



STORMWATER MANAGEMENT PLAN

J U N E , 2 0 1 6



TPDES Permit # WQ0004775000



TABLE OF CONTENTS

Introduction 3

Legal Authority 3

Stormwater Permit Area 3

SWMP Organization & Elements..... 4

MCM 1: MS4 Maintenance Activities..... 5

 Objective 5

 Program Description 5

 Performance Measures 7

 Implementation Schedule 7

 Fiscal Summary..... 7

MCM2: Post-Construction Stormwater Controls Measures 8

 Objective 8

 Program Description 8

 Performance Measures 8

 Implementation Steps 9

 Fiscal Summary..... 9

MCM3: Illicit Discharge Detection and Elimination 10

 Objective 10

 Program Description 10

 Performance Measures 15

 Implementation Schedule 16

 Fiscal Summary..... 16

MCM4: Pollution Prevention & Good Housekeeping Municipal Operations..... 17

 Objective 17

 Program Description 17

 Performance Measures 21

 Implementation Schedule 21

 Fiscal Summary..... 21

MCM5: Industrial and High Risk Runoff 22

 Objective 22

 Program Description 22



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Performance Measures23
 Implementation Schedule23
 Fiscal Summary23
MCM6: Construction Site Stormwater Runoff.....24
 Objective24
 Program Description24
 Performance Measures26
 Implementation Schedule26
 Fiscal Summary26
MCM7: Public Education, Outreach, Involvement & Participation.....27
 Objective27
 Program Description27
 Performance Measures29
 Implementation Schedule29
 Fiscal Summary29
MCM8: Monitoring, Evaluation, and Reporting.....30
 Objective30
 Program Description30
 Performance Measures31
 Implementation Schedule32
 Fiscal Summary32
Interim Bacteria Reduction Plan: Discharges to Water Quality Impaired Receiving Waters.....33
 Background33
 Objective33
 Plan Description33
Appendix A: Storm Drainage Basin Maps36
Appendix B: List of Municipal Facilities41



City of Plano Department of Environmental Health & Sustainability Stormwater Management Plan 2016-2020



INTRODUCTION

The Clean Water Act (CWA) is a federal law regulating discharges to the waters of the United States. This law makes it illegal to discharge pollutants into navigable waters unless a permit is obtained. The Environmental Protection Agency (EPA) is required to implement rules to uphold this law. The National Pollutant Discharge Elimination System (NPDES), authorized by the CWA, helps to regulate water pollution by regulating point source pollution into U.S. waters.

The NPDES municipal stormwater program development took place in two phases and required permits for Municipal Separate Storm Sewer Systems (MS4). Phase I regulations, issued in 1990, apply to medium and large cities with populations over 100,000 to obtain a NPDES permit for stormwater discharges. These cities require an individual permit and development of a stormwater management plan (SWMP) to define how the permittee will minimize the discharge of pollutants to waters of the U.S. Phase II regulations, implemented in 1999, require small MS4s, both in urban and rural areas to also obtain permit coverage, which is normally accomplished via a general permit. The City of Plano is a Phase I City and therefore, a SWMP is required to be established.

The Texas Commission on Environmental Quality (TCEQ), in 1998, was granted administration rights for the NPDES program in the State of Texas and is commonly known as the Texas Pollutant Discharge Elimination System (TPDES).

The City of Plano's TPDES permit was renewed by the TCEQ on December 2, 2015. This SWMP has been crafted to meet requirements of the TPDES permit and to guide the City's Stormwater Program over the permit term (five years). The goal of the SWMP is to assist in the effort to reduce pollutants in stormwater runoff to the "maximum extent practicable" and ultimately from entering waterways within the City. The plan outlines best management practices for handling stormwater, including maintenance of the MS4, controls for construction and post-construction sites, detection and monitoring of illicit discharges, pollution prevention and housekeeping of City sites, education of the public, city employees, and developers, and MS4 monitoring, evaluation, and reporting.

LEGAL AUTHORITY

The City of Plano operates as a council-manager form of government. There are eight elected city council members, including the Mayor. The City's Code of Ordinances is in place to protect the residents' welfare and includes regulations concerning stormwater quality.

STORMWATER PERMIT AREA

The City of Plano is located in Collin County and Denton County, approximately 20 miles north of downtown Dallas. The City covers approximately 72 square miles and is made up of four major basins which include Indian Creek, Rowlett/Spring Creek, Stewart Creek, and White Rock Creek and eight sub-basins with approximately 120 miles of waterways within the City's jurisdictional boundaries. Maps of these watersheds can be found in Appendix A.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



SWMP ORGANIZATION & ELEMENTS

The City of Plano has updated the Stormwater Management Plan (SWMP) in accordance with TPDES Permit No. WQ0004775000, originally issued on July 20, 2007 and renewed on December 2, 2015. The permit requires the City of Plano to develop a management plan to include eight minimum control measures (MCMs). Each MCM contains components that must be addressed within the SWMP. This plan is organized according to the eight required MCMs and permit sections are printed in applicable areas for cross-reference. Each MCM section contains five subsections including an objective which gives a general overview and highlights the goal(s) of the section, a program description, performance measures, implementation schedule(s), and a fiscal summary.

The MCMs are as follows:

1. MCM 1: MS4 Maintenance Activities
2. MCM 2: Post-Construction Stormwater Control Measures
3. MCM 3: Illicit Discharge Detection and Elimination
4. MCM 4: Pollution Prevention & Good Housekeeping for Municipal Operations
5. MCM 5: Industrial & High Risk Runoff
6. MCM 6: Construction Site Stormwater Runoff
7. MCM 7: Public Education, Outreach, Involvement & Participation
8. MCM 8: Monitoring, Evaluation & Reporting

An Interim Bacteria Reduction Plan (IBRP) for Discharges to Water Quality Impaired Receiving Waters is included. The IBRP has been included in this plan in response to the placement of Rowlett Creek (0820) on the Texas 303(d) List in 2014. Bacteria was the causative pollutant leading to this action. The Environmental Protection Agency (EPA) approved the 2014 Texas 303(d) List in 2015.

Finally, this SWMP has been significantly reorganized to accommodate the new permit format. Following is a chart that *approximates* where existing SWMP sections were placed within the new MCM format:

MS4 Maintenance Activities	4.4 Stormwater Sewer System Maintenance Program
	4.9 Stream Bank Erosion Control & Drainage Problem Correction
Post-Construction Stormwater Control Measures	4.3 Development Planning & Construction Management
Illicit Discharge Detection and Elimination	4.6 Illicit Discharges & Improper Disposal Management
	4.7 Used Oil & Toxic Materials Management
Pollution Prevention & Good Housekeeping	4.5 Pesticide & Fertilizer Use
Industrial & High Risk Runoff	4.8 Industrial Inspection & Monitoring
Construction Site Stormwater Runoff	4.3 Development Planning & Construction Management
Public Education, Outreach, Involvement & Participation	4.2 Public Education/Reporting & Employee Training
	4.10 Public Participation
Monitoring, Evaluation & Reporting	4.6 Illicit Discharges & Improper Disposal Management



MCM 1: MS4 MAINTENANCE ACTIVITIES

OBJECTIVE

Reduce the discharge of pollutants from streets, storm sewers, catch basins, and creeks to the maximum extent practicable using existing equipment, materials, and manpower. Monitor and control maintenance activities, including de-icing of bridges and roadways, to minimize impacts to water quality.

PROGRAM DESCRIPTION

A. Structural Controls (SW Permit Part III, Section B.2.a.i)

The City of Plano Municipal Drainage section currently performs normal maintenance on a complaint/request basis for various programs.

The Parks and Recreation Department (PARD) performs silt removal on park ponds as needed. These ponds serve mainly as park enhancement features rather than detention or water quality structures. However, these ponds have a configuration and sufficient volume such that some sediment collection from stormwater flow occurs. The collection of sediment provides benefit to the MS4. The Municipal Drainage Section is responsible for monitoring one detention facility (Riverbend/Finger Lakes) and scheduling of silt/debris removal. Inspections are performed annually to measure build-up of silt.

The Erosion Control Repair Program involves “minor” work performed by the Municipal Drainage Section ranging from sandbag/rip rap to gabion-type retaining walls. The repair of “minor” drainage structures consists of headwall and pipe repair, pipe separation, wing walls, etc.

Plano facilitates design and construction of erosion control and drainage structures on city property and along city drainage easements. These sites have been identified through field reconnaissance by city personnel and city-wide investigation. The City Engineering Department plans to continue efforts providing stream bank protection and improved flow capacity during the permit term.

Plano has partnered with the several other cities in the region to produce the Stream Bank Protection Manual which provides methods for predicting stream bank erosion and implementing methods to stabilize areas in question.

Throughout the permit term, the City Engineering Department proposes to implement stream bank erosion control by the following mechanism:

- Field reconnaissance of eroding stream bank sites when identified by city staff or when complaints are received.



City of Plano Department of Environmental Health & Sustainability Stormwater Management Plan 2016-2020



- Inventory of stream reaches experiencing stream bank erosion.
- Ranking of severity of stream bank erosion at each stream reach.
- Selection of stream reaches to be protected by stream bank erosion control.
- Design, construct, and inspect stream bank erosion control measures.

For areas where increased flow capacity is required, a similar mechanism will be used to address the problem.

Storm Sewer, Catch Basin, and Creek Maintenance

The Vegetation Control Program consists of the Public Works Department and/or the Parks and Recreation Department mowing city maintained channels during the year (growing season: April-September). Weed-eating is performed in areas not accessible by mowers. Some herbicide is used in areas where equipment access is limited.

Vegetation and silt removal in storm sewers, catch basins and creeks is performed as needed. The Public Works Department utilizes a vacuum truck for cleaning catch basins. This method will result in more stormwater inlets being cleaned, thereby reducing the amount of sediment deposited into Plano's creek system. Fallen trees are removed from drainage ways to prevent blockage and collection of debris.

Inspection of box culverts will be performed bi-annually by the Public Works Department for blockages caused by trees. Cleaning box culverts is performed as needed.

Analysis and assessment of current operations as proposed in other programs shall be part of the City's Stormwater Management Plan. If alternative methods are feasible and fundable, then implementation of additional activities will take place.

B. Floatables (SW Permit Part III, Section B.2.a.ii)

The Environmental Waste Services (EWS) Division of the Public Works Department plans to continue collecting litter from approximately 1,150 miles of road throughout the City. The EWS Division also plans to continue servicing 168 trash receptacles (as of 2016) placed at major intersections. The Engineering Department requires the use of storm drain grate inlets, or approved equivalent, on non-residential development to limit inflow of floatable debris to the City's MS4.

