Environmental Services
	2. Implement public comment process, review draft	2	
	3. Adoption of ordinance by City Council, publication	2	
	4. Implementation Complete	2	

Responsible Persons

The Director of Environmental Services and the City Attorney have responsibility for development and implementation of BMP2

3.4.3 BMP3 Spill/Emergency Response

The city of Carrollton will maintain the present policies and procedures for responding to spills of hazardous substances. After receiving notification, Environmental Services staff initiates a response to the spill within 1 hour. Members of the spill response team have received HAZWOPER training and annual re-trainings. Staff attempts to contain the spill on site, identifies the responsible party, and requires cleanup and/or remediation from such party. When the responsible party is unknown or unavailable, staff conducts the clean up or contracts the services of a qualified third party for clean up. Environmental Services staff will require reimbursement of city expenses from the responsible party when possible, and will initiate additional enforcement action if necessary. Since the Fire Department is usually contacted first, they will contain the spill as needed and then contact Environmental Services to complete the response.

Public Works will maintain their current standard operating procedures for handling sanitary sewer overflows and water main breaks. After receiving notification, Public Works staff will respond within 1 hour. Other staff or departments will be contacted as determined by the response team.

Justification

Accidental or intentional release of hazardous materials can have a tremendous effect on public health and the environment. A quick response and clean up can minimize the environmental impact of such incidents.

Measurable Goals

The measurable goal for implementation of BMP3 is to initiate spill response within 1 hour of receiving notification of incident, 95% of the time. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Spill Response	1. Spill response plan in place.	0	Environmental Services, Fire Dept. and Public Works

Responsible Persons

The Directors of Environmental Services and Public Works, and the Fire Chief are responsible for implementing BMP3.

3.4.4 BMP4 Inspection of Industrial Facilities

The city of Carrollton will conduct periodic inspections of all permitted industries within its jurisdiction for storm water concerns. Industries identified by their SIC code as needing to apply for a TPDES or NPDES permit for their effluent discharge or storm water discharge will be required to obtain the appropriate permit and provide documentation that the facility is in compliance. Facilities will be required to submit a copy of their Notices of Intent and Storm Water Pollution Prevention Plans. Environmental Surveys will be performed every three years. Facilities that fail to obtain appropriate coverage will face enforcement action by the city, and may be reported to the permitting authority for further enforcement.

Justification

Industrial discharges to the storm sewer system not composed entirely of storm water may contain pollutants that can adversely impact public and environmental health. Parking lot runoff can transport automotive fluids, heavy metals, and organic pollutants from outdoor storage areas, loading docks, vehicles and machinery.

Measurable Goals

The measurable goal for implementation of BMP3 is to inspect 100 industrial facilities located within the city per year of the first permit term, and to implement a program to ensure that facilities required to obtain a NPDES/TPDES permit, demonstrate permit coverage. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Inspection of Industrial Facilities	1. Annually, inspect 100 industrial facilities.	1-5	Environmental Services
	2. Identify industries needing to apply for a TPDES/NPDES permit and require proof of permit coverage within 6 months of identification. Survey to be done every 3 years.	1-5	
	3. Implementation complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP4.

3.4.5 BMP5 Illicit Discharge Reporting Line

This BMP has been discussed in a previous section on the Public Participation and Involvement Minimum Control Measure, as BMP2.3.4. Measurable goals and schedule are described there.

3.4.6 BMP6 Construction Plans Review and Site Inspection for Illicit Connections

The city of Carrollton will continue to review construction plans and conduct site inspections of all new construction projects to ensure that no illicit connections are made between the sanitary sewer and the MS4. This BMP is presently implemented in all new development within the city. Engineering will conduct plans review and inspections for construction projects involving infrastructure that is fully or partially funded with city funds, including Capital Improvement Projects. Engineering will also review and inspect infrastructure components of single-family residential projects for which city funds will be used for future maintenance and repair of the infrastructure, even if the original construction was fully funded by private monies. Building Inspection staff will conduct plans review and inspections for all other projects including the construction of above ground structures and infrastructure of private projects for which maintenance will remain the responsibility of the property owner such as commercial buildings and multifamily apartment buildings. For construction projects conducted by the city with city staff, the Department responsible for the project will be responsible for plans review and inspections. Erosion controls for construction sites are discussed in another section of this plan.

Justification

The review of construction plans will ensure that appropriate design considerations are taken to avoid inadvertent connections between the sanitary sewer and the MS4. Site plan reviews of commercial projects by the Department of Building Inspection will also identify areas of concern such as hazardous materials storage areas, fuel storage tanks, and grease or grit traps and appropriate drain design and connections. Field inspections will verify that design specifications are adopted and/or implemented at the site.

Measurable Goals

The measurable goal for implementation of BMP6 is to continue the present policy and conduct plan review and site inspections in 100% new development projects in the city. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Construction Plans Review and Site	1. 100 % new construction projects will undergo site plan review and will be inspected to ensure no illicit connections	0	Building Inspection, Engineering and Public
	3. Implementation Complete	0	

Inspections			Works
-------------	--	--	-------

Responsible Persons

The Director of Engineering and the city’s Building Official have joint responsibility for implementation of BMP6 for projects not conducted by city staff. The Director of Public Works will be responsible for construction projects belonging to the city and conducted by Public Works staff.

3.4.7 BMP7 Illegal Dumping and Litter Control

The city of Carrollton will continue to implement present practices regarding illegal dumping and litter control. The Department of Environmental Services responds to illegal dumping incidents. In those cases in which a responsible party is identified, they are required to clean up the dumping/discharge site, and enforcement action follows. For instances in which no responsible party is identified, the city pays for clean up. Litter control is addressed by notices of violation and citations to residential and commercial areas.

Trash and litter control in outdoor city facilities is addressed by the Department of Parks and Recreation. Mowing crews are required to pick up trash in parks, greenbelts, sport complexes and other facilities. Through community services, volunteers and other citizens pick up trash in parks, greenbelt areas, sport complexes, medians, drainage channels and undeveloped sites.

Trash and debris in storm inlets are cleaned by the Department of Public Works. Subject to council appropriation, the city cleans approximately 40% of the storm inlets per year. They also pick up approximately 9000 items of trash and debris from the side of the road per year. These items are also addressed in BMP4.3.2

Justification

Chemical wastes dumped directly into storm drains or transported by runoff from dumpsites can impair water quality and contaminate water supplies. Trash and debris blown or otherwise deposited into the MS4 can also contaminate streams and rivers.

Measurable Goals

The measurable goals for implementation of BMP7 are:

- Initiate response to an active illegal dumping incident within one hour, 90% of the time
- 100% illegal dumpsites abated
- 100% illegal dumping incidents with identifiable responsible party to be followed by enforcement action
- Trash and debris removed from 40% storm inlets per year, subject to council appropriation.
- 9000 pieces of trash and debris collected from the roads and ditches per year.

Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Illegal Dumping and Litter Control	1. 90% active illegal dumping incidents respond within one hour.	0	Environmental Services
	2. 100% abatement of illegal dumping incidents	0	Environmental Services
	3. 100% incidents with identifiable responsible party to be followed by enforcement action	0	Environmental Services
	4. Clean 40% storm inlets per year	0	Public Works
	5. 9000 pieces of trash collected from the roadways per year	0	Public Works
	6. Implementation Complete	0	

Responsible Persons

The Director of Environmental Services is responsible for implementation of the illegal dumping response. The Director of Public Works is responsible for storm inlet maintenance.

3.4.8 BMP8 Inventory/Inspection of Commercial Facilities

The city of Carrollton will conduct an inventory of commercial facilities that have the potential to discharge pollutants in storm water. Facilities determined to be a likely source of pollutants, will be inspected for compliance with the city’s pollution prevention ordinances. The city will require abatement of any violation. Inspections will include grease/grit traps, dumpster areas and outdoor storage areas as appropriate.

Justification

Commercial discharges to the storm sewer system not composed entirely of storm water may contain a variety of pollutants that can adversely impact public and environmental health. Parking lot runoff can transport heavy metals and organic pollutants into the waterways. Facilities such as automotive repair shops and gas stations have the potential to contribute oil and other automotive fluids to the storm sewer system from their operations. Grease from food preparation establishments can cause blockage of the sanitary sewer resulting in sanitary sewer overflows.

Measurable Goals

The measurable goal for implementation of BMP8 is to conduct the inventory on the first year of permit and conduct 25 commercial inspections per year after that. Development and implementation will be according to the schedule below

Schedule

BMP	Activity	Year Due	Responsible Department
Inventory/ Inspection of Commercial Facilities	1. Conduct inventory of commercial facilities with grease/grit traps	1	Environmental Services
	2. Conduct one inspection per year for all food establishments	1-5	
	3. Conduct at least 25 commercial inspection per year	2-5	
	4. Inspect all active grease/grit traps in database once per year	2-5	
	5. Implementation complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP8.

3.4.9 BMP9 Liquid Waste Program

The city of Carrollton will continue to implement the present Liquid Waste Program, which requires transporters of non-hazardous liquid waste to obtain a permit from the city and to document proper disposal of all liquid waste. Most common wastes include liquid wastes from grease and grit traps and sanitary sewage from portable sanitary facilities. A five part trip ticket is utilized to document the removal, transport, and disposal for each facility serviced. The system allows verification that the liquid waste generator uses a permitted transporter to remove the waste from the facility, that the transportation is done with a properly functioning vehicle and that the waste is disposed of at an approved facility. The Liquid Waste Ordinance will be revised to establish a pumping frequency for all grease and grit traps and adding grease trap requirements to other facilities where appropriate. The revision of the Liquid Waste Ordinance is also addressed in the TCEQ FOG Initiative which has been described in BMP9 of the Public Education and Outreach section.

