

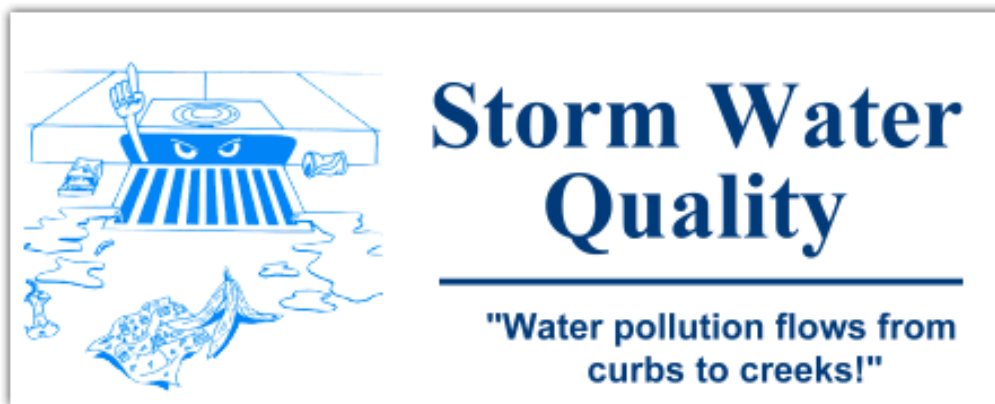
City of Fort Worth

Co-permittees

Tarrant Regional Water District

Texas Department of Transportation, Ft. Worth District

STORM WATER MANAGEMENT PLAN



Storm Water Management Plan

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INTRODUCTION

NPDES Permit #TXS000901 issued to the City of Fort Worth; became effective on December 1, 1996. Delegation of the NPDES storm water permit program has been given to the Texas Natural Resource Conservation Commission (TNRCC); subsequently the Texas Commission on Environmental Quality (TCEQ) and all new applications and reapplications must be submitted to the TCEQ. This document is submitted as a requirement of the TPDES permit reapplication for the City of Fort Worth. Part I describes the current status of the City's Storm Water Management Plan and Part II includes a description and justification for all proposed modifications to the plan.

The City of Fort Worth's Storm Water Management Plan was originally written and then implemented to satisfy the NPDES requirements for large MS4s as described in the federal Clean Water Act. The Management Plan described in Part I herein accurately reflects all current storm water related activities in the City of Fort Worth. Some of these program activities do differ from the activities as described in the City's past permit applications with the USEPA and TCEQ. As some of the programs grew and evolved, we were able to modify them to more effectively meet the goals of the program and many of these programs are much larger than ever envisioned during the original permit application process. As the programs continue to grow, further modifications will be needed to meet Fort Worth's higher goals. Modifications proposed for Fort Worth's upcoming permit term are described in Part II of this document. These changes were made based on the data and experience gathered over the last five years and should improve our ability to effectively manage our storm water resources.

**PART I: STORM WATER MANAGEMENT PLAN
UPDATED FOR 2011**

1. STRUCTURAL CONTROLS

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(A)(1)

Requirement: “The MS4 and any storm water structural controls shall be operated in a manner to reduce the discharge of pollutants to the Maximum Extent Practicable”

Description: During the first permit term, two separate studies were performed to address the feasibility of converting existing flood control sump areas into detention/retention ponds for pollutant removal. The first study was performed by one of Fort Worth’s co-applicants, The Tarrant Regional Water District (TRWD) on sump areas within their jurisdiction. The second study involved evaluation of 11 flood control structures under the City’s jurisdiction. This is an ongoing project with the City of Fort Worth T/PW Storm Water Utility. Yearly summaries will be provided in the Annual Report.

TRWD STUDY

The TRWD used the WMM model to estimate pollutant loads and reductions that occur with the current BMPs in place in each of their flood control sumps along both the Clear Fork and West Fork of the Trinity River. Once the loads were calculated, the sumps available for possible retrofit were determined. Of the 29 total sumps, the study has determined that 13 could possibly be modified for improved pollutant removal capabilities. A final report from the TRWD on the feasibility of retrofitting sumps was included in the 2004 Annual Report. Complete information on the modeling and analysis of the sumps is available in previous Annual Reports. Additional details of this study are described in “FLOOD CONTROL PROJECTS”.

CITY OF FORT WORTH STUDY

The City of Fort Worth contracted with Freese and Nichols, Inc. Consulting Engineers and EMCON Engineering and Environmental Services in studying 11 flood control structures for the possible retrofitting of BMPs. These are the only flood control structures that the City owns and/or has operational control of at this time. The study indicated that none of the structures were good candidates for retrofitting due to size, cost effectiveness and other site-specific conditions. The EPA required that the 11 structure evaluations be certified as a part of the Implementation and Compliance Schedule by October 1, 2000. The certifications were sent to the EPA within the timeframe allowed. Additional details of this study are described in “FLOOD CONTROL IMPACTS”. All data and documents associated with the study are on file with the City of Fort Worth Environmental Management Department, Environmental Services Division at the offices on the 7th floor of the City Hall Annex Building, 908 Monroe, and are available for review.

TXDOT ACTIVITIES

TxDOT owns, operates and maintains the drainage system that conveys runoff from the TxDOT right-of-way. The drainage system is typically composed of storm sewers, open ditches, outfalls, detention ponds and pump stations. Maintenance activities are on-going and performed continuously throughout the year. Maintenance activities include storm sewer inspection, cleaning and repairs, open ditch cleaning, vegetation control, and the inspection and cleaning of detention ponds, storm water pump stations and storm sewer outfalls. Operations and maintenance procedures for TxDOT's storm water system will follow the recommended procedures contained in the TxDOT Environmental Affairs Division's March 31, 2004 Memorandum entitled, "Recommended Best Management Practices (BMPs) for TxDOT Storm Water System Maintenance Operations" as warranted.

TxDOT designs storm water structural controls in a manner to reduce the discharge of pollutants to the MS4. *Storm Water Management Guidelines for Construction Activities*, a TxDOT manual, provides guidelines to prevent erosion and pollutants from entering the waters of the United States from construction projects. Chapter 5 of this text, "Structural Control Practices," illustrates design details for many structural control devices; including height, width, depth and drainage area of each device. In addition to the construction guidelines manual, TxDOT maintains stringent design specifications, ensuring structural goals meet water quality requirements. Due the linear nature of TxDOT's primary design projects (i.e., highways), TxDOT projects primarily use vegetative controls to ensure water quality. Vegetative controls can be used in combination with other effective management measures to increase pollutant removal; provide filtering of suspended solids for permanent control structures; and reduce erosion and scour at inflow discharges to infiltration basins, detention basins, and wetlands. The most common vegetative controls/filters used for TxDOT are as follows: grassed channels, waterways, ditches, or swales designed to inhibit erosion and enhance the settling of suspended solids; and overland flow through a filter strip where such strips consist of grass or forested vegetation designed to filter pollutants from sheet flow runoff and increase filtration.

In addition, TxDOT, through research and testing, evaluates the latest controls for storm water quality. One of TxDOT's recent evaluation measures includes permeable friction courses (PFC). PFC reduces splash and spray from vehicular traffic, minimizing the pollutant wash off and reducing pollutant transport. PFC also serves as a filter for runoff as storm water flows through PFC. PFC was originally designed to reduce visibility impairment on windshields due to storm water vehicular spray. This technology is a key example of TxDOT identifying a structural control that not only improves water quality, but also has a dual use of improving public safety.

Structural control measures can be used alone or in combination to address site-specific highway runoff pollution problems. Section 5.2 of *Storm Water Management Guidelines for Construction Activities* describes additional structural control measures, as well as the appropriate usage and typical design efforts. Additional TxDOT control measures include the following:

- Retention/irrigation ponds
- Extended detention basin (wet/dry basins)
- Constructed wetland
- Sand filter
- Sedimentation ponds/traps
- Infiltration ponds
- Catch basins
- Grated inlets
- Outfall velocity dissipation controls
- Hazardous material traps

The effectiveness of controls is a function of variables related to site conditions, highway design, surrounding water quality, etc.

2. AREAS OF NEW DEVELOPMENT AND SIGNIFICANT REDEVELOPMENT

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(A)(2)

Requirement: “A comprehensive master planning process (or equivalent) to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant redevelopment after construction is completed shall be implemented.”

Description: As the review of the City's current planning processes related to new development will show, the City of Fort Worth incorporates a wide variety of components into policy planning development and implementation. Typically, each of these activities is focused on one particular aspect of development (e.g.; transportation, historic preservation, flood plain, etc.). Unlike most of these components, urban runoff quality issues impact almost all areas of development. Therefore, the City of Fort Worth recognizes the importance of integrating storm water quality issues into its planning process. Only then can meaningful and cost-effective implementation occur. Since the City of Fort Worth is part of a larger urban area sharing major watersheds, the City will continue to participate in regional discussions of water quality issues related to new development.

CITY'S CURRENT PLANNING PROCESS

Based on interviews with City personnel, the following are major documents that outline the City's planning process and regulate new development and significant redevelopment:

1. 2010 Comprehensive Plan
2. Development Procedures Manual
 - Subdivision Ordinance
 - Plan Commission Rules of Procedure
 - City Plan Commission Rules and Regulations
 - Policy for Installation of Community Facilities
3. Subdivision Ordinances
4. Comprehensive Zoning Ordinances
5. Floodplain Ordinances

2010 Comprehensive Plan

The Comprehensive Plan is the City of Fort Worth's official guide for making decisions about growth and development. The Plan is a summary of the recommended policies, strategies, programs, and projects that will enable the City to achieve its mission of focusing on the future and working together to build strong neighborhoods, develop a sound economy, and provide a safe community.

Fort Worth residents have expressed what they most value about Fort Worth, and have identified issues that should be addressed over the next 20 years. The vision statement for the Comprehensive Plan has been shaped by citizens' comments and the City's

mission. The vision and values defined within the Comprehensive Plan represent the creative efforts of the community to lay a successful foundation for the future of Fort Worth.

City of Fort Worth Vision

“By the year 2020, Fort Worth will be commonly recognized as the most livable city in Texas. Residents will be able to enjoy Fort Worth’s friendly atmosphere and the opportunities that are associated with a growing economy and diverse community. Fort Worth’s public schools will produce well-rounded citizens and a skilled workforce to fill high-paying jobs in local businesses. Fort Worth’s environmental quality will also be superior, meeting the highest national standards.”

2010 Comprehensive Plan Environmental Quality Chapter

Protecting and enhancing environmental quality is a critical livability issue. How the City chooses to grow could have significant impacts on the quality and sustainability of our environment.

The Environmental Quality chapter is intended to consolidate the many environmental concerns facing the City, and to identify the management practices that will most effectively address these issues. The topics covered include solid waste; air quality; energy conservation; water quality and water supply; wastewater; storm water quality and quantity (drainage); endangered species; sustainable development; and natural habitats.

Storm Water Management

A problem facing many urbanized areas is the effect of storm water runoff in transporting nonpoint source pollution. Nonpoint source pollution is created when water runs over land and picks up sediment, debris, and other pollutants along the way, eventually depositing this material into lakes, rivers, and streams. Because urbanized areas have a high percentage of impervious surfaces, water has fewer places to infiltrate and it is quickly channeled into water bodies, along with the pollutants it picks up.

In December 1996, the City was issued a National Pollutant Discharge Elimination System (NPDES) permit by the U.S. Environmental Protection Agency (EPA) to discharge from the City’s municipal separate storm water sewer system into waters of the United States. This permit was renewed in 2006 by the Texas Commission on Environmental Quality (TCEQ) as a Texas Pollution Discharge Elimination System (TPDES) permit. A major provision of this permit was the minimization of nonpoint source pollution in areas of new development and significant redevelopment, and the City developed planning procedures to address these issues.

In addition to preventing pollutants from entering storm water runoff, the City is concerned with improving existing drainage and preventing future flooding and erosion associated with development. Storm water runoff is not subject to man-made boundaries like neighborhoods, council districts, or sectors. What happens in one part of the city can affect other areas downstream. For this reason, issues pertaining to storm water and drainage must be addressed on a watershed basis. This is particularly important since

Fort Worth has grown substantially within the last 20 years and continued growth is expected over the next 20 years.

In November 2002, 55 local governments kicked off a regional effort to more effectively manage storm water impacts through the *integrated* Storm Water Management (iSWM) program. The iSWM initiative, coordinated by NCTCOG, will help the region achieve environmental goals, foster partnerships with state & federal agencies, and provide guidelines for comprehensive storm water management. The iSWM design manual was released by NCTCOG in January 2006. In March 2006, the City of Fort Worth adopted the iSWM manual, together with a Local Criteria section, as the 2006 Fort Worth *Storm Water Management Design Manual*. This manual provides the most current storm water management techniques that are applicable to site planning and construction. Extensive future capital improvement projects, however, will be required to bring the numerous existing undersized storm drain systems and open channels up to current standards. To upgrade these deficient drainage systems, the Fort Worth City Council adopted a Storm Water Utility in 2006. This utility collects and manages funds to reconstruct and upgrade the City's drainage systems, and to provide for operation and maintenance of the storm water system, including storm drains and drainage channels.

Major flooding in Tarrant County generally occurs as a result of heavy rainfall from frontal type storms, which are most frequent in the spring and summer months. Man-made reservoirs and levees have significantly altered flood flows. The City of Fort Worth participates in the National Flood Insurance Program (NFIP), and regulates development in floodplain areas in the city and other areas under its jurisdiction and control. The City has amended its Floodplain Ordinance to comply with the Federal Emergency Management Agency's (FEMA) new maps, standards, procedures, policies, and guidelines. However, most structure flooding in Fort Worth occurs along storm drain lines and minor streams which are not regulated by FEMA or the NFIP.

Sustainable Development

In recent years, a new approach to environmental planning has emerged — sustainable development. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs. This approach promotes development characterized by more efficient resource and energy consumption, and reduced negative environmental impacts. As population increases and land and resources become more scarce and expensive, it becomes ever more important to consider the long-term ramifications of growth. Cities like Chicago, Austin, Baltimore, and Portland, Oregon have programs in place to address these issues. Some include incentives to use natural vegetation to reduce water consumption, using more energy-efficient building materials to lower the demand on power sources, and using construction materials that are reusable or created from recycled material.

In 2007, the Sustainability and Green Building Task Force was formed to identify ways to promote sustainable and green development practices to improve quality of life for future generations. The task force was reconstituted in 2009 as the Sustainable Development Task Force to assist in preparing a sustainable development action plan for

Fort Worth with goals and objectives that will be included in the Comprehensive Plan when approved by the City Council. The final report is expected to be complete in 2010.

In November 2008, a Lake Worth Vision Workshop was organized by the City as an opportunity for stakeholders to express their ideas and suggestions for the future of Lake Worth and its surrounding area. The workshop was conducted by a five-member consultant panel with expertise in master planning, waterfront development, sustainable design, watershed management, and conservation planning. The panel's recommendations promote sustainable development practices throughout the Lake Worth watershed, including conservation of riparian buffers, protection of floodplains and open space, and development of mixed-use neighborhoods and town centers. The Lake Worth Vision Plan is expected to be complete in 2010.

Environmental Quality Chapter Goals and Objectives

The Mayor and City Council adopted the following strategic goals related to environmental quality: 1) create and maintain a clean, attractive city, 2) improve mobility and air quality, and 3) promote orderly and sustainable development. The following goals and objectives help achieve the City Council's broader strategic goals while addressing current and future needs related to storm water management and sustainability.

Maintain or improve current water quality by reducing the nonpoint source pollutant load entering creeks, reservoirs, and rivers from new development and redevelopment.

- Regularly update policies and procedures to control water pollution caused by storm water runoff in order to comply with Fort Worth's Texas Pollutant Discharge Elimination System (TPDES) storm water permit.
- Reduce flooding through storm water system maintenance activities and drainage infrastructure capital improvements.
- By 2012, complete a detailed inventory of existing drainage structures in Fort Worth.

Improve sustainability of public and private development activities within Fort Worth and the Metroplex.

- Prepare a Sustainability Action Plan in 2010.
- Complete and adopt the Lake Worth Vision Plan 2010.

Environmental Quality Chapter Policies and Strategies

The following policies and strategies will enable the City to achieve its environmental quality goals and objectives related to storm water management and sustainability.

Policies

- Minimize impervious land cover in areas of new development and significant redevelopment.
- Encourage redevelopment and infill in order to reduce the amount of new impervious surfaces outside Loop 820.
- Use natural areas to retain and filter storm water runoff.

Strategies

- When feasible, develop linear parks with walking and biking trails along drainage ways as an effective means of filtering out water pollutants and connecting neighborhoods.
- Reduce erosion and improve ground cover along drainage channels through effective design, construction, and maintenance.
- Support innovative efforts that are cost- and environmentally-effective in addressing water quality issues associated with new development and extensive redevelopment.
- Identify and address potential concerns regarding nonpoint source pollution prevention requirements by providing information to developers and builders.
- Develop a detailed mitigation plan for increasing capacity.

Area Plans and Studies

The plans listed below are incorporated into the Fort Worth Comprehensive Plan by reference. Each plan addresses significant policy issues for targeted districts or for the city as a whole. Activities described in these plans relate to new land development, rehabilitation of existing developments, and improvements to major City infrastructure. While not all of the plans specifically target water quality issues, most have pollution reduction potential to some degree.

1. City of Fort Worth Street Development Standards: Roadway Standards and Master Thoroughfare Plan, 2009

The Fort Worth Master Thoroughfare Plan provides a network of public streets that offers access to private and public properties on one hand and mobility on the other. The Plan is made up of the following elements: freeways, principal arterials, major arterials, and minor arterials. Principal arterials carry significant intra- and inter-urban travel between urban and suburban centers of activity, while major and minor arterials interconnect with and augment the principal arterial system. The location of each MTP element is based on existing roadways, approved plans and programs for realignment and extension, approved concept plans, preliminary plats, and final plats. Roadway locations also are developed with attention to topography, lakes, waterways, flood-prone areas, and other natural features. Existing manmade features such as railroads, roadways, major utility lines and facilities, existing developments, and property lines are considered as well. The City Council adopted an update to the MTP and street development standards in March 2009. The updated standards include the City's first policy on Context Sensitive Street Design (CSS) that incorporates the needs of pedestrians, bicyclists, and public transit riders into the design of streets, and provides a set of guidelines for the submittal of traffic impact studies.

2. Directions Home, 2008

Directions Home: Making Homelessness Rare, Short-Term and Non-Recurring in Fort Worth, Texas within Ten Years was adopted by the Fort Worth City Council in June 2008 as a strategic plan to reduce homelessness. The Plan is based on seven

strategies that mirror national best practices to eliminate homelessness. The purpose of the plan is to move unsheltered and emergency sheltered residents out of homelessness and into permanent housing with support services aimed at fostering independence.

3. Fort Worth Hazard Mitigation Action Plan, 2009

In January 2009, the City Council adopted the Fort Worth Hazard Mitigation Action Plan. The Plan was coordinated by the Fort Worth-Tarrant County Office of Emergency Management. The jurisdictions participating in the plan represent unincorporated portions of Tarrant County as well as nineteen of the forty-one cities in the county. The Tarrant County Hazard Mitigation Team consisting of staff from all participating jurisdictions and external agencies contributed to creating the Fort Worth Hazard Mitigation Action Plan.