The PARD conducts general litter pick-up in park areas and floating debris present on pond edges is cleaned out as needed. The Sustainability & Environmental Education Division (SEED) of the Department of Environmental Health & Sustainability will continue to coordinate locations for interested volunteers to conduct cleanups throughout the City. Additionally, the annual Great American Cleanup and monthly group litter cleanups will continue to recruit volunteers to clean parks and neighborhoods around the City. The



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



Adopt-A-Highway program provides opportunities for groups to adopt designated roadways in Plano and maintains approximately 160 locations for adoption.

Information handouts on floatables and their control have been developed by the Planning Department and Engineering Department. These are made available to developers, homeowners, and selected businesses.

C. Roadways (SW Permit Part III, Section B.2.a.iii)

The Public Works Department performs street sweeping on approximately 915 miles per month. Additionally, 17 municipal parking lots are swept weekly. The City will monitor and evaluate sweeping operations performed by private contractors. The City will adjust sweeping frequencies as needed.

The City of Plano Public Works Department performs maintenance of roadways and bridges on a daily basis. During operations, excavated areas in pavement are used as sediment traps to minimize soil from entering creeks. After repairs are complete, the entire work site is cleaned and all loose debris removed for proper disposal. In de-icing operations, Public Works utilizes a 4 to 1 ratio of sand to salt for de-icing overpasses, signalized intersections, bridges, and box culverts. Sand spreaders are calibrated on a routine basis, and equipment operators are educated in proper application techniques. Sand is removed from streets through sweeping operations.

PERFORMANCE MEASURES

- Metrics on amounts of litter collected annually Annually
- Numbers of erosion repairs made
- Number of inlets, catch basins, box culverts cleaned
- Number of miles of channels maintained
- Amount of waste collected from street sweeping activities

IMPLEMENTATION SCHEDULE

Activities described within this section are part of the existing program and are ongoing.

FISCAL SUMMARY

Activities falling under this MCM will be conducted by existing staff. No additional personnel are required.



MCM2: POST-CONSTRUCTION STORMWATER CONTROLS MEASURES

OBJECTIVE

Review existing subdivision development ordinances, comprehensive master plan and other procedures which regulate development and re-development. Modify and update policies where appropriate to require development to implement practices to reduce post-construction pollutants in stormwater to the maximum extent practicable.

PROGRAM DESCRIPTION

A. Post-Construction BMP (SW Permit Part III, Section B.2.b.i)

This item will be met with the adoption of an ordinance that will include post-construction BMP requirements. The ordinance will be presented to City Council in 2017.

B. Plan for Post-Construction Control Measures (Sites >1 acre) (SW Permit Part III, Section B.2.b.ii)

A plan is currently under development for submission of an ordinance to City Council to expand the use of structural and non-structural post-construction BMPs and will include all new development and redevelopment projects that disturb one acre or more of land, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one acre or more. The ordinance will be presented to City Council in 2017. An education program will be developed to inform the business community and the public of the new requirements.

C. SWMP Schedule for Implementation (SW Permit Part III, Section B.2.b.iii)

This item will be met with the adoption of an ordinance in 2017 that will include post-construction BMP requirements. See timeline implementation steps below.

D. Flood Control Projects (SW Permit Part III, Section B.2.b.iv)

Currently, the City of Plano has no flood control projects and there are none planned in the next five (5) years.

PERFORMANCE MEASURES

- Ordinance Approval by City Council in 2017
- Documentation of educational activities informing of new requirements to business community and public
- Documentation of any enforcement actions taken to eliminate improper post-construction BMPs



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



IMPLEMENTATION STEPS

Plan for post-construction stormwater control measures	Existing: See Below
Expansion of plan for post-construction stormwater control measures	
<ul style="list-style-type: none"> • Meeting with team • Meeting/Submittal of updated subdivision ordinance • Meeting/Criteria Manual/Presentation • Meeting/Presentation submittal/City Council briefing • Developers/Staff presentations • Staff Presentation/Feedback • Developers presentations (2) • Meeting/Review & discussion of feedback • Submit final ordinance/Criteria Manual • Planning & Zoning Commission meeting • City Council Meeting/Approval of ordinance 	2017

FISCAL SUMMARY

Most activities described within this MCM will be accomplished with existing staff.

Ordinance re-write (Planning Dept.) including consultant fees and public outreach: \$24,000



MCM3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

OBJECTIVE

The Department of Environmental Health & Sustainability will continue dry-weather and wet-weather field screening activities to identify illicit connections and/or improper discharges of non-stormwater to the MS4. Modify spill response procedures when necessary. Isolate and attempt to correct infiltration of sanitary sewers into MS4. Educate residents on proper disposal of household hazardous waste and used motor vehicle oil and continue operation of a program to pick-up waste and used oil from residents on a request basis. Methods to contain spills and prevent contamination will continue to be reviewed for effectiveness and revised as appropriate.

PROGRAM DESCRIPTION

A. Illicit Discharges Program (SW Permit Part III, Section B.2.c.i)

1. Dry-weather inspections are conducted on a regular basis (Goal is to screen 20% of the MS4 annually). Investigations are completed when a complaint of illegal discharge is received. Education and voluntary compliance is sought, however, the Department of Environmental Health & Sustainability has ability to issue citations as needed (Ordinance No. 92-7-14, § 1(5), 7-13-92)

Wet Weather screening activities are designed to identify, investigate and address land areas that may be contributing excessive levels of pollutant to the MS4. This program is addressed in detail under MCM 8: Monitoring, Evaluation, and Reporting.

2. Four basins identified and location of outfalls in each basin have been identified and assigned to stormwater specialists for screening. See "A.1" above.
3. A database is used to compile all illicit discharge complaints. This provides the ability to easily identify problem areas and adjust sampling/surveillance as needed to address these areas.
4. Resident contact and training is conducted to educate the public with respect to discharges into the MS4. The Department of Environmental Health & Sustainability, Environmental Health Division team works with the City of Plano Fire department HAZMAT team as needed. Certification of occupancy requirements for auto shops include BMP for wastes, etc. A proposed update to the city's stormwater ordinance has been drafted that will allow the city to better regulate auto shops and industrial facilities, and the process is anticipated to be completed in 2020.
5. An on-line reporting program allows residents to report environmental concerns. The website provides education and information on stormwater-related issues, including illegal discharge. The department has implemented a water quality group that makes use of residents in stream water sampling and clean-up.



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



6. The Department of Environmental Health & Sustainability (EHS) will continue to educate the public on the proper management and disposal of used oil and toxic materials. The Public Works Environmental Waste Services Division will continue to provide free pick-up of household hazardous chemicals and used cooking and motor oil. The EHS will continue to promote this service to residents. Additionally, materials collected through this pickup program are recycled and provided free of charge to residents at the Household Chemical Reuse Center; the EHS will continue to educate the public on the availability of materials at the Reuse Center. The EHS and the City of Plano Police Department partner annually to promote and participate in the National Prescription Drug Take-Back program. The EHS also educates the public on taking expired or unused prescription drugs back to pharmacies.

7. The Public Works Department has an on-going program to address capacity issues and inflow and infiltration (I/I) into our sanitary sewer system. This program will help to eliminate illegal discharges of sanitary sewage. The main projects in this program related to I/I are as follows:

48847	Inflow/Infiltration Program	This program funds projects where we study a sanitary sewer basin/sub-basin to determine where I/I is entering the system.
48861	I & I Repairs Serv. Contracts	Contractors are hired to eliminate the sources of I/I in the sewer mains and city-owned services.
48877	Manhole Sealing	Contractors are hired to eliminate the sources of I/I in manholes

For 2015-16, we have additional projects like Brown Branch Sewer, Rowlett Creek Cured in Place and White Rock Creek and Prairie Creek Sewer Main which eliminate sources of I/I or add capacity to eliminate past locations of sanitary sewer overflows.

B. Allowable Discharges (SW Permit Part III, Section B.2.c.ii)

For the purposes of this plan, the following discharges do not need to be addressed as illicit discharges or prohibited from entering the MS4: miscellaneous non-stormwater discharges, discharges regulated by a separate NPDES or TPDES permit, and discharges for which a NPDES or TPDES permit application has been submitted or neither an NPDES nor TPDES permit is required.

C. SWMP Identification of Non-Stormwater Discharges (SW Permit Part III, Section B.2.c.iii)

The discharge of non-stormwater must not create a public health nuisance or hazard (e.g. mosquito breeding site). If a nuisance or hazard is created, enforcement action will be initiated against the violator.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



D. Miscellaneous Allowable Discharges (SW Permit Part III, Section B.2.c.iv)

Exempted categories of non-stormwater discharges from the prohibition on non-stormwater entering the MS4 as listed in 40 CFR §§ 122.26 (d) (2) (iv) (B) (1) includes in its entirety the following: water line flushing where dechlorination is accomplished, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration [as defined at 40 CFR § 35.2005 (20)] to separate storm sewers, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential vehicle washing, wash waters using only potable water and are similar in quality and character to street wash water or individual residential vehicle washing but without the use of detergents or surfactants, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, other allowable non-stormwater discharges listed in 40 CFR §§ 122.26 (d) (2) (iv) (B) (1), other allowable non-stormwater discharges as listed in the TPDES Construction General Permit No. TXR150000 and TPDES Multi-Sector General Permit No. TXR050000, and other similar occasional incidental non-stormwater discharges.

E. Fire-related Discharges (SW Permit Part III, Section B.2.c.v)

The City of Plano recognizes the urgent need to protect life and property in the event of a Fire Department-related emergency. When the response and clean-up actions may significantly impact the MS4, the City Utilities and the Department of Environmental Health & Sustainability will respond to identify and implement applicable mitigation practices. Fire suppression foam is used in Fire-Rescue training. When possible the product is diverted to green space areas. The foam is an environmentally-friendly product. When maintenance on fire engines require the purging of the pump, fresh water is used to flush the units.

F. Discharges Contributing Significant Amounts of Pollutants (SW Permit Part III, Section B.2.c.vi)

If it is determined that an individual non-stormwater discharge otherwise exempted under this plan is contributing significant amounts of pollutants to the MS4, that discharge shall be prohibited.

G. Elimination of Illicit Discharges and Improper Disposal (SW Permit Part III, Section B.2.c.vii)

1. The City of Plano maintains a database of all confirmed and suspected illicit discharges. This database is readily accessible and can be queried for a number of parameters.
2. Enforcement procedures include issuing a verbal compliance order or a written Notice of Violation. Both procedures include a compliance deadline. If compliance is not achieved, a notice to appear in court can be issued by the Department of Environmental Health & Sustainability. This avenue is used when there is little attempt by the responsible party to eliminate the illicit discharge.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



H. Overflows and Infiltration (SW Permit Part III, Section B.2.c.viii)

Plano continues to be committed to identifying and removing infiltration leaks throughout its entire wastewater collection system. Utility Operations conducts inflow/infiltration (I/I) studies to identify leaks into, and out of, the sanitary sewer system as well as discharges into the MS4. As these leaks are identified, an abatement program to initiate repairs is developed. Elimination of leaks in the sanitary sewer system protects stormwater, as well as preventing it from entering and overloading sanitary sewers, which can lead to overflows.