Justification

A common cause of sanitary sewer overflows in urban areas is blockage of the lines by grease from commercial food preparation and industrial food manufacturing. Sewage overflows allow the discharge of untreated raw sewage to creeks and streams. Oils and solids from automobile maintenance shops can also impair water quality. To ensure wastewater from these operations do not exceed acceptable limits of grease, oil, and solids, these facilities are required to intercept these constituents of their waste stream in grease/grit traps, and dispose of the intercepted material at an approved location. The Liquid Waste Program ensures that wastes from the traps are removed at appropriate intervals and disposed of in accordance with the law.

Measurable Goals

The measurable goal for implementation of BMP9 is to require all establishments that have a grease or grit trap to use a liquid waste hauler permitted by the city and to document the removal, transport, and disposal of waste using city-issued trip tickets. Having a set pumping frequency will help prevent overflows. Development and implementation will be according to the schedule below

Schedule

BMP	Activity	Year Due	Responsible Department
Liquid Waste Program	1. Liquid Waste Ordinance Revision	2	Environmental Services
	2. 100% permitted liquid waste haulers inspected once a year	0	
	3. 100% permitted liquid waste haulers to submit used tickets monthly.	1	
	4. 100% identified facilities to use a permitted liquid waste hauler.	2-5	
	5. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP9.

3.4.10 BMP10 Maintenance Program for Sanitary Sewers

The Department of Public Works is responsible for the operation and maintenance of Carrollton’s wastewater collection system. It currently operates and maintains approximately 421 miles of sewer main ranging from 6-inches to 42-inches in diameter, approximately 5,461 manholes, 18 lift stations and approximately 35,422 sanitary sewer services. Preventive maintenance activities include an average of approximately 110,288 feet of wastewater collection mains cleaned per month, CCTV inspection of sanitary sewer main lines, lateral and mains during Finals & Maintenance Bonds, manhole rehabilitation, inspection and data acquisition, smoke testing, lift station cleaning, service and main repairs, 30 day list cleaning, responding to sanitary sewer service calls (odor complaints, main lines, service calls, locates) and infiltration/inflow control measures.

Justification

A sewer system can be damaged or misused in many ways, creating continuous problems. Age of the wastewater collection system along with misuse of sewers by the public cause wastewater collection system lines to become clogged, resulting in sanitary sewer overflows. Construction activities such as underground utility construction, building construction, and street paving activities can result in sewer lines that are cut, bored through, or filled with debris. All of these items necessitate continuous maintenance activities designed to prevent and reduce sanitary sewer overflows.

Measurable Goals

The measurable goal, in keeping with the TCEQ agreement, for implementation of BMP10 is to:

- Clean about 200 miles of sewer lines per year,
- Conduct closed-circuit television inspections of 100,000 feet per year,
- Smoke and dye testing of 100,00 feet per year,
- Inspect 2100 manholes per year
- Repair and/or bring to grade 300 manholes per year
- Maintain and update the 30 day maintenance list
- Lift stations inspected monthly

Schedule

BMP	Activity	Year Due	Responsible Department
Maintenance Program for Sanitary Sewers	1. Annual maintenance and inspection of sanitary sewer system.	0-5	Public Works
	2. Tag high-risk sections of sanitary sewer system for inspection/ maintenance every 30 days (i.e. Maintain 30-day list). Review annually.	0-5	
	3. Implementation Complete	5	

Responsible Persons

The Director of Public Works has responsibility for implementation of BMP10.

3.4.11 BMP11 Pet Waste Management

The city of Carrollton will continue to require pet owners to remove pet wastes from public areas and private property. The city will implement public education measures to increase community awareness of the environmental threat posed by animal wastes.

Justification

Pet waste that is not properly disposed of can be carried by runoff into storm drains and nearby water bodies, becoming a significant source of runoff pollution. Pet waste decomposition in creeks depletes oxygen levels in water and increase concentration of ammonia. Pet waste adds nutrients to water bodies which can promote weed and algal growth, and can also carry bacteria, viruses and parasites that jeopardize sources of drinking water.

Measurable Goals

The measurable goal for implementation of BMP11 is to produce public education pieces to inform the community of the impact of improperly disposed pet wastes. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Pet Waste Management	1. Investigate all (100%) complaints received regarding improper disposal of pet waste	0-5	Environmental Services
	2. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services will be responsible for implementing this BMP.

3.4.12 BMP12 Dry Weather Discharge Screening

The city of Carrollton will participate in the regional protocol for dry weather screening, developed cooperatively with the participants of the North Central Texas Council of

Governments (NCTCOG) Regional Storm Water Management Program. The city will purchase items needed for sampling and monitoring.

Justification

Dry weather screening is a simple method to help detect illicit discharges. Visual inspection of outfalls, noting changes in volume of discharge, coloration, and odors can indicate that pollutants are being released into the environment. In conjunction with infrastructure maps and knowledge of the activities occurring in the area, the search for the responsible party can be narrowed. By participating on a regional basis, cost of materials and equipments necessary to conduct the screening, training cost for personnel conducting the screening, and cost of producing training materials can be significantly reduced.

Measurable Goals

The measurable goal for implementation of BMP12 is to participate in the regional protocol and corresponding training for dry weather screening, developed cooperatively with the participants of the North Central Texas Council of Governments (NCTCOG) Regional Storm Water Management Program. The city purchased a sampling vehicle and will stock the vehicle with proper sampling equipment.

Schedule

BMP	Activity	Year Due	Responsible Department
Dry Weather Discharge Screening	1. Employees or consultants attend the NCTCOG regional dry weather screening protocol training as needed.	1-5	Environmental Services
	2. Order a storm drain monitoring kit, sampling vehicle. Equip the vehicle with sampling needs.	1-2	
	3. Begin to implement regional dry weather screening protocol by identifying priority locations for screening.	2-3	
	4. Continue Implementation of the regional dry weather screening protocol – begin sampling	4-5	
	5. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP 12.

3.4.13 BMP13 Household Hazardous Waste Program

The city of Carrollton is a member of the Dallas Area Household Hazardous Waste Network, which provides free disposal of household hazardous waste for residents of participating cities. The city participates in periodic collection events that are hosted within the area, and residents may also take their wastes to the Collection Center located at 11234 Plano Road, Dallas, TX. The city has ordinances prohibiting the discharge of

chemical substances, including household chemical wastes to areas draining to the MS4. The city also distributes brochures and promotional items that provide information on the impact of improper disposal of household chemicals.

Justification

Many commonly used household products contain hazardous chemicals that can pose a threat to public health and the environment if improperly disposed. Paint, solvents, cleaners and used motor oil, are a few of the household wastes that are illegally dumped into storm drains across the country. Many of these chemicals should not be discharged into the sanitary sewer, because they are not removed by the treatment process, or can damage the physical or biological components of the treatment plant.

Measurable Goals

The measurable goals for implementation of BMP13 are to continue the city’s participation in the Dallas Area Household Hazardous Waste Network, and participate in regional collection events. The city will host one collection day in the first permit term. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Household Hazardous Waste Program	1. Participate in Dallas Area Household Hazardous Waste Network and regional collection events.	0-5	Environmental Services
	2. Host one collection day in first permit term.	1-5	
	3. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP13.

3.4.14 BMP14 Water Main Breaks Response

The city of Carrollton will maintain the present policy and procedure for responding to major water main breaks. Upon arriving at the site, the responder will put dechlor tablets into the water flow before and in the storm drain. Once all residents and businesses affected are notified of the water main break, Public Works will shut off the water. Repairs will begin as soon as possible.

Justification

While chlorine is used to make drinking water safe, it is poisonous to fish at low levels. Dechlor tablets are used to neutralize the chlorine before it reaches the bodies of water. Monitoring will determine both chlorine levels and aquatic life in the bodies of water.

Measurable Goals

The measurable goal for BMP14 is to initiate a response within 1 hour of receiving notification of the water main break 95% of the time. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Water Main Breaks	1. Response procedures in place.	0	Public Works and
	2. Implementation Complete	0	Environmental Services

Responsible Persons

The Director of Public Works and the Director of Environmental Services are responsible for the implementation of BMP14.

#### **4. Pollution Prevention/Good Housekeeping for Municipal Operations**

##### ***4.1 Regulatory Requirement***

**The city of Carrollton will develop an operation and maintenance program, including an employee training component that has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. The plan will include:**

- (a) Good Housekeeping and Best Management Practices (which may include new or existing structural or 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 and road 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) A training program for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The program will include training materials directed at preventing and reducing storm water pollution from municipal operations.**
  
- (c) A maintenance program for structural controls including a list of maintenance activities, maintenance schedules, and long-term inspection procedures for controls used to reduce floatables and other pollutants.**
  
- (d) Procedures for proper disposal of waste removed from the MS4, from structural controls, or collected as a result of municipal operations and maintenance activities, including:**
  - 1. dredge spoil**
  - 2. accumulated sediments**
  - 3. floatables.**
  
- (e) A list of all municipal operations that are subject to the operation, maintenance or training program; and**

**(f) A list of all municipally owned or operated industrial activities that are subject to TPDES storm water regulations**

**4.2 Current Programs**

The city of Carrollton has three (3) vehicle and equipment maintenance facilities:

- Central Service Center, located at 2711 Nimitz Drive
- Sandy Lake Service Center, located at 2155 Sandy Lake Road
- Indian Creek Golf Club, located at 1650 W Frankford Road

All three facilities are enclosed, and repair work is conducted indoors. An inventory of vehicles, equipment, and parts is kept at each facility. The city recycles approximately 400 gallons of engine coolant per year, and 6000 gallons/yr of used oil, fuel and transmission fluids. The city recycles parts washing solvent, oil filters, car batteries, tires, cardboard and scrap metal from Fleet Services. In addition to the Fleet items, the city also recycles batteries used in electronic equipment such as cell phones, pagers and radios, scrap wire, cables, certain aluminum products, electronic equipment boards, computer parts and laser printer toner cartridges.