Specific hazards and risks in each jurisdiction have been identified and are addressed in each jurisdiction's section of this plan. The Fort Worth Hazard Mitigation Action Plan identifies natural hazards that pose a risk to our area. Vulnerabilities to those risks are identified and quantified as appropriate. Goals, strategies, and projects to mitigate those risks are identified and analyzed.

4. Lake Worth Capital Improvement and Implementation Plan, 2007

The Lake Worth Capital Improvement and Implementation Plan includes a comprehensive list of capital improvements around Lake Worth. The plan includes dredging, watershed management, drainage improvements, water facilities, stump and navigation obstacle removal, and access control to vacant land. The plan is funded with gas well revenues.

5. Trinity River Vision Master Plan, 2003

The Trinity River Master Plan, completed in 1990, was initiated by Streams and Valleys, Inc. and was funded by a grant from the Amon G. Carter Foundation. This master plan was developed for the improvement of 43 miles of the Trinity River Corridor over 20 years. The planning corridor consists of the Trinity River Main Branch and the West Fork, which are divided into nine distinct zones. The Plan provides recommendations based on the distinct character of each zone. An update of the Trinity River Plan from Trinity Park to Gateway Park was completed in 1999. The updated plan is known as the Tilley Plan. The Tilley Plan was formally accepted by Streams and Valleys, Inc. and the Parks and Community Services Advisory Board.

A far-sighted update of this plan, the Trinity River Vision Master Plan, was completed in 2003. It has an enlarged scope that encompasses approximately 88 miles of river and creek corridor. Along with expanding on the existing Master Plan recommendations, it contains recommendations to improve the river's accessibility to the public, attract more people to its banks, develop an urbanized downtown waterfront while maintaining the natural qualities of more remote areas, and increase awareness of its presence and beauty by citizens and visitors. The Plan

identifies opportunities for conservation, linkages, and open space. The primary objectives of the Plan include identifying and improving adjoining land uses, enhancing environmental quality, and flood control.

Policy for Installation of Community Facilities

The Policy for Installation of Community Facilities is a guide for land development prepared by the Development Department. The guide includes the procedures for obtaining a contract for the installation of community facilities as well as general requirements (design, construction requirements, engineering and supervision, approval, and financing). Types of land development projects described in this policy manual are:

1. Water and Wastewater Installations
2. Storm Drain Installation
3. Street Improvements
4. Paving
5. Sidewalk
6. Street Light Installations
7. Installation of Traffic Signals
8. Street Name Sign Installations
9. Park Facilities

This document, along with the City's subdivision and zoning ordinances, focuses on the implementation of policy set forth in the comprehensive plan. This particular document has been revised based on the identified storm water quality concerns for the City of Fort Worth.

Subdivision Ordinance

The City's Subdivision Ordinance applies to land within the corporate limits of the City of Fort Worth and its extraterritorial jurisdictional area. Along with the Zoning Ordinances of the City, the Subdivision Ordinance implements the Comprehensive Plan to promote uniformity of the application of development related regulations, policies, and ordinances; discourage urban sprawl and prevent neighborhood deterioration; realistically and harmoniously relate new development of proximate tracts; provide for the establishment of necessary improvement, design standards and public spaces required for proper subdivision development; provide for the establishment of an equitable and expeditious review of plats; promote quality, flexibility and innovation in tract design, while assuring the safe, orderly and healthful development of land; and establish adequate and accurate records of land subdivision.

Comprehensive Zoning Ordinance

The Zoning Ordinance regulates and restricts the location and use of building, structures, and land for trade, industry, and residence. The City of Fort Worth is divided into districts in order to regulate the location of certain land uses, the location of buildings erected, reconstructed, altered or enlarged for specific uses, and the development standards such as parking and landscaping. Design-based districts such as the Near Southside and Trinity Uptown, and Mixed Use districts provide flexibility in uses while encouraging density and

higher quality building forms. The ordinance also serves to protect and preserve places and areas of historical and cultural importance and to regulate and limit the density of population. The districts, 33 active in total, are grouped into four classes:

1. Class I - Special Purpose
2. Class II - Residential
3. Class III- Commercial
4. Class IV - Industrial

In Class I - Special Purpose, Planned Development "PD" District is intended to provide flexibility and discretion in the application of land uses and development standards and for increased compatibility and more effective mitigation of potentially adverse impacts on adjacent land than is possible under conventional district regulations. Improvements in a "PD" District are typically subject to conformance with a site plan approved by the City Council after a recommendation from the City Zoning Commission. The site plan submitted must contain sufficient information delineating the characteristics of the site, changes in those characteristics as may be proposed by the development, how the development will relate to public services and facilities, and what protection features are included to insure that the development will be compatible with existing adjacent property.

The Unified Residential Development (URD) provisions, part of the Zoning Ordinance, guide the layout and development of multi family construction to encourage compliance and to provide larger amounts of usable open space. No permit is issued for construction, alteration or revision in a Unified Residential Development unless there has been a site plan approved by the Director of Development and a subdivision plat approved by the City Plan Commission.

The Zoning Ordinance also includes Urban Forestry requirements, which aim to reach a goal of 30% tree canopy coverage city wide. The Forestry requirements encourage retention and planting of trees and apply to property that may be graded or otherwise intended for the construction of impervious cover.

Floodplain Ordinance

The City's Floodplain Ordinance was developed to require certain procedures dealing with development and activity within areas of the City prone to flooding, to protect lives, property, and the public health. It relates to safety and welfare in flood prone areas.

NPDES CONSIDERATIONS

As with most municipalities, the City of Fort Worth's requirements and procedures related to new development and planning were not formerly structured to incorporate water quality objectives. Prior to the NPDES storm water regulations, drainage and flood control were the predominant issue regarding storm water. As the City continues to develop programs to address the impacts of new land development on runoff quality, it considers planning procedures and control measure requirements that involve water quality management

objectives, future growth projections, developer input, and community involvement. In designing programs, the City is:

1. Determining alternatives for managing a development process. Each department outlines the standards to be met before an approval can be issued.
2. Assessing alternatives for economic and technical feasibility. Implementation and enforcement of any set of standards or procedures requires careful assessment of available funds.
3. Implementing preferred alternative. After careful evaluation of all alternatives, program implementation should follow a step-by-step procedure.

An internal advisory committee was formed in 1998 with members recruited from the Engineering, Public Works, Development, Planning, Parks & Community Services and Environmental Management departments. Together, these departments input necessary information that helps in the development of programs or setting standards for new development and redevelopment projects.

Staff from the Environmental Management Department also serves on the Development Review Committee and participates in pre-development meetings. The Development Review Committee is made up of representatives from various City departments and reviews all plans for new development. The committee then makes recommendations on its findings to the Planning and Zoning Commission before final approval to develop is granted. During predevelopment meetings with individual developers, representatives from various City departments provide the developer with required information on regulations, ordinances and recommended practices.

REGIONAL PERSPECTIVES ON NEW DEVELOPMENT

In the Dallas-Fort Worth metropolitan area, municipalities share a common urban area and many of these cities are currently under the TPDES storm water regulations. No municipality in the area wishes to ignore its responsibility towards water quality. At the same time, a municipality does not want to be seen as substantially more restrictive of development on the whole because of environmental concerns. Therefore, the City of Fort Worth worked at the regional level through North Central Texas Council of Governments (NCTCOG) in developing a template for designing water quality management programs for new development and significant redevelopment within the region. The template was drafted with participation from the other six (6) Phase I cities, builders and developers. The City of Fort Worth program, designed using this template, was submitted to the EPA and was accepted as satisfying the City's Implementation and Compliance Schedule for "Developing planning procedures to address water quality concerns to incorporate into existing comprehensive plan" due on or before February 1, 2000. In 2006, the City of Fort Worth adopted the regional storm water quality manual (iSWM) which emphasized stronger development review and storm water quality standards. The City is in the process of adopting the 2010 update of iSWM along with improved control of non-plat development through a Fill and Grading Permit.

TRWD ACTIVITIES

TRWD has developed a set of criteria for construction within its jurisdictional area of the Fort Worth Floodway. These criteria are to be used as a supplement to the U.S. Army Corps of Engineers, Fort Worth District (CESWF) Pamphlet SWFP 1150-2-1. Part of the criteria considers Storm Water Collection Devices on all new, relocated or renovated storm drain systems. These devices should consider the capability of containing trash, sediment and oils in accordance with the guidelines set forth in the integrated Storm Water Management (iSWM) program developed by North Central Texas Council of Governments (NCTCOG) and available at: <http://www.nctcog.org/envir/SEEDevEx/iswm/index.asp>.

TXDOT ACTIVITIES

TxDOT has a well-defined and organized planning process in place for the development of transportation projects. As part of the transportation planning process, water quality and storm water management are incorporated in the early decision-making on a project. Storm water issues are one of the many issues taken into consideration during the identification of potential alternatives available to meet a project's needs. Later in the transportation planning process, TxDOT follows the environmental review process outlined by the National Environmental Policy Act of 1969 (NEPA) and Federal Highway Administration rules (23 CFR 771). If the project is not federally funded, TxDOT is required to follow its state equivalent to the federal process (43 TAC Chapter 51).

The environmental review process that TxDOT follows has strict requirements for public involvement, impact assessment, and agency coordination. Among the issues addressed during the environmental review process is water quality. Depending on the significance of the project and its potential impacts, existing water quality conditions are discussed and potential impacts are evaluated in the environmental assessment of the project. If appropriate, water quality mitigation measures are also presented.

During project development, TxDOT is also required to coordinate with the Texas Commission on Environmental Quality (TCEQ). This coordination is conducted as outlined in a Memorandum of Understanding between the TCEQ and TxDOT and, among other things, allows for TCEQ to review and comment on TxDOT project environmental assessments.

During the transportation planning process, the alternatives available to TxDOT to manage storm water quality on a particular project take into consideration all of the conditions at the project site and are contingent upon what is practicable, while maintaining compliance with the NPDES goal of pollutant reduction to the maximum extent practicable. For these purposes, the definition of maximum extent practicable is taken from the Clean Water Act Section 402 and is interpreted as meaning available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

TxDOT develops and implements permanent structural controls and non-structural controls to reduce pollutants from roadway runoff into the planning process. In the past, TxDOT has used permanent storm water control measures on an as needed or on an as required basis. As a result of the NPDES requirements and other water quality concerns, TxDOT has developed this program to assist in addressing water quality issues in the early stages of project development and throughout the construction of the project. The program has been phased into the existing project development process and provides guidance on the appropriate levels of mitigation to minimize the impacts to water quality resulting from highway runoff.

In assessing the need to incorporate permanent water quality control measures into highway construction projects, the quality of receiving water will be factored against other variables. There are several variables that might affect the quality of runoff from a roadway including rainfall characteristics, traffic type, and surrounding land use, but traffic volume appears to be the best single determining factor. In addition, traffic volume data is easily obtainable.

Policy

It is the policy of TxDOT to preserve and where practicable enhance the environment. Environmental concerns are to be fully implemented into departmental policies, procedures, and decision-making practices by addressing environmental considerations in a systematic, appropriate interdisciplinary manner. This will include public involvement and interagency cooperation early in the transportation policy setting, planning and development stages. Particular emphasis will be placed on balancing social and environmental concerns consistent with economic growth and the minimization, and mitigation of environmental impacts. In implementing this policy TxDOT recognizes the need for effective communication and encourages working with others in a cooperative approach early in the policy, planning and developmental stages.

It should also be noted that the TxDOT Fort Worth District has a policy regarding storm water quantity. If a project has the potential to produce adverse impacts during the 100-year flood event, then hydraulic studies are conducted to determine the impacts and appropriate mitigation. If necessary, detention is provided.

Development and Implementation of Permanent Controls

The Environmental Affairs Division of TxDOT has developed the *Stormwater Planning and Design Guidelines for New Development and Significant Redevelopment* for use by environmental, planning and design staff. This section includes a description of permanent structural and non-structural control measures to reduce pollutants from roadway runoff, and how the controls will be developed and incorporated into the planning process. In the past, TxDOT has used permanent storm water control measures on an as needed or an as required basis. As a result of the NPDES requirements and other water quality concerns, TxDOT has developed this program to assist in addressing water quality issues in the early stages of project development and throughout the construction of the project. The program has been phased into the existing project development

process and provides guidance on the appropriate levels of mitigation to minimize the impacts to water quality resulting from highway runoff.

During the project planning process, TxDOT staff will identify receiving waters and their potential to be adversely impacted by the proposed project. To provide guidance on the sensitivity of receiving waters, the TxDOT staff will utilize the TCEQ's stream segment classification system as referenced from the "State of Texas Water Quality Inventory" and 30 Texas Administrative Code Chapter 307 entitled "Texas Surface Water Quality Standards." Using the stream segment classification system, the TCEQ and the Texas Parks and Wildlife Department have published documents which list "Use" and "Quality" designations for each waterway segment. Using this available information, TxDOT can identify the existing quality of receiving waters at the site.

For the purposes of the Fort Worth District program covering the Phase I City and County MS4 areas, the quality of receiving waters will be classified into three categories: Exceptionally High, High, and Moderate. Also, any water-related conservation or restoration effort (i.e. Clean Lakes Program, local Watershed Ordinance, River Authority Program (SB 818), or Galveston Bay Plan) shall also be considered when evaluating the appropriate mitigation measure(s). The Galveston Bay Plan has incorporated actions of the NPDES municipal storm water permit program into the Plan to provide consistency between the Plan and the co-permittees' storm water management programs.

- **Exceptionally High:** These are waters that have been designated "Exceptional Quality Aquatic Habitat" by the TCEQ, listed as a "high" priority impaired water by the TCEQ, or have been identified as providing Endangered/Protected Species Habitat by the Texas Parks and Wildlife Department.
- **High:** Three or more designated uses as taken from the Texas Surface Water Quality Standards, or any perennial stream not having a segment designation.
- **Moderate:** Two designated uses.

In assessing the need to incorporate permanent water quality control measures into highway construction projects, the quality of receiving water will be factored against other variables. There are several variables that might affect the quality of runoff from a roadway including rainfall characteristics, traffic type, and surrounding land use, but traffic volume appears to be the best single determining factor. In addition, traffic volume data is easily obtainable.

The use of 30,000 vehicles per day (or Average Daily Traffic - ADT) as a dividing point is based on two Federal Highway Administration (FHWA) publications. In *Effects of Highway on Receiving Waters: Procedural Guidelines for Environmental Assessments*, (Pub. No. FHWA/RD-84-065, July 1985) the authors concede that anticipated impacts to water quality are highly subjective, but they go on to state that greater impacts might be anticipated where volume traffic exceeds 30,000 ADT and drainage is by curb and gutter. Also, in *Pollutant Loadings and Impacts From Highway Storm Water Runoff* (Pub. No. FHWA/RD-88-006, 007, 008, and 009. April 1990), the findings indicate that pollutants

in runoff from urban highways, which usually had greater than 30,000 ADT (compared to the rural highways in the study that had less than 30,000 ADT), were found to be higher in concentration by a factor of three. For all intents and purposes runoff from extremely low volume roadways (<1500 ADT) will have no impact on receiving waters, therefore permanent controls will generally not be required on such roadways. If the cost of the permanent runoff control measures for any project is substantial relative to the overall project costs, then the measures will be subject to review. A level of permanent storm water management measures applicable to TxDOT highway projects should be considered as guidance to be used during project planning and design for construction of new location roadways and major reconstruction projects. The ADT will be based on a 20-year design projection.

Level I

This designation pertains to projects that have the highest potential to affect water quality and require the highest degree of mitigation consideration. Preventive measures appropriate for consideration at this level include:

- Controls of higher water quality potential
- Water Quality Wet Pond/ Constructed Wetland
- Extended Dry Detention Basin
- Controls of lower water quality potential (consider multiple controls of this type)
- Vegetative Controls (Grassed Waterways/ Existing Vegetation/ Seeding/ Sodding)
- Outlet Protection/ Riprap
- Curb Elimination/ Discontinuous Curbs with Flow to Vegetative Controls/ Detention Basin/ or Wet Pond
- Slope Drains/ Back of Slope Control
- Long-term Maintenance Controls

Level II

This designation pertains to projects that have a moderate potential to affect ambient water quality depending on project specific conditions. Preventive measures appropriate for consideration at this level include:

- Extended Dry Detention Basin
- Vegetative Controls (Grassed Waterways/ Existing Vegetation/ Seeding/ Sodding)
- Outlet Protection/ Riprap
- Curb Elimination/ Discontinuous Curbs with Flow to Vegetative Controls/ or Detention Basin
- Slope Drains/ Back of Slope Control
- Long-term Maintenance Controls

Level III

This designation pertains to projects which have a minimal potential to impact water quality depending on project specific conditions and only if drainage is by curb and gutter. Drainage through a grass-lined channel will typically attenuate any contaminants in runoff from this level of project.

- Vegetative controls (Grassed Waterways/ Existing Vegetation/ Seeding/ Sodding)
- Outlet Protection/ Riprap
- Curb Elimination/ Discontinuous Curbs with Flow to Vegetative Controls
- Slope Drains/ Back of Slope Control
- Long-term Maintenance Controls

TxDOT implements a planning process to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant redevelopment after construction is completed. The goals of such controls must include:

- New development - limiting increases in the discharge of pollutants in storm water as a result of development; and
- Redevelopment - reducing the discharge of pollutants in storm water.

The District lacks authority to prohibit or to control post-construction discharges of storm water from areas of new development and redevelopment located outside of the right-of-way (ROW). Discharges to the MS4 from adjacent areas of new development and redevelopment that cause erosion or similar water quality issues with the District's MS4 will be identified in conjunction with the illicit discharge detection survey activities. The District may approach the discharger to resolve the water quality/quantity/discharge rate concerns or may install controls in the District's MS4, according to TxDOT policy and guidance and as is necessary.

New development and redevelopment projects within the ROW are under District control. District policy requires all new development and re-development projects, including highway construction subject to the TCEQ Storm Water Construction General Permit, to include permanent controls appropriate for the project and for local water bodies. Permanent controls may be structural or non-structural in nature. Because highway projects are linear in nature and ROW can be limited, non-structural controls are frequently necessary and may be preferred when adequate.

TxDOT's post-construction plan design efforts primarily address velocity dissipation, pollutant reduction, and erosion control practices. Specifically, the use of vegetative filter strips enables infiltration and evapotranspiration of storm water runoff from the TxDOT highways based on moderate retention and velocity dissipation. The velocity of storm water discharges is reduced, thus limiting erosion and stream channel degradation and pollutant discharge. All TxDOT ROW and new ROW with earthen surfaces are vegetated

or re-vegetated according to the specifications included in the *Roadside Vegetation Management Manual*.

As described in the Structural Control section of the SWMP, TxDOT uses a number of other post-construction control measures in addition to vegetative filter strips. The structural controls are selected and designed based on TxDOT's manual *Storm Water Management Guidelines for Construction Activities* dated July 2003.