I. Household Hazardous Waste and Used Motor Vehicle Fluids (SW Permit Part III, Section B.2.c.ix)

The City collects household chemical products from its residents on a per-call basis as long as it is "normal" quantities generated from a homeowner (defined as 15 gallons or less). These include cleaning, automotive and repair products, lead acid batteries, paint, pool chemicals, and herbicides/pesticides. Each product is evaluated and prepared for redistribution through the Household Chemical Collection Reuse Center or contained in 55 gallon drums for disposal through a hazardous waste hauler. Latex paint is re-blended and distributed for reuse.

The City collects used oil generated by homeowners on a per-call basis. The City does not have a regular route to pick up used oil. The City recycles oil and filters in conjunction with the North Texas Municipal Water District.

The City also promotes companies accepting used oil from do-it-yourselfers by listing them in any solid waste literature distributed to the residents and on the Department of Environmental Health & Sustainability website. In addition, NTMWD anticipates continuing to operate used oil and oil filter drop-off sites.

All contractors are required to label storm drains during construction. Contractors may purchase labels from the vendor used by the City of Plano or from a vendor of their choosing. The remainder of storm drain labeling occurs by volunteers through the Sustainability and Environmental Education Division of the Department of Environmental Health & Sustainability, and in partnership with Neighborhood Services' Department "Love Where You Live" Program.

Plano believes its existing Household Chemical Collection (HCC) Program is adequate to meet permit regulations and needs of residents.

J. MS4 Screening and Illicit Discharge Inspections (SW Permit Part III, Section B.2.c.x)

The City of Plano will conduct dry weather field screening of all areas of the MS4 but not necessarily each individual outfall over the permit term to determine existence, location,



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



and extent of possible illicit connections and discharges to the MS4. The City will locate and screen additional outfalls as they are added to the stormwater conveyance system. The City will add or delete testing parameters as conditions warrant. When flows are observed at the screening site, the source of flow will be investigated by the inspector, and if unable to determine the source of the flow, a sample will be collected and analyzed and visual observations noted. A summary of parameters and the method of evaluation are as follows:

Parameter	Method of Evaluation
pH	Meter/Probe
Temperature (water)	Meter/Probe
Conductivity	Meter/Probe
Dissolved Oxygen (D.O.)	Meter/Probe
Chlorine	Field Test Kit
Nitrate	Field Test Kit
Nitrite	Field Test Kit
Copper	Field Test Kit
Iron	Field Test Kit
Phosphate	Field Test Kit
Ammonia	Field Test Kit
Color	Borger Color System

Visual observations are noted on field inspection forms as well. These include, but are not limited to, trash, oil sheen, surface scum, fish kill, aquatic life (including vegetation) and sewage contamination. Odor is noted through olfactory observation.

Where outfalls are submerged by backwater or water stored in retention/irrigation ponds and lakes, it is not practicable to conduct dry weather screening. However, the City will document submerged outfalls and make visual observations. Documentation will be helpful when problems are encountered in the receiving stream.

The Department of Environmental Health & Sustainability pro-actively conducts inspections of industrial and commercial facilities to identify illicit discharges and incidents of improper disposal to the storm sewer system. The Department also conducts auto shop inspections for potential stormwater pollution conditions onsite as a voluntary review.

Sample areas that demonstrate potential illicit connections or improper disposal of pollutants will be investigated to determine and remediate the pollutant source. These investigations may include the use of dye testing, smoke testing and/or television inspections of storm sewers.

K. Priority Areas (SW Permit Part III, Section B.2.c.xi)

A list of priority areas likely to have illicit discharges will be created, regularly evaluated, and updated as needed with results listed in the annual report.

L. NPDES and TPDES Permittee List (SW Permit Part III, Section B.2.xii)



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



A list of dischargers that discharge directly to the MS4 and has been issued an NPDES or a TPDES permit shall be created, regularly evaluated, and updated as needed.

M. MS4 Map (SW Permit Part III, Section B.2.c.xiii)

The City of Plano Planning Department Geographic Information System (GIS) Division Utilizes GIS to map new and existing outfalls. Outfalls will be entered from storm drainage infrastructure as-built drawings. New locations will be verified by annual acquired ortho-photography within four (4) feet. All streams and tributaries within the MS4 area shall be named using FEMA naming conventions. Environmental Health & Sustainability staff verify outfalls and provide identification location using GPS and photo information of the individual units for baseline conditions.

Source information of the MS4 map shall be stormwater drainage infrastructure as-built drawings updating a GIS drainage infrastructure layer on a monthly schedule. Outfall locations shall be quality controlled by verifying locations annually through cross checking with an annual acquired ortho-photography of the MS4 area. Environmental Health & Sustainability staff will verify outfalls and provide identification location using GPS and photo information of the individual units for baseline conditions. Discrepancies between the GIS mapped locational information and field verified information shall be communicated to the Planning Department GIS Division and the MS4 maps shall be updated.

New MS4 areas shall follow Section III.B.2.c.xiii requirements within one year of permit issuance.

Within three (3) years of permit issuance, the City shall demonstrate that the existing MS4 areas have been evaluated and new mapping requirements implemented.

N. Spill Prevention and Response (SW Permit Part III, Section B.2.c.xiv)

Plano utilizes the existing Hazardous Material Response Team of the Fire Department to respond to emergencies involving spills. The Fire Department follows local fire codes and departmental policies when responding to an emergency spill. The Fire Department shall notify the Department of Environmental Health & Sustainability of any hazardous material incident where there is air, water, or soil contamination. Other City departments are utilized as needed. Persons involved with the spill response process will employ methods to contain spills and prevent contamination of the storm drain, sanitary sewer or surface water body. Any new spill response methods will be reviewed for effectiveness prior to implementation.

PERFORMANCE MEASURES

- Number of households that receive direct mail newsletters that include information on proper oil and toxic materials disposal information



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



- Number of subscribers that receive e-newsletters with information on proper oil and toxic materials disposal.
- Number of presentations given that included information on proper oil and toxic materials disposal and the number of people reached through these presentations.
- Number of people who visited the webpages about the reuse center and household chemical collection.
- Metrics on household hazardous waste/used oil pick-ups.
- Metrics on sanitary sewer inspection & maintenance program (manholes inspected/repaired/cleaned, miles of sewer replaced/repaired/cleaned, etc.)
- Number of inspections conducted (illicit discharges) (yearly) and number that resulted in discovery of illicit discharge or corrective actions.
- List of Priority Areas updated as needed or minimum annually
- List of Dischargers updated as needed

IMPLEMENTATION SCHEDULE

Illicit Discharges Program	Existing/Ongoing
Household Hazardous Waste/Used Motor Vehicle Oil program	Existing/Ongoing
MS4 Screening/Illicit Discharge Inspections	Existing/Ongoing
Listing of priority areas	July 2016
Listing of dischargers	July 2016
Procedure for MS4 map updating	1 year
Evaluate all existing portions of MS4/update map	3 years
Spill prevention/response	Ongoing

FISCAL SUMMARY

Activities conducted under this MCM will be accomplished with existing staff. Plans are to continue funding the household chemical collection and reuse program in the Environmental Waste Services Fund.



MCM4: POLLUTION PREVENTION & GOOD HOUSEKEEPING MUNICIPAL OPERATIONS

OBJECTIVE

A pollution prevention and good housekeeping program will be implemented for all City of Plano facilities including implementation of BMPs to reduce pollutant runoff and reduction of pollutant discharge from road repair, equipment yards, and material storage facilities to the maximum extent practicable. Education and training for municipal employees who apply pesticides, herbicides, and fertilizers on public land, public right-of-way, and at municipal facilities will be provided. Municipal employees will be trained on proper use and application of pesticides, herbicides, and fertilizers, and other maintenance related activities.

PROGRAM DESCRIPTION

A. Pollution Prevention and Good Housekeeping (SW Permit Part III, Section B.2.d.i)

For the purposes of this permit section, the City of Plano municipal facilities have been tiered to indicate those with the highest to least potential of polluted stormwater runoff. All municipal facilities/operations will follow the best management practices outlined below in Sections A.1 and A.2 as applicable to the type of facility existing.

Tier 1: These facilities are formally inventoried and inspected by the Department of Environmental Health & Sustainability on an annual basis to ensure proper best management practices are being followed to reduce the potential for stormwater pollution.

Tier 2: These facilities pose a moderate level of risk for stormwater pollution and will be monitored biennially to ensure best management practices are in use at each site.

Tier 3: These facilities pose very little risk for stormwater pollution and will be monitored at least once during the permit term to ensure best management practices are in place.

1. Identification and implementation of good housekeeping and best management practices (BMPs) to reduce pollutant runoff from municipal operations.
 - a. The City of Plano, Public Works Department, Drainage Section will clean out all box culverts on an annual basis year (weights of debris collected will be measured and reported each year).
 - b. The City of Plano, Public Works Department, Drainage Section will clean out at least 20% of its storm drain inlets on an annual basis year (weights of debris collected will be measured and reported each year).
 - c. The City of Plano, Public Works Department, Environmental Waste Services Division, Median Right of Way crews will collect litter from a minimum of 4,000 miles of city



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



streets, including vacuum cleaning of 500 miles of streets annually (weights of debris collected will be measured and reported each year).

- d. Plano utilizes a contractor to perform street sweeping activities. The Public Works Department will monitor and evaluate sweeping operations on a monthly basis (approximately 915 miles per month). The City adjusts sweeping as necessary based on added/deleted streets and parking lots.
 - e. In de-icing operations, Public Works utilizes a 4 to 1 ratio of sand to salt for de-icing overpasses, signalized intersections, bridges, and streets over box culverts. Sand spreaders are calibrated on a routine basis, and equipment operators are educated in proper application techniques. Sand is removed from streets through sweeping operations.
 - f. Measureable goals will be developed by November 2016.
2. Reduction of discharge of pollutants from road repair, equipment yards, and material storage facilities, or maintenance facilities
 - a. Sand storage facilities will be maintained to minimize any runoff. Filter tubes will be placed at all discharge locations of all storage facilities.
 - b. The City of Plano Public Works Department performs maintenance of roadways and bridges on a daily basis. During operations, excavated areas in pavement are used as sediment traps to minimize soil from entering creeks. After repairs are complete; entire work site is cleaned and all loose debris removed for proper disposal.
 - c. The City of Plano Public Works Department places absorbent on liquid spills that occur at the maintenance facility. This material is swept up and disposed of properly.
 - d. Measureable goals will be developed by November 2016.
 3. The Department of Environmental Health & Sustainability, Sustainability and Environmental Education Division, will develop and implement a training program for municipal employees. The components will be a combination of video, presentation, print and electronic media.