Large vehicle and equipment washing is done at one of four wash bays located at the Central Service Center, Sandy Lake Service Center, or the Indian Creek Golf Club (2 wash bays), all of which are equipped with sand traps that are routinely maintained. The remainder of the fleet is taken to local car wash establishments.

The city has two underground fuel storage tanks, all in compliance with TCEQ and equipped with spill/overflow prevention devices. The city also has eight aboveground storage tanks. Of these, five require Spill Prevention Control and Countermeasure. The following is an inventory of all fuel tanks owned by the city:

<b>Location</b>	<b>Type of Tank</b>	<b>Capacity (gal)</b>	<b>Content</b>	<b>Note</b>	<b>Responsible Department</b>
Police Station (2025 Jackson Rd)	AST	10,000	Unleaded	SPCC	Police
Central Service Center (2711 Nimitz Ln)	UST	12,000	Unleaded	SPCC	Fleet
	UST	12,000	Diesel		
	AST	1,000	Oils		
Sandy Lake Service Center (2155 Sandy Lake Rd)	AST	5,000	Unleaded	SPCC	Fleet/Parks
	AST	5,000	Diesel		
City Hall (1945 E Jackson Rd)	AST	1000	Diesel		Fleet
B. Ballard Pump Station (2750 N Josey Lane)	AST	1,000	Diesel		Fleet
Indian Creek Golf Course (1650 W Frankford Rd)	AST	2,000	Diesel	SPCC	ICGC
	AST	2,000	Unleaded	SPCC	ICGC

All maintenance facilities are regularly swept, and dry methods are used to immediately clean up spills and leaks. Rags used in maintenance shops, as well as employees' uniforms, are sent to a commercial cleaning service.

The Parks and Recreation Department has begun to implement the use of native vegetation on city property, and it is exploring methods to reduce the use of fertilizers and pesticides in Parks facilities, as is the Indian Creek Golf Club.

The city does not operate a Solid Waste Division. A private provider collects trash throughout the city. There is a sole provider of single family residential services, Allied Waste (4400 E. 14<sup>th</sup> St., Plano, TX 75074), that collects trash in residential areas on a weekly basis. The city is a member of the Dallas County Household Hazardous Waste Network, which allows residents to dispose of their domestic hazardous waste at no charge, at the Household Chemical Collection Center located at 11234 Plano Road in Dallas. Apartment complexes are served by a separate provider, Waste Management of Texas, Inc., (1601 Railroad Street, Lewisville, TX 75067).

Allied Waste also provides curbside recycling for single-family dwellings. Residents are provided with a labeled bin, and recyclables are collected in residential areas every other week. Recycling is not available for apartment complexes. A complete list of accepted items includes:

1. Paper (may include paper clips and staples)
  - a. Advertising circulars, junk mail and carbonless paper
  - b. Cardboard from food boxes, corrugated cardboard, paper towel and toilet paper cores
  - c. Envelopes, office paper, sticky notes, printer paper, calendars
  - d. Magazines, newspapers, paperback books
  - e. Catalogs, phone books
  - f. Paper bags
2. Metals
  - a. Aluminum, steel and tin cans
  - b. Aluminum baking tins
  - c. Empty aerosol cans-with spray nozzle
3. Glass and Ceramics
  - a. Bottles and jars, ceramics, dishes – cleaned and rinsed
4. Plastics
  - a. All plastic bottles, jugs and jars - rinsed
  - b. Food trays, tubs and bowls #1 through #7

Waste collection services to commercial customers is provided by a variety of suppliers, commercial customers must contact the supplier directly and arrange for waste collection services.

The city has a street sweeping program that services approximately 220 miles of street per month. Approximately 40% of storm inlets are cleaned each year, and some 250 miles of sanitary sewer lines are cleaned annually.

The Fire Department and the Department of Environmental Services responds to spills and illegal dumping incidents and directs actions for rapid abatement or clean-up of sites to reduce or prevent discharge of pollutants to the MS4.

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

- 4.3.1 Parks and Open Space Maintenance
- 4.3.2 Street Maintenance
- 4.3.3 Fleet Maintenance
- 4.3.4 Municipal Buildings and Parking Lots Maintenance
- 4.3.5 Storm Sewer System Maintenance
- 4.3.6 Waste Reduction of Information Technology and Communications Operations
- 4.3.7 Grease, Sand and Grit Trap Maintenance
- 4.3.8 Sand Storage Locations
- 4.3.9 Structural Control Maintenance and Waste Disposal
- 4.3.10 New construction and Land Disturbance
- 4.3.11 Fire Fighting Training Activities
- 4.3.12 Employee Storm Water Pollution Prevention Training Program

#### **4.3.1 BMP1 Parks and Open Space Maintenance**

The city will continue to research ways to reduce use of fertilizer and pesticides in all parks and open space areas including the Indian Creek Golf Club and in the mosquito control program. The city will incorporate native plant species in landscape projects. The city will continue to use mulching mowers to reduce the need for fertilizers in public areas. The city will maintain its current routine maintenance of parks, greenbelts, sport complexes and similar facilities, including trash pick-up. The city currently employs five certified pesticide applicators and three licensed irrigators.

#### **Justification**

Nutrient runoff from private and public green areas can cause eutrophication of streams and lakes. Pesticides in storm water runoff have a direct impact on the health of aquatic ecosystems and can present a threat to humans through contamination of drinking water supplies. Insecticides can be harmful to aquatic life at very low levels.

#### **Measurable Goals**

The measurable goals for implementation of BMP1 are to identify ways to reduce the use of fertilizers and pesticides in public areas and to incorporate native plants in the landscape of new city facilities. The city will also continue removing trash during maintenance of green areas approximately 200 days per year, and continue using mulching mowers. The city has established buffer zones and no mow zones. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Parks and Open Space Maintenance	1. Mowing crews pick up trash during maintenance of public green areas (approximately 200 days per year). Use of mulching mowers. Leaf blowers used to blow clippings back onto grass. Begin to research opportunities to use native species in city facilities.	0-5	Parks and Recreation and ICGC
	2. Buffer zones and no mow zones.	0-5	Parks and ICGC
	3. Implement native species landscaping and mowing restrictions if applicable.	0-5	Parks and ICGC
	4. Maintain Licensed Pesticide Applicators (5) and Licensed Irrigators (3)	0-5	Parks and Environmental Services

Responsible Persons

The Director of Parks and Recreation and the Management Company for the ICGC are responsible for implementing BMP1 and the Director of Environmental Services is responsible for maintaining one of the Licensed Pesticide Applicators for the mosquito control program.

4.3.2 BMP2 Street and Road Maintenance

Subject to available funding, the city of Carrollton will sweep approximately 200 miles of streets per month. In addition to the street sweeping, the city will pick up 9000 trash and debris items from the roads and ditches. Erosion and pollution prevention practices will be implemented in all street and repair operations, to the maximum extent practicable. All wastewater from the different processes for street repair will be recovered using an appropriate method.

Justification

Street sweeping removes pollutants and sediment from the street that would otherwise end up in the storm sewer system. The frequency and extent of street sweeping is limited by available funding. Erosion and pollution prevention practices reduce the amount of pollutants discharged by street repair activities.

Measurable Goals

The city will sweep the major arterials once per month, subject to available funding, for the duration of the first permit term. The city will collect 9000 items per year from the roadways and ditches. The city will develop erosion and pollution prevention guidelines for street repair operations. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Street and Road Maintenance	1. Major arterials swept once a month.	0-5	Public Works
	2. Collect approximately 9000 trash and debris items from roadways and ditches	0-5	Public Works
	2. Develop erosion and pollution prevention guidelines for street repair operations	1	Engineering and Public Works
	3. Implement erosion and pollution prevention practices during street repairs.	2-5	Engineering and Public Works
	4. Implementation Complete	5	

Responsible Persons

The Directors of Public Works and Engineering have the responsibility for development and implementation of BMP2.

4.3.3 BMP3 Fleet Maintenance

Pollution prevention measures have been implemented for vehicle maintenance and removal of automotive fluids. Small chemical spills are cleaned up immediately upon discovery, using dry methods, and all wastes disposed of properly. For large spills representing a significant threat to health or the environment, the facility supervisor will contact the Fire Department or Environmental Services. Signs posted at each facility display guidelines for proper clean up. Each facility supervisor will inspect indoor and outdoor areas of maintenance facilities weekly. Any problem found will be addressed, and solutions implemented as soon as possible. All indoor floors will be swept weekly to pick up materials that could contribute to storm water pollution. Parts and supplies will be stored under cover to prevent exposure to rain. The Indian Creek Golf Course maintenance building, fueling manifests and waste oil will be inspected quarterly by a Fleet employee.