Structural controls may include the following:

- Retention / irrigation ponds
- Extended detention (wet/dry basins)
- Vegetative filter strips
- Vegetated swales
- Constructed wetlands
- Sedimentation ponds/traps
- Infiltration ponds
- Catch basins
- Grated inlets
- Outfall velocity dissipation controls
- Hazardous material traps

Non-Structural controls may include the following:

- Street sweeping
- Litter collection
- "No Mow" areas
- Inlet stenciling

In addition to the *Storm Water Management Guidelines for Construction Activities*, the Hydraulic Manual, created by the Bridge Division within TxDOT establishes general procedures for development of highway drainage facilities. It includes a survey of existing characteristics, estimates of future characteristics, engineering design criteria, discharge estimates, structure requirements, and constraints for the hydraulic design or analysis of highway drainage and receiving facilities. The manual also discusses in some detail storm water management, erosion control, pollution prevention plans, and issues related to managing quantity and quality of runoff.

The designer/planner also considers the existing quality of receiving water at the site to determine potential of a project to impact water quality for both new development and redevelopment. For the purposes of this management plan, the source for this determination will be based on the Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d) and 30 Texas Administrative Code Chapter 307 entitled *Texas Surface Water Quality Standards*.

Measurable Goals

TxDOT will initiate a program of tabulating an inventory of the permanent control measures in this section.

Implementation Schedule Program	Activity	Date Due
Areas of New Development and Significant Redevelopment	A comprehensive master planning process (or equivalent) to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant re-development after construction is completed.. The goals of such controls shall be: a. New development – limiting increases in the discharge of pollutants in storm water as a result of development, and b. Re-development – reducing the discharge of pollutants in storm water.	01/2015

3. ROADWAYS

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(A)(3)

Requirement: "Public streets, roads, and highways shall be operated and maintained in a manner to minimize discharge of pollutants, including those pollutants related to deicing or sanding activities."

Description: The City has an active storm drain inlet cleaning and maintenance program to remove pollutants before they reach receiving waters. The City also has an active spill response program that addresses both hazardous and non-hazardous spills to roads and streets. The City's street sweeping program primarily involves routine sweeping in the downtown area and clean-up after deicing.

MAINTENANCE

Street Services utilizes two, two-man, VACTOR crews to clean storm drainage structures. VACTOR is a highly specialized truck that utilizes high-pressure water hoses and a vacuum system. There are an estimated 30,000 curb inlets and drop boxes in Fort Worth and the VACTOR crews clean approximately 7% of these annually (10 per day, 200 working days per year). These crews work from a routine work schedule but also respond to complaints from citizens, neighborhood associations and others. The City has purchased additional VACTORS so that five crews can be deployed during the next year. Street Services also has three emergency trucks with two-man crews that are utilized in the event of storm drain system clogs, collapses or other emergency needs.

SPILL RESPONSE

The City has a spill response program to remediate spills of hazardous and non-hazardous materials to the roads and streets. This program is described in detail in the "SPILL PREVENTION AND RESPONSE" section of this document. Primary response is through the Fire Department with assistance from Environmental Management. The Street Services Division also occasionally assists by spreading aggregate over some spills to soak up the material. The material is swept up utilizing street sweepers with the material then being transported to a secure storage area for proper disposal. Spills, involving assistance from Street Services, are typified by hydraulic fluids leaking from a moving vehicle or an oil spill that vehicles have tracked through resulting in several blocks of streets being contaminated. When there is a large spill such as a gasoline tanker overturning, resulting in thousands of gallons of product entering the storm drain, Street Services assists by supplying large amounts of aggregate that is used to construct dams in the storm drain. This action effectively contains the spill and prevents a discharge to the Waters of the U.S.

STREET SWEEPING ACTIVITIES

A private contractor is used to clean approximately 140 blocks of the Central Business District (downtown) on a weekly basis. This activity is funded by the Fort Worth Public Improvement District #1 and managed by Downtown Fort Worth, Inc. The primary function of this service is litter control though oil, grease and other pollutants associated with streets are effectively removed.

The City of Fort Worth Transportation and Public Works Department, Street Services Division, performs street sweeping for two primary activities. Street sweeping is performed before a street is seal coated to prepare the surface for treatment. The street is also swept after seal coating. Limited street sweeping is also performed to support other Street Services activities though this is not widespread and is more associated with “spot” treatments. The other main street sweeping activity is for the benefit of removing deicing materials after winter storms. During snow or icy weather, Street Services places aggregate on bridges, overpasses and selected streets to improve traction. If the aggregate is dry, no salt is added. However, if the aggregate is wet, a 1:29 (3.5%) ratio of salt is added to prevent the aggregate from freezing to the truck. To minimize pollutant discharges to the MS4, the aggregate is swept up after the storms have passed and then recycled whenever possible. The remaining dirt and salt is landfilled.

TXDOT ACTIVITIES

TxDOT operates and maintains highways in a manner to minimize the discharge of pollutants, including those pollutants related to deicing or sanding activities. TxDOT reduces the discharge of pollutants from road repair, equipment yards, and material storage/maintenance facilities to the MS4. BMPs and state-wide programs described throughout this SWMP have the primary goal of minimizing pollutants from roadways, as the highways are the primary area of operation for TxDOT. In addition to these BMPs, TxDOT implements a number of programs, as presented in the following section, to minimize pollutant discharge.

Mowing and Vegetation Management

Mowing and vegetation management are an integral part of TxDOT’s highway maintenance program. The wildflower program is part of a comprehensive vegetation management program. It encourages the growth of native species that require less mowing and care. The native grasses and wildflowers help to conserve water, control erosion and provide a habitat for wildlife. The department normally plants over 50,000 pounds of wildflower seeds each year and has an annual landscaping budget of approximately \$10 million. Mowing is delayed until wildflowers have set mature seeds to assure the preservation and propagation of wildflower species. Detailed information on the wildflower program, as well as types of mowing, special situations mowing and litter pickup and non-mow areas, are located in the *Roadside Vegetation Management Manual*, June 2009.

Material Storage/Stockpiles

Materials Storage at Maintenance Facilities

The Division of Occupational Safety has implemented a program of inspection at each District/Section maintenance facility once every two years with an objective to note hazards within the workplace that may contribute to employee accidents or violate state and federal regulations (including water quality). The responses by the Districts and Sections have shown that the survey team is serving as educators as well as reporters. Following the report of the visit, the Districts have promptly addressed the adequate storage, handling, labeling and personal protection requirements involved with such items as solvents, wet batteries, paint/oil/grease barrels, etc.

Stockpiled Materials

One of the METF objectives was an analysis of maintenance office locations for activities that may have environmental impact. Material stockpile constituents were highly prioritized as “potential impact” items in discussion. Because of the questionable nature of stockpiled materials, usually consisting of a petroleum based product, and because of growing public concern about possible adverse impact on surface and ground water, the METF, assisted by the Materials and Tests Section of the Construction Division, contracted with Southwestern Laboratories to identify and quantify potentially hazardous constituents in storm water runoff and/or leached from a broad sampling of stockpiled materials. Laboratory work represented the initial phase of the analysis.

The materials of interest were reclaimed asphalt pavement (RAP), hot mixed-cold laid bituminous mixes, limestone rock asphalt, pre-coated aggregates, and various patching mixes. The laboratory work involved simulated rain water leaching of the materials with analysis of the leached for volatile and semi-volatile organic compounds and heavy metals. The objective of the study was to identify and quantify “Skinner List” and “Priority Pollutant” constituents in stockpiled material that pose a risk of migration into the environment.

The goals of this phase of the study were to:

- Identify potentially hazardous constituents, preferably by Gas Chromatograph-Mass Spectrometer work on the pure cutter stocks.
- Simulate leaching of these constituents by a distilled water leached, or possibly TCLP, procedure.
- Identify and quantify leached constituents of concern.
- Differentiate between the insoluble (runoff) and the soluble (leached) constituents, both qualitatively and quantitatively if feasible.

TxDOT analyzed for the constituents identified on the Skinner’s List and the Priority Pollutant List. The Department developed a sampling and analysis plan and obtained samples at various locations throughout the state. The sampling involved rural and urban areas with average daily traffic <10,000 and >50,000, respectively, and average annual rainfall greater than 20 inches at several geologic regions. Analysis was performed on 33 samples. The final report, Asphalt Stockpile Testing Project, was submitted in June 1993 and indicated there was no significant leaching of any materials hazardous in nature.

Disposal Practices

Wash Wastes from Striping Trucks - TxDOT completed the transition from the use of oil-based traffic paint to water-based paint in April 1994. The only waste generated from traffic paint striping activities is waste water from flushing water-based paint from lines and spray nozzles. The residual from water-based paint lends itself to reuse more so than oil-based paint. Therefore, the amount of waste generated is minimal. Waste that is not reused is disposed of into the publically owned treatment works, POTW. Any waste not suitable for disposal into the POTW will be disposed of through TxDOT's purchasing department. The use of lead-based paint has been completely eliminated within TxDOT. Any paint containing lead that may have been previously stored in the Fort Worth District was sent to TxDOT-Austin for appropriate disposal in early 1995.

Unknowns found on the Right-of-Way

The frequency of finding unknown substances on the highway is increasing. The quality and use or disposal usually results in costly testing to first classify the material. A waste can be classified as hazardous by the EPA because it is listed as such, it exhibits hazardous characteristics, or it is a mixture of wastes that contains a listed waste, or a characteristic waste. The wastes may be saturating soils or within sediment encountered during a maintenance activity. The problem becomes magnified when dealing with unlabeled waste drums improperly stored or appearing on the right-of-way. When the waste is of unknown make-up and/or origin, the available options are usually limited to analytical testing before disposal.

TxDOT can best manage the removal of waste products threatening water quality on the right-of-way by:

- Checking the EPA list of hazardous chemical names if known. EPA also provides a list of sources that generate hazardous waste and should be checked.
- Understanding the process of identification and disposal.
- Testing the waste for hazardous characteristics.

Spill Response

TxDOT often discovers or is notified of hazardous material spills on right-of-way. A State accepted response plan calls for TxDOT's relationship with the TCEQ regarding clean-up of oil and hazardous material spills to be in a "coordination and support" role. TxDOT has an interagency agreement with the TCEQ that provides for TxDOT's limited participation in clean-up of spills throughout the State. Implementation of the contract is accomplished through the Maintenance Division and the "TCEQ Spill Response Unit".

Bridge, Heavy Equipment and Building Paint Removals

Bridge paint removal and application projects are closely scrutinized to ensure potentially hazardous materials do not adversely affect the environment. Sand blasting has typically been used in the cleaning and removal of paint from equipment and structures, particularly on maintenance of existing bridges. New air control regulations limiting airborne particles and the work locations near water impoundments has placed a greater awareness of the potential for environmental impact to receiving waters. Old paints often contain a substantial amount of heavy metals (lead, chromium), with some of the newer

paints containing volatile organic compounds (VOCs). TxDOT is actively developing strict requirements involving containment on-site and disposal limitations. Recent letting of paint cleaning contracts on bridges have resulted in pessimism about the cost-effectiveness of the strict containment process, as compared to alternative reconstruction. A moratorium on new cleaning contracts is currently in effect until the cost issue is resolved.

Before paint is removed, it is tested for heavy metals, especially lead. If lead is present, all blast material will be contained and collected. Blast material is tested for hazardous materials and disposed of properly. TxDOT, at several levels, is working with State and federal agencies in researching methods of encapsulating the resulting contaminant (usually lead) and containing blast sand into reusable material such as concrete or clay bricks.

Heavy equipment and building paint removal and application projects will continue to be performed by contract and state labor. As in bridge related projects, strict compliance with Departmental, state and federal standards and regulations will be followed.

Other Maintenance Considerations

The primary use of the highway system other than for public travel is utility assignments on the right-of-way. TxDOT's utility policy applies to underground, surface or overhead facilities. These are private lines as well as public, including power transmission, telephone, telegraph, television cable, water, gas, oil, chemicals, steam, sanitary sewer and similar lines. The Department utilizes a utility permit process with intent to regulate the location, design and methods for installation and adjustment of utility lines on State-controlled highways.

Under existing laws, various utility firms and agencies have a legal right to install their lines along and across State highways. Policies governing the design, location and methods of installation are set out in the Safety and Maintenance Operations Manual, and in the Utility Accommodation Policy Manual maintained by the Division of Right-of-Way. The Division of Right-of-Way's "Utility Manual" will give guidance in the administration of utility adjustments or financial participation therein. Although difficult to determine the legal status of some of the proposed installations, the Department maintains its rights to designate the location and conditions that will govern their installation and maintenance. There is general consensus that the utility policy should enforce more stringent water quality protection in the applicant's construction and maintenance procedures.

TxDOT is experiencing an increase in the requests to temporarily use highway right-of-way for investigation and remediation of leaking petroleum storage tanks (LPSTs). The applicants are both private property owners and public entities. Through cooperation with the TCEQ, TxDOT is successfully using an agreement process with the LPST site owner and contractor. The disturbance to the roadside is minimal in the initial investigative stages of the work, but the applicant is instructed to follow an abbreviated planning and

design process in the remediation stages involving construction/repair threatening the integrity of the system or inconvenience to the traveling public.

The Divisions of Right-of-Way, Construction, Contract Services, and Maintenance are currently coordinating the development of rules and policy for allowing this and other such temporary uses of right-of-way. In the tank program a written confirmation by TCEQ or EPA stating agency requirements of investigation/remediation, possibly requiring use of the highway roadside, is normally a required attachment to the Agreement.

Sanding and De-icing Activities

Removal of snow and ice from the roadway is classified as an emergency operation that takes precedence over all other work to ensure public safety. Deicing salt is used on a limited basis by TxDOT. The preferred method of maintaining a safe roadway during icy conditions is through the use of sand without salt. Only during the most severe conditions will salt be mixed with the sand, at approximately 100 pounds of salt per cubic yard of sand. During and after the icy conditions, inspections are conducted to ensure proper cleanup operations minimize pollutant discharge from the MS4.

Roadway Maintenance

TxDOT engages in earth-disturbing operations during regular maintenance of roadways. These operations, such as shoulder blading and ditch cleaning, do not presently meet the definition of construction activities as regulated by the TPDES program, but TxDOT encourages the use of controls to limit erosion and sedimentation resulting from these projects. Most highway maintenance sites experience little erosion as the work is performed as follows:

- At the proper time of year (season),
- At a location protected from sensitive environments,
- With minimal land area disturbance, and
- Only after an investigation/knowledge of area soils.

During usual maintenance, minimal amounts of land area are disturbed or rehabilitated into additional paved surface areas, which would increase storm water runoff. Ditch work is scheduled in seasons when the vegetation will recover, or seeding, sodding and fertilizing could safely be utilized.

Storm Sewer System and Drainage Ditch Cleaning

Drainage ditches are cleaned on an as needed basis during the summer. During the winter, all state-owned drainage ditches are systematically cleaned. Storm water structures are cleaned on an as needed basis as identified by inspection procedures.

Measurable Goals

The Fort Worth District of TxDOT does not collect clippings after mowing grass in the Right of Way. The clippings are “shredded” (not quite mulched) as they are cut and are allowed to decay to provide conditioning for the soil and nutrients for grass re-growth. During extreme rainfall events however, there is the possibility that partially decayed clippings or decay by-products will be washed into the receiving water. The Fort Worth District will estimate the volume of vegetation detritus and organic residue available and then calculate the hypothetical load that would be exerted on the receiving water. Moreover, TxDOT will inspect inlets in vegetated areas after rain events to determine if appreciable amounts of vegetation are entering the MS4.

Program	Activity	Date Due
Roadways	Mowing, Litter Control Program, Implement public education program for floatables	Several times during growing season. Observe constraints. Continue existing program. Immediately during 3 week cycle. 02/22/2016

4. FLOOD CONTROL PROJECTS

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(A)(4)

Requirement: “Influences on receiving water quality shall be assessed for all flood control projects. Where feasible, new flood control structures must be designed and constructed to provide pollutant removal from storm water. If applicable, the retro-fitting of existing structural flood control devices to provide additional pollutant removal shall be implemented, to the maximum extent practicable”.

Description: To address this program requirement, the City of Fort Worth has implemented/performed the following activities:

1. Flood Management Project Design Review
2. Existing Flood Control Structure Retrofit Evaluation

A discussion of the procedures for each activity is presented below.

FLOOD MANAGEMENT PROJECT DESIGN REVIEW

In order to assure that proposed flood control projects assess the impacts on the water quality of receiving water bodies, the City performs a project design review of all future, major flood control projects. The project design review utilizes criteria contained in the City of Fort Worth Storm Water Management Design Manual, 2006 (Design Manual).

By definition, the purpose of a flood control project is to reduce flood damage. Flood control and water quality management strategies differ greatly. Flood control projects are designed to manage storm water runoff resulting from large, infrequent storm events. Normally, these projects are designed to quickly convey runoff resulting from up to a 100-year storm event. Oppositely, water quality management facilities are designed to handle runoff from much smaller, more frequent storm events (1-2 year storm event). In a given year, 70-90% of all runoff (and generally the associated pollutants) typically result from storm events producing less than 2" of rainfall. Water quality management facilities attempt to slow storm water runoff, maximizing hydraulic detention periods to facilitate sedimentation and biological uptake. While this program element is not focused on providing comprehensive water quality management, water quality considerations are included in the design process. Discharge rates for the 2 year and 10 year event are analyzed in accordance with the Design Manual for both flood control projects as well as new development. The goal is to assure that project impacts to receiving water quality are assessed and minimized through the use of sound engineering design principles. Where possible, water quality treatment principles are incorporated into the design of flood control projects.

The City of Fort Worth's Storm Drainage Criteria and Design Manual addresses the following design considerations:

Channel Design

1. Maximum velocity
2. Channel geometry, side slopes
3. Channel material/stabilization
4. Sideslope vegetation

Additional review is performed from staff from various departments. Considerations taken into account can include:

Detention Structure Design

1. Storage volume to maximize residence time
2. Control structure design to slowly release detained flows without causing flooding
3. Mixing baffles to prevent short circuiting

Location

1. Downstream effects
2. Existing receiving water quality
3. Maintainability
4. Proximity in the watershed with respect to impervious areas

EXISTING FLOOD CONTROL STRUCTURE EVALUATION

During the first permit term two separate studies by the City of Fort Worth and the Tarrant Regional Water District (TRWD, formerly known as the Tarrant County Water Control and Improvement District No. 1) were performed to address the feasibility of converting existing flood control sump areas into detention/retention ponds for pollutant removal.

The City of Fort Worth contracted with Freese and Nichols, Inc. Consulting Engineers and EMCON Engineering and Environmental Services in studying 11 flood control structures (Table 1) for the possible retrofitting of BMPs. These were the only flood control structures that the City owned and/or operated at that time.

The evaluations reviewed the design of the existing structural control. The considerations below were addressed during each facility evaluation to determine if retrofitting for water quality enhancement was feasible and practical.

1. Can steep channel sideslopes be regraded/stabilized to a minimum design steepness to reduce velocities/erosion (thus, reducing sedimentation downstream)?

2. Can ponds or channel segments be deepened or expanded to increase permanent pool or dynamic storage?
3. Can control structures on ponds be modified to increase small storm detention times, increase solids settling, and reduce short-circuiting (e.g., baffles, notches, control elevation adjustments, etc.)?
4. Can littoral zones be established?
5. Can stormwater be directed to offline areas for treatment and released back to conveyance after peak flood stages have passed?

The study indicated that none of the 11 structures were good candidates for retrofitting based on the criteria above.