B. Waste Handling (SW Permit Part III, Section B.2.d.ii)

1. The Public Works Department has a contractor who hauls off construction debris. Concrete debris goes to a concrete recycler and the dirt goes to a landfill.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



2. The Environmental Waste Services Division sends to the NTMWD transfer stations all material collected in the right-of-way. Trash is sent to the transfer stations. Recycling materials are sent to Republic Services who processes them. Yard waste is ground up and reused as compost or mulch. Mulch is processed at the Custer transfer station and compost is processed at the Melissa composting facility.
3. Fleet Services collects used oil that is disposed of by a third party. Water and debris from the car wash is collected and goes through a sand filter. The sand filter is cleaned on a regular basis.
4. See MCM 3 for information related to spill prevention and response, household hazardous waste, used oil, and toxic materials handling/education.
5. Additional measures will be documented by November 30, 2016.

C. Pesticide, Herbicide, and Fertilizer Application (SW Permit Part III, Section B.2.d.iii)

The pesticide/fertilizer application program for City of Plano park lands, rights-of-way and designated public building grounds is managed by the (PARD). The Parks and Athletic Divisions provide various types and levels of maintenance for developed park lands, public grounds, rights-of-way, athletic complexes and an 18-hole golf course. Park acreage not yet developed is maintained in natural conditions.

Pesticide application for the Vector Control Program is managed by the Department of Environmental Health & Sustainability. Under this program, the department applies pesticides for mosquitoes in areas that have high complaints. Also, the department will identify breeding areas for mosquitoes and treat as needed through habit reduction or larviciding.

Department pesticide applications are conducted by professional employees licensed by the Texas Department of Agriculture and the Texas Structural Pest Control Board. Only EPA-labeled products are applied.

On-going employee education programs which are regularly conducted include:

1. Licensed applicators completing annual requirements of continuing education to retain certification.
2. The PARD & the Department of Environmental Health & Sustainability provide funding for licensed applicator's annual fee and related continuing educational courses.
3. Division safety meetings are held each year to discuss pesticide handling and use.

Detailed record-keeping is in accordance with State regulations/recommendations.

1. SDS's are maintained in an accessible location in each District Service Center.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



2. Point-of-use records are maintained via computer on an ongoing basis.
3. Spray logs of products, rates, sites, and weather conditions are written for each application and retained for a minimum of two (2) years.
4. Posting notices are provided as required.

Storage of chemicals and fertilizers is minimized to the maximum extent practicable (MEP). Any necessary storage areas are designed to protect and secure materials.

1. An annual contract to purchase chemicals and fertilizers has been established to reduce storage needs by purchasing/receiving materials as needed for scheduled applications.
2. Weather-tight, locked and labeled storage areas are within fenced confines of each service center, yet away from regular employee work areas. Ventilation systems and spill collection floors are provided. Spill cleanup materials are readily available. Access to storage is limited to supervisors and licensed applicators.
3. Quarterly inspections of service center facilities are conducted by the City of Plano Fire Department for code compliance.

Pesticide applications are conducted in accordance with various best management practices (BMP).

1. Lowest label rates recommended for pests are applied only after clear identification of the pest and if it reaches an unacceptable level of tolerance.
2. Weather forecasts are consulted prior to spraying to reduce runoff from rainfall and drift from wind.
3. Fertilizer applications are generally limited to irrigated areas where controlled amounts of water can prevent runoff.

Slow release, urea-based fertilizers have been adopted for use by the Parks Division, with related reductions in the number of applications used.

1. Soil sampling is conducted periodically to identify specific soil nutrient deficiencies and reduce over-fertilization.
2. Portions of park properties are periodically used to evaluate new maintenance methods and materials to determine improved techniques.

Disease resistant and drought tolerant plant materials requiring fewer chemical treatments and less water are consistently utilized in new park developments and in renovations of older areas. Texas Smartscape concepts and standards are also encouraged.



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Disposal of pesticide containers and residue follows State regulations and industry standards.

1. Rinsates from containers are added to spray tank for controlled application at appropriate areas.
2. Containers are triple-rinsed and disposed of per label requirements.

All above-mentioned controls are currently in practice and will continue throughout duration of the permit. The City plans to evaluate these practices and incorporate recommendations into employee training.

D. List of Municipal Facilities (SW Permit Part III, Section B.2.d.iv)

This list can be found in Appendix B.

PERFORMANCE MEASURES

- Number of municipal employees receiving training (stormwater pollution prevention)
- Number of employees receiving ongoing annual training (pesticide, herbicide, fertilizer education)
- Copies of quarterly inspections conducted by the Fire Department
- Number of Municipal facilities inspected, results of inspections, and changes made

IMPLEMENTATION SCHEDULE

Pollution Prevention & Good Housekeeping Program:	November 2016
Training of Municipal Employees:	
• Identify content for municipal trainings for different employees	November 2016
• Begin training employees & tracking who has received training	January 2017
• 10% of city staff will be trained	March 2017
• 25% of city staff will be trained	June 2017
• 50% of city staff will be trained	September 2017
• 75% of city staff will be trained	December 2017
• 100% of city staff will be trained	March 2018
• Ongoing training for new employees	As needed
Annual training – pesticide, herbicide, fertilizer	Ongoing
List of municipal facilities	Annual Update

FISCAL SUMMARY

Activities conducted under this MCM will be accomplished with existing staff.



MCM5: INDUSTRIAL AND HIGH RISK RUNOFF

OBJECTIVE

Inspection of stormwater discharges and implementation of control measures to identify and control pollutants in stormwater discharges to the MS4 from municipal landfills, other treatment, storage, or disposal facilities for municipal waste, hazardous waste treatment, storage, disposal, and recovery facilities, and any state permitted "stormwater discharge associated with industrial activity" that are subject to section 313 of Title III of the Emergency Planning and Community Right-to-Know Act (EPCRA). Reporting of violations of TPDES permits may be made to the Texas Commission on Environmental Quality (TCEQ) and/or the Environmental Protection Agency (EPA).

PROGRAM DESCRIPTION

A. Improvement of Existing Program(s) (SW Permit Part III, Section B.2.e.i and ii)

The Department of Environmental Health & Sustainability (EHS) Environmental Health Division conducts annual inspections of state permitted "priority" (EPCRA Title III, Section 313) categories as identified in 40 CFR 122.26(d)(2)(iv)(C). Such categories include treatment, storage, or disposal facilities for municipal waste, as well as industrial activities. Industrial stormwater monitoring is conducted by those industries as required by permit.

During inspections, the EHS Environmental Health Division reviews the facility's pollution prevention plan to ensure that the facility is properly monitoring discharges, sampling as required, and conducting regular site inspections. The City also conducts site walk-throughs to ensure that housekeeping and BMPs are adequate to protect the city's MS4 and waterways. If a TPDES violation is noted, the City will inform the discharger of the violation and, to the extent feasible and desirable, may assist the discharger in achieving compliance. If the facility does not come into compliance within the time frame provided, the City will request that TCEQ require the facility to change its pollution prevention plan or undertake appropriate enforcement action. The City reserves the right to initiate enforcement action that it deems necessary and proper, within the City's sole discretion, to address any adverse effect on the City's MS4, surface water, or groundwater.

In lieu of developing and following a stormwater pollution prevention plan, a facility may certify that raw and waste material, final and intermediate products, by-products, material handling equipment or activities, industrial machinery or operations, or significant materials from past industrial activity are not presently exposed to stormwater for the term of the permit. The EHS Environmental Health Division will review documentation and inspect these "no-exposure" facilities at least once during each permit term to verify the exemption. If a "no-exposure" facility does not meet the proper criteria for such designation, appropriate permitting authorities will be notified.

The City believes its efforts in this program element are adequate to reduce toxic materials, heavy metals, and other stormwater pollutants over the permit term.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



PERFORMANCE MEASURES

- Number of inspections conducted per year on industrial facilities
- Number of violations
- Number of violations corrected
- Number of responses to complaints/illicit discharge events

IMPLEMENTATION SCHEDULE

Improvement of Existing Program(s): Review/revise as needed Existing/Ongoing

FISCAL SUMMARY

The activities performed under this MCM will be conducted by existing staff in the Department of Environmental Health & Sustainability. No additional personnel are required at this time.



MCM6: CONSTRUCTION SITE STORMWATER RUNOFF

OBJECTIVE

Inspection and enforcement of control measure requirements on construction sites. Require design of erosion control plans and stormwater pollution prevention plans (SWPPP) using approved Construction BMP Manuals for construction activities. Review SWPPPs and erosion control plans for construction sites to ensure compliance with State and local regulations. Require site operators to control site waste. Continue to train city staff, design consultants, and interested construction site operators on proper methods of installation and maintenance of erosion and sediment control devices for construction sites.

PROGRAM DESCRIPTION

A. Construction Site Erosion and Sediment Controls (SW Permit Part III, Section B.2.f.i)

Our current program was initiated in 1998 (Ord. No. 98-3-9) and when implemented as intended exceeds the Federal and State requirements. The City of Plano currently operates a web based comment system for public use. The system allows the public to input on issues they see with construction projects and for the City to reply and address perceived issues.

B. Program Description (SW Permit Part III, Section B.2.f.ii)

1. The City of Plano Erosion Control Ordinance (Ord. No. 98-3-9, Effective 6/1/98) requires the following:
 - a. Use of the City's Erosion and Sediment Control Manual (1997) and City approved temporary BMPs for all land disturbing activities that disturb 5,000 square feet or more.
 - b. Requires operators for all sites requiring coverage under the TPDES Construction General Permit (CGP) to provide the City Engineering Department with copies of their Notice of Intent (NOI) or Construction Site Notice (CSN) as appropriate for the site prior to releasing the project for construction.
 - c. The City will review construction erosion control plans and stormwater pollution prevention plans (SWPPPs) for construction sites within the City's jurisdiction to ensure compliance with the TPDES CGP and the City's Erosion Control Ordinance prior to releasing projects for construction. The approved construction erosion control plan is required to be part of the SWPPP for the project.
2. The control of site waste such as discarded building materials, concrete truck washout water, chemicals, litter and sanitary waste is required by the TCEQ CGP requirements and is provided for in the SWPPP for each construction site disturbing one acre or more of land area.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



3. The City provides construction erosion control inspection reports on a bi-weekly basis for permitted projects within the City's jurisdiction. If city inspections indicate an operator is not complying with the City's Erosion Control Ordinance the City will undertake one or more of the following appropriate actions:
 - a. Notation of items requiring correction on an inspection report;
 - b. Discussion of concerns and possible mitigation steps with the construction site operators;
 - c. If after the discussions and time allotted for rectification of the problem, corrective measure are not taken, the City will begin appropriate enforcement action;
 - d. Notation in the inspection report of any corrective steps taken in response to the city's efforts

If city inspections indicate an operator does not appear to be in compliance with the TCEQ CGP requirements, the City will advise the operator of the apparent issues and may refer the issue to TCEQ and/or USEPA.