Automotive parts cleaning will be performed in a self-contained washing unit or in designated sinks. Spent solvent will be contained and recycled through a qualified outside vendor. The city will maintain contracts for uniforms and rags cleaning services. Large pieces of equipment that will not fit the washing units will be washed in one of the vehicle wash bays equipped with sand traps. Sand traps will be routinely cleaned and maintain by a licensed liquid waste hauler. Large vehicles and equipment owned by the city will be washed at one of these wash bays, and the city will maintain price agreements with local commercial car washers for the remainder of its fleet. All the vehicle wash bays will be equipped with a cover by the end of the first permit year.

The city will continue to recycle used motor oil, used oil filters, antifreeze, spent batteries, scrap metal, spent solvent and used tires through qualified commercial vendors. Antifreeze and used oil are kept in two separate double wall storage tanks at the Central

Service Center. Each tank has an overfill prevention device and level gauge. Oil filters will be kept in a properly-labeled indoor container. Engine coolant will also be recycled through qualified outside vendors. The city will return all spent batteries to the vendor for recycling. The city will recycle all cardboard material generated at Fleet facilities. Waste oil tanks will be inspected weekly.

Fueling facilities will be inspected weekly. Spill kits and signs with procedures and contact information have been placed at all fueling facilities. All fuel storage tanks will be inspected and maintained in compliance with TCEQ regulations. The tank tightness test will be done annually.

All departments will conduct routine inspections for leaks from all vehicles assigned to their departments. Each department will take steps to contain leaks to the extent possible, and will contact Fleet Services as soon as practicable for further action. Animal Services will maintain spill kits and MSDS for the mosquito control program vehicles and equipment.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed and maintained for Fleet operations.

#### Justification

Vehicle maintenance facilities can release significant amounts of hydrocarbons, trace metals and other toxic materials into their storm water runoff, creating a public health and an environmental hazard. Frequent inspections, good housekeeping practices, and spill response plans and kits, can all reduce the likelihood of toxic pollutants reaching the MS4. Vehicle washing facilities equipped with sand traps retain excessive solids in the trap, while allowing the wastewater to enter the sanitary sewer system for treatment. Self-contained washing units and solvent recovery ensure proper treatment of waste streams that would exceed effluent limitations. Using a vehicle washing bay is an effective alternative for pieces of equipment that exceed the size of the washing units. Contracting commercial rag services ensure proper treatment and disposal of wash water from uniform and rag cleaning. In addition, reusable rags are a preferred alternative over disposable paper towels by reducing hazardous chemicals in the waste stream and reducing the amount of hazardous wastes generated.

Recycling instead of disposal reduces the amount of waste to be disposed of, saving landfill space. In addition, recycling of hazardous waste reduces the likelihood of such wastes being released into the environment, and in some instances, is required by regulations. Secondary containment and overfill protection and devices are excellent means to reduce the risk of illicit discharges from fuel storage tanks.

#### Measurable Goals

The measurable goals for implementation of BMP3 are:

- Develop and implement spill response and pollution prevention plans for each of the three maintenance facilities, deploy spill response kits and signs. Begin spill response within 30 minutes of notice.
- Develop and implement spill prevention and response plans for fueling operations, deploy spill response kits and signs. Begin spill response within 30 minutes of notice.

- Weekly inspections of maintenance facilities, waste oil tanks and fuel stations.
- Sweep indoor floors weekly and proper disposal of sweepings.
- Parts and materials stored under coverage. Shipments to be moved within 24 hours of arrival.
- Vehicle washing to be done in wash bays or at commercial providers.
- Continue recycling programs for used motor oil, used oil filters, antifreeze, used tires, engine coolant, batteries, cardboard, spent solvent and scrap metal.
- Develop and implement procedures for addressing leaks while vehicles are not at maintenance facility.
- Quarterly inspections of Indian Creek Golf Course maintenance area, fuel manifests and waste oil.

Schedule

BMP	Activity	Year Due	Responsible Department
Fleet Maintenance	1. Weekly inspection/cleaning of maintenance and fueling facilities. Continue to implement spill response and pollution prevention plans.	0	Fleet and Police Department
	2. All vehicles washed in bays or commercial vehicle wash. Sand Traps are serviced quarterly. All wash bays are under a cover. Implement spill response and pollution prevention plans. Spill kits and signs deployed at all fueling stations. Develop plan to address leaks from vehicles during normal use by a City employee.	2	Fire Department, Fleet ICGC, Environmental Services
	3. Parts and materials stored under cover. Implement recycling program for materials.	0	Fleet and ICGC, and Parks and Recreation
	4. Implement plan to address leaks from vehicles during daily use by an employee.	2	Environmental Services
	5. Prepare and maintain SWPPP	1-2	Fleet and Environmental Services
	6. Implementation Complete.	3	

Responsible Persons

The Division Manager of Fleet Services is responsible for the overall implementation of BMP3 except:

- The Manager of the Indian Creek Golf Club has responsibility for ensuring proper disposal of wash water from vehicles and equipment used at his facility, for designating the Pollution Prevention Team for the ICGC, and for developing/implementing the spill response and pollution prevention plan for that facility.
- The Fire Chief has responsibility for ensuring that no detergents or pollutants are discharged to the MS4 during washing of fire engines.
- The Director of Environmental Services has responsibility for proper disposal of

wastewater from cleaning Animal Services equipment for the Vector Control Program.

- The Director of Parks and Recreation has responsibility for designating the Pollution Prevention Team for the Sandy Lake Service Center, for developing/implementing the spill response and pollution prevention plan for that facility, and for providing a cover for Parks and Recreation wash bay.
- The Police Chief has the responsibility of inspecting the Police Department Gas Station.

#### 4.3.4 BMP4 Municipal Buildings and Parking Lots Maintenance

The city of Carrollton will develop and implement a pollution prevention plan for maintenance of city facilities including buildings and parking lots. The city will continue to research recycling and waste reduction opportunities and will implement these as needed.

The city currently washes the exterior of City Hall every ten years with the wastewater recovered and disposed of properly. The windows at city Hall are cleaned with soap and water every 6 months and all runoff is recovered and disposed of properly.

The city has four boilers (closed and open loop) that are inspected yearly by the state. A private company also tests the closed loop boiler quarterly and the open loop boiler monthly. The two cooling towers in the city are tested monthly by a private company.

The city has reduced the amount of items stored at its facilities. Refrigerants, paper items, glass, and cans are recyclables that come from the municipal buildings, excluding the maintenance shops. Water based paints are purchased in small amounts as needed. In the event that a large amount is accumulated it will be disposed of properly with assistance from Environmental Services. The city contracts with a private cleaning company that maintains and disposes of the chemicals that are used in city facilities.

Municipal parking lots, including City Hall, Police Department, Municipal Court, Josey Ranch Senior Center and the Hebron/Josey Library are swept monthly.

Inspections of the Fleet Maintenance areas are described in section 4.3.3. Public Works inspects their facilities weekly.

#### Justification

Many common building maintenance operations include the use of cleaners, solvents, paints and other hazardous materials that when not used and disposed of properly, can result in the discharge of pollutants to the MS4. Washing of parking lots can release discharges containing high levels of hydrocarbons and heavy metals deposited by vehicles over long periods of time.

#### Measurable Goals

The measurable goal for implementation of BMP4 is to develop and implement a spill response and pollution prevention plan for municipal buildings and parking lots maintenance, to continue to identify options for waste reduction and recycling and to

implement feasible options subject to available funding. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Municipal Buildings and Parking Lots Maintenance	1. Continue to develop and implement a spill response and pollution prevention plan for building and parking lot maintenance. Continue research in waste reduction/ recycling options	0-5	Facilities and Fleet
	2. Continue inspections of Municipal Buildings and parking lots	0-5.	Facilities, Fleet and Public Works
	3. Evaluate spill response and pollution prevention plan, adjust plan as necessary	1-5	Facilities and Fleet
	4. Implementation complete	5	

Responsible Persons

The Division Managers of Facility and Fleet Services and the Director of Public Works are responsible for implementing BMP4.

4.3.5 BMP5 Storm Water System Maintenance

The city of Carrollton inspects and removes floatables, debris, sediment, and other wastes from inlet and pipes as needed to maintain capacity and to reduce storm water pollution. The city inspects approximately 40% of system per year. In addition, the city responds to complaints and other reported problems.

All channels and ditches are inspected yearly and cleaned as needed. Repairs to channels are done as needed. Erosion matting materials and inlet protection are maintained as needed throughout the project. Hydro mulching and reseeding for vegetation are done for final stabilization.

All storm drain lift stations are inspected monthly.

Justification

Clogged drains and storm inlets increase risk of flooding. Routine cleaning of storm water systems reduce the amount of pollutants, trash, and debris in the infrastructure and receiving waters.

Measurable Goals

The measurable goal for implementation of BMP5 is to continue the current plan for maintenance of the storm water system to protect the infrastructure, reduce risk of flooding and reduce the discharge of pollutants from the MS4 to the receiving waters to the maximum extent practicable.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Water System Maintenance	1. Maintain the plan for storm water system maintenance.	0	Public Works
	2. Maintain the current schedule for maintenance operations. Revise as necessary.	0	Public Works and Parks
	3. Continue current procedures to address complaints and other problems. Revise as necessary.	0	Public Works and Parks and Recreation
	4. Continue to inspect lift stations monthly	0	Public Works

Responsible Persons

The Director of Public Works has overall responsibility for implementation of BMP5. The Director of Parks and Recreation will assist for maintenance and clean up operations of open ditches and vegetated channels in Park areas.