The TRWD used two models, Watershed Management Model (WMM) and Soil and Water Assessment Tool (SWAT) to estimate pollutant loads and reductions that occur with the current BMPs in place to aid in their assessment of retrofit feasibility, primarily wet ponds, to improve pollutant removal in 29 flood control sump areas along both the Clear Fork and West Fork of the Trinity River. Conclusions of the study were that retrofits were not practical for any of the studied sump areas. Complete information on the modeling and analysis of the sumps is available in previous Annual Reports (1999-2004).

TRWD PROGRAM

TRWD either owns and/or controls the floodway system throughout the City. The floodway system is designed to control flood flows into and through the Trinity River. TRWD maintains the floodway system's levees, diversion channels, two off-channel reservoirs and 31 sumps using the following methods: mowing, weed eating, silt removal, slope repair, service road repair, riprap hauling, welding, fencing, trash and debris hauling and flood gate structural inspections.

All flood control projects on the floodway system are reviewed by TRWD to determine BMPs and to enforce erosion control. The Environmental Services Division of TRWD evaluates existing structural flood control facilities for potential water quality improvements. Examples of these projects include: regrading several areas of the floodway, silt removal from sumps and channels, drop inlet installation, and gabion wall installations and maintenance.

TXDOT PROGRAM

Per permit requirements, impacts on receiving water quality must be assessed for all flood control projects. Where feasible, new flood control structures must be designed and constructed to provide pollutant removal from storm water. If applicable, the retrofitting of existing structural flood control devices to provide additional pollutant removal from storm water must be implemented, to the MS4.

The District does not construct flood management projects. Flood control devices are not considered as a management measure and are omitted from this SWMP. However, the

District does have structural and non-structural controls to provide pollutant removal from storm water and this information is discussed in the respective sections in this SWMP. If the District does propose to construct a flood control project within an area, the SWMP will be updated with applicable control measures for Flood Control Projects and TCEQ will be notified of the change.

TABLE 1

**City of Fort Worth Flood Control Structures
Evaluated for Retrofit Feasibility**

1. Lee Avenue Detention Pond (0.17 acre-feet).
2. Marine Creek Park Detention Pond (2.14 acre-feet).
3. Pond #5 Ridglea County Club Golf Course (28 acre-feet).
4. Forty Oaks Detention Basin #2 (27.25 acre-feet).
5. Forty Oaks Detention Basin #3 (9.70 acre-feet).
6. Hulen Bend Detention Pond (20.86 acre-feet).
7. Tancor Detention Basin (6.6 acre-feet).
8. Fort Worth Auto Auction Detention Pond (0.77 acre-feet).
9. Brentwood Stair Road Detention Pond
10. Alliance Airport Lake Detention Pond/Pollution Control Device (1.23 acre-feet).
11. American Airlines Ramp Stormwater Detention Pond, Alliance Airport (3.07 acre-feet).

See Attachment 2f of the permit application for a map of major structural controls for storm water discharge, including detention/retention ponds, major infiltration devices, etc.

5. PESTICIDE, HERBICIDE, AND FERTILIZER APPLICATION

Federal Register Section Number: 40 CFR 122.26 (d)(2)(iv)(A)(6)

Requirement: “Each permittee shall implement controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides and fertilizers applied by the permittee’s employees or contractors, to public right of ways, parks and other municipal property. Permittees with jurisdictions over lands not directly owned by that entity (e.g. incorporated city) shall implement programs to reduce the discharge of pollutants related to application and distribution of pesticides, herbicides and fertilizers.”

Description: Fort Worth’s city staff and contractors must be licensed by the State before they are allowed to apply pesticides and herbicides. City of Fort Worth Environmental Management Department staff conduct training for City staff regarding urban runoff pollution prevention and pesticide/fertilizer/herbicide applications. The City has phased out use of the pesticide Diazinon.

APPLICATION PROGRAMS AND POLICIES

The City and both co-permittees have spraying programs. Fort Worth applies both pesticides and herbicides. Both the Tarrant Regional Water District and TxDOT have herbicide application programs.

Currently, staff from the City department of Parks and Community Services applies pesticides, herbicides and fertilizers on City owned property. In addition, the City department of Transportation and Public Works currently has a herbicide-spraying program to minimize vegetative growth in storm drainage channels. Selected ditches are sprayed once to twice per year. Plants such as cattails and young willow trees are specifically targeted, as they are especially disruptive to the flow of storm water. To prevent contamination of these storm drains, only products that are EPA approved for application in and around waterways (e.g. Roundup™) are used. The main cause of pesticide/herbicide/fertilizer problems in waterways concerns proper use and disposal of the products. To assure that these products are used correctly, City staff and contractors must all be properly licensed by the State of Texas Structural Pest Control Board to participate in any spraying program.

TRAINING

During previous permit terms the City’s Environmental Management Department staff have provided training for City staff regarding storm water pollution prevention and pesticide/fertilizer/herbicide applications either as a stand alone class or incorporated into other training such as HAZWOPER. For the permit term beginning in 2011 the City proposes to use materials developed by the North Central Texas Council of Governments (NCTCOG) to train City staff and contractors. This training may employ a web based or CD/DVD approach.

DIAZINON

The pesticide Diazinon was responsible for several Whole Effluent Toxicity test failures at the City's POTW. The cause of the failures was improper disposal and possible infiltration of Diazinon into the sanitary sewer system. Diazinon was also being detected in storm water samples during storm events. The data indicated that this was mainly a problem in residential areas and several brochures urging proper pesticide use and the availability of less toxic alternatives were developed (discussed in more detail in the PUBLIC EDUCATION section of this document). Since the City also used Diazinon, it was important not only for environmental concerns but for public relations as well that the City discontinue the use of Diazinon. This began in 1998 with the disposal of over 300 pounds of Diazinon that otherwise would have been applied on City property.

TRWD Program

TRWD uses a licensed contractor to apply herbicides to control vegetative growth in flood control valve and sluice structures. In the spring, TRWD uses a slow release fertilizer which is applied according to County Extension Agent guidelines to the flat areas and levees along the floodway. Insecticides are no longer used within the floodway, and fertilizers are not applied to river slopes.

TxDOT Program

Overall, TxDOT's effort to control storm water runoff and its success in water quality conservation rely heavily on roadside vegetation management. The Department addresses its right-of-way vegetation in a four-level vegetation management plan, with levels determined by using average daily traffic (ADT) and descriptions of surrounding property use. This statewide guide harmonizes with the local climate, topography, plant life and levels of urbanization to:

- Ensure the safety of the traveling public,
- Enhance environmental protection,
- Mitigate erosion, and
- Promote coordination and efficiency in maintenance activities.

Vegetation management along the roadside consists of propagation and control of vegetation. Control of vegetation growth is accomplished by physical and environmental friendly chemical means. Physical methods of weed and brush control may include plowing, cultivating, trimming and mowing. The most economical means of control is by using herbicides.

Herbicides have been developed to control vegetation with a minimum of harm to the environment. TxDOT uses only non-regulated herbicides at prescribed rates. The TxDOT Maintenance Division has developed the "Roadside Vegetation Management Manual" for use by departmental employees.

Because TxDOT is aware of the potential adverse implications of application of herbicides on the roadside, the Maintenance Division contracted with the Texas Transportation Institute (Texas A&M University) to develop an environmental impact

statement on the Department's herbicide operation. Although the research project was supplemented with other TxDOT objectives (i.e. to prioritize other maintenance activities and their environmental impact), the statements of environmental impact for the TxDOT herbicide operations are key elements.

Although numerous structural controls are available to maintenance and operations in the reduction of pollutant loading, TxDOT's best management practices rely heavily on vegetation and re-vegetation management principles. The plan calls for strict coordination between mowing and herbicide operations. As an example, TxDOT does not apply overspray-type herbicide after a mowing operation or before the target species attains a mature growing condition. The plan also requires a minimum of 10 days before mowing in overspray areas so the herbicide will translocate to the target species' root system. All TxDOT applicators are licensed by the State.

TxDOT supplements this information with annual training workshops for TxDOT maintenance personnel, subcontractors working under privatized maintenance contracts for the state and construction contractors engaged by the State to do work. Pertinent material contained in the Herbicide Operations Manual and Vegetation Control Standards Manual are included in the material presented during the workshop. Issues defining the composition, hazards, transportation and distribution of nonpoint sources of pollution are also discussed in the workshop.

TxDOT only applies fertilizers in conjunction with new roadway construction or for re-development of disturbed areas in the right of way.

Measurable Goal:

TxDOT will track the fertilizers used in new roadway construction or for re-development of an existing roadway that has disturbed areas within the Right-of-Way.

6. ILLICIT DISCHARGES AND IMPROPER DISPOSAL

Federal Register Number: 40 CFR 122.26(d)(2)(iv)(B)(1)

Requirement: “An ongoing program to detect and eliminate illicit discharges and improper disposal into the MS4. Non-storm water discharges shall be effectively prohibited. However, the permittee may allow certain non-storm water discharges as listed in 122.26(d)(2)(iv)(B)(1). The SWMP shall identify any allowed non-storm water discharges, along with any conditions placed on discharges.”

Description: The current permit describes several specific requirements and the corresponding management programs.

NON-STORM WATER DISCHARGES

“The SWMP shall identify any categories of non-storm water discharges that are not prohibited from being discharged into the MS4 [III.B.6.a.(3)] and shall describe any local controls or conditions placed on discharges” [III.B.6.a.(3)(c)].

The City of Fort Worth has listed all allowed non-storm water discharges in the Environmental Code section of the City Code. The Environmental Code was formally adopted by the City Council on November 28, 1995 and an amended storm water section was passed on May 18, 1999. This code describes what constitutes a storm water violation and what enforcement actions can be taken. The USEPA has made this code available as a model ordinance for use by other cities by publishing it on their national Web Page.

Non-storm water discharges that are allowed into the MS4 are listed in Section 12.5-302 of the City Code. These include:

- A discharge authorized by, and in full compliance with, an NPDES permit (other than the NPDES permit for discharges from the MS4);
- A discharge or flow resulting from fire fighting by the Fire Department;
- A discharge or flow of fire protection water that does not contain oil or hazardous substances or materials that the Fire Code requires to be contained and treated prior to discharge, in which case treatment adequate to remove harmful quantities of pollutants must have occurred prior to discharge;
- Agricultural stormwater runoff;
- Uncontaminated groundwater infiltration (as defined at 40 C.F.R. § 35.2005(20)) to the MS4;
- Uncontaminated discharge or flow from a foundation drain, crawl space pump, or footing drain;
- Drainage from a private residential swimming pool containing no harmful quantities of chlorine or other chemicals. Drainage from swimming pool filter backwash is prohibited;
- A discharge or flow of uncontaminated storm water pumped from an excavation;

- A discharge or flow from
 - water line flushing or disinfection that contains no harmful quantity of total residual chlorine (TRC) or any other chemical used in line disinfection
 - lawn watering, or landscape irrigation;
 - a diverted stream flow or natural spring;
 - uncontaminated pumped groundwater or rising groundwater;
 - a potable water source not containing any harmful substance or material from the cleaning or draining of a storage tank or other container;
 - air conditioning condensation that is unmixed with water from a cooling tower, emissions scrubber, emissions filter, or any other source of pollutant;
 - individual residential car washing;
 - a riparian habitat or wetland;
 - cold water (or hot water with prior permission of the Director) used in street washing or cosmetic cleaning that is not contaminated with any soap, detergent, degreaser, solvent, emulsifier, dispersant, or any other harmful cleaning substance;

TRWD Program

TRWD has a general ordinance which prohibits pollution immediately adjacent to its reservoirs and within areas under District jurisdiction. This ordinance gives the District enforcement power to eliminate discharges and improper disposal. Environmental inspectors with the TRWD perform investigations and respond to water quality complaints. Although the District has enforcement authority, it typically notifies other appropriate agencies, such as the co-permittees and TCEQ.

TRWD has written into its floodway construction criteria some preventative measures specific to water pumps set in the floodway. All pumps must be set in a containment structure capable of containing 1.5 times the total quantity of fluids within the pump. A containment boom must also be in place in the river at a 50' radius from the extraction point. In addition, all water pumps placed below the top of river channel must be removed at end of workday, unless supervision is provided 24 hours a day. All of these measures are an effort to prevent accidental discharges from the pump units into the river.

TxDOT Program

TxDOT prohibits non-storm water discharges to the MS4. For the purposes of the TPDES permit, the following discharges need not be addressed as illicit discharges by TxDOT nor prohibited from entering the MS4:

- Discharges regulated by a separate NPDES or TPDES permit;
- Discharges for which an NPDES or TPDES permit application has been submitted; and
- Other non-storm water discharges that are not prohibited by TxDOT in the SWMP.

SANITARY SEWER SEEPAGE AND OVERFLOWS

“Each copermitttee shall implement controls where necessary and where feasible, to prevent dry weather and wet weather overflows from sanitary sewers into the MS4, and shall limit the infiltration of seepage from municipal sanitary sewers into the MS4.”[III.B.6.b]

Fort Worth Water Department Inflow and Infiltration Program

The Fort Worth Water Department has two major programs to limit seepage and overflows of sanitary sewage from entering municipal separate storm sewer systems. One program is an ongoing effort to maintain and repair defective portions of the sanitary sewer system, and to eliminate stoppages in the system as soon as possible after they occur. A second program involves implementation of a systematic inflow/infiltration (I/I) reduction effort.

The Field Operations Division of the Fort Worth Water Department has an aggressive wastewater collection system operations and maintenance program that combines preventive and scheduled maintenance, corrective (emergency) repairs, aggressive cleaning and replacement.

Preventive/scheduled maintenance activities include internal televised inspection of problem lines, identification and repair of offset joints, cracks, manholes, etc. These repairs are generally completed within 30 days of their identification. We have also developed a scheduled walkout program to follow basin mains, identifying and correcting defects as we find them. A monthly helicopter flight also identifies defects. We have identified and plugged all known storm drain/sanitary sewer bypass connections. An aggressive vaporooter program eliminates root growth in sanitary sewers (through chemical application), which ultimately decreases the size and number of cracks.

Corrective (emergency) repairs are those involving major collapse of a line. Our goal is to complete these repairs within three (3) days.

Replacement of sewer lines includes both trenchless and open cut methodologies and is effected through capitalized projects. Approximately \$5 million is budgeted each year for such work and is dedicated to replacements (not new lines or major collection mains, which are funded through capital improvement funds). The replacements are prioritized based upon the degree of failure of the lines.

An I/I reduction effort is incorporated into the City's Wet Weather Wastewater Management Program. The program, implemented in 1993 as directed by a USEPA Administrative Order, was designed to eliminate wastewater collection system overflows by the year 2001. The I/I program includes four major projects: an engineering management/prioritization study, an I/I reduction project, a major collector relief project and a wastewater treatment plant improvement project.

The Fort Worth Wet Weather Wastewater Management Program Administrative Order was closed by the USEPA as of August of 2000 based on substantial completion of all work identified in the Administrative Order. To date over 96% of all the construction projects included in the program have been completed. There were over 350 construction projects in the program and these projects addressed the replacement or rehabilitation of existing lines or the addition of new sanitary sewers to increase the capacity of the system. The total amount of footage included in these projects was over 1,350,000 feet. Completion of the final projects was accomplished prior to the end of 2001. The program has also completed the sanitary sewer system hydraulic model to assist the department in the continuing evaluation of the collection system in the coming years.

TRWD Program

The TRWD has a General Ordinance in place that prohibits untreated sanitary sewer discharges into its reservoirs and within the jurisdictional area of the District. Employees perform inspections of District properties and illicit discharges are reported to District offices where appropriate personnel are assigned to investigate and mitigate the discharge. A description of the General Ordinance is contained in the TRWD management program description section of this re-application.

TxDOT Program

The District neither owns nor operates any municipal sanitary sewer lines within its ROW nor regulates this activity within its ROW. If sanitary sewer discharges into District MS4s are identified during dry weather or illicit discharge inspections, the District will notify the sewer owner and/or TCEQ of said discharges. This activity would be reported yearly to TCEQ as part of the District's dry weather and illicit discharge screening.

To minimize potential sanitary sewer overflows by systems operated by others, TxDOT requires that any plans for sanitary sewer construction in TxDOT ROW be sealed by a professional engineer. Watertight rings and bolt down covers are utilized. On a case-by-case basis, TxDOT also requires that the sanitary sewer be encased in flowable fill or steel casing, which provides additional security from damage and/or leakage.

FLOATABLES REDUCTION

“The copermittees shall ensure the implementation of a program to reduce the discharge of floatables (e.g.: litter and other human generated solid refuse) into the MS4, which shall include source controls and, where necessary, structural controls and other appropriate controls. [III.B.6.c]

City of Fort Worth Floatables Program

The City's Parks and Community Services Department has an “Adopt A Park” program, similar to TxDOT's Adopt-A-Highway program, where civic groups are encouraged to sponsor regular litter clean-ups in City parks. The EMD Solid Waste Division (SWD) is responsible for citywide trash, garbage, solid waste collection, and a household paper, plastics, and metals recycling program as well as organizing volunteer activities such as

the Cowtown Great American Cleanup. The Fort Worth Code Compliance Department conducts and enforces illegal dumping investigations and assures that outdoor accumulations of trash, debris, and garbage are cleaned up. All of these activities reduce the discharge of floatables (litter and other human generated solid waste). Data regarding actual amounts of litter removed with these programs are included in the Annual Reports. However, significant amounts of trash are prevented from entering the City's creeks and ponds and, subsequently, the Waters of the U.S. through these efforts.

In addition to the programs described below for reducing discharge of floatables into the MS4, the permit includes a monitoring requirement to assess the quantity of floatables discharging to or from the MS4. This program is described in the Monitoring section of this document.

TRWD Program

The TRWD annually sponsors Trinity River Awareness Day, an educational event that focuses on activities that the public can perform to improve water quality in the Trinity River watershed. Part of this event involves a river clean up where individual volunteers and volunteer groups are encouraged to remove litter from several sites along the river within Fort Worth. During the last event, 1500 volunteers removed 17,760 pounds of trash from the river.

The TRWD also sponsors an Annual Eagle Mountain Lake Area Cleanup. Eagle Mountain Lake is a reservoir on the West Fork of the Trinity River with portions of the lake within Fort Worth's corporate boundaries. During the last event, 285 volunteers removed approximately 4,360 pounds of trash.

TxDOT Program

TxDOT has several litter control programs in place including the "Don't Mess With Texas" and "Adopt-A-Highway" programs. The "Don't Mess With Texas" program is a public awareness program aimed at preventing people from littering. Each of which, are described briefly below, further information on these programs can be found in the TxDOT management program description.

TxDOT will continue its highly successful anti-litter programs. This continuation of the anti-litter programs was also recommended in its 2000 floatables control study. These include the "Adopt-A-Highway Program" and the "Don't Mess with Texas Campaign." The Adopt-A-Highway Program is a volunteer program where local groups adopt a two-mile section of roadway for a minimum period of two years. The litter is picked up a minimum of 4 times a year in this two-mile stretch by the local sponsoring group. The TxDOT Fort Worth District has on the average 360 miles adopted out.

The "Don't Mess with Texas Campaign" is composed of mass media public service commercials admonishing people who litter on Texas roadways. This campaign has been extremely successful and has been borrowed by other states for their anti-litter campaigns. Since 1985, these two programs have resulted in a 72 percent reduction of litter statewide.