4. The City currently provides annual private development training opportunities and training to city staff on operator requirements for city projects.
5. The City implements a permit checklist. When required, a NPDES or TPDES permit is a required item before a permit is released for construction.
6. The City of Plano currently holds a pre-application meeting before each permit is considered. A handout is given to the permittee and includes material discussing water quality.
7. The public input opportunities that the City provides are through City Council or Planning & Zoning Meetings. The City of Plano also currently operates a web based comment system for public input. The system allows the public to input on issues they see with construction projects and for the City to reply and address perceived issues.

C. List of Construction Sites Discharging to the MS4 under NPDES/TPDES coverage (SW Permit Part III, Section B.2.f.iii)

The City will revise its existing construction stormwater permit database to include the operator's name, location and permit number of projects within the City's jurisdiction that have provided notice to the City of their TPDES stormwater discharges permit for construction activities.



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



PERFORMANCE MEASURES

- Training event for city staff, design consultants, and private construction site operators held annually
- Number of people reached with information (property owners, developers)
- Number of plan reviews
- Number of site inspections and correction requests
- Number of enforcement actions

IMPLEMENTATION SCHEDULE

Ordinance Review/Revision	1 year
Provision of information to property owners/developers	Ongoing
Training event for city staff, design consultants, and interested private construction site operators	Ongoing/Annually
Inspection of discharges/BMPs	Ongoing
Update listing of construction sites with operator's name, location, and permit number	July 2016

FISCAL SUMMARY

Day-to-day review of all development projects will be conducted by existing staff. No additional personnel are required.



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



MCM7: PUBLIC EDUCATION, OUTREACH, INVOLVEMENT & PARTICIPATION

OBJECTIVE

Educate the public on how each person can contribute to the effort of improving water quality. Provide guidance on proper use and disposal of harmful products. Distribute information to residents which contains the correct and incorrect methods of handling potential pollutants of stormwater. Ensure the public has access to necessary information and opportunity for input regarding major modifications to city regulations involving stormwater.

PROGRAM DESCRIPTION

A. Public Education and Outreach (SW Permit Part III, Section B.2.g.i)

The Sustainability & Environmental Education Division (SEED) of the Department of Environmental Health & Sustainability informs residents of recycling, composting, integrated pest management, household chemical safety, water quality, solid waste pickup, and pet waste pick-up through SEED outreach initiatives. Existing litter removal programs include the Adopt-A-Highway Program, monthly specific-area cleanups and annual city-wide cleanups. These activities, carried out by existing staff and volunteers, protect the environment and provide the appropriate mechanism to carry out the stormwater education campaign. As activities are implemented through SEED, the stormwater pollution prevention message is blended into the normal process of educating school children, residents, businesses and other interests.

Throughout the permit term, public information/education efforts, materials such as press releases, news articles, newsletters, fliers, video and slide shows will be developed. As materials are made available and further enhancement by the City takes place, educational literature will be distributed to appropriate audiences. Example audiences include homeowners groups, civic organizations, school children, general public, elected officials, visitors, municipal employees, and businesses. An education program for construction site personnel will be developed by November 2016.

Examples of public education outreach programs that include stormwater pollution prevention messages include:

- Texas Smartscape and Landscape for Life gardening classes and events
- Great American Cleanup
- Interpretive signage at Nature Explore Trail and Boardwalk (future plan)
- Master Composter training program
- Freddy the Fish and EnviroScape school presentations
- Pet Waste campaign
- Household Chemical Reuse Center brochures and interpretive signage
- Plano Water Quality Group (High School Stream Team)
- Annual Compost Fair
- Doo the Right Thing Pet Calendar



City of Plano Department of Environmental Health & Sustainability Stormwater Management Plan 2016-2020



- Storm drain Marking Program

Plano plans to continue promoting NCTCOG's Texas SmartScape website through events to educate the public on water protection and conservation featuring the benefits of compost, alternatives to garden chemicals and Best Management Practices for lawn care and stormwater run-off. Five (5) Landscape for Life and two (2) Smart Yards for North Texas classes are taught per year and Master Composter training occurs annually to develop a knowledgeable volunteer base in the community to promote these concepts.

Literature published about household chemical management, compost uses, and litter prevention will be distributed at events, presentations and in utility bill inserts. Lessons taught at the Environmental Education Center incorporate a component about potential pollution from urban run-off using our creek and stormwater drains. The Enviroscape Watershed Model and a model of a stormwater drain are used in presentations to all age groups to provide visual demonstrations.

The Sustainability & Environmental Education Division of the Department of Environmental Health & Sustainability provides storm drain labels and adhesive to volunteers for labeling of storm drains. The labels say "No Dumping, Drains to Creek." Volunteers request the supplies, label storm drains near them, and return information on how many and which storm drains were labeled. The information is tracked in an Excel sheet.

The Department of Environmental Health & Sustainability administers a water quality program targeting high school students. It is loosely based on the Texas Stream Team program. This program will help assess the quality of water within the city limits, facilitate the early identification and elimination of stormwater pollution sources, and promote a healthy ecosystem. It's a volunteer-based program designed to promote the concepts of the Plano Stormwater Program and provide volunteers with firsthand experience in performing tests similar to those city personnel perform for both wet and dry-weather monitoring.

B. Public Involvement and Participation (SW Permit Part III, Section B.2.g.ii)

In that any modification to the Stormwater Management Program will require authorization by City Council, public participation and decisions regarding major modification will be provided by the following public notification and participation procedures:

1. All action or discussion of changes to the Stormwater Management Program which require City Council authorization will be done at a public meeting in conformance with applicable laws, including the Texas Public Information Act.
2. Decisions regarding changes to the Program, which require Council approval, will be done in open session.
3. Council has authority over the following aspects of the Program:
 - a. Expenditures related to the Program which are in excess of \$25,000.



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



- b. Budget approval of the Program.
 - c. Ordinances necessary to implement the Program.
4. Conduct public information meetings and/or input sessions with stakeholders for any major modifications to city development regulations involving stormwater.

PERFORMANCE MEASURES

- Number of people reached in each category and how they were reached
- Number of participants at related special events
- Number of visitors to relevant website pages
- Tonnage of litter removed from waterways
- Number of waterway cleanups held
- Number of volunteers involved in cleanups
- Number of storm drains labeled
- Number of volunteers involved with Water Quality Group and retention of volunteers through year
- Number of sites tested, number of tests performed (water quality group)

IMPLEMENTATION SCHEDULE

Public Education & Outreach	Existing/Ongoing
Public Participation	As Needed

FISCAL SUMMARY

Activities conducted under this MCM will be accomplished with existing staff. No new personnel are needed at this time.



MCM8: MONITORING, EVALUATION, AND REPORTING

OBJECTIVE

As mentioned under MCM3, the Department of Environmental Health & Sustainability will continue monitoring and evaluating the MS4 through both dry-weather and wet weather field screening activities. Additionally, stream health will be assessed throughout the permit period by continued implementation of a biomonitoring program, floatables will continued to be monitored by an annual litter index, and the City will participate in the Regional Wet Weather Characterization Program (RWWCP). As illicit connections and/or improper discharges are identified, enforcement action will be pursued to abate any potential infiltration into the MS4 under the City's jurisdiction.

PROGRAM DESCRIPTION

A. Dry Weather Screening Program (SW Permit Part III, Section B.2.h.i)

This program is described in MCM 3 Section J.

B. Wet Weather Screening Program (SW Permit Part III, Section B.2.h.ii - renumbered)

Plano will continue wet weather screening activities designed to identify, investigate, and address land areas that may be contributing excessive levels of pollutant to the MS4. Wet weather screening activities will screen areas of the MS4 but not all outfalls. Specific sampling and non-sampling techniques implemented as part of this program including sample collection and analysis, will not conform to the requirements of 40 CFR Part 136.

Wet weather screening will be conducted twice per year, weather permitting, in each of Plano's four State Stream Drainage Basins. The specific site/major outfall to be sampled will be areas that may be contributing excessive levels of pollutant to the MS4. Grab samples will be collected during the first 30 minutes (when possible) of a rainfall event. Samples will be tested for chlorine, ammonia, nitrate, nitrite, phosphate, iron and copper using a Palintest Photometer. Temperature, pH, conductivity, and dissolved oxygen will be tested using field meters. Turbidity, oil and grease, and E-coli will be tested by an independent laboratory.

Sample areas that demonstrate potential illicit connections or improper disposal of pollutants will be investigated to determine and remediate the pollutant source.

C. Industrial and High Risk Runoff Monitoring Program (SW Permit Part III, Section B.2.h.iii – renumbered)

This program is described in MCM 5.

D. Storm Event Discharge Monitoring (SW Permit Part III, Section B.2.h.iv – renumbered)

The City of Plano participates in Option 1 listed in Part IV of the permit.

Regional Wet Weather Characterization Program (RWWCP): The City of Plano will continue to participate in the Dallas-Fort Worth Area Regional Wet Weather



City of Plano Department of Environmental Health & Sustainability Stormwater Management Plan 2016-2020



Characterization Program (RWWCP). This program is administered by the North Central Texas Council of Governments (NCTCOG) of which the City of Plano is a member in good standing.

NCTCOG contracts sampling and lab analysis requirements for its member cities with a third-party. The current contract has expired and an RFP for a new contract has been opened. It is expected that sampling/lab analysis will be underway in April 2018. Since we participate in this monitoring program, this delay has negatively impacted our sampling program. It will resume when the new contract has been finalized.