4.3.6 BMP6 Waste Reduction of Information Technology and Communications Operations

The Department of Information Technology (IT) is in charge of all communication and computer equipment including desk phones, cellular phones, pagers, two way radios, computers, and printers used by all operations. IT will continue its present recycling program for batteries, scrap wire, scrap cable, aluminum parts from antennas, electronic boards, assorted computer parts and components and printer cartridges. The city will research options to collect and recycle batteries from all deployed communications equipment.

Justification

Discarded batteries and computer equipment contain hazardous materials that must be properly disposed. Scrap wire, cables and other components can release heavy metals.

Measurable Goals

The measurable goals for implementation of BMP6 is to continue recycling all batteries, cables, aluminum scrap, computer parts, and printer cartridges from IT operations, and to identify and implement appropriate procedures to collect and recycle batteries from all deployed communications equipment.

Schedule

BMP	Activity	Year Due	Responsible Department
Waste Reduction of Information Technology and Communications	1. Implement recycling of all batteries, cables, aluminum scrap, computer parts, and printer cartridges from IT operations	0	IT Department
	2. Identify appropriate procedures to collect	1	

Operations	and recycle batteries from deployed equipment		
	3. Implement feasible procedures to collect and recycle batteries from deployed equipment	2	
	4. Implementation Complete	3	

Responsible Persons

The city’s Information Technology Manager has responsibility for implementation of BMP6.

4.3.7 BMP7 Grease, Sand and Grit Trap Maintenance

The city of Carrollton has four grit traps that are cleaned quarterly by a licensed liquid waste hauler. The grit traps are located at the Central Service Center (2), Sandy Lake and Indian Creek Golf Course. The city also has two grease interceptors. Animal Services has one interceptor that is pumped once a year. The second grease interceptor is located at the Indian Creek Golf Course and is inspected monthly and pumped based on inspection results.

Justification

The grease and grit traps are maintained at the current cleaning rate to prevent sanitary sewer overflows.

Measurable Goals

The pumping frequency will be the measurable goal for this BMP.

Schedule

BMP	Activity	Year Due	Responsible Department
Grit and Grease trap maintenance	1. Continue current pumping frequency	0	Fleet, Environmental Services and ICGC
	2. Evaluate pumping frequency according to City Ordinance and change as necessary.	1-5	
	3. Implementation complete	5	

Responsible Persons

The Manager of Fleet Services is responsible for the maintenance of the grit traps, the Director of Environmental Services is responsible for the maintenance of the Animal Services grease interceptor, and the Indian Creek Golf Course (ICGC) Manager is responsible for the maintenance of the ICGC grease interceptor.

4.3.8 BMP8 Sand and Deicer Storage Locations

The city of Carrollton applies sand to some intersections and city parking lots and a liquid deicer to city facility parking lots and bridges when there is ice or freezing rain. The amount varies according to weather conditions. From 2000 to 2002, the city applied approximately 350 cubic yards of sand per year. Due to mild winter conditions in 2005-

2006, the city has used only 50 cubic yards of sand. In major thoroughfares, remaining sand is swept under the street sweeping contract schedule. Sand and liquid deicer is stored at the Central Service Station. Salt is used on the stairs and walkways at City Hall and are applied sparingly according to directions to maintain public safety.

Justification

Sand and liquid deicer are used to increase traction and improve vehicular traffic when weather conditions cause the formation of ice or accumulation of snow on bridges, streets and parking lots and walkways of public buildings. Because of prevalent weather conditions in the region, winter storms causing ice formation or snow deposition are infrequent, and the use of sand and liquid deicer are applied at the minimum amount necessary to ensure safe traveling conditions.

Measurable Goals

The measurable goals for implementation of BMP7 are to continue using sand, salt and liquid deicer at the minimum rate necessary to ensure safe traveling conditions during ice and snow accumulation conditions, and to implement measures to store the sand in a manner as to prevent runoff. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Sand Storage Locations	1. Limit sand, salt and liquid deicer application to minimum amount necessary to ensure safe driving and walking conditions	0	Facilities and Public Works
	2. Maintain MSDS on site for salt and liquid deicer	0	
	3. Identify controls for sand, salt and liquid deicer storage	1	
	4. Implement appropriate controls for sand, salt and liquid deicer storage.	2	
	5. Implementation Complete	3	

Responsible Persons

The Director of Public Works and the Facility Services Manager have the responsibility for the implementation of BMP7.

4.3.9 BMP9 Structural Control Maintenance and Waste Disposal

The city of Carrollton will develop an inventory of structural controls owned by the city, and a maintenance plan that will include periodic inspections and removal of residues. The inventory will include all detention and retention basins or ponds, storm water wetlands, etc. Sediments from basins, ponds and wetlands will be removed when the city determines it necessary for the proper functioning of the structural control. Disposal of sediment or sludge from maintenance operations will be done following TCEQ and EPA guidelines as required.

Justification

The key to ensuring that storm water structural BMPs do not become a source of runoff pollutants is proper operation and maintenance (O&M), including periodic cleaning to remove any accumulated residual materials.

Measurable Goals

The measurable goal for implementation of BMP8 is to conduct the inventory on the first year of permit and to develop and implement maintenance and waste disposal plans by the end of the third year of permit.

Schedule

BMP	Activity	Year Due	Responsible Department
Structural Control Maintenance and Waste Disposal	1. Conduct inventory of structural controls. Develop maintenance plan and schedule	1	Engineering and Public Works
	2. Begins inspection of structural controls and implement maintenance plan.	2	Public Works
	3. Implementation complete	3	Public Works

Responsible Persons

The Director of Public Works has responsibility for implementation of BMP8 regarding structural controls. The Director of Engineering will assist with the preparation of the inventory.

4.3.10 BMP10 New Construction and Land Disturbance

The city of Carrollton will apply for the TPDES general construction permit for those municipally owned construction projects that will disturb one or more acres of land, including the larger common plan of development and for which the city meets the definition of operator as defined by the general permit. The city will also require for the contractor(s) of such projects, to obtain authorization under the TPDES construction permit.

Justification

Storm water discharges from construction activities have been identified by the EPA as one of the major causes of impairment of water quality in rivers across the nation.

Measurable Goals

The measurable goal for implementation of BMP9 is to comply with TPDES permitting requirements for construction sites disturbing one or more acres of land. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
New construction and land disturbance	1. Comply with TPDES construction storm water permit requirements for projects in which the city meets the definition of operator.	0-5	Engineering, Public Works and Parks and Recreation
	2. Require contractors of municipally owned construction projects to comply with TPDES construction storm water permit requirements.	0-5	Engineering

Responsible Persons

The Director of Engineering has responsibility for implementation of BMP9, except for city construction projects initiated and directed by Public Works or Parks and Recreation, for which the respective Director has responsibility for this BMP.

4.3.11 BMP11 Fire Fighting Training Activities

The city of Carrollton will implement measures to discontinue discharging untreated water from fire fighting training activities to the storm drains.

Justification

As with water main breaks, chlorinated water is harmful to aquatic wildlife.

Measurable Goals

The measurable goal for this BMP will be to research alternatives to discharging of water from training activities to the storm drain. Implementation will begin once the alternative method has been decided. The schedule for implementing this BMP is below.

Schedule

BMP	Activity	Year Due	Responsible Department
Fire Fighting Training Activities	1. Research alternative methods.	1	Fire Department
	2. Implement alternative method.	2	
	3. Implementation Complete	2	

Responsible Persons

The Fire Chief is responsible for implementing BMP10.

4.3.12 BMP12 Employee Storm Water Pollution Prevention Training Program

In cooperation with the NCTCOG Storm Water Regional Program, the city will participate in the development of a training program for all employees responsible for

municipal operations subject to the pollution prevention and good housekeeping program. Training sessions will be tailored to the specific needs of the different groups of employees. Departments and Divisions to which this requirement apply are:

- Animal Services
- Community Services
- Building Inspection
- Engineering
- Environmental Quality
- Facility Services
- Fire Department
- Fleet Services
- Indian Creek Golf Club
- Parks and Recreation
- Public Works

Justification

Training programs teach employees about potential sources of contaminants and appropriate storm water management. Training ensures employee understanding of the SWMP, their role in it, and pollution prevention and spill response measures.

Measurable Goals

The measurable goals for implementation of BMP11 are to train all city employees responsible for municipal operations subject to pollution prevention and good housekeeping program during the first permit term, and to develop appropriate training sessions based on the actual responsibilities of the employees. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Date Due	Responsible Department
Employee Training	1. Evaluate each department to determine appropriate training needs.	1	Environmental Services
	2. Participate in the NCTCOG regional program to identify pollution prevention training materials and/or develop new materials.	1	
	3. Acquire storm water pollution prevention training materials.	2	
	4. Send designated staff person(s) to attend NCTCOG “Train-the-Trainer” workshop and document attendance.	3	
	5. Begin training all employees in departments responsible for operations or maintenance functions. Document training.	3	
	6. Continue to provide training to all employees in selected departments, and continue to document training.	4	
	7. Continue activities of Year 4	5	
	8. Review training program and revise as needed	5	

	for permit renewal		
	9. Implementation Complete	5	

Responsible Persons

The Director of Environmental Services has responsibility for implementation of BMP11.

***4.4 List of Municipal Operations Subject to the Pollution Prevention/Good Housekeeping for Municipal Operations Program***

Animal Services: Pesticide management, spill prevention and response.

Building Inspection: Illicit discharges from construction sites, inspections, spill prevention and response.

Engineering: Illicit discharges from construction sites, inspections, spill prevention and response.

Facility Services: Municipal building maintenance, hazardous materials storage, hazardous waste disposal, parking lot maintenance, spill prevention and response.