TxDOT also has set-aside routine maintenance contracts for litter pickup and disposal. Both of these programs use a “Litter Input Data System” (LIDS) to minimize the density of litter on TxDOT right-of-way. The LIDS program determines the number of litter removal cycles each roadway needs based on the litter density of the previous year.

HOUSEHOLD HAZARDOUS WASTE PROGRAM

“The discharge or disposal of used motor vehicle fluids, household hazardous wastes, and the intentional disposal of collected quantities of grass clippings, leaf litter and animal wastes into the MS4 shall be prohibited. The copermittees shall ensure the implementation of programs to collect used motor fluids (including, at a minimum, oil and antifreeze) for recycle, reuse, or proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse or proper disposal.”
[III.B.6.d]

The City’s environmental ordinance prohibits discharge/dumping of materials such as grass clippings, leaf litter and animal wastes into storm sewers (e.g. sweeping collected grass clippings into a curb inlet or dumping bags of collected leaves into a drainage channel). However, it is not the intent of the ordinance to prohibit natural occurrences (e.g. leaves that fall from trees into storm drainage channels or grass clippings left as mulch that are inadvertently washed into a storm drain during a rain event).

The City of Fort Worth operates a permanent household hazardous waste collection center, called the Environmental Collection Center (ECC). The center is open to the public from 11:00 AM to 7:00 PM on Thursday and Friday and from 9:00 AM to 3:00 PM on Saturday. Residents of Fort Worth and other cities that participate in our program can bring a variety of wastes to the center for disposal, free of charge. The center will accept all types of automotive fluids, batteries, and household chemicals; fluorescent lights; pesticides; herbicides; paint; and most types of hazardous materials. Materials not accepted at the center include: ammunition, medical waste, explosives, radioactive materials, electronics, gas cylinders, and tires. Understanding that many citizens either cannot, or will not, travel to the center; the City also sponsors numerous mobile collections where employees go into the neighborhoods for one-day collection events. In addition to the ECC the city has three free drop-off stations open to Fort Worth homeowners and renters. Drop-off stations may be used for disposal of trash and recyclables, as well as old tires (limit four per household every six months), furniture, minor remodeling debris, brush and yard trimmings, home computers, and electronics and other bulky items such as appliances and televisions.

MS4 SCREENING AND INSPECTIONS

“The copermittees shall implement a Dry Weather Screening Program to locate portions of the MS4 with suspected illicit discharges and improper disposals. Follow-up activities to eliminate illicit discharges and improper disposal may be prioritized on the basis of magnitude and nature of the suspected discharge; sensitivity of the receiving water; or other relevant factors. The entire MS4, but not necessarily each individual outfall, shall be screened at least once per five years.”
[III.B.6.e]

City of Fort Worth Program

Fort Worth has an ongoing Dry Weather Field Screening program that tests all known major outfalls in the city a minimum of once per five (5) years. Investigators perform trace-back and other follow-up investigation in response to any suspected illicit discharge. The Dry Weather Field Screen program is described in detail in Section 11 of this document (Monitoring and Screening Programs).

TxDOT Program

TxDOT’s storm drainage systems often convey runoff from areas outside the right-of-way and are, therefore, vulnerable to illicit connections to the system. The Fort Worth District program to detect and eliminate illicit connections to the storm drainage systems under TxDOT control will consist of the following:

- Periodic inspections and monitoring,
- Coordination with municipalities and other regulatory agencies; and
- A utility permit process for storm drains connection.

Periodic inspections and monitoring will include screening for potential environmental problems within the storm drainage systems and sampling as necessary. Due to the limited enforcement powers TxDOT has outside right-of-way, coordination with the local municipalities and TCEQ will be established to report and remedy illicit connections.

TxDOT currently has a utility permitting process in place that requires any entity connection to TxDOT facilities to submit plans and obtain a permit for the connection. This provides records of connections and the responsible parties for all connections.

TxDOT-Fort Worth District has utilized a contractor to perform Dry Weather Screening to satisfy provisions of the TPDES (MS4) permit. If any indication of an illicit discharge is found, the appropriate entity will be contacted per interagency agreements or Memorandum of Understanding (MOU).

In addition, the District utilizes existing TxDOT programs, such as the “Don’t Mess with Texas” and Adopt-a-Highway programs, for more than litter abatement. Adopt-a-Highway activities can be aimed at landscaping, tree planting, and using highway right-of-way for native grasses and species habitat. Additionally, Adopt-a-Highway volunteers can serve as citizen monitors for water quality and highway runoff on their adopted stretches of highway.

ELIMINATION OF ILLICIT DISCHARGES AND IMPROPER DISPOSAL

“Each copermitttee shall require the elimination of illicit discharges and improper disposal practices as expeditiously as reasonably possible. Where elimination of an illicit discharge within 30 days is not possible, the copermitttees shall require the operator of the illicit discharge to take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.” [III.B.6.f]

The City passed a comprehensive environmental ordinance on November 28, 1995. An amended storm water section was passed on May 18, 1999. Enforcement of this ordinance is primarily the responsibility of Environmental Management Department personnel involved in MS4 screening and monitoring activities, inspection of construction sites and industrial facilities, spill response, and other investigations. A broad variety of enforcement options are available should a violation of the code be observed. The primary ordinance used by the investigators is 12.5-302(a). It states:

Section 12.5-302. Discharge to MS4 Prohibited.

- (a) A person commits an offense if the person introduces or causes to be introduced into the MS4 any discharge that is not composed entirely of stormwater.

The only affirmative defenses a violator can use are listed in Section 12.5-302(b) as described in (A) NON-STORM WATER DISCHARGES above. All other discharges are considered illicit and subject to regulatory actions. Enforcement options available to all Environmental Services Division staff are described below.

CITY OF FORT WORTH ENVIRONMENTAL CODE

DIVISION 3. ENFORCEMENT

Section 12.5-111. Enforcement Options.

- (a) In this Division term "Director" shall mean the Director of the Department of Environmental Management, the Director of the Department of Water, the Director of the Department of City Services, or the authorized representative of any of said directors.
- (b) The primary administration and enforcement of this chapter shall be divided as follows:
 - (1) Department of Environmental Management:

Article I, Division 4 - Environmental Use Agreements

Article II - Air Quality;
Article III - Stormwater; and
Article IV - Groundwater and Surface Water Quality

(2) Department of Water:

Article V - Public Drinking Water;
Article VI - Industrial Wastewater; and
Article VII - Liquid Waste

(3) Department of City Services:

Article VIII - Solid Waste and Recycling

(c) When a Director determines that a violation of this chapter over which the Director has jurisdiction has occurred or is occurring, the following remedies are available to such Director. The remedies provided for in this Section or elsewhere in this chapter are not exclusive. A Director may take any, all, or any combination of these actions against a violator, consecutively or concurrently:

- (1) Issuance of a warning notice;
- (2) Issuance of one or more citations;
- (3) Issuance of a notice of violation;
- (4) Execution of a consent order;
- (5) Issuance of a compliance order;
- (6) A show cause hearing;
- (7) A stop work order;
- (8) Nuisance abatement, if applicable;
- (9) Permit suspension or revocation proceedings, if applicable;
- (10) Suspension of utility service or MS4 access as provided in Articles III, V, and VI;
- (11) Request the City Attorney to institute suit for civil remedies as provided by this Article, or state or federal law; or
- (12) Any other remedy provided in this chapter.

(d) Nuisances as defined under this chapter may be enforced by any of the above options with the exception of citations, unless the nuisance is also a defined criminal offense.

(e) If two or more Directors have concurrent jurisdiction over the provisions of this chapter, they shall strive to coordinate their enforcement efforts to the degree practicable.

Section 12.5-112. Criminal Citation.

A Director is authorized to issue citations for violations of those provisions of this chapter over which he has enforcement authority. A Director is also authorized to issue citations for violations of state environmental laws which are punishable only by a fine not to exceed the jurisdictional limits of the Fort Worth Municipal Court, unless such authority is denied under state law.

Section 12.5-113. Notice of Violation.

- (a) When a Director finds that any person has violated, or continues to violate, this chapter or any permit or order issued hereunder, the Director may issue to such person a written notice of violation.
- (b) No later than the tenth day after receipt of the notice, the violator shall submit to the issuing Director an explanation of the violation and a plan for the satisfactory correction and prevention of a reoccurrence of the violation. Such plan shall include specific actions to be taken by the violator.
- (c) If the violator denies that any violation occurred, or contends that no corrective action is necessary, he shall submit to the Director no later than the tenth day after receipt of the notice, a written explanation of the basis of any such denial or contention.
- (d) Submission of an explanation and/or plan in no way relieves a violator of liability for any violations occurring before or after receipt of the notice of violation.
- (e) Issuance of a notice of violation shall not be a bar against, nor a prerequisite for, taking any other action against a violator.

Section 12.5-114. Consent Order.

- (a) A Director may enter into a consent order, assurance of voluntary compliance, or similar agreement with any person responsible for noncompliance with any provision of this chapter or any permit or order issued hereunder.
- (b) Such agreement may include specific action to be taken by the violator to correct the noncompliance within a time period specified by the agreement.

- (c) Such agreements have the same force and effect of compliance orders and remediation, abatement, and restoration orders, and shall be judicially enforceable.

Section 12.5-115. Compliance Order.

- (a) When a Director finds that any person has violated, or continues to violate, any provision of this chapter, or any permit or order issued hereunder, such Director may issue a compliance order to the violator, directing the violator to come into compliance within a specified time limit.
- (b) Compliance orders may contain other requirements to address noncompliance, including additional management practices and self-monitoring to minimize the amount of pollutants discharged.
- (c) A Compliance order may not extend the deadline for compliance established by a state or federal standard or requirement.
- (d) A Compliance order shall not relieve a violator of liability for any violation, including any continuing violation.
- (e) A person receiving a compliance order may file a written notice of appeal with the Director, no later than the tenth day after receipt of the order. Such notice of appeal shall include an explanation as to why the person believes the enforcement action should not be taken.
- (f) Issuance of a compliance order shall not be a bar against, nor a prerequisite for, taking any other action against a violator.

Section 12.5-116. Show Cause Hearing.

- (a) A Director may order any person who has violated or who continues to violate any provision of this chapter or any permit or order issued hereunder, to appear and show cause why a proposed enforcement action should not be taken.
- (b) A hearing shall not be a bar against, or a prerequisite for, taking any other action against the violator.

Section 12.5-117. [reserved]

Section 12.5-118.

Stop Work Order.

- (a) Whenever a Director finds that any operator of a construction site has violated, or continues to violate, any provision of this chapter, or any permit or order issued thereunder, such Director may order that a stop work order be issued to the operator, posted at the construction site, and distributed to all City departments and divisions whose decisions affect any activity at the site.
- (b) Unless express written exception is made by such Director, the stop work order shall prohibit any further construction activity at the site and shall bar any further inspection or approval by the City associated with a building permit, grading permit, subdivision plat approval, site development plan approval, or any other City approval necessary to commence or continue construction or to assume occupancy at the site.
- (c) A person receiving an order under this Section may file a written notice of appeal with the Director who issued it, no later than the tenth day after receipt of the order. Such notice shall include an explanation as to why the person believes the enforcement action should not be taken.
- (d) Issuance of a stop work order shall not be a bar against, or a prerequisite for, taking any other action against the violator.

Section 12.5-119.

Reconsideration and Hearing.

- (a) Reconsideration.
 - (1) Any person subject to: a denial of a permit issued under this chapter; a compliance order; a stop work order; an emergency suspension of utility service; or any other enforcement action in this chapter which allows for reconsideration and hearing under this section, may petition the Director who took such action to reconsider the basis for the action. In order for the petition to be considered, it shall be filed with such Director no later than the tenth day after receipt of the notice/order.
 - (2) Failure to submit a timely written petition for reconsideration shall be deemed to be a waiver of any further right to administrative reconsideration or reviews of the action.

- (3) In its petition, the petitioner shall indicate the provisions of the action objected to, and the reasons for the objection(s), any facts that are contested, the evidence that supports the petitioner's view of the facts, any alternative terms of an order that the petitioner would accept, and whether the petitioner requests a hearing on its petition.
 - (4) The effect of a compliance order or stop work order shall be stayed pending the Director's reconsideration of the petition, and any hearing thereon, unless the Director expressly makes a written determination to the contrary. The effect of an emergency suspension of utilities shall not be stayed pending the Director's reconsideration or any hearing, unless the Director expressly and in writing stays the emergency order.
 - (5) Within a reasonable time of the submittal of a petition for reconsideration, the Director shall either grant the petition and withdraw or modify the order or modify or grant the permit accordingly; deny the petition if no material issue of fact is raised; or if a hearing has been requested and a material issue of fact has been raised, set a hearing on the petition.
- (b) Hearings.
- (1) A Director may also set a hearing if the Director determines that a show cause hearing should be conducted, if grounds exist to revoke or suspend a permit issued under this chapter, or if grounds exist to terminate utilities on a non emergency basis.
 - (2) Written notice of the hearing shall be served on the petitioner/violator at least ten days prior to the hearing. Notice shall be served in person or by certified mail, return receipt requested.
 - (3) Notice shall specify the date, time and place of the hearing.
 - (4) Notice that is mailed shall be deemed received five (5) days after it is placed in a mail receptacle of the United States Postal Service.
 - (5) No decision may be rendered at a hearing by reason of the petitioner/violator's failure to appear unless proof of actual service is shown.

- (6) For purposes of this section, a Director shall be empowered to administer oaths and to promulgate procedural rules for the conduct of the hearing.
- (7) Whenever any deadline specified in this Section falls upon a Saturday, Sunday or a City-recognized holiday, the deadline shall be the next regular City business day.
- (8) The date of an order or ruling required to be made under this Section shall be deemed to be the date it is signed.
- (9) Decisions shall be based on a preponderance of the evidence. The City shall have the burden of proof in all hearings except permit denial hearings. In permit denial hearings the burden of proof shall be on the petitioner.
- (10) The Director shall act as the hearings officer.
- (11) After the conclusion of the hearing, the Director shall make written findings of fact and conclusions of law and shall issue a written decision without undue delay.
- (12) A hearing shall exhaust all administrative remedies of the petitioner/violator.

Section 12.5-120. Nuisance Abatement.

- (a) Unless specifically stated otherwise, any nuisance as defined within this chapter is hereby declared a nuisance if it exists within the corporate limits of the City or within 5,000 feet of such limits.
- (b) A Director may give notice to cease, abate, remove or otherwise remedy a nuisance immediately to:
 - (1) the owner of property upon which a nuisance is located or from which a nuisance originated or is emanating. If the person creating, allowing, or maintaining the nuisance is not the owner of the property, notice shall also be given to such person.
 - (2) any person creating, allowing, or maintaining a nuisance.
- (c) The notice must be given:

- (1) personally to the owner/person in writing; or
 - (2) by letter addressed to the owner/person at the owner's/person's post office address and sent certified mail, return receipt requested. However, if personal or certified mail service cannot be obtained or the owner's/person's post office address is unknown, notice may be given:
 - A. by publication in the official newspaper of the City at least twice within ten (10) consecutive days;
 - B. by posting the notice on or near the front door of each building on the property to which the nuisance relates; or
 - C. by posting the notice on a placard attached to a stake driven into the ground on the property to which the nuisance relates, if the property contains no buildings.
- (d) The notice may order the owner/person to undertake and implement any appropriate action
- (1) to remediate and/or abate any adverse effects of the nuisance upon the MS4, the Waters of the State, the Waters of the United States, or any other aspect of the environment; and/or
 - (2) to restore any part of the MS4, the Waters of the State, the Waters of the United States, or any other aspect of the environment that has been harmed.
- (e) Such remedial, abatement, and restoration action may include, but not be limited to:
- (1) monitoring, assessment, and evaluation of the adverse effects and determination of the appropriate remedial, abatement, and/or restoration action;
 - (2) confinement, removal, cleanup, treatment, and disposal of any discharged or released pollution or contamination;
 - (3) prevention, minimization, and/or mitigation of any damage to the public health, welfare, or the environment that may result from the nuisance; and

- (4) restoration or replacement of City property or natural resources damaged by the nuisance.
- (f) The notice may direct that the remediation, abatement, and/or restoration be accomplished on a specified compliance schedule and/or be completed within a specified period of time. An order issued under this section does not relieve the violator of liability for any violation, including any continuing violation.
- (g) If the owner/person does not comply with the notice within ten (10) days of service, the Director may enter any public or private property containing the nuisance and do any work necessary to abate the nuisance, except the demolition of buildings.
- (h) If the immediate abatement of the nuisance is deemed necessary by a Director to protect the environment or the public health, safety, or welfare from an imminent and substantial endangerment, such Director may, without complying with the notice provisions of this Section or without waiting the ten-day period, enter the subject property and do or cause to be done any work necessary to abate the nuisance and remediate and restore the environment.
- (i) After abating the nuisance, the Director may inform the owner/person in a notice sent certified mail, return receipt requested, that if the owner/person commits another violation of the same kind or nature that poses a danger to the environment or to the public health and safety on or before the first anniversary date of the original notice, the City may without further notice correct the violation at the owner's expense and assess the expense against the owner's property.
- (j) All costs incurred by the City to abate a nuisance and remediate and restore the environment, including the cost of giving notice as required, shall be initially paid by the City and charged to the owner of the property.
- (k) To obtain a lien against the property, the Director causing the abatement shall file a statement of expenses with the County Clerk for the County in which the property is located. The lien statement shall state the name of the owner, if known, and the legal description of the property. The lien shall be security for the costs incurred and interest accruing at the rate of ten (10) percent on the amount due from the date of payment by the City.
- (l) The lien is inferior only to:

- (1) tax liens; and
 - (2) liens for street improvements.
- (m) A lien may not be filed against real estate protected by the homestead provisions of the Texas Constitution.

Section 12.5-121. Right of Entry.

- (a) A Director may enter premises or vehicles regulated by this chapter at all reasonable times, whenever it is necessary to make an inspection to enforce any of the provisions of this chapter, to inspect permits and records required by this chapter, to collect air, water, waste, or wastewater samples, or whenever probable cause exists to believe that a violation of this chapter or other environmental laws exists on such premises.
- (b) A Director shall first present his credentials and demand entry if the premises are occupied. If the premises are unoccupied, he shall first make a reasonable attempt to locate the owner or person in control of the premises and demand entry.
- (c) Where premises have security measures in force which require proper identification and clearance before entry into its premises, the person in control of the premises shall make necessary arrangements with its security guards so that, upon presentation of suitable identification, the Director will be permitted to enter without delay for the purposes of performing specific responsibilities.
- (d) If entry is denied or if a person in control cannot be located, the Director shall have every recourse provided by law to secure entry. Such recourse shall include the right to obtain a search warrant under the guidelines of the Texas Code of Criminal Procedure; and for the purposes of same, any person with enforcement authority under this chapter is hereby declared to be a "health officer."

Section 12.5-122. Confidentiality of Records.

- (a) Information and data obtained from reports, surveys, permit applications, permits, and monitoring programs, and from a Director's inspection and sampling activities, shall be available to the public without restriction, unless the owner, operator, or permittee specifically requests, and is able to demonstrate to the

satisfaction of the City, that the release of such information would divulge information, processes, or methods of production entitled to protection as trade secrets under the Texas Public Information Act.