E. Biomonitoring

Biomonitoring and in-stream monitoring is currently being conducted in accordance with the Dallas-Fort Worth Area Regional Wet Weather Characterization Program (RWWCP). Additionally, the City of Plano Stormwater Program staff will conduct biomonitoring activities in accordance with the procedures outlined in the TCEQ publication *Surface Water Quality Procedures, Volume 2: Methods for Collecting and Analyzing Assemblage and Habitat Data*; Rapid Bioassessment Protocol (RBP) procedures will be followed that are outlined in the *Chapter 5 Freshwater Macroinvertebrates*; no current biomonitoring assessments involve fish identification or community assessments. Essentially, biomonitoring assessments will include gathering water quality data, flow data, habitat assessment data, and benthic macroinvertebrate data, weather permitting. Biomonitoring assessments will be conducted at least once annually in four (4) of Plano's major drainage basins (Rowlett Creek, Spring Creek, White Rock Creek, and Indian Creek); stream segments 0820, 0822, and 0827. Biomonitoring data collected in any of the referenced stream segments as part of the RWWCP will be used in place of the biomonitoring data collected by city staff.

F. Floatables Monitoring (SW Permit Part III, Section B.2.h.v - renumbered)

Plano conducts monitoring of floatables through the Keep America Beautiful Litter Index. Under this program, the City is broken into three (3) geographical areas for evaluation and monitoring. Each area has approximately 33 individual locations (sub-areas) identified for evaluation. The three (3) areas will remain constant but sub-areas are subject to change prior to the evaluation period. The litter index evaluation is conducted annually in the winter.

PERFORMANCE MEASURES

- All areas of MS4 screened over permit term (Goal is to screen at least 20% annually during dry weather)
- Minimum number (10) of outfalls screened (wet weather)
- Testing completed for storm event discharge monitoring
- At least once annually in four (4) of Plano's major drainage basins (Rowlett Creek, Spring Creek, White Rock Creek, and Indian Creek); stream segments 0820, 0822, and 0827. Biomonitoring data collected in any of the referenced stream segments as part of the RWWCP will be used in place of the biomonitoring data collected by city staff.
- Litter index completed annually



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



IMPLEMENTATION SCHEDULE

Dry Weather Screening	Existing/Ongoing
Wet Weather Screening	Existing/Ongoing
Stormwater Discharge Events	January 2018
Biomonitoring	Ongoing
Floatables Monitoring	Existing/Ongoing

FISCAL SUMMARY

Activities conducted under this MCM will be accomplished by existing staff. No new personnel are needed at this time.



INTERIM BACTERIA REDUCTION PLAN: DISCHARGES TO WATER QUALITY IMPAIRED RECEIVING WATERS

BACKGROUND

Rowlett Creek (0820B) was placed on the Texas 303(d) list in 2014. The water quality condition parameter assessment indicates bacteria as the causative pollutant. On June 3, 2015 the Texas Commission on Environmental Quality adopted the *Draft 2014 Texas 303(d) List*. The Environmental Protection Agency approved the *2014 Texas 303(d) List* on November 19, 2015. Rowlett Creek is categorized as 5c on this list:

"Category 5c – Additional data or information will be collected and/or evaluated for one or more parameters before a management strategy is selected." [2014 Texas Integrated Report – Texas 303(d) (Category5) November 15, 2015.]

OBJECTIVE

(SW Permit Part III, Section B.3)

For discharges from the MS4 that will reach one or more surface water bodies identified on the latest approved Clean Water Act §303(d) List as not meeting applicable state water quality standards due to bacteria, the City of Plano will implement management practices and control measures to reduce the discharge of bacteria that contributes to the impairment of the water body.

PLAN DESCRIPTION

A. Identifying potential significant sources of bacteria

1. Sanitary Sewer System

The City of Plano will continue to comply with all applicable rules and regulations described in §217 and §317 of the Texas Administrative code regarding wastewater collection systems. The City of Plano Department of Environmental Health & Sustainability will work with the Public Works Department to document and map all leaks, breaks, and overflows of the sanitary sewer system.

2. On-Site Sewage Facilities

The City of Plano requires the owner of each and every building situated upon any lot, tract or parcel of land within the limits of the city to be connected with the public sewer in accordance with the City's Code of Ordinances (Ord. No. 92-7-14, §1(2), 7-13-92). Additionally, the City of Plano prohibits any person to construct or maintain any privy, privy vault, septic tank, cesspool, or other private facility intended or used for the disposal of sewage or industrial wastes, unless approval in writing by the director has been given to the person constructing or maintaining the facility. All facilities shall be permitted by the Collin County Health Department and shall be constructed according to Collin County standards (Ord. No. 92-7-14, §1(3), 7-13-92; Ord. No. 96-2-5, §III, 2-12-96).



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



3. Illicit Discharges and Dumping

The City of Plano Code of Ordinances (Ord. No. 92-7-14, §1(5), 7-13-92) prohibits the introduction into the stormwater system any pollutants or materials other than stormwater that have an adverse effect on the environment, or may endanger life, health or property, or constitute a public nuisance. In no case shall a sanitary sewer be physically connected to the storm sewer or shall wastewater from a sanitary sewer be discharged to the stormwater system. The City has an online reporting system for residents to report all prohibited discharges, including discharges that may contribute bacteria to the impairment of a water body. The Department of Environmental Health & Sustainability will investigate each complaint and act accordingly, including compliance enforcement of applicable city ordinances.

4. Animal Sources

The City of Plano prohibits all pet owners from creating any conditions on the owner's property, or that carries over to an adjacent property, that renders the ground, water, air, or food hazardous or injurious to human or animal life. The City also requires pet owners to immediately remove and dispose of any excreta the animal produces (Ord. No. 2009-2-13, § 1(4-300), 2-17-09; Ord. No. 2012-11-19, § IV, 11-26-12). Plano will continue to provide the public with pet waste disposal stations at city-owned parks.

B. Monitoring and Evaluation

Once potential significant sources of bacteria are identified, the City of Plano Environmental Health & Sustainability staff will identify representative locations within the drainage area of the impaired water body to collect samples for bacteriological testing. Bacteriological samples will be collected quarterly from designated locations, and results will be documented. Unless cost prohibitive or impractical, the City of Plano Department of Environmental Health & Sustainability will attempt to use DNA typing techniques to further identify sources of bacteria. DNA typing may aid in identifying human and nonhuman sources of bacteria, and may potentially identify more species specific sources such as canid, felid, avian, bovine, equine, etc.

C. Advisory Groups

The City of Plano Department of Environmental Health & Sustainability will collaborate with interested stakeholder groups or individuals within the drainage area of the impaired water body in order to facilitate bacteria reduction efforts using a watershed approach. The interest groups may include municipalities, industries, special districts, and other government agencies.

D. Education

Plano will continue to provide the public with educational programs, outreach, involvement, and participation activities that educate and engage the community in watershed protection and overall environmental health initiatives. Plano will also attempt to implement other programs that may aid in reducing the number of sanitary sewer overflows within the city, including a Fats, Oils, and Grease (FOG) program. Also see MCM7



City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020



of this plan regarding the full scope of existing environmental education programs provided by the City of Plano. Once potential significant sources of bacteria have been identified, then alternative education programs can be developed to address those sources.

E. Continuing Existing Programs

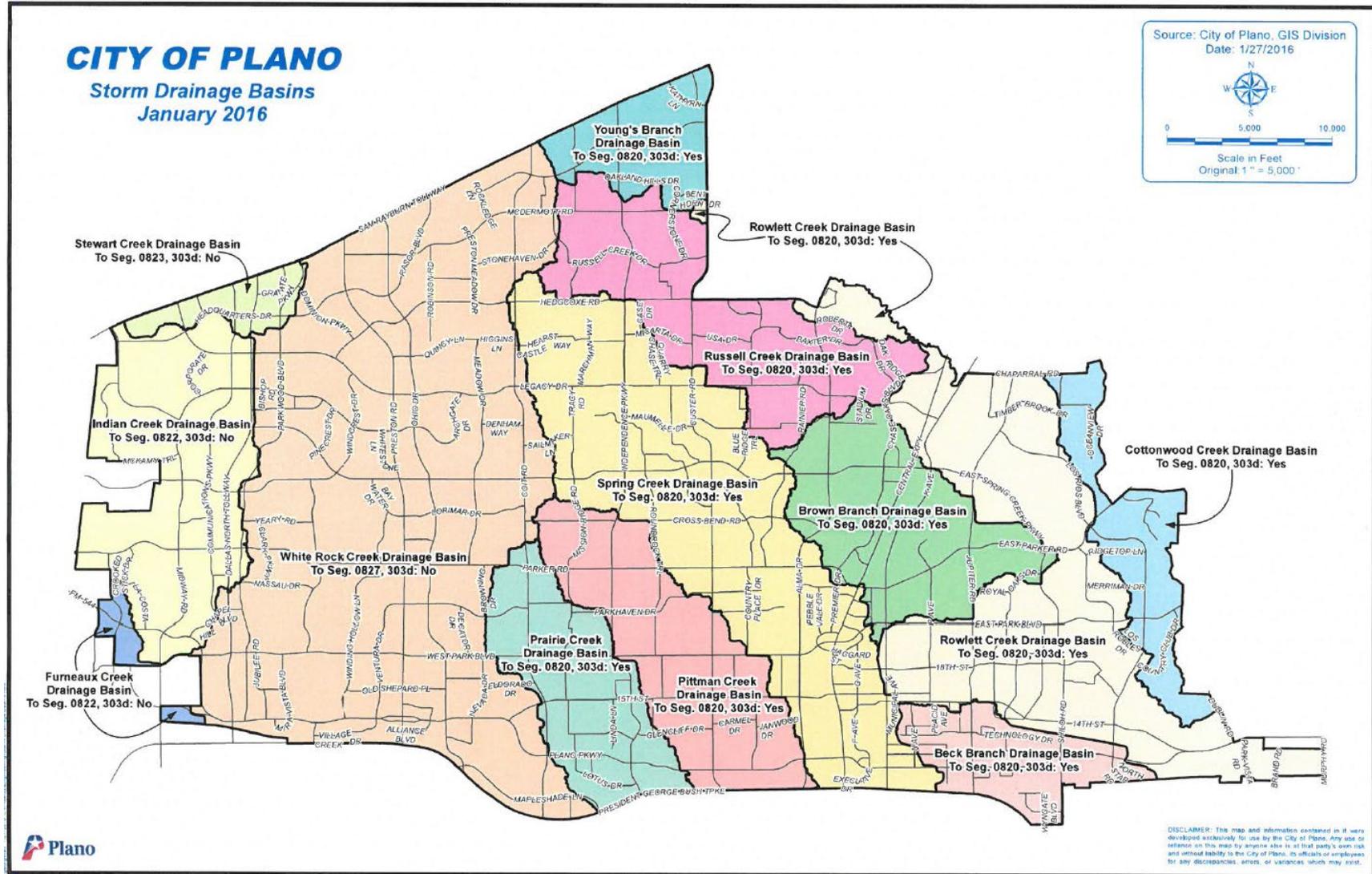
Existing programs and initiatives (Minimum Control Measures) outlined in the City of Plano's Department of Environmental Health & Sustainability Stormwater Management Plan have been implemented to enhance water quality in Texas streams, including the reduction of bacteria, and other priority pollutants. Additionally, the City of Plano has codified numerous ordinances used to protect the environment and Texas water resources.