Fleet Services: Vehicle maintenance, fuel pumps maintenance, hazardous materials storage, hazardous waste disposal, parking lot maintenance, spill prevention and response.

Indian Creek Golf Club: Pesticide and herbicide management, vehicle maintenance, fuel pumps maintenance, hazardous materials storage, hazardous waste disposal, parking lot maintenance, spill prevention and response, open space maintenance.

Parks and Recreation: Pesticide and herbicide management, vehicle maintenance, fuel pumps maintenance, hazardous materials storage, hazardous waste disposal, parking lot maintenance, spill prevention and response, parks and open space maintenance.

Public Works: Street and roads maintenance, storm water system maintenance, other infrastructure maintenance, sand storage, new construction and land disturbances, vehicle maintenance, hazardous materials storage, hazardous waste disposal, spill prevention and response.

***4.5 List of Municipally Owned or Operated Industrial Activities that are Subject to TPDES Storm Water Regulations***

A review of Standard Industrial Codes showed that the city of Carrollton does not own or operate an industrial activity subject to TPDES storm water regulations, except discharges from construction activity, which have been addressed in this plan.

## **5. Construction Site Storm Water Runoff Control**

### ***5.1 Regulatory Requirement***

**The city will develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre or if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more of land. The MS4 operator is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from sites where the construction site operator has obtained a waiver from permit requirements under NPDES or TPDES construction permitting requirements based on a low potential for erosion.**

- (a) The program will include the development and implementation of, at a minimum, an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State and local law.**
- (b) The city will require construction site operators to:**
  - (1) implement appropriate erosion and sediment control best management practices; and**
  - (2) control waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;**
- (c) The city will develop procedures for:**
  - (1) site plan review which incorporate consideration of potential water quality impacts;**
  - (2) receipt and consideration of information submitted by the public; and**
  - (3) site inspections and enforcement of control measures to the extent allowable under state and local law.**

### ***5.2 Current Programs***

The city of Carrollton requires permits for clearing/excavation of sites for the development and construction of infrastructure and buildings and for the demolition of buildings, *regardless of the size of the land disturbance*. The Engineering Department administers grading permits for public improvements and developments, while Building Inspection issues grading permits for private development. The city also requires building permits for projects that involve the construction or demolition of structures such as homes or buildings *regardless of the size of the land disturbance*; and the Building Inspection administers these permits. Engineering requires proof of TPDES coverage for all their permits for sites disturbing 1 or more acres of land, *including the larger common plan of development*.

The city conducts site plan reviews before any type of construction or grading permit is issued. Engineering conducts preconstruction meetings after a development permit is issued, but before construction starts. *Site plan review and preconstruction meetings are held for all projects regardless of the size of the land disturbance.* Building Inspection also conducts preconstruction meetings after a Building Permit has been issued and prior to construction. Environmental Services staff addresses pollution prevention and erosion control requirements during these meetings, when schedule allows. When Environmental Services staff cannot be present, the issues are covered by either Engineering or Building Inspection staff.

All private construction sites disturbing *one or more acres of land, including the larger common plan of development*, are required to submit a copy of their Construction Site Notices or Notice of Intent and a copy of their Storm Water Pollution Prevention Plan (SWP3), to Environmental Services. Operators are notified of this requirement during permit application and they are required to submit the plan together with all other documentation prior to being issued a permit.

The following table shows the current approach to manage construction projects within the city:

<b>Type of Development</b>	<b>Lead Department</b>	<b>Type of Permit</b>	<b>Verification of TPDES Compliance</b>	<b>Erosion Controls Required</b>	<b>Erosion Control Inspections</b>
Public Infrastructure for Residential Subdivision	Engineering	Development Permit	<i>Sites larger than 1 acre, including the larger common plan of development</i>	Yes	Yes
Single family and Duplex Building	Building Inspection	Building Permit	No if < 1 acre Yes if > 1 acre, including the larger common plan of development	Yes	Yes
Commercial and Multi-Family Building	Building Inspection	Development Permit and Building Permit	Yes	Yes	Yes
Demolition	Environmental Services	Demolition Permit	Yes	Yes	Yes

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

5.3.1 Ordinance for Construction Site Erosion and Sediment Controls

5.3.2 Storm Water Pollution Prevention Plan Review and Submission of NOI/CSN

- 5.3.3 Construction Site Inspection
- 5.3.4 Response to Citizen Complaints
- 5.3.5 Storm Water Information Package for Construction Site Operators
- 5.3.6 Preconstruction Meetings
- 5.3.7 Demolitions

5.3.1 BMP1 Ordinance for Construction Site Erosion and Sediment Controls

The city of Carrollton presently has an ordinance, the Storm Water and Flood Protection Ordinance, that requires erosion and sediment controls at construction sites, and compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES, now TPDES) permit program *for land disturbances of one acre or greater, including the larger common plan of development*. The ordinance and associated city of Carrollton requirements or procedures stipulate site plan review and site inspections, as well as requiring construction site operators to implement appropriate erosion and sediment controls and to control wastes at construction sites *for all land disturbances regardless of size*. Provisions of this ordinance dealing with pollution and sediment controls at construction sites will be incorporated into the proposed Storm Water Pollution Control Ordinance, as part of this Storm Water Management Program. As such, this BMP shares the same measurable goals of BMP 3.4.2: Storm Water Pollution Control Ordinance.

Justification

An ordinance or another regulatory mechanism provides the municipality with the legal authority to prohibit non-storm water discharges and to enforce compliance with federal/state storm water permits for construction activities.

Measurable Goals

The measurable goal for implementation of BMP1 is to develop a draft ordinance in Year 1 of the permit period and finalize and implement the ordinance in Year 2 of the permit period. Development and implementation will be according to the schedule below. Provisions for site erosion and sediment controls *for all construction activities regardless of size* will be included in the Storm Water Pollution Control Ordinance discussed in the previous section.

Schedule

BMP	Activity	Year Due	Responsible Department
Ordinance for Illicit Discharge Detection and Elimination	1. Develop a draft ordinance	1-2	Environmental Services
	2. Implement public comment process, review draft	1-2	
	3. Adoption of ordinance by City Council, publication	1-2	
	4. Implement ordinance	1-2	

Responsible Persons

The Director of Environmental Services and the City Attorney have responsibility for development and implementation of BMP1.

5.3.2 BMP2 Storm Water Pollution Prevention Plan (SWPPP) Review and Submission of the Construction Site Notice or Notice of Intent

Operators of a construction site *greater than or equal to one acre, including the larger common plan of development*, are required to submit either a copy of their NOI or Construction Site Notice (whichever is applicable) and SWP3s. These documents are reviewed and required to be complete and technically sound before a permit is issued.

Justification

Review of the Construction Site Notice, NOI and SWPPP ensures that construction operators have applied for coverage under the TPDES Construction Permit and that appropriate erosion and pollution control measures are implemented at the site. Plan review also aids in identifying individuals responsible for implementation of erosion and pollution control practices, and facilitating enforcement actions when necessary.

Measurable Goals

The measurable goal for implementation of BMP2 is to obtain a construction site notice and a SWPPP for all construction sites greater than or equal to one acre, *including the larger common plan of development*, and receive a NOI and a SWPPP for all construction sites greater than or equal to five acres, *including the larger common plan of development*. Construction Site Notices, NOI's and SWPPP's will be reviewed by staff of the department issuing the permits. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
SWP3 Review and NOI	1. Engineering and Building Inspection require copies of either CSN or NOI and SWPPP from all operators disturbing one or more acres of land, <i>including the larger common plan of development</i>	0-5	Building Inspection and Engineering
	2. Procedures in place to obtain and review CSN/NOI and SWP3 of all (100%) construction sites required to obtain a NPDES/TPDES storm water permit <i>for construction activities of one acre and greater, including the larger common plan of development.</i>	0-5	

Responsible Persons

The Director of Engineering and the City Building Official have the responsibility for requesting, obtaining and reviewing Construction Site Notices or NOI's and SWPPP's on all construction sites greater than or equal to 1 acre, *including the larger common plan of development*.

5.3.3 BMP3 Construction Site Inspection

The city of Carrollton will conduct timely inspections at all active private construction

sites *regardless of the size of the land disturbance* within its jurisdiction to ensure proper installation and maintenance of sediment and erosion control measures. Such inspections may be conducted in conjunction with other inspections required by the city for construction activities.

Justification

Construction site inspections are necessary to ensure that storm water BMPs are properly installed and maintained, and to conduct enforcement, when needed, to ensure compliance.

Measurable Goals

The measurable goal for implementation of BMP3 is to conduct timely inspections of all active construction sites within the city, *regardless of the size of the land disturbance*, and to enforce control measures and ordinance provisions. The inspections will be conducted by city staff trained to recognize proper installation and maintenance of sediment and erosion controls. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Date Due	Responsible Department
Construction Site Inspection	1. Conduct inspection of 100% of construction activities <i>regardless of the size of land disturbance</i> .	0-5	Building Inspection, Engineering and Environmental Services

Responsible Persons

The Directors of Engineering and Environmental Services, and the City Building Official have the responsibility for the implementation of BMP3.

5.3.4 BMP4 Response to Citizen Complaints

The city of Carrollton will use the same mechanisms described in 2.3.4 (Public Involvement BMP 4, Illicit Discharge Reporting Line) to provide a means to receive and consider public inquiries, concerns, and complaints regarding *all* construction sites *regardless of the size of the land disturbance*. Therefore, this BMP will have the same measurable goals and schedule of implementation. The responsible parties will include all the city departments that may be involved in the inspections of the construction site. Complaints received from the public will be investigated and enforcement, if needed, will be conducted.