- (b) A person making an assertion of confidentiality shall do so at the time the information or data is submitted as follows:
 - (1) A cover sheet, stamped or typed legend, or other form of written notice shall be placed on or attached to the information, denoting it as "trade secret," "proprietary," or "confidential."
 - (2) If only portions of a document are alleged to be confidential, such portions shall be clearly identified, and may be submitted separately to facility handling and identification by a Director.
 - (3) If the submitter wants the information to remain confidential only to a certain date or until the occurrence of a certain event, this shall also be clearly provided for.
- (c) All submitted records will be made available immediately upon request to governmental agencies for uses related to the City's NPDES programs or pretreatment program, and in enforcement proceedings involving the person furnishing the report.
- (d) Wastewater constituents and characteristics and other effluent data will not be recognized as confidential information and will be available to the public without restriction.

Section 12.5-123. Judicial Remedies and Penalties.

- (a) Criminal Remedies
 - (1) An offense as defined under this chapter is a misdemeanor punishable by a fine not to exceed \$2,000.00. Each separate occurrence of a violation or each day that a violation continues shall constitute a separate offense.
 - (2) If an offense defined under this chapter does not include a culpable mental state, then one is not needed and the offense shall be one of strict liability.
 - (3) An offense is so defined in this code by the phrase: "A person commits an offense...."

(b) Civil Remedies

- (1) The City may invoke Sections 54.011 - 54.017 of the Texas Local Government Code and petition the state district court or the applicable county court at law, through the City Attorney, for either injunctive relief, civil penalties, or both injunctive relief and civil penalties, whenever it appears that a person has violated, or continues to violate, any provision of this chapter that relates to:
 - A. the preservation of public safety, relating to the materials or methods used in construction of any structure or improvement of real property;
 - B. the preservation of public health or to the fire safety of a building or other structure or improvement;
 - C. the establishment of criteria for land subdivision or construction of buildings, including street design;
 - D. dangerously damaged or deteriorated structures or improvements;
 - E. conditions caused by accumulations of refuse, vegetation, or other matter that creates breeding and living places for insects and rodents; or
 - F. point source effluent limitations or the discharge of a pollutant from a point source into the Publicly Owned Treatment Works (POTW) or MS4.

- (2) Pursuant to Section 54.016 of the Texas Local Government Code, the City may obtain against the owner or the operator of a facility, a temporary or permanent injunction, as appropriate, that:
 - A. prohibits any conduct that violates any provision of this chapter that relates to any matter specified in subsection (b)(1) above; or
 - B. compels the specific performance of any action that is necessary for compliance with any provision of this chapter that relates to any matter specified in subsection (b)(1) above.

- (3) Pursuant to Section 54.017 of the Texas Local Government Code, the City may recover a civil penalty of not more than \$1,000 per day for each violation of any provision of this chapter that relates to any matter specified in Subsection (b)(1)A.- E. above, and a civil penalty of not more than \$5,000 per day for each violation of any provision of this chapter that relates to any matter specified in Subsection (b)(1)F. above, if the City proves that:
 - A. the defendant was actually notified of the provisions of the chapter; and
 - B. after the defendant received notice of the chapter provisions, the defendant committed acts in violation of the chapter or failed to take action necessary for compliance with the chapter.
- (4) The City may also institute suit to recover the cost of any actual damages incurred by the City, and any costs of response, remediation, abatement, and restoration incurred by the City as allowed under state or federal laws, or at common law.
- (5) In determining the amount of civil liability, the court should take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration of the violation, any economic benefit gained through the violation, corrective actions by the violator, the compliance history of the violator, and any other factors as justice requires.
- (6) Whenever it appears that a violation or a threat of violation of any provision of Texas Water Code § 26.121, or any rule, permit, or order of the Commission has occurred or is occurring within the jurisdiction of the City of Fort Worth, exclusive of its extraterritorial jurisdiction, the City, in the same manner as the Commission, may have a suit instituted in a state district court through its City Attorney for the injunctive relief or civil penalties, or both, authorized in Texas Water Code § 26.123 (a), against the person who committed or is committing or threatening to commit the violation. This power is exercised pursuant to Texas Water Code § 26.124. In any suit brought under this subsection, the Commission is a necessary and indispensable party.

- (7) Filing a suit for civil penalties or other remedies shall not be a bar against, or a prerequisite for, taking any other action against a violator.

[Section 12.5-124 through 12.5-135 reserved]

TxDOT Program

As required in Part III.B of the District’s permit, TxDOT must require the elimination of illicit discharges and improper disposal practices as expeditiously as reasonably possible. Where elimination of an illicit discharge within 30 days is not possible, TxDOT must require a schedule for removal of the discharge. In the interim, TxDOT must require the operator of the illicit discharge to take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.

The District does not have the legal authority to enforce state laws. TxDOT must rely completely on TCEQ or a local municipal agreement for law enforcement. As such, upon detection of a potential illicit connection, dumping, other illegal activity, or accident spills, the District will investigate on-site and within the state ROW and then report the problem as appropriate. In the event that a possible illicit discharge is identified, the District will trace the flow upstream to the extent of state property. The District will report flows originating off of state ROW to the appropriate responsible party for further action. In the event the flow appears to create a hazard or contain toxic or noxious substances, the District will report the flow to either the TCEQ or EPA. TxDOT also has an “Interagency Cooperation Contract” between the TCEQ and TxDOT that is intended to mitigate potential pollutant discharges to surface waters and to environmentally sensitive areas.

LIST OF NPDES PERMITTED DISCHARGERS TO THE MS4

“The copermitees shall maintain, and update as necessary, a list of discharges directly to the MS4 that have been issued an NPDES or a TPDES permit. The list shall include the name, location and permit number of the discharger.” [III.B.6.g]

The City of Fort Worth has developed Microsoft Access databases to track permitted construction sites and industrial facilities. The databases were initially populated using information from the EPA Region 6 NOI database. These lists are updated regularly with information obtained from the TCEQ Central Registry and Water Quality General Permits search tool and information gathered by City staff in the course construction site and industrial facility inspections.

Section 12.5-333 of the City’s Environmental Code requires that all facilities required to operate under an NPDES or TPDES permit must send a copy of their NOI to the City. It states:

Section 12.5-333. Submission of NOI to City.

- (a) The operator of a facility, including construction sites, required to have a NPDES or TPDES permit to discharge storm water associated with industrial activity shall submit a copy of the Notice of Intent (NOI) to the Director at the same time the operator submits the original Notice of Intent to the EPA or the TNRCC as applicable.
- (b) The copy of the Notice of Intent may be delivered to the Director either in person or by mailing it to:

Notice of Intent to Discharge Storm Water
Department of Environmental Management
1000 Throckmorton Street
Fort Worth, Texas 76102

- (c) A person commits an offense if the person operates a facility that is discharging storm water associated with industrial activity without having submitted a copy of the Notice of Intent to do so to the Director.

7. SPILL PREVENTION AND RESPONSE

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(B)(4)

Requirement: “The copermittees shall continue and improve as necessary existing programs which prevent, contain, and respond to spills that may discharge into the MS4. The spill response program may include a combination of spill response actions by the copermittees (and/or another public or private entity), and legal requirements for private entities within the jurisdiction of the copermittees.”

Description: Spill Prevention is addressed by the Fort Worth Fire Department’s (FWFD) Fire Prevention Bureau. The City of Fort Worth has two primary programs to address spills that may impact the MS4. The FWFD has a HazMat Squad to address major incidents and the Environmental Management Department has a response team to address minor incidents.

FWFD PREVENTION PROGRAM

The FWFD has forty-two (42) fire stations throughout the city at this time with plans for additional stations. The firemen routinely inspect each business and institution in their areas for fire hazards, outdated fire extinguishers and improperly stored hazardous materials. When hazards are identified, the responsible party is given a specified amount of time to correct the violation. Officers with the FWFD Fire Prevention Bureau also inspect institutions, business, and industries concentrating on areas where hazardous materials are kept including aboveground/underground storage tanks. Complaints are also investigated.

FWFD RESPONSE POLICY

The City of Fort Worth was one of the first communities in Texas to establish a HazMat squad in its fire department. Currently, the FWFD has one main HazMat squad stationed downtown, in the center of the city, with four (4) satellite squads stationed in other sectors of the city. All squad members are thoroughly trained and properly equipped to respond to any hazardous material incidents.

When a spill is reported via the City’s 9-1-1 system, both the station nearest the incident and the HazMat squad are dispatched. The squad uses their on-board computer to begin researching the spilled material, its characteristics and constituents, if known, while en-route to the scene. Frequently, a tentative plan of action is developed by the time the squad has arrived on scene and the squad will have notified Alarm Dispatch to contact other City departments with anticipated personnel and resource requests. The FWFD uses an integrated incident command system with other departments and outside personnel reporting to the Incident Commander upon arrival to the scene.

ENVIRONMENTAL MANAGEMENT DEPARTMENT SPILL RESPONSE PROGRAM

When the City's spill response program was developed in 1996 a Spill Response Team was established within the Environmental Management Department (EMD) to assist the FWFD in mitigating spills. The team consisted of four staff that worked in shifts of two staff members per shift and was dispatched through both the FWFD Alarm Dispatch Division and the EMD Field Office.

The FWFD has taken on an increasingly responsible role in cleaning up small spills to the extent that EMD no longer needs four staff dedicated to spill response. For most small motor vehicle accidents, the FWFD remediates any spills and transports absorbent and other materials to the fire station. EMD periodically picks up the collected waste for proper disposal. In 2006 EMD spill response tasks were integrated into the department's watershed monitoring and investigations group, which currently consists of four field staff and a supervisor working regular four- or five-day weeks Monday through Friday.

EMD maintains the ability to handle spills of both hazardous and non-hazardous materials of up to 500 gallons and the City continues to keep two private environmental response firms under contract to remediate larger spills when required.

EMD field staff are empowered to enforce City Code and as such, can require remediation of any spill when a private entity is identified as the responsible party. In a typical incident, the responsible party is issued a written Notice of Violation and given a specific amount of time, appropriate to the type and amount of material spilled, to remediate the spill. If the directives of the NOV are not followed, a criminal citation may be issued and one of the City's contractors will be called in to remediate the spill if necessary. The responsible party may then be billed for the contractor's services. Failure to pay the bill may result in a civil suit being filed by the City Attorney's Office.

TXDOT PROGRAM

TxDOT-Fort Worth District (District) will measure the effects of unintentional releases and the effects, or lack thereof, of its spill cleanup efforts. Leaks of fluids and fuel from motor vehicles are very rare in modern automobiles and organic contaminants are unlikely to be released during normal roadway operation. Collisions between automobiles may cause releases of limited quantities of organic liquids. The quantities of liquids stored in passenger cars and trucks are unlikely to have a large impact on the receiving waters should an unintentional release occur. Unintentional releases from chemical freight transport or fuel delivery vehicles could exert a temporal adverse impact on receiving waters should the released cargo enter the waterways. The District is acutely aware of the risk and responds expeditiously to accidents that result in unintentional releases of liquid or solid cargo. The District maintains a contract with a professional HAZMAT service team that is required to be on site within one hour after being informed of the incident. The District will track such releases and containments of releases, then

estimate the theoretical loading on the receiving water body or the loading that was prevented due to expeditious diligence.

8. INDUSTRIAL AND HIGH RISK RUNOFF

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(C)(1&2)

Requirement: The copermittees shall continue and improve as necessary the existing programs to identify and control pollutants in storm water discharges to the MS4 from municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.); hazardous waste treatment, storage, disposal and recovery facilities and facilities that are subject to Emergency Planning and Community Right-to-Know Act (EPCRA) Title III, Section 313; and any other industrial or commercial discharge the copermittees determines are contributing a substantial pollutant loading to the MS4. The program shall include priorities and procedures for inspections and for establishing and implementing control measures for such discharges; and an Industrial and High Risk Monitoring Program.

Description: It is recognized that a majority of the facilities identified in this section are governed by the monitoring, reporting, and inspection requirements of their own TPDES or NPDES storm water permits. The storm water leaving these sites ultimately reaches the City of Fort Worth's storm sewer system; therefore, the quality of this water must also be in compliance with the goals contained in the City's MS4 TPDES storm water permit. To ensure that this is the case, the plan outlined below details the priorities and procedures for inspections and for establishing and implementing control measures for these facilities by the City of Fort Worth.

PRIORITIES AND PROCEDURES FOR INSPECTING AND MONITORING HIGH RISK RUNOFF FACILITIES

Storm water inspections of municipal landfill; treatment, storage, or disposal facility for municipal waste; hazardous waste treatment, storage, or recovery facility and facilities subject to EPCRA section 313, are performed, at a minimum, at least once during the five-year term of the TPDES storm water permit. Priorities for future inspections are established for a facility based on a number of factors including but not limited to complaints received, facilities operating outside the requirements set forth in their TPDES permit, facilities identified as operating without a permit, violations where exposure of contaminates are or have affected human health or serious impact to the environment, a facility being noted as contributing a substantial pollutant load to the MS4 or other deviations or violations are noted. Inspection frequency will be adjusted to encourage compliance and to encourage the facility to eliminate any noted discharges to the MS4.

During an inspection of a municipal landfill; treatment, storage, or disposal facility for municipal waste; hazardous waste treatment, storage, or recovery facility and facilities subject to EPCRA section 313, standard inspection procedures are followed to ensure a thorough and accurate inspection is conducted. A typical storm water inspection includes an examination of surface drainage and pathways by which chemicals and other potential pollutants could contaminate storm water runoff; the function of structural BMPs (if any

exist); the adequacy of maintenance of the BMPs; the availability of maintenance and storm water monitoring records, the use and effectiveness of any nonstructural BMPs employed; the procedures by which internal inspections and storm water samples are collected and handled; and a SWPPP review.

Checklists and inspection forms have been developed to ensure consistency and accuracy in inspection reporting and recordkeeping. These forms will be reviewed and updated as necessary to ensure permit compliance. An initial inspection conducted at a facility will typically include a comprehensive inspection of the facility, BMPs and the facility's SWPPP as detailed above. If deficiencies/discrepancies are noted, the facility could be issued a Notice of Violation or citation depending on the severity of the violation and/or the facility's prior knowledge of the violation. The facility will then be given an opportunity to come into compliance in a time frame designated by the inspector (30 days or less or at the next required/eligible event). Follow up inspections are then conducted to verify that the items noted in the violation or citation have been corrected and that no other new concerns are found. Future inspections will be prioritized as detailed above.

Industrial facilities that the City of Fort Worth determines to be contributing a substantial pollutant load to the municipal storm sewer are identified through monitoring, complaint investigations, or historical data. Facilities required to obtain permit coverage under the Multi-Sector General Permit (MSGP), or other applicable permit for industrial discharges, will be required to comply with all inspection, monitoring, and reporting schedules as required by the permit. Additionally, all industries that are required by their TPDES industrial storm water permit to conduct benchmark monitoring will be required to submit the results of this monitoring to the City of Fort Worth. Any of these facility types that are not regulated by a TPDES or NPDES permit but that are determined to be contributing a substantial pollutant load to the MS4 may also be required to conduct inspections, monitor discharges, install BMPs, or establish a storm water pollution prevention plan as determined necessary by the City of Fort Worth

Inspection results and monitoring data are reviewed by EMD personnel who then determine if corrective and enforcement actions are needed. If the City is unable to bring the facility into compliance after following the procedures outlined in its Enforcement Policy, EMD will inform the TCEQ Region 4 investigation team and/or the EPA Region 6 Enforcement Division to further encourage compliance.

LEGAL AUTHORITY

In order to implement and enforce the programs described above, the City of Fort Worth added Division 3 to Section 12.5 of the City's Environmental Code. This gave the City proper authority to take enforcement actions on NPDES and TPDES regulations. The complete Fort Worth City Code may be found at:

<http://library.municode.com/index.aspx?clientId=10096&stateId=43&stateName=Texas>

DIVISION 3. STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY, INCLUDING CONSTRUCTION ACTIVITY

Section 12.5-330. Applicability.

This division applies to all facilities located within the City that have storm water discharges associated with industrial activity, including construction activity.

Section 12.5-331. Access to Facilities.

- (a) The Director is authorized by Section 12.5-121 of this Chapter to enter and inspect facilities subject to regulation under this Article.
- (b) Facility operators shall allow the Director ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES or TPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.
- (c) The Director shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the Director to conduct monitoring and/or sampling of the facility's storm water discharge.
- (d) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the Director and shall not be replaced. The costs of clearing such access shall be borne by the operator.
- (e) Unreasonable delays in allowing the Director access to a permitted facility is a violation of a storm water discharge permit and of this Article. A person who is the operator of a facility with a NPDES or TPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the Director reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this Article:

Section 12.5-332. Unpermitted Discharges Prohibited

A person who is the operator of a facility commits an offense if the person discharges, or causes to be discharged, storm water associated with

industrial activity without first having obtained a NPDES or TPDES permit to do so.

Section 12.5-333. Submission of NOI to City.

- (a) The operator of a facility, including construction sites, required to have a NPDES or TPDES permit to discharge storm water associated with industrial activity shall submit a copy of the Notice of Intent (NOI) to the Director at the same time the operator submits the original Notice of Intent to the EPA or the TNRCC as applicable.
- (b) The copy of the Notice of Intent may be delivered to the Director either in person or by mailing it to:

Notice of Intent to Discharge Storm Water
Department of Environmental Management
1000 Throckmorton Street
Fort Worth, Texas 76102

- (c) A person commits an offense if the person operates a facility that is discharging storm water associated with industrial activity without having submitted a copy of the Notice of Intent to do so to the Director.

Section 12.5-334. Compliance with Permit.

- (a) A facility shall be operated in strict compliance with the requirements of its NPDES or TPDES permit to discharge storm water associated with industrial activity.
- (b) A person commits an offense if the person operates a facility in violation of a requirement of the facility's NPDES or TPDES permit to discharge storm water associated with industrial activity.

Section 12.5-335. Modification of Storm Water Pollution Prevention Plans

- (a) The Director may require any operator of a facility to modify the facility's storm water pollution prevention plan if in the best professional judgment of the Director, the SWPPP does not comply with the requirements of the facility's NPDES or TPDES permit to discharge storm water associated with industrial activity.

- (b) The deficiencies in a facility's SWPPP will be made in writing, and the Director will give the facility operator a reasonable amount of time, not to exceed thirty days, to make the necessary changes in the SWPPP.

[Sections 12.5-336 through 12.5-399 reserved.]

9. CONSTRUCTION SITE RUNOFF

Federal Register Section Number: 40 CFR 122.26(d)(2)(iv)(D)(1-4)

Requirement: The copermittees shall implement a program to reduce the discharge of pollutants into the MS4 from construction sites. This program shall include: requirements for the use and maintenance of appropriate structural and nonstructural control measures to reduce pollutants discharged to the MS4 from construction sites; inspection of construction sites and enforcement of control measures requirements; appropriate educational and training measures for construction site operators; and notification of appropriate building permit applicants of their potential responsibilities under the NPDES/TPDES permitting regulations and permits for construction site runoff.

Description: Section 12.5-302(a) of the City Code prohibits discharges of pollutants into the MS4 from all sources, including construction sites. The City of Fort Worth EMD has an active TPDES construction site inspection program utilizing two (2) full-time inspectors. Enforcement of control measure requirements is through Section 12.5-334 of the City Code giving inspectors the ability to enforce NPDES/TPDES regulations. The City participated in a program to design a construction site inspection training program with the North Central Texas Council of Governments (NCTCOG). This program is operational and regularly offers training for municipal employees and those from the private sector. EMD staff participates in pre-development meetings and conferences with builders and developers before construction begins to notify them of TPDES responsibilities. In addition, EMD distributes a variety of written materials to developers and builders in both the pre-construction and construction phases to address BMP needs.