City of Plano Department of Environmental Health & Sustainability
 Stormwater Management Plan 2016-2021

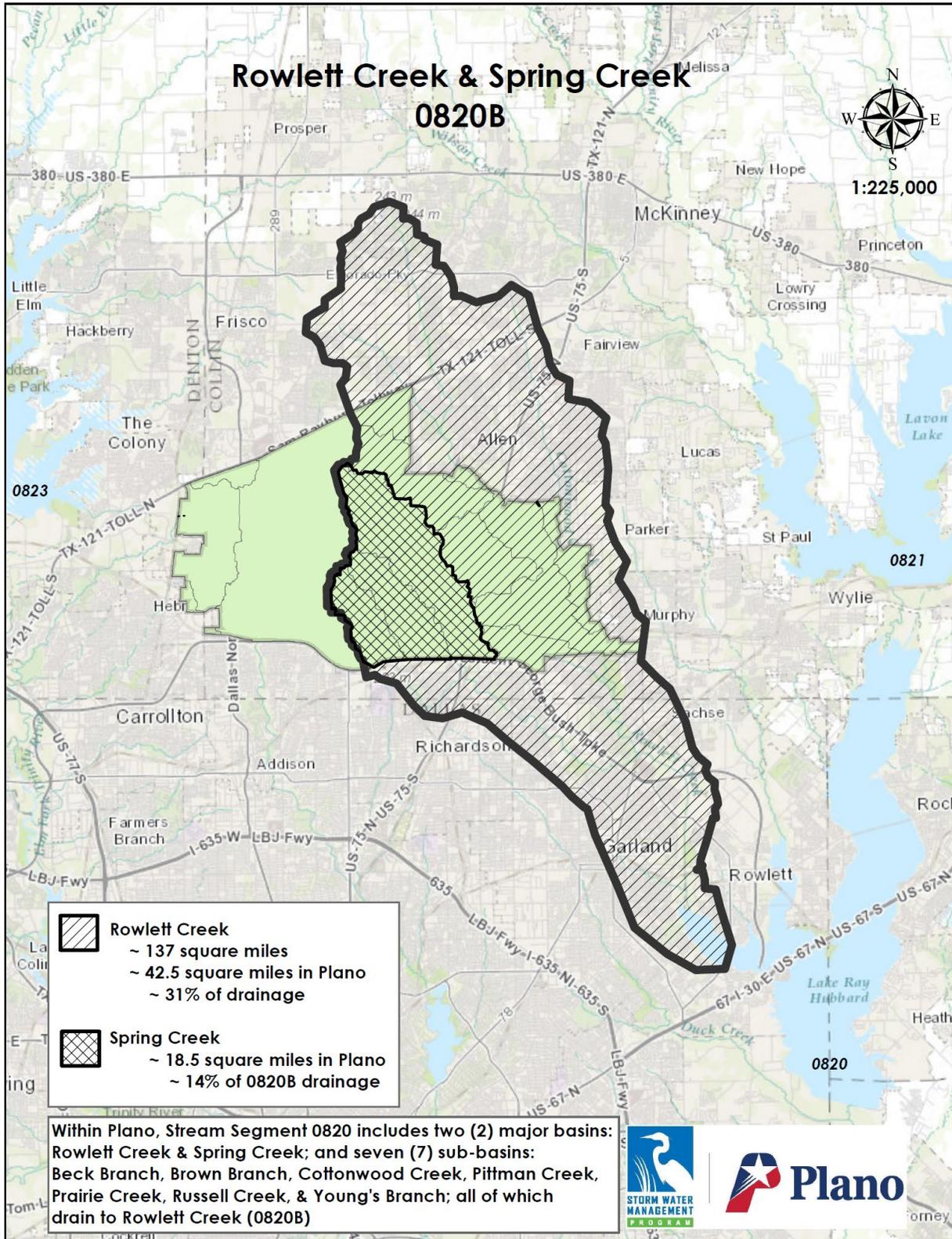


APPENDIX A: STORM DRAINAGE BASIN MAPS



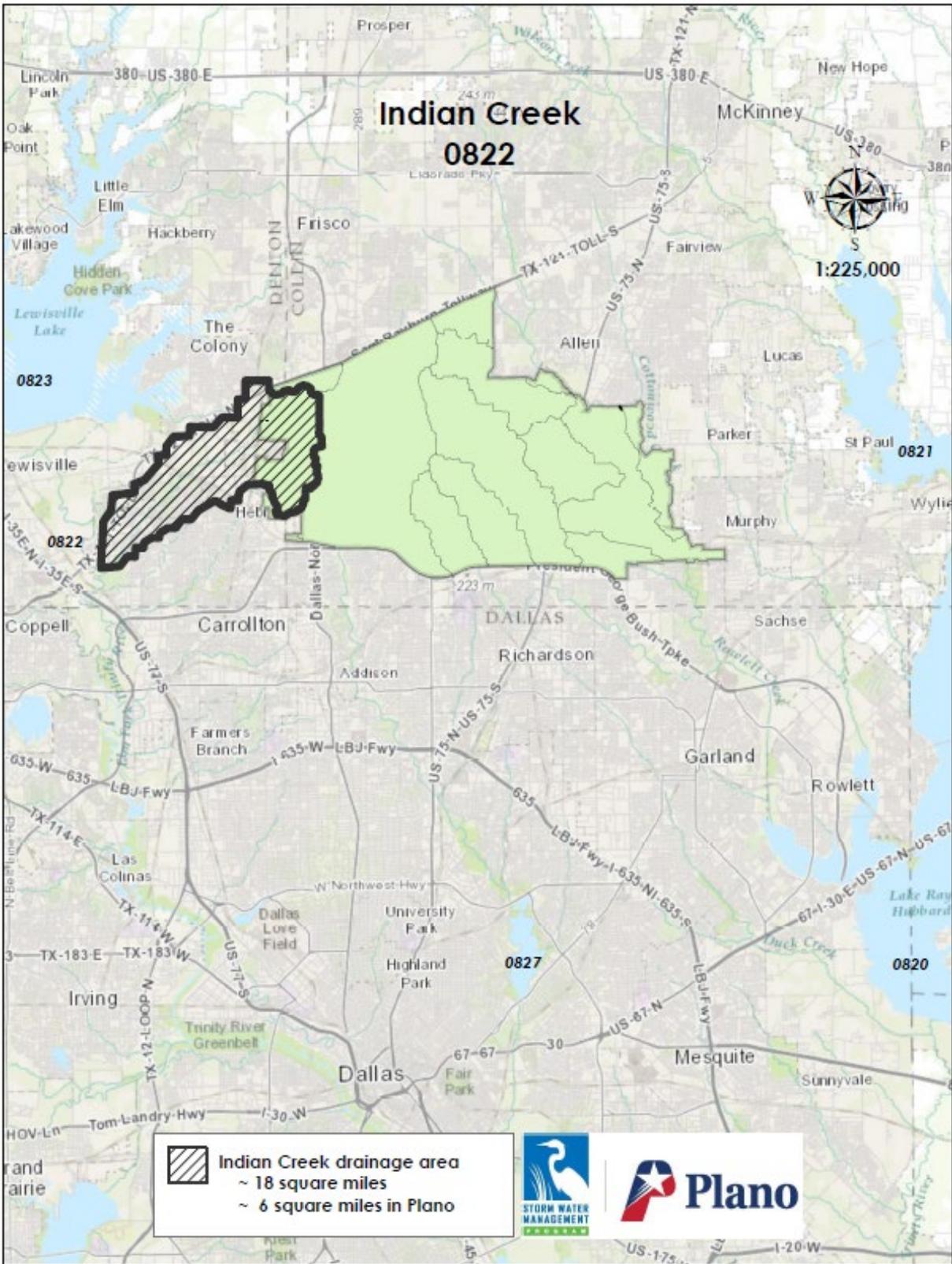


City of Plano Department of Environmental Health & Sustainability
 Stormwater Management Plan 2016-2020