Justification

The general public can be a valuable tool to identify illicit discharges of pollutants from construction sites. Community hotlines provide a means for the public to report water quality problems that otherwise can go unnoticed to municipalities with limited resources. By quickly responding to reports of illicit discharges from construction sites, the environmental impact of such incidents can be minimized. Although the city does not

have a telephone number dedicated exclusively to report illicit discharges of this nature, Environmental Services’ main number provides the service of a dedicated hotline.

Measurable Goals

The measurable goal for implementation of BMP4 is to maintain the present hotline (or an equivalent number) for public input regarding illicit discharges from *all* construction sites *regardless of the size of the land disturbance*. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Illicit Discharge Reporting Line	1. Maintain “hotline” for construction site concerns	0-5	Building Inspection, Engineering and Environmental Services

Responsible Persons

The Directors of Environmental Services and Engineering, and the City Building Official have the responsibility for receiving public input regarding illicit discharges from construction sites and addressing them as needed.

5.3.5 BMP5 Storm Water Information Package for Construction Site Operators

The city of Carrollton will prepare an information package for distribution to all construction site operators applying for a grading or building permit with the city *regardless of the size of the land disturbance*. The information will include:

- requirements to apply for a TPDES construction permit
- requirements for preparation of Storm water Pollution Prevention Plan (SWPPP)
- requirements to submit copies of Construction Site Notice or Notice of Intent and SWPPP to the city
- guidelines for installation, inspection and maintenance of erosion/sediment controls
- guidelines for construction debris and trash management
- guidelines for hazardous waste management
- guidelines for minimization of disturbed areas
- guidelines for record keeping requirements of TPDES permit
- guidelines for final stabilization of the site after construction has ended
- guidelines for removal of temporary BMPs after final stabilization
- guidelines to submit Notice of Termination

Justification

Storm water runoff from construction sites, which can be loaded with sediments, nutrients, heavy metals and oil and grease among other pollutants, is one of the most common causes of water quality problems in the region. Construction sites can contribute more sediment to streams than can be deposited naturally over several decades. Education on the environmental impact of illegal discharges and improper waste disposal from construction sites, allows operators of construction sites to understand the importance and need of implementing pollution prevention practices at the site.

Awareness of personal responsibilities is likely to increase operator’s compliance with environmental regulations.

Measurable Goals

The measurable goal for implementation of BMP5 is to prepare an information packet regarding environmental impacts of storm water runoff from construction sites, and the operators’ responsibilities in complying with state permit requirements and city ordinances applying to construction activities *regardless of the size of the land disturbance*. The packet will be distributed to operators by the Engineering and Building Inspection departments along with other relevant materials to grading or building permit applicants. For city-owned construction sites for which the city relinquishes all permit responsibilities to the contractor, the Director of Engineering will be responsible for providing the information package to the contractor, unless the project is under direct control of Public Works or Parks and Recreation, in which case the Director of Public Works or Parks and Recreation will be responsible for such distribution.

Schedule

BMP	Activity	Year Due	Responsible Department
Storm Water Information Package for Construction Site Operators	1. Prepare information package	1	Environmental Services
	2. Implement distribution plan through Engineering and Building Inspection	1	Building Inspection, Engineering, Parks and Recreation and Public Works
	3. Implementation Complete	1	

Responsible Persons

The Director of Environmental Services has responsibility for preparation of the information packet and delivery to Engineering and Building Inspection. Engineering and Building Inspection have responsibility for the distribution of the information package to permit applicants. The Director of Public Works or the Director of Parks and Recreation will be responsible for the distribution of information to their contractors for those construction projects under their direct supervision.

5.3.6 BMP6 Preconstruction Meetings

The city of Carrollton conducts preconstruction meetings with all operators of construction sites, applying for a grading or building permit with the city, *regardless of the size of the land disturbance*. As part of the meeting, implementation of erosion and sediment controls and pollution prevention measures at the site are discussed. The city also discusses compliance with the TPDES storm water permit program for construction activities disturbing 1 or more acres of land, *including the larger common plan of development*. Preconstruction meetings for grading permits are conducted by the Engineering Department, and Building Inspection conducts preconstruction meetings for building permit applicants. Environmental Services attends these meetings when their schedule allows and provides assistance to both departments on an ongoing basis.

Justification

Preconstruction meetings are a good way to outline environmental protection and associated legal requirements to operators of construction sites. It is also a good opportunity to answer questions regarding city requirements and responsibilities of the operator. By meeting with operators before construction activities start, any problems or deficiencies found in the permit application or SWP3 can be brought to the operator’s attention, minimizing the potential for illicit discharges from the construction site.

Measurable Goals

The measurable goal for BMP6 is to continue to conduct a preconstruction meeting with each applicant for a grading permit or a building permit (*regardless of the size of the land disturbance*), to discuss erosion and sediment controls, pollution prevention practices, waste management, and TPDES requirements for construction operators.

Schedule

BMP	Activity	Year Due	Responsible Department
Preconstruction Meeting	1. Conduct preconstruction meetings with all (100%) applicants to a grading or building permit	0	Building Inspection, Engineering and Environmental Services

Responsible Persons

The Director of Engineering or the City Building Official has the responsibility for conducting the preconstruction meetings and ensuring inclusion of storm water pollution concerns. The Director of Environmental Services will assist both departments as needed.

5.3.7 BMP7 Demolitions

Operators of a demolition site greater than or equal to one acre, *including the larger common plan of development*, are required to submit either a copy of their NOI or Construction Site Notice (whichever is applicable) and SWPPP. These documents are reviewed and required to be complete and technically sound before a permit is issued.

Justification

Review of Construction Site Notices, NOI’s and SWPPP’s ensures that demolition operators have applied for coverage under the TPDES Construction Permit and that appropriate erosion and pollution control measures are implemented at the site. Plans review also aids in identifying individuals responsible for implementation of erosion and pollution control practices, facilitating enforcement actions when necessary.

Measurable Goals

The measurable goal for implementation of BMP7 is to obtain a Construction Site Notice and a SWPPP for all demolition sites greater than or equal to 1 acre, *including the larger common plan of development* and receive a NOI and a SWPPP for all demolition sites greater than or equal to 5 acres, *including the larger common plan of development*.

Construction Site Notices, NOI's and SWPPPs will be reviewed by staff of the department issuing the permits. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Demolitions	1. Establish policy for demolitions.	1-2	Environmental Services
	2. Building Inspection requires copies of either CSN or NOI and SWPPP from all operators disturbing one or more acres of land, <i>including the larger common plan of development</i>	1-5	Building Inspection
	3. Procedures in place to obtain and review NOI's and SWPPP of all (100%) demolition sites required to obtain a NPDES/TPDES storm water permit	1-5	Building Inspection and Environmental Services

Responsible Persons

The City Building Official has the responsibility for requesting, obtaining and reviewing demolition Site Notices or NOI's and SWPPP's on all demolition sites greater than or equal to one acre, *including the larger common plan of development*. The Director of Environmental Services is responsible for overseeing the demolition process.

## **6. Post Construction Storm Water Management in New Development and Redevelopment**

### ***6.1 Regulatory Requirement***

**The city of Carrollton will develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects that are less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres, that discharge into the city's MS4. The program will ensure that controls are in place that would prevent or minimize water quality impacts. The city will:**

- (a) Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for our community;**
- (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; and**
- (c) Ensure adequate long-term operation and maintenance of BMPs.**

### ***6.2 Current Programs***

The Planning and Zoning Commission regulates development in the city of Carrollton through several ordinances, as well as general design standards, addressing various aspects of development and redevelopment. The Comprehensive Zoning Ordinance establishes the way in which sections of the city are to be developed, and depending upon the zoning district, it establishes maximum impervious coverage of 80 to 100% of the total area of the tract. It also establishes minimum requirements of landscaping that range from 0 to 20% of the total area. The ordinance also establishes additional landscaping provisions in order to protect and conserve the community's soil and prevent soil erosion and silting of drainage structures and water bodies, and to provide opportunities for groundwater recharge. In order to ensure compliance with these and other city requirements, the city reviews any proposed development plan, before a construction permit is issued.

The Storm Water and Flood Protection Ordinance limits the maximum allowable rate of runoff of any newly developed property to that which would have been created if the property had been developed as single family residential property unless detailed technical data demonstrate that such controls are not necessary to avoid impacts on the waterways beyond those expected from a residential development. This ordinance also prohibits new construction on any floodplain area, unless the area can be reclaimed from the floodplain. The floodplain is defined as the area that would flood if the watershed were fully developed. This definition is more stringent than the regulatory floodplain concept used by the Federal Emergency Management Agency, which administers the National Flood Insurance Program. Issuance of a Floodplain Alteration Permit is contingent upon ensuring that the development will not create erosive water velocities on

or off-site, nor significantly increase downstream discharges.

Additional open space is preserved by the Subdivision Ordinance, which requires all new residential subdivisions to provide neighborhood parks or pay a fee in lieu of dedication, after review by the city. All fees collected by this process, are used to develop the neighborhood park system designated to serve the particular area. The city also has a Tree Preservation Ordinance that prohibits the removal of 38 species of protected trees. Prior to development on a site that has one or more protected trees, the city must approve a tree preservation plan. If the city authorizes removal of protected trees, the developer must plant replacement trees as required by the city, or pay a fee to a Tree Restoration Fund unless addressed under another federal permit such as a Section 404 permit.