REDUCING POLLUTANT DISCHARGES FROM CONSTRUCTION SITES

Through ordinances adopted by the City of Fort Worth, construction sites in the city are required to perform construction activities in accordance with applicable TPDES permits. Requirements regarding the use and maintenance of control measures during construction are clearly addressed in the TPDES Construction General Permit. In addition, through adopted ordinance, it is an enforceable offense to introduce any discharge to the MS4 that is not composed entirely of storm water. This applies to all construction sites whether or not regulated by a TPDES discharge permit. As the City Code makes it clear that discharges such as silt and sediments from construction sites are not allowed to enter the storm drain system, the City feels that it is unnecessary to state specific requirements for BMPs (both structural and nonstructural). As each construction site is unique, and areas within each site are unique, we feel that the site's engineers are in a much better position to decide what BMPs to use. When illicit discharges occur, City inspectors take appropriate enforcement actions specifying the amount of time for the site to make corrections. Additionally, the inspection program detailed in the next section places City of Fort Worth inspectors at each site on a regular basis to enforce TPDES construction storm water requirements to reduce and mitigate the discharge of pollutants from construction sites.

SECTION 12.5-302(A) OF THE CITY CODE PROHIBITS DISCHARGES OF POLLUTANTS INTO THE MS4 FROM ALL SOURCES. IT STATES:

Section 12.5-302. Discharge to MS4 Prohibited.

- (b) A person commits an offense if the person introduces or causes to be introduced into the MS4 any discharge that is not composed entirely of storm water.

While construction sites are not specifically identified in this ordinance, this discharge prohibition is inclusive of pollutants from any and all sources. To further clarify the ordinance, the following definitions are included in the City Code.

Discharge means any addition or introduction of any pollutant, storm water, or any other substance whatsoever into the municipal separate storm sewer system (MS4) or into waters of the United States.

Pollutant means dredged spoil; solid waste; incinerator residue; sewage; garbage; sewage sludge; filter backwash; munitions; chemical wastes; biological materials; toxic materials; radioactive materials; heat; wrecked or discarded equipment; rock; sand; cellar dirt; and industrial, municipal, recreational, and agricultural waste discharged into water or into the municipal separate storm sewer system.

Cellar dirt means construction site waste materials, such as natural rock and soil overburden.

INSPECTION OF CONSTRUCTION SITES AND ENFORCEMENT OF CONTROL MEASURES

Throughout the first five (5) year term under the TPDES permit (2006-2011), there have been, on average, approximately three hundred and seventy five (375) active construction sites in Fort Worth operating at any given time. The EMD has two (2) full time inspectors to perform inspections at these sites. They visit each site, on average, once per month for routine inspections and more often as needed when corrections are required. The inspectors maintain records on site conditions observed during the inspections and keep files for all violations noted. Enforcement actions are initiated and implemented in accordance with staff guidance documents and Section 12.5-111.

In addition to the illicit discharges to the storm drain, as described above in REDUCING POLLUTANT DISCHARGES FROM CONSTRUCTION SITES, the inspectors can come across a variety of other violations that pertain to the NPDES/TPDES program. These numerous violations range from not filing an NOI for the site to not maintaining BMPs. To address these violations, Section 12.5-334 of the City Code states:

Section 12.5-334. Compliance with Permit.

- (a) A facility shall be operated in strict compliance with the requirements of its NPDES or TPDES permit to discharge storm water associated with industrial activity.
- (b) A person commits an offense if the person operates a facility in violation of a requirement of the facility's NPDES or TPDES permit to discharge storm water associated with industrial activity.

If an NPDES/TPDES permit is required for the site and the owner/operator has not obtained a permit, the inspectors can use Section 12.5-332 of the City Code for enforcement purposes. It states:

Section 12.5-332. Unpermitted Discharges Prohibited

A person who is the operator of a facility commits an offense if the person discharges, or causes to be discharged, storm water associated with industrial activity without first having obtained a NPDES or TPDES permit to do so.

These ordinances enable the inspectors to effectively enforce both state and federal regulations that address control measures.

EDUCATIONAL AND TRAINING MEASURES

The City of Fort Worth participated with the cities of Dallas, Arlington, Irving, Garland, Mesquite and Plano in assisting the NCTCOG in designing an NPDES Construction Inspection Training Program. The final program consists of a one (1) day workshop. All aspects of the TPDES program are stressed including SWPPP development, BMP selection, site inspections and NOI/NOT filing. This course is designed for use by municipal inspectors, site owner/operators and general construction site personnel. It is offered by the NCTCOG. All City of Fort Worth EMD construction site inspectors are required to take this course. In addition, the City has held similar workshops for City employees from all departments associated with construction activities.

The City's TPDES construction inspectors give educational programs to organizations as requested. These programs are designed to familiarize the site operators with NPDES/TPDES and local regulations. We will continue to give these programs and seminars when requested. EMD has designed a simple brochure that explains the basic requirements and illustrates a few example BMPs. These brochures are typically given out at these seminars in addition to other literature as we have available. Additional educational information on construction storm water management is also available through the Department's web site: <http://www.fortworthgov.org/dem/>.

NOTIFYING APPLICANTS OF THEIR TPDES/NPDES RESPONSIBILITIES

The EMD inspectors are a part of the City's plan review process and are made aware of all projects that qualify under TPDES requirements. Inspectors then visit these sites when construction activities commence to assure that the TPDES/NPDES regulations are being followed. Inspectors often have the opportunity to visit with the site operators before construction activities at pre-development conferences. These conferences are held for most major projects so the owners/operators can be made aware of all local, state and federal building requirements. The inspectors hand out a variety of written materials that range from a one-page document meant to familiarize the operator with the TPDES process to large manuals that detail a multitude of BMP options. Examples of these written materials are on file at EMD and available for review at the department's offices on the 7th floor of the City Hall Annex, located at 908 Monroe Street.

TRWD Program

Construction activities in the TRWD floodway are required to have TRWD permits that address storm water controls for the construction site. TRWD has also developed additional criteria specific to construction on the floodway. Included in these criteria are guidelines for post-construction grass establishment and erosion protection utilizing cabled articulating revetment systems. Permitted construction sites are inspected and monitored by TRWD staff according to the U.S. Army Corps of Engineers and the City's regulations and ordinances. These inspectors have been trained through the NCTCOG Development Management Subcommittee Regional Urban Stormwater Management Task Force. Any violations that do not comply with TRWD requirements are forwarded to appropriate authorities such as the City or EPA.

TxDOT Program

The design of erosion and sediment control systems involves the application of common sense planning, scheduling, and control actions that will minimize the adverse impacts of soil erosion, transport and deposition. In order to meet the objectives of the management plan for construction activities the following basic guidelines shall govern the development and implementation of a sound erosion and sediment control plan.

- Plan the highway project to fit the particular topography, soils, drainage patterns and natural vegetation as much as practicable. In general, areas with steep slopes, erodible soils and soils with severe limitations should be avoided when possible.
- Construction sequencing. A sequence of construction should be developed that minimizes the potential erosion and sedimentation impacts. The sequence should consider specific measures dealing with allowable disturbed areas, construction vehicle maintenance procedures, and material stockpiling methods. The sequence of work must be anticipated, stipulated, and should reflect measures to be used throughout the project. Layouts for erosion control features should be included in the construction plans.
- Minimize the extent and the duration of exposure. Plan the phases or stages of construction to minimize exposure. Permanent vegetation should be achieved as

soon as practicable as the work progresses. Fertilizing may be used to assist in establishing permanent vegetation. TxDOT specifications control fertilizer types and application rates for construction projects.

- Apply erosion control practices to prevent discharge of sediments offsite. This principle relates to using practices that control erosion on a site to prevent excessive sediment from being produced. Efforts should be made to keep soil covered as much as possible with temporary or permanent vegetation, erosion control blankets or with various mulch materials. Other practices include diversion structures to channel surface runoff from exposed soils and using slope drains where grades may be prone to erosion.
- Apply perimeter control practices to protect the disturbed area from off-site runoff and to prevent sedimentation damage to areas down gradient of the construction site. This principle relates to using practices that effectively isolate the construction site from surrounding properties, and especially to controlling sediment once it is produced and preventing its transport from the site. Diversion structures, swales, dikes, sediment traps, vegetative and structural sediment control measures can be classified as either temporary or permanent depending on whether or not they will remain in use after construction is complete.
- Keep runoff velocities low and retain runoff on the site. Keeping slope lengths short and gradients low, and preserving natural vegetative cover can keep storm water velocities low and limit erosion hazards. Runoff from the development should be safely conveyed to a stable outlet using storm drains, diversion structures, stable waterways or similar measures. Conveyance systems should be designed to withstand the velocities of projected peak discharges. These facilities shall be operational as soon as possible.
- Stabilize disturbed areas immediately after final grade has been attained. Permanent structures, temporary or permanent vegetation, mulch, stabilizing emulsions, or a combination of these measures, should be employed as quickly as possible after the land is disturbed. Temporary seeding, mulches and other control materials can be most effective where or when it is not practical to establish permanent vegetation or until the vegetation is established. Such temporary measures should be employed immediately after rough grading is completed, if a delay is anticipated in obtaining finished grade. The finished slope of a cut or fill should be stable and ease of maintenance should be considered in the design.
- Implement a thorough inspection, maintenance and follow-up program. This last principle is vital to the success of the management of runoff from construction activities. A site cannot be effectively controlled without thorough, periodic checks of the erosion and sediment control practices.
- The standard TxDOT specification for “Erosion, Sedimentation and Water Pollution Prevention and Control,” will be included in all construction project plans and specifications.

The major water quality issues associated with highway construction activities are the processes of erosion and sedimentation. Accelerated erosion and sedimentation can occur at times in conjunction with the construction of highway and transportation facilities. The accelerated process can result in significant impacts such as safety hazards, expensive maintenance problems, unsightly conditions, instability of slopes, and the disruption and/or destruction of ecosystems. Due to these potentially adverse effects, the minimization of the erosion and sedimentation processes during highway construction shall be included in the total design process of highway projects.

A storm water pollution prevention plan shall be developed for each construction site covered by the TPDES general permit for construction activities. The plan shall describe and ensure the implementation of practices that will be used to reduce the pollutants in storm water discharges associated with the construction site and to assure compliance with the terms and conditions of the general permit.

As the construction commences, the District's inspectors will evaluate the storm water control every 7 days. Sediment will be removed from devices and damaged devices repaired as soon as practical. The Contractor will remove silt accumulations and deposit the spoils in area designated by the District engineer in charge of the project.

10. PUBLIC EDUCATION

Federal Register Number: 40 CFR 122.26 (d)(2)(iv)(B)(6)

Requirement: “A public education program with the following elements shall be implemented: (a) a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or improper disposal of materials into the MS4; (b) a program to promote, publicize, and facilitate the proper management and disposal of used oil and household hazardous wastes; (c) a program to promote, publicize, and facilitate the proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators and distributors.”

Description: The City has a dedicated phone number, (817) 392-8700 to report illicit discharges. The EMD Storm Water Quality web page (<http://www.fortworthgov.org/dem/>) also has a mechanism where complaints can be filed on-line. Used oil and household hazardous waste are managed through the City’s permanent household hazardous waste facility, The Environmental Collection Center. In the City of Fort Worth, public education staff is centralized within the Community Relations Department. Staff works with EMD Storm Water Quality team members to develop messages for dissemination to the community and coordinate all educational activities as they apply to water pollution issues.

PUBLIC REPORTING

The City has a 24-hour “hotline”, (817) 392-8700, used to report illicit discharges and any sort of environmental concern. The phone operation is automated and callers are routed to the personnel appropriate for the type of complaint they are filing. During non-business hours, callers using the hotline can leave messages on staff voice mail and callers are encouraged to Dial 9-1-1 if reporting an illicit discharge during non-business hours. EMD emergency response staff is dispatched through the Fire Department’s Alarm Dispatch on a 24/7 basis and illicit discharge calls to 9-1-1 are routed to us immediately via text messaging.

The hotline is publicized in a variety of ways. Each Monday, the City buys a half page ad in the Fort Worth Star Telegram. This ad is called *City News* and it is used to publicize City programs and services. The hotline number is regularly included in environmental articles that appear in *City News*. The hotline number is promoted at a variety of trade fairs and civic events. Several times per year, the EMD prints an environmental article in the *City Times*, a short newsletter included in citizens’ water bills. The hotline number is often included in the *City Times* articles. The Department also has a comprehensive web page (<http://www.fortworthgov.org/dem/>), described in detail below. Environmental complaints can be filed on-line through the web page.

The City has had a curb marking program since 1993 to discourage dumping of materials into storm drain inlets and to promote reporting of same. From 1993 through 2007 EMD placed approximately 250 plaques annually. The City’s Transportation and Public Works

Department is scheduled to resume the curb marker program after the finalization of a comprehensive inlet and outfall mapping project. Although similar in design to the markers used by EMD, new markers designed and purchased by T/PW will be larger and will include a phone number to report clogged inlets or illicit discharges. Each marker will also be stamped with unique inlet code. This code will be useful to field crews for determining the location of the discharge point for the inlet.

HOUSEHOLD HAZARDOUS WASTE

The City's permanent household hazardous waste collection facility, The Environmental Collection Center (ECC), and its programs are described in detail in ILLICIT DISCHARGES AND IMPROPER DISPOSAL, section (D) HOUSEHOLD HAZARDOUS WASTE PROGRAM. The ECC is publicized similarly to the hotline, as described above. Articles promoting the ECC appear in both *City News* and the *City Times*. Brochures describing the ECC are distributed at trade fairs and civic events. In addition, special event notifications for activities such as the annual Computer Roundup are directly mailed to all water customers in Fort Worth. These mailings reach more than 153,000 households. Direct mail is also used to notify citizens of mobile collection events in their neighborhoods. These mailings are based on zip codes for the particular neighborhood(s) that will be served by the mobile collection event.

One of the main ECC promotions involves the cartoon character "Captain Crud". Captain Crud is a "superhero" styled character that fights the evil "Cruddies" of storm water pollution. The Cruddies are "Scrub", representing soaps and detergents; "Van Goo", representing paints and varnishes; "Bloomer", representing fertilizers and herbicides; "Pestie", representing pesticides; and "Otto", representing waste automotive fluids. The Captain Crud campaign is titled "Conquer Your Crud" and is featured in brochures, coloring books, and videos.

PESTICIDES, HERBICIDES, AND FERTILIZERS

A series of brochures on the need for proper application of pesticides, herbicides and fertilizers and their effect on water quality has been developed and distributed for the purpose of public education.

The City has developed numerous brochures and media messages that deal with various aspects of pesticide, herbicide and fertilizer use. A few examples are:

1. "Let Them Eat Bait", a description of the Two-step method of Fire Ant control recommended by the Texas Agricultural Extension Service. Proper application and disposal methods are stressed.
2. "Know How, Know When - Pesticides", an explanation on how pesticides enter the environment with tips on proper use and disposal of lawn chemicals.
3. "Know How, Know When – A Home Gardener's Guide To Pesticides", a guide for properly choosing, mixing, applying and disposing of pesticides.

4. "Earth Kind", an environmentally friendly gardening and landscaping program. Special attention is made to choose pest resistant plants and use alternatives to chemical pesticides.
5. "Environmentally Friendly Pest Control", a how to guide that explains how to prevent pest problems with ants, fleas, roaches, mosquitoes and other common insects. Safe alternatives to pesticides are also detailed.
6. "Fleas and Ticks: How to Protect Your Pet", a step-by-step explanation on prevention and safe treatment for problems with fleas and ticks on both animals and in the environment.
7. "Take It Personally", a guide to safer alternatives for toxic household products such as metal cleaners, floor cleaners and pesticides.
8. "Menu For A Cleaner Environment", a guide designed primarily for food service establishments that describes how to eliminate discharges containing grease and detergents.
9. "Prevent Water Pollution!", a series of tips on how to minimize activities such as car repair, yard care and the use of toxic products in the home that can affect water quality in neighborhood creeks.
10. "Environmental Collection Center", a guide on what types of wastes are accepted in the City's Household Hazardous Waste Collection Program. Included are the answers to the most commonly asked questions about the Environmental Collection Center, hours of operation and a locator map.
11. "Environmental Management Department", a description of the various Divisions within the department and their respective program activities.

Many of these brochures have been developed and distributed by, or with assistance from, other departments and agencies including the Fort Worth Water Department, the Texas Agricultural Extension Service and the North Central Texas Council of Governments. Brochures have been distributed by EMD at trade shows, environmental fairs, conferences, neighborhood meetings, schools and other sources. The Fort Worth Water Department has also distributed large numbers of brochures through water bill inserts (over 153,000 in a typical monthly mailing), booths at home & garden shows, presentations to civic groups and at the City sponsored Yard Smart Seminar. Information on proper pesticide use and the availability of less toxic alternatives can be found on the Water Department's web page (<http://www.FortWorthGov.org/water/water/htm>). Also, additional information on pesticides can be found in the EMD web page.

While it is hard, if not impossible, to accurately determine how well a public education campaign has worked, the City feels that it has made a noticeable impact on Diazinon use and detergent discharges. Since launching the Diazinon campaign in 1997, the failure rates at the POTW have continually declined as indicated in annual reports.

GENERAL EDUCATIONAL ACTIVITIES

The City has a Neighborhood Education team that educates residents about all City services. The team informs and educates Fort Worth area students, residents, businesses and City employees about the impact their activities have on the environment through:

Presentations. Neighborhood Educators deliver a 30 minute presentation about pollution prevention to adult audiences—primarily neighborhood associations, civic groups and PTA groups.

Collateral Distribution. The Neighborhood Education team distributes brochures, fliers and promotional items at community events, neighborhood meetings, and town hall meetings. Neighborhood Education and Outreach staff typically attends medium-sized events that draw local Fort Worth residents such as crime prevention, community and health fairs.

Information Sharing. Neighborhood Educators attend community meetings each week and generally have an opportunity to share City news with attendees. Neighborhood Educators remind residents about proper disposal of hazardous household waste and proper usage of fertilizers and pesticides.

Neighborhood Newsletters. The Neighborhood Education team maintains a database of contacts for approximately 300 neighborhood associations. Many have newsletters and will publish information about storm water topics at no cost to the City. In many neighborhoods, newsletters are hand delivered to each household. In others, newsletters are distributed electronically. Neighborhood educators work with associations to place ads and/or articles on storm water topics.

City Services Guide. The Neighborhood Education team distributes the City Services Guide, a reference listing of departments and programs with contact information, to community leaders in neighborhoods, faith based groups, and community organizations. The City Services Guide also is available on the city website (<http://www.fortworthgov.org/cityservicesguide/>) and is available on all employee computers. Information about the Environmental Collection Center and the illicit discharge hotline are included in the City Services Guide.

Molly Mail. Molly Mail is an electronic message distributed through a Constant Contact database to primarily neighborhood association leaders, community activists and residents who subscribe to the service via the city's website. Molly Mail is used to distribute information about mobile hazardous household collection events, storm drain maintenance and other environmental issues.