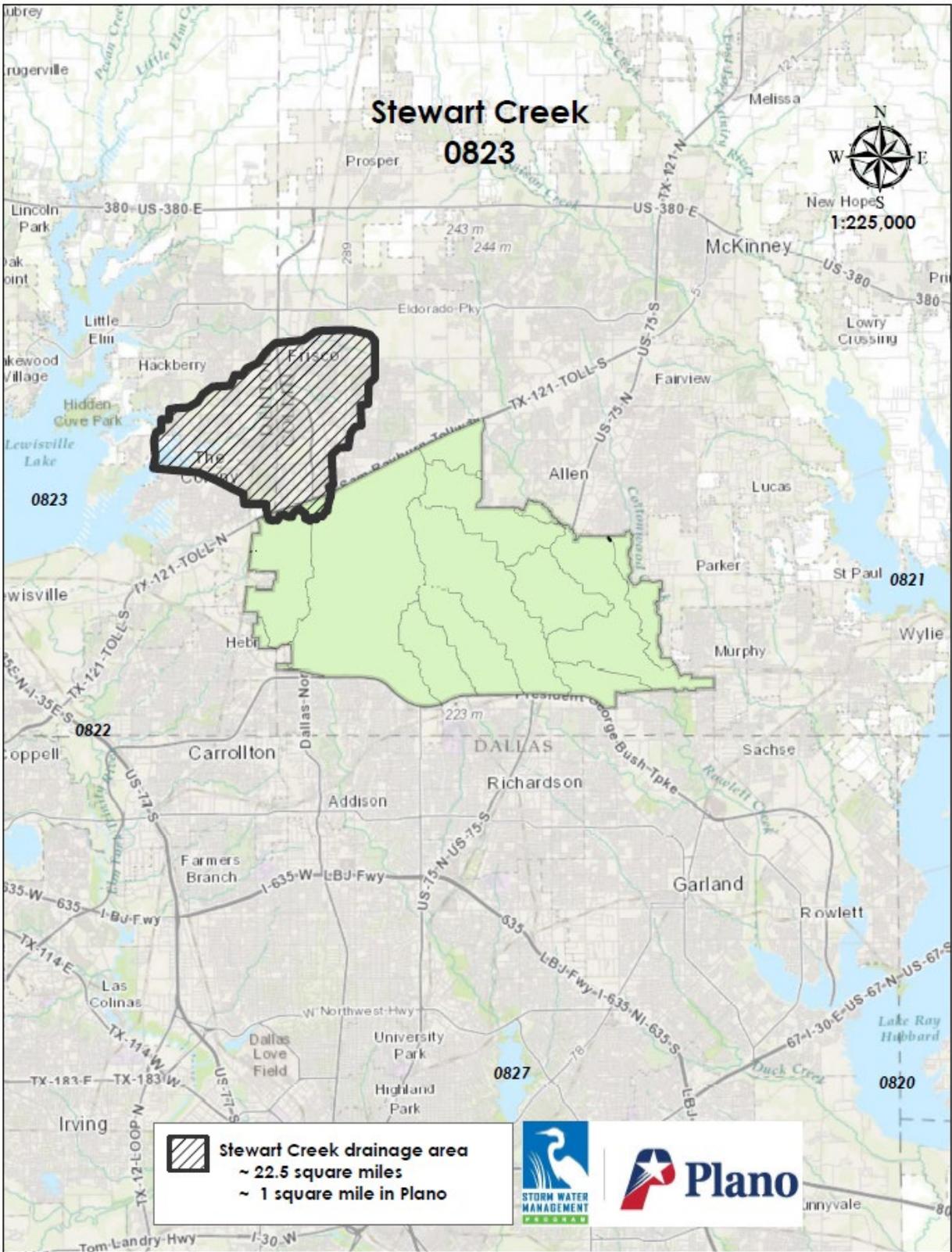


City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020





City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020





**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



APPENDIX B: LIST OF MUNICIPAL FACILITIES

Name	Address	Type of Facility	Tier	Notes
Tier 1: See Footnote A				
Equipment Services/Fleet	4120 & 4200 W. Plano Parkway	Fleet Maintenance/Car Wash	1	
Dublin Road Maintenance	1501 Dublin Road	Golf Maintenance	1	
Golf Maintenance Shop & Golf Pro Shop	4901 E. 14th Street	Golf Cart Maintenance	1	
Parkway Park Maintenance	4040 W. Plano Parkway	Maintenance	1	
Parks Maintenance East	2901 R Avenue	Maintenance	1	
Jack Carter Park Maintenance	6500 Roundrock	Maintenance	1	
Oak Point Nature Preserve Maintenance Yard	4500 Los Rios Blvd	Maintenance	1	
Parkway Operations Building	4120 W. Plano Parkway	Public Works / Admin / Meter Shop / Sanitation	1	
Custer Transfer Station – Yard Waste	9901 Custer Road	Solid Waste	1	
Warehouse	4100 W. Plano Parkway	Warehouse	1	
Hazardous Waste/Reuse Center	4100 W. Plano Parkway	Warehouse	1	
Tier 2: See Footnote B				
Animal Shelter	4028 W. Plano Parkway	Animal Shelter	2	
High Point Park	6500 Alma	Concession/Restroom	2	
Arbor Hills Nature Preserve	6701 Parker Road	Concession/Restroom	2	
Enfield Park	700 Legacy	Concession/Restroom	2	
Jack Carter Dog Park	2215 Pleasant Valley Drive	Dog Park	2	
Facilities Maintenance	4850 14th Street	Facilities Maintenance	2	
Warehouse Logistics	4121 W. Parker Road	Fire Department / Warehouse	2	
Fire Tower	1901 K Avenue / Behind Central Fire Admin	Fire Dept. / Training Tower	2	



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Aquatic Center	2301 Westside Drive	Indoor pool	2	
Rowlinson Natatorium	1712 P Avenue	Indoor pool	2	
Jack Carter Pool	2601 Pleasant Valley Drive	Outdoor pool	2	
Arch Gate Park Maintenance	6700 Archgate Drive	Maintenance	2	
Senior Center	401 W. 16th Street	Senior Center	2	
Mapleshade Lift Station	4310 Mapleshade Drive	Sewage Pumping	2	
Legacy Lift Station	7803 Parkwood Boulevard	Sewage Pumping	2	
Legacy West Lift Station	8235 Dallas Parkway	Sewage Pumping	2	
Sherrye Lift Station	3508A Sherrye Drive	Sewage Pumping	2	
J Place Lift Station	517 J Place	Sewage Pumping	2	
Billingsly Lift Station	6500 International Drive	Sewage Pumping	2	
Spring Creek Lift Station	503 N. Central Expressway	Sewage Pumping	2	
Avenue N Pump Station	1300 Avenue N	Water Pumping Station	2	
Ridgeview Pump Station	2501 Ridgeview Drive	Water Pumping Station	2	
Stadium Pump Station	6601 Alma Drive	Water Pumping Station	2	
Custer Pump Station	1901 W. 15th Street	Water Pumping Station	2	
Shiloh Pump Station	1405 Del Sol Drive	Water Pumping Station	2	
White Rock Pump Station	1001 Campbell Road	Water Pumping Station	2	
Tier 3: See Footnote C				
Frito Lay Youth Ballpark	6000 Jupiter Road	Ball Park	3	
Heritage Yards Ball Park	4525 Hedgcoxe	Ball Park	3	
Municipal Center	1520 K Avenue	City Hall	3	
Plano Centre	2000 E. Spring Creek Parkway	Civic Center	3	
Day Labor	805 Ozark Drive	Day Labor Referral	3	



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Douglass Daycare/Sr Annex	1111 H Avenue, Bldg. B	Daycare Center / Plano Housing	3	
EOC	4125 W. Parker Road	Emergency Operations Communications	3	
EEC	4116 W. Plano Parkway	Environmental Education Complex	3	
Saigling House	902 E. 16th Street	Event Center	3	
Central Fire Station/Fire Administration	1901 K Avenue	Fire Department	3	
Fire Station #2	2630 W. 15th Street	Fire Department	3	
Fire Station #3	3520 Sherrye Drive	Fire Department	3	
Fire Station #4	6000 Roundrock Drive	Fire Department	3	
Fire Station #5	5115 W. Park Blvd	Fire Department	3	
Fire Station #6	6651 Alma Drive / 900 Seabrook Drive	Fire Department	3	
Fire Station #7	5602 Democracy	Fire Department	3	
Fire Station #8	4621 Hedgcoxe	Fire Department	3	
Fire Station #9	6625 Parker Road	Fire Department	3	
Fire Station #10	3540 McDermott Drive	Fire Department	3	
Fire Station #11	4800 Los Rios Blvd	Fire Department	3	
Fire Station #12	4101 W. Parker Road	Fire Department	3	
Fire Station #13	6901 Corporate Drive	Fire Department	3	
Technology Services Support Facility	1117 E. 15th Street	IS Department	3	
Raymond Robinson Justice Center	900 E. 15th Street	Jail / Courthouse, Court Records	3	
Schimelpfenig Library	5024 Custer Road	Library	3	
Harrington Library	1501 18th Street	Library	3	
Haggard Library	2501 Coit Road	Library	3	
Davis Library	7501 N. Independence Parkway, Bldg. B	Library	3	
Parr Library	6200 Windhaven Parkway	Library	3	



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Transit Village / Plano Station	1012 E. 16th Street, Suite 105	Meeting Room	3	
Heritage Farmstead Museum	1900 W. 15th Street	Museum	3	
Interurban Station	901 E. 15th Street	Museum	3	
Willow Creek Park	2101 Jupiter Road	Neighborhood Park	3	
Russell Creek	3500 McDermott	Parks & Recreation Admin	3	
Oak Point Park Nature & Retreat Center	5901 Los Rios Blvd	Parks & Recreation Center	3	
Police Department	909 14th Street	Police Department	3	
Police Training Academy	4912 14th Street	Police Department	3	
Police Storefront (NPO)	3420 K Avenue, Suite 304	Police Department	3	
Junction 15 (PD)/Unit 240	930 E. 15th Street	Police Department	3	
Junction 15 (PD)	930 E. 15th Street	Police Dept. / Parking Garage	3	
Property House	4920 14th Street	Police Dept. / Storage	3	
Police Auxiliary	1409 H Avenue	Police Dept. / Storage	3	
Police Storage 2	1309 Summit, Suite 9	Police Dept. / Storage	3	
Police Assembly 2	5600 Democracy	Police Dept. / Sub Station	3	
Police Assembly Point	6900 Roundrock	Police Dept. / Vacant House	3	
Police Gun Range	4840 E. Plano Parkway	Police Storefront	3	
Legacy Police Storefront	7200 Bishop Road, Suite D8	Police Storefront	3	
Joint Use Facility	7501 Independence Parkway, Bldg. A	PD Substation/Property Standards/ Municipal Courts	3	
Radio Maintenance Building	925 22nd Street, Suite 100C	Radio Shop / Lease Space	3	
Radio Tower #3	4926 Ste. A/4928 Dozier Road (Carrollton)	Radio Tower	3	
Communication Tower	1115 E. 15th Street	Radio Tower	3	
Parkway Communications Tower	4200 W. Plano Parkway	Radio Tower	3	
Ridgeview Radio Tower	2501 Ridgeview Drive	Radio Tower	3	



**City of Plano Department of Environmental Health & Sustainability
Stormwater Management Plan 2016-2020**



Avenue "N" Radio Tower	1300 "N" Avenue (14th & Ave N)	Radio Tower	3	
Schoolhouse Radio Tower	435 West Spring Creek Parkway	Radio Tower	3	
Communications Parkway Radio Tower	6825 Communications Parkway	Radio Tower	3	
Liberty Recreation Center	2601 Glencliff Drive	Recreation Center	3	
Tom Muehlenbeck Recreation Center	5801 W. Parker Road	Recreation Center	3	
Carpenter Park Recreation Center	6701 Coit Road	Recreation Center	3	
Oak Point Recreation Center	6000 Jupiter Road	Recreation Center	3	
Tennis Center	421 W. Spring Creek	Tennis Center	3	
Courtyard Theater	1509 Avenue H	Theater	3	
Dallas North Elevated Tank	2409 W. Plano Parkway	Water EST	3	
Parker Road Elevated Tank	830 Lexington Drive	Water EST	3	
Spring Creek Elevated Tank	6405 Dodge Court	Water EST	3	
Coit Road Elevated Tank	3620 W. Spring Creek Pkwy	Water EST	3	
Preston Road Elevated Tank	4301 W. Plano Parkway	Water EST	3	
Southeast Industrial Elevated Tank	940 Stewart Avenue	Water EST	3	
Jupiter Road Elevated Tank	4001 Jupiter Road	Water EST	3	
Parkwood Elevated Tank	6100 Bishop Road	Water EST	3	
Tennyson Elevated Tank	6825 Communications Pkwy	Water EST	3	
Wentworth Elevated Tank	2806 Browning Drive	Water EST	3	

Footnotes

A: These facilities are inspected annually by the Department of Environmental Health & Sustainability

B: These facilities will be monitored biennially

C: These facilities will be monitored once during the permit term