Long-term maintenance of structural best management practices is regulated under the Storm Water and Flood Protection Ordinance. Generally speaking, property owners are responsible for maintenance and are required to enter into a perpetual maintenance agreement with the city, unless the city elects to assume maintenance responsibility.

### ***6.3 Selected BMPs for Post Construction Storm Water Management for New Development/Redevelopment***

- 6.3.1 Review of Subdivision Ordinance and General Design Standards
- 6.3.2 Long-Term Operation and Maintenance Plan for Structural BMPs
- 6.3.3 Site Plan Review
- 6.3.4 Green Space Preservation
- 6.3.5 Tree Preservation Ordinance
- 6.3.6 Inspection of Structural BMPs during Construction
- 6.3.7 Limited Mowing Height

#### **6.3.1 BMP1 Review of Subdivision Ordinance and General Design Standards**

The city of Carrollton will review ordinances related to development, as well as continue the present schedule of annual review of general design standards, to identify opportunities for implementation of additional post-construction control measures *for all land disturbance regardless of size*. Based on the evaluation, the city will make any changes necessary and implement revised requirements.

#### **Justification**

Policies and ordinances are powerful tools to direct growth to identified areas, protect ecologically sensitive areas, minimize impervious surfaces, and provide buffers along sensitive water bodies. By reviewing ordinances and policies, the city has the opportunity to identify additional controls that are feasible for implementation.

#### **Measurable Goals**

The measurable goal for implementation of BMP1 is to review ordinances related to development and redevelopment, *for all land disturbance regardless of size*, and identify additional opportunities for implementation of control measures that will assist the city in reducing pollutants in storm water from newly developed or redeveloped areas. As changes are identified, they will be adopted and implemented.

Schedule

BMP	Activity	Date Due	Responsible Department
Review of Development Ordinances and Standard Manual	1. Begin review of ordinances and continue review of general design standards	1	Engineering and Urban Development
	2. Identify options for post-construction controls, evaluate cost of implementation. Continue review of documents	2	
	3. Begin to adopt appropriate changes based on effectiveness and feasibility	3	
	4. All ordinances reviewed and appropriate changes made when feasible. Implementation complete	5	

Responsible Persons

The Directors of Engineering and Urban Development are responsible for implementing BMP1.

6.3.2 BMP2 Long-Term Operation and Maintenance Plan for Structural BMPs

The city requires permanent structural BMPs to limit the rate of runoff from a new development to the rate equal to that which would have been generated if the property had been developed as single family residential property. Therefore, there are no permanent structural storm water controls in residential developments. In commercial developments, permanent structural controls are required *for all construction projects of one acre or greater, including the larger common plan of development*, unless technical data demonstrate structural controls are not necessary to avoid impacts on the waterways beyond those expected from a residential development. The city has developed procedures and methods to ensure long-term operation and maintenance of structural BMPs. In addition, the city will continue to research more effective means of ensuring the maintenance of these controls.

Justification

Structural BMPs such as detention and retention facilities are effective tools for reducing runoff flow rates, as well as allowing for settling of sediment and infiltration of the water. By allowing runoff to infiltrate into the ground and getting suspended sediment to settle out, pollutant levels can be reduced before the water leaves the site. Appropriate maintenance is necessary to ensure proper performance of such structural controls.

Measurable Goals

The measurable goal for implementation of BMP2 is to develop procedures and methods to ensure long-term operation and maintenance for structural BMPs constructed on public or private property of *one acre or greater, including the larger common plan of development*. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Department
Long-Term Operation and Maintenance Plan	1. Identify procedures and methods to ensure long-term maintenance of structural BMPs	Year 4	Engineering and Public Works
	2. Implement procedures and methods to ensure long-term maintenance of structural BMPs.	Year 5	

Responsible Persons

The Directors of Engineering and Public Works have joint responsibility for identifying and implementing procedures and methods to ensure long-term maintenance of structural BMPs.

6.3.3 BMP3 Site Plan Review

The city of Carrollton will continue to review all new development/redevelopment site plans before construction permits are. The review will ensure compliance with limits on maximum runoff rate, maximum impervious coverage, minimum landscaped area, minimum neighborhood park area for residential projects, and tree preservation requirements, among others. *Site plan review is done for all projects, regardless of the size of land disturbance.*

Justification

Considerations of water quality impacts from the beginning stages of a project provide more opportunities for water quality protection. Review of plans allows for deficiencies to be addressed prior to the initiation of on-the-ground activities making them easier and cheaper to fix.

Measurable Goals

The measurable goal for implementation of BMP3 is to conduct site plan reviews for each new development or redevelopment project, *regardless of the size of land disturbance*. Approval of a project will depend upon the findings of the review. Development and implementation will be according to the schedule below.

Schedule

BMP	Activity	Year Due	Responsible Departments
Site Plan Review	1. Site plan review of 100% new development/ redevelopment projects	0	Urban Development and Engineering

Responsible Persons

The Directors of Engineering and Urban Development have the responsibility for considering results of plan reviews before issuing development and construction permits.

### 6.3.4 BMP4 Green Space Preservation

The city will continue to enforce the provisions of the Subdivision Ordinance that require each new or redeveloped single-family residential project that disturbs *one acre or greater, including the larger common plan of development* to dedicate a portion of the land to neighborhood parks. The Planning and Zoning Commission will determine the area necessary on an individual basis.

#### Justification

Similar to certain structural BMPs, green space preservation creates opportunities for treatment and infiltration of urban runoff. By preserving pervious surfaces that allow runoff to infiltrate into the ground, some of the pollutants present are removed by the soil and vegetation, while the volume and velocity of runoff are also reduced. Green spaces within urban areas also provide much-needed habitat for wildlife.

#### Measurable Goals

The measurable goal for implementation of BMP4 is to continue to implement present policies regarding the dedication of land in new and redeveloped single-family residential subdivisions *that disturb one acre or greater including the larger common plan of development*, for neighborhood parks. Because the total amount of undeveloped land to be preserved is determined by a number of considerations which vary from site to site, a numerical goal cannot be established for this BMP. Development and implementation will be according to the schedule below.

#### Schedule

BMP	Activity	Year Due	Responsible Department
Green Space Preservation	1.Implementation of green space preservation policies in 100% new projects	0	Urban Development

#### Responsible Persons

The Director of Urban Development has the responsibility for the implementation of BMP4.

### 6.3.5 BMP5 Tree Preservation Ordinance

The city of Carrollton will continue to enforce the tree preservation ordinance that prohibits the removal of 38 species of protected trees with a caliper measurement of 4” or greater. The city also requires all construction or development projects containing one or more protected trees, to develop a tree preservation plan, and submit it to the city before any development or building permit can be issued. Replacement of trees for which the city has given authorization for removal, will be done in accordance to the provisions of the Tree Preservation Ordinance. In cases where the city accepts payment of a fee in lieu of tree replacement, the fees will be paid to the Tree Restoration Fund, and will be used solely for the purpose of purchasing and installing trees in public areas. *The tree preservation ordinance applies to all commercial projects, including apartment complexes regardless of the size of the land disturbance.*

Justification

Urban tree preservation provides small, but essential green spaces that break up a landscape of impervious surfaces and provide pockets for runoff infiltration.

Measurable Goals

The measurable goal for implementation of BMP5 is to continue implementation of the Tree Preservation Ordinance.

Schedule

BMP	Activity	Year Due	Responsible Department
Tree Preservation Ordinance	1. Implementation of Tree Preservation Ordinance in 100% new projects	0	Parks and Recreation and Urban Development

Responsible Persons

The Directors of Parks and Recreation and Urban Development are responsible for implementing BMP5.

6.3.6 BMP6 Inspection of Structural BMPs During Construction

The city will inspect the construction of structural BMPs, *that are required on all new and redeveloped sites of one acre and greater, including the larger common plan of development*, to verify that design specifications are followed to ensure appropriate performance of the finished BMP. Because inspection of BMPs will be done as part of the construction inspections described in section 5, this BMP will have the same measurable goals and schedule of implementation previously described.

Justification

Poor construction of structural BMPs can affect their efficiency in removing pollutants from runoff and controlling flow *on all new and redeveloped sites of once acre and greater, including the larger common plan of development*. Poorly built BMPs can also create public health problems and cause environmental damage. Retrofitting a poorly built BMP is expensive and difficult. Inspection during construction is essential to ensure that BMPs will perform as designed and save unexpected costs in maintenance.

Measurable Goals & Schedule

See section 5.3.3, BMP3 Construction Site Inspection

Responsible Persons

The City Building Official has responsibility for implementation of BMP6.

6.3.7 Limited Mowing Height

The city will limit mowing of parks areas to a minimum height of 2.5 inches to protect the soil from erosion due to rain or irrigation. In addition, some areas will be designated “no-mow” areas and vegetation will be allowed to grow to their natural height further reducing erosion and allowing for additional infiltration, reducing runoff. *The mowing*

*height and no-mow areas are established after final stabilization is achieved.*

*Justification*

Excessive mowing reduces turf thickness and root formation. A thick vegetative coverage protects topsoil from rain and irrigation, and strong roots maintain the soil in place.

*Measurable Goals*

The measurable goal for BMP7 is to limit grass mowing in park areas to a frequency appropriate to maintain a minimum height of 2.5 inches of ground coverage.

*Schedule*

BMP	Activity	Year Due	Responsible Department
Limited Mowing Height	1. All park areas will be mowed at a frequency to ensure a minimum height of 2.5 inches of ground coverage	0	Parks

*Responsible Persons*

The Director of Parks and Recreation has the responsibility for the implementation of BMP7.