The City's Communications Office is the primary media contact for the Department. Whenever the Department sponsors a special event or an environmental incident occurs, the assigned Communications Officer notifies print, radio and television news contacts. This results in several stories per year, through a variety of media, which helps the public understand environmental concerns within the City.

School Programs

Recognizing that it's easier to instill good behavior in young people than to change bad behavior later on, the City concentrates heavily on educational programs in schools. The EMD has developed programs, curricula, teacher guides and hands-on student activities.

Many programs also include a take-home message for parents, several of which are printed in both English and Spanish. Neighborhood Educators deliver the Captain Crud curriculum in elementary schools and community centers. Educational items such as pencils, highlighters, rulers, note pads and rain gauges with storm water pollution messages have been developed by the Department and are distributed at school events in addition to a variety of brochures.

Business and Industrial Programs

The primary goal of the business and industrial educational program is to make these facilities aware of NPDES/TPDES responsibilities. This is essentially accomplished through the Industrial Inspection program, described in the INDUSTRIAL AND HIGH RISK RUNOFF section of this document. When inspectors are on site (including NPDES regulated construction sites), they distribute brochures, BMP guides, educational materials as described above and relevant NPDES forms as needed by the facility. Personnel contacts are established during these inspections and the inspectors are often invited by these contacts to give presentations to trade groups. This is especially common in the construction arena.

City Employee Programs

Educating City employees about storm water pollution is not solely the responsibility of the Department's Compliance Division; though they are responsible for many departments' various regulatory compliance duties. When educating City employees on ways to reduce waste streams, how to deal with hazardous waste, or on safety regulations, the Compliance Division employees dedicate a part of each presentation to storm water pollution prevention.

The Water Quality Division also sponsors an annual one (1) to two (2) hour training class relating to toxic chemicals. This training is open to all City employees and concerns the proper use of pesticides, herbicides and fertilizers. The impact these chemicals have on storm water runoff is specifically stressed in these training sessions. Curriculum in these sessions has ranged from how to prevent and react to spills involving pesticides, herbicides and other toxic chemicals to environmental effects of mosquito control programs.

The City's three (3) airports, the landfill and the wastewater treatment plant all conduct annual employee training for their individual facilities as required in their Multi-Sector Group Permits.

ACToday is a daily news briefing covering a variety of programs and benefits specifically targeting City of Fort Worth employees. ACT is an acronym that stands for Accountability, Character and Trust and embodies the code of conduct for all city employees. *ACToday* notices are delivered via email and can also be viewed on the Intranet. This tool is used to educate City employees about stormwater regulations.

THE EMD WEB PAGE

The Department has created and maintains a very comprehensive web page. The Department's site is located at www.FortWorthGov.org/dem. All Divisions in the Department are represented in addition to links to a variety of environmentally related subjects. There are also links to universities, consumer groups, other municipalities, TCEQ and EPA. Of particular relevance to the storm water program are the Storm Water Quality Page, the Environmental Collection Center Page, the Public Education Page. Portions of the web site are included in this document immediately following this section. The web page has shown to be a very effective education tool and it will continue to be updated on a regular basis.

TRWD ACTIVITIES

Additionally the copermittee, TRWD, has three 24-hour telephone numbers for complaints. These numbers are published in homeowners' newsletters and on all District Western Division publications. TRWD provides resources and access to schools for programs like Major Rivers and WaterWise. TRWD is an active member in Fort Worth Independent School District programs such as Waterama and Adopt-A-School. TRWD staff currently visit schools and community groups to conduct guest lectures and presentations. The water district's education initiatives has produced interactive community kiosks and student workbooks featuring topics like water conservation, water quality and recycling water through wetlands. Several regional cleanups are held annually to gather litter from watersheds and spread information on water pollution prevention. TRWD also offers a program for community groups and businesses to cleanup sections of the Trinity River, called Adopt-A-River. TRWD speaks at meetings for the non-profit Save Eagle Mountain Lake, Inc. and acts as a technical advisor.

TXDOT ACTIVITIES

Specific emphasis on educating the general public and TxDOT personnel are important and integral aspects of a storm water management program. Many pollution problems can be avoided by having an informed populous willing to participate in improving storm water quality. TxDOT-Fort Worth District (District) is committed to establishing:

- Programs to promote, publicize, and facilitate public reporting of the presence of illicit discharges;
- Public information and education regarding the proper management and disposal of used oil and toxic materials;
- Educational activities to let the public know what measures TxDOT is taking to protect water quality; and
- Appropriate technical education and training guidelines for TxDOT planners, highway designers, construction site personnel and maintenance personnel.

It is intended that the District will coordinate some of the public awareness campaign not only with the TCEQ, but also with cities and other potential NPDES co-applicants. The sections below describe the appropriate means to accomplish the requirements above.

Public Educational Activities

TxDOT has an aggressive “Don’t Mess with Texas” advertisement campaign to reduce littering along Texas roadways and the “Adopt a Highway Program” which allows private citizens, groups or organizations to adopt sections of state roadways and keep them free of litter.

- Produce information materials to let the public know what measures TxDOT is taking to protect water quality, including brochures, an environmental newsletter, the “Earth Watch” column in *Transportation News*, and newspaper inserts – print public service announcements (PSAs).
- Prepare information for existing publications, such as *Texas Highways* magazine (“For the Road” feature and editor’s column), the General Land Office’s newsletter, “Waterfront”, and “Keep Texas Beautiful” newsletter, “Grassroots”.
- Public education activities were developed and implemented to target the general public children, contractors and District employees. Wildflower packets, which include a wildflower flyer and seeds, are used to educate the public regarding the usefulness of vegetation to filter runoff, and serve as erosion control. TxDOT printing operations reproduced the TCEQ “Wet Instruction Handbook” for distribution to local science teachers during in-service. Temporary tattoos for children with the message “Use Your Brain – Only Rain Down the Drain” are used during the youth educational activities. The District continues to work with the City of Fort Worth Storm Water Department and Tarrant Regional Water District on public education awareness.
- Participate in events such as the Clean Texas 2000 Environmental Fair and Symposium. As a sponsor of this statewide event, TxDOT worked on the planning committee, held classroom sessions on Storm Water Prevention and Protection Plan (SWP3), and conducted field trips to construction sites.
- Develop and implement an educational curriculum for public schools like a “TEX and DOT! Water Quality Coloring & Activity Book”, which encourages educational excellence for intermediate age groups.
- Disseminate data from research projects with the University of Texas and Texas A&M University, including a study involving highway runoff quality. Use existing programs such as the Technology Transfer System to augment public information efforts.
- Design demonstration projects at rest areas and Texas Travel Information Centers across the state. Projects could include examples of landscaping, composting, and recycling. Information about these topics could be published on “Highway InfoBoards” at rest areas.

Technical Education and Training Measures

TxDOT-FTW District will expand its training program to educate its employees and contractors, as appropriate, on issues concerning water quality. An interagency cooperative workshop on water quality issues was developed by TxDOT and aimed at three aspects of departmental activities: Project Planning, Project Design, and Construction. Several workshops, for design engineers state-wide, were held. Other educational measures include:

- Continuing to require all in-house personnel handling and applying herbicides, pesticides and fertilizers to take a twelve hour training course and become licensed ground applicators. Licensing is achieved by passing an examination administered by the Texas Department of Agriculture. An annual eight hour refresher course is required for licensed applicators.
- Scheduling construction personnel for training on the proper use of TxDOT's Construction Guidance Manual. Training will be provided for construction personnel based on need.
- Expanding existing training programs to familiarize TxDOT employees about office waste recycling. Educate affected personnel concerning recycling of waste oil, batteries and tires; disposal of hazardous materials and solvents, and proper removal of asbestos and lead-based paint.
- Improving awareness of construction and maintenance activities to enhance erosion control and non-point source pollutant, such as changes in mowing cycles, landscaping, tree planting, use of native grasses and wild flowers. (TxDOT plants and maintains the largest garden in the world with more than 800,000 acres included in its Vegetation Management Program. More than 50,000 trees and million of seedlings have been planted over the last six years. Additionally, more than 50,000 pounds of wild flower seed are planted every year. TxDOT's annual landscaping budget is approximately \$10 million.)
- A poster, Basic Principles of Erosion and Sediment Control and other Source Controls, was designed for roadway construction contractors and inspectors to educate them on protecting soils from erosive forces and on-site capture of eroded soils and sediments. To accompany the posters are rain gauges to remind the contractor when to check storm water control devices. These materials are provided to contractors during preconstruction meetings.
- Utilizing existing training programs, such as the Department's Annual Transportation conference, Construction Project Management program, TxDOT design training program, and training contracted with the Texas Transportation Institute and the Texas Engineering Extension Service to educate TxDOT staff.
- Increasing public information and training opportunities for contractors regarding storm water regulations and enforcement. These regulations should require contractors to recycle construction materials, used oil, and other wastes. These

regulations could be enforced and reinforced by an audit team from TxDOT districts and division, and other regulatory agencies.

11. MONITORING AND SCREENING PROGRAMS

Federal Register Section Number: 40 CFR 122.26 various sections

Requirement: The following monitoring programs shall be implemented as required in Part III.B.11 and Part IV of the City's MS4 discharge permit: Dry Weather Field Screening; Wet Weather Field Screening; Industrial and High Risk Runoff Monitoring , a Wet Weather Characterization sampling program, and floatables monitoring.

“The permittees are participating in the North Central Texas Regional Wet Weather Characterization Program which is comprised of seven major municipalities and transportation agencies in the Fort Worth/Dallas metropolitan area. The following specific monitoring requirements are in accordance with this regional monitoring program: Part V. Monitoring Program – Wet Weather Characterization; Part V. Monitoring Program – Bioassessment; Part V. Monitoring Program – Floatables. ”

Description: The City performs six (6) major monitoring programs as required by the current TPDES permit. Dry Weather Field Screening [III.B.11.a] is a part of the City's Illicit Discharge Program where all major outfalls in the Fort Worth MS4 are screened for pollutants at least once per permit term. Wet Weather Screening [III.B.11.b] is a monitoring program where various sub-watersheds in the City are screened for pollutants during rain events. Through the Industrial and High Risk Monitoring Program [III.B.11.c] the City collects and reviews discharge monitoring data from TPDES regulated industries. The City complies with the Wet Weather Characterization requirement through participation in the Regional Wet Weather Characterization Program [IV.A.3] and Representative Rapid Bioassessment Monitoring [IV.A.2] The floatables program [IV.B] entails collecting, removing and quantifying litter in receiving water using floatable debris collectors installed at a minimum of two (2) locations.

DRY WEATHER SCREENING PROGRAM

The objectives of this program are to continue our ongoing efforts to detect the presence of illicit discharges and to assess dry weather water quality changes. Analyses performed include temperature (air and water), pH, color, turbidity, copper, ammonia, phenols, chlorine, specific conductance and detergents. Observational characteristics including odor, oil sheen, surface scum, sewage and flow are also noted. A colorimetric meter that measures pollutants in parts per million is used for the analysis of copper, phenols, ammonia and chlorine. The Methylene blue active substances (MBAS) method is used for detergent analysis. Portable meters are used to measure pH, specific conductance and turbidity. Tests and observations are performed twice in a 24-hour period (tests are separated by a minimum of four (4) hours) to increase the potential to detect illicit flows. Also, sampling and analyses are only conducted when there has been no significant precipitation (<0.10 inch) within 48 hours. Detailed Standard Operating Procedures (SOPs) are maintained by the City's Environmental Management Department.

Priorities for follow-up screening of outfalls will rely on a number of factors such as past history of illicit discharges, number of citizen complaints, potential pollutant sources, experience of field crew, etc.

Pollutant Trace Back

When screening results indicate the possible presence of illicit flow field crews begin a trace back investigation of the pollutants of concern within the MS4. A variety of investigative tools, such as additional DWFSs, watershed reconnaissance, Microtox®, dye tracing, tunnel entries, *etc.*, may be used in follow-up activities as appropriate for each situation. If a responsible party is found, appropriate enforcement actions are taken.

TxDOT Dry Weather Screening Activities

Under its Dry Weather Screening (DWS) Program, TxDOT-Fort Worth District has completed 100% screening of the Phase I area. Field screening teams visit the screening sites during dry weather conditions and check for the presence of a discharge. If a discharge is present, the team conducts chemical field screening of the discharge for parameters such as pH, detergent, copper, ammonia, phenols and chlorine. General physical characteristics, such as color, odor, turbidity, surface scum and oil sheen, are also noted on the GPS unit or field data sheets. If high screening values are detected or the presence of physical characteristics, such as odor, algae, stains, *etc.*, are noted, the field screening team also may collect discharge samples for laboratory analysis of parameters such as *E. coli*, oil and grease, and Total Petroleum Hydrocarbons (TPH). Sample collection and analysis does not always conform to the requirements of Part 136 of Title 40 of the CFR (“Part 136”). However, sample collection and analysis taken to confirm (e.g., in support of possible legal action) a particular illicit connection or improper disposal practice does conform to the requirements of Part 136.

If initial screening indicates that a dry weather discharge contains pollutants or if an illicit discharge is suspected, the field screening team returns to the site and repeats its evaluation. Otherwise, a repeat evaluation is optional. If a second evaluation occurs, it usually will be made within four to twenty-four hours of the first evaluation.

When the dry weather field screening results from either an initial or a repeat evaluation indicates the presence of illicit connections or if an improper discharge is suspected, the District will notify the appropriate entity with jurisdiction for additional investigation.

WET WEATHER SCREENING PROGRAM

The purpose of the Wet Weather Screening Program is to address areas that may be contributing excess levels of pollutants to the MS4 during storm events. Each year, at least 50 runoff samples will be collected and analyzed. Locations will be selected based on past or previous history, information gathered during dry weather field screens or other field reconnaissance, industrial monitoring data, information obtained from industrial or construction inspections, or other program emphases. Samples may be collected in-stream or from outfalls, curbs, open ditches, pipes, sheet flow, or other

appropriate locations. Sample locations may be clustered within small sub-watersheds to thoroughly characterize the runoff and isolate areas of particular concern, or may be individual locations scattered throughout the City. Samples should be collected from runoff resulting from a rain event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours after the last measurable (>0.10 inch) rain event. The greater than 0.10 inch rainfall guideline may be waived during drought conditions. Also, samples should be from the first flush. Although timing of the first flush is dependent on many variables including duration and intensity of rainfall, topography, distance of an outfall from its source, etc., it is generally defined here as runoff occurring within 30 minutes after the first 0.10 inch of rainfall. Sample analyses will consist of, at a minimum, pH, specific conductance, and turbidity. Additional analyses which may be performed include, but are not limited to ammonia-nitrogen, nitrate-nitrogen, phosphate, chromium, copper, zinc, COD, Microtox®, total coliform and *E. coli* bacteria. The selection of additional analyses to be performed will be determined by senior personnel on a case-by-case basis based upon land use and potential pollutants present in the sampling area. The data will be reviewed to determine what follow-up activities, if any, should be conducted. Summary statistics for each parameter and results of any follow-up activities will be presented in the Annual Report.

INDUSTRIAL AND HIGH RISK RUNOFF MONITORING PROGRAM

To satisfy this permit requirement, the City requires industries with benchmark monitoring requirements under the Multi Sector General Permit (MSGP) for storm water discharges related to industrial activity to submit their monitoring results to the City.

The MSGP was renewed by TCEQ on August 14, 2006. This renewal included changes to the benchmark monitoring requirement. The monitoring frequency was reduced from quarterly sampling during two consecutive years to semi-annual sampling each year beginning in January 2007. The MSGP also now requires annual reporting of results before March 31st of each year using a form provided by TCEQ.

Each year the City will send a notice to all facilities on file with a benchmark monitoring requirement reminding them of their reporting requirement to TCEQ and requesting that a copy of the report be sent the City's Environmental Management Department.

WET WEATHER CHARACTERIZATION

The City of Fort Worth and its co-permittees have chosen to comply with Permit Part IV.A monitoring requirements through the North Central Texas Regional Wet Weather Characterization Program (RWWCP) including the Representative Rapid Bioassessment Monitoring option. A detailed monitoring plan for the RWWCP is included as Attachment 1 of this document.

TRWD FLOATABLES MONITORING PROGRAM

Permit Part IV.B requires the co-permittees to establish and maintain two monitoring locations for removal of floatable material in discharges to or from the MS4. In compliance with this requirement, TRWD has established and maintains two floatables collection devices on the Clear Fork Trinity River.

The floatable debris collectors were established in 2006 at two separate locations along the Clear Fork Trinity. A set of two collectors was installed across from the Clear Fork Pump Station under Rosedale Street. This collector uses the assistance of a boom to direct floatables towards the unit for collection. A second set of two collectors was installed at the outfall of sump #19 where all water entering the main river must pass through the unit. The collectors consist of large structured nets that trap floating debris as the water passes through. The nets can be detached and removed from the structure in order to empty the debris.

The trash collectors are included in the TRWD routine floodway maintenance program that is triggered into effect with a ½ inch storm event. After such an event, the trash collectors are visually inspected for capacity and damage. The cleaning schedule for the nets is dictated by the frequency of storms.

PART II: PROPOSED MODIFICATIONS

Minor changes have been made throughout the SWMP to update acronyms, organizational structure, municipal studies and initiatives, as well as minor changes in references to items (such as number of active fire stations). These changes were made to align the current document with the organizational changes that, though referenced herein, do not affect the programmatic objectives or operations outlined in this plan. Further, changes proposed in previous annual reports were incorporated into this updated plan where they may not have been previously.

PROPOSED INDUSTRIAL AND HIGH RISK RUNOFF MONITORING PROGRAM MODIFICATIONS

The proposed industrial monitoring program is essentially the same as the program has been for the life of the permit. SWMP modifications to the program are primarily based on incorporating references to the TPDES Multi Sector General Permit, general housekeeping of the SWMP, and programmatic changes based on lessons learned over the last permit term.

Modifications:

Updates to the program requirements section to reflect what is stated in the current MS4 permit.

Previous versions of the SWMP contained separate sections that discussed the inspection process for municipal landfills; hazardous waste treatment, storage or disposal facilities; and EPCRA section 313 facilities. Through years of inspecting these facilities and updates to the TPDES permits, inspections of these various types of facilities are conducted following the same guidelines and procedures. To provide a clearer objective on how the Industrial and High Risk Runoff Program operates and to align the SWMP with what the current MS4 permit language requests, these sections have been combined and updated to reflect current procedures and guidelines.

PROPOSED CONSTRUCTION SITE RUNOFF PROGRAM

To provide a clearer objective on how the Construction Site Runoff Program operates and to align the SWMP with what the current MS4 permit language requests, this section has been restructured and updated to align with the MS4 permit requirements in the most recent version of the permit. Through this revision, no major changes in methods or practices have occurred.

Sections have been added discussing the management of construction activities performed by the TRWD and TxDOT.

PROPOSED PUBLIC EDUCATION PROGRAM MODIFICATIONS

The proposed public education program is largely unchanged from the program that has been in place for life of the permit. Modifications to the program are necessary due to an organization change within the municipal government resulting in the city-wide consolidation of education staff within a single department.

Modifications:

Though education staff is no longer housed within the Environmental Management Department's organizational structure, this function is still provided and service is maintained by utilizing education and communication staff within the Community Relations Department.