City of Fort Worth

Co-Permittees
Tarrant Regional Water District
Texas Department of Transportation

2016 Annual Report

2011 – 2015 Permit Term

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List of Acronyms

BMP	Best Management Practice
CCTV	closed circuit television
CFR	Code of Federal Regulation
CFW	City of Fort Worth
COD	chemical oxygen demand
DWFS	dry weather field screening
ECC	City of Fort Worth Environmental Collection Center
EMD	City of Fort Worth Environmental Management Division
EPCRA	Emergency Planning and Community Right to Know Act
ETJ	Extra-Territorial Jurisdiction
FEMA	Federal Emergency Management Agency
FWFD	Fort Worth Fire Department
HazMat	hazardous materials
HID	high-intensity discharge (light)
I/I	inflow and infiltration
*i*SWM	*integrated* Stormwater Management
MBAS	Methylene blue active substances
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
NCTCOG	North Central Texas Council of Governments
NHD	National Hydrographic Dataset
NOI	Notice of Intent
NOT	Notice of Termination
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
PCB	Polychlorinated biphenyl
RWWCP	Regional Wet Weather Characterization Program
ROW	Right of way
SPCC	Spill Prevention, Control and Countermeasures
SOP	Standard operating procedure
SSCA	Sanitary Sewer Condition Assessment Program
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollutant Discharge Elimination System
TPW	City of Fort Worth Transportation and Public Works Department
TRWD	Tarrant Regional Water District
TxDOT	Texas Department of Transportation
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey

Certification Statement

TPDES Permit No. WQ0004350000
Review of Stormwater Annual Report
Permit Year: July 29, 2016–July 28, 2017

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

_____ _____

Fernando Costa
Assistant City Manager
Authorized Representative

Date

MS4 Overview

The City of Fort Worth stormwater management program was fully implemented during the first permit term (NPDES permit No. TXS000901). The City has continued to implement the program during the current permit term for permit, WQ0004350000, as renewed by the Texas Commission on Environmental Quality (TCEQ); including changes to the program as indicated in the permit renewal application and subsequent revisions, and incorporating changes necessitated by additional or changed requirements of the renewed permit. This report is for the sixth permit year. Permit renewal is in process and The City of Fort Worth continues to operate under existing permit terms until a renewal is issued. Annual expenditures are detailed in Appendix A and the Minimum Control Measure Summary can be found in Appendix C. Attachments 1 and 2 are the annual reports for co-permittees Tarrant Regional Water District (TRWD) and the Texas Department of Transportation – Fort Worth Region (TxDOT) respectively. Attachment 3 is the Regional Stormwater Monitoring Report from the North Central Texas Council of Governments (NCTCOG).

Minimum Control Measures (MCM)

1.0 MS4 Maintenance Activities

1.1 Structural Controls

The stormwater collection system's operation was maintained by the following actions for the reporting period of July 29, 2016–July 28, 2017:

Drainage inlet cleaning	9,831 inlets
Culverts cleaned	665 culverts
Channel maintenance	174.8 miles

1.2 Floatables

The City's Solid Waste Division 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 and coordinating Keep Fort Worth Beautiful. The Code Compliance Department conducts illegal dumping investigations, initiates appropriate enforcement, and ensures that outdoor accumulations of trash, debris, and garbage are cleaned up. These activities reduce the discharge of floatables (litter and other human-generated solid waste). The following are some examples of the reduction effort:

5,559.2*	tons of debris removed from illegal dumps
71.03*	tons of dead animals removed
7,534	volunteers (Solid Waste sponsored cleanups)
46	number of clean up events
61.61	total tons of litter collected at all clean up events
47,710	tons of material, including paper, plastics and aluminum collected by curbside recycling program

**Includes storm damage*

Using a grant that the City helped secure, Downtown Fort Worth, Inc. implemented a downtown recycling program (Recycle on the Go) in 2013, using 68 dual-use containers. Weekly recyclables from this project continue to fill a three-yard dumpster.

Additionally, both co-permittees, TxDOT and TRWD, have active litter cleanup programs. TRWD sponsors annual creek/lake cleanups and manages the regional Reverse Litter campaign. See Attachments 1 and 2 for TRWD and TxDOT programs.

1.3 Roadways

The City's Stormwater Management Plan describes four roadway Best Management Practices (BMPs). They address deicing/sanding operations, limited street sweeping, inlet cleaning, and roadway spill cleanup. The information below is for the reporting period of August 2016 to July 2017.

In January 2017, the City of Fort Worth begin operating two regenerative sweepers to remove litter and grit from the streets along arterial roadways. To date these sweepers have swept 2,112 road miles, which removed 720 cubic yards of debris.

No deicing products were applied to streets in preparation for freezing conditions during the reporting period.

Downtown Fort Worth Inc. (DFWI) employs contractors to mechanically sweep streets, power wash sidewalks, as well as manually sweep sidewalks using the pan and broom method in the downtown Fort Worth area daily and prior to special events. DFWI also contract for vacuuming the curb and gutter line of streets using both vacuum trucks and walk-behind sweepers. These efforts in the downtown area alone contribute 8,400 additional gutter miles of street sweeping and approximately 1,820 acres of sidewalks power washed annually.

2.0 Post-Construction Stormwater Control Measures

2.1 Areas of New Development and Significant Redevelopment

In 2002, 55 local governments kicked off a regional effort to address stormwater issues through the *integrated* Stormwater Management program (*i*SWM). The City of Fort Worth adopted the *i*SWM Stormwater Management Design Manual for Site Development on May 1, 2006. An updated addition of the NCTCOG manual *i*SWM Criteria Manual for Site Development and Construction was adopted by NCTCOG in February 2010. The new manual emphasizes the integration of post construction with construction runoff control with respect to both design and development review processes.

In June 2012, Fort Worth City Council adopted a Grading Ordinance to control earth-disturbing activities within the city which have a disturbed area of 0.5 acres or more to address the new requirements of this MCM. This ordinance contains measures to better ensure proper grading and drainage from all single-family home construction. Previously, only plat-related activities were subject to review for grading and drainage. In addition, a new design manual for stormwater design, Fort Worth *integrated* Stormwater Management Manual for Site Development and Construction, was adopted by reference after more than two years of

review with stakeholders in the community. This manual includes strategies or structural and nonstructural controls specifically selected for the region. In 2015, the City Council amended the Grading permit minimum threshold area requirement from 0.5 acres to 1 acre.

The most significant change in the new design manual relates to the adoption of specific guidelines governing the development and review of construction runoff controls and related Technical Standards adopted by the NCTCOG. Central to the new requirements is an integrated construction and post-construction design review process that includes all parties and a detailed checklist to be completed by the engineer and reviewed by City personnel for all public and private projects exceeding the minimum threshold.

2.2 Flood Control Projects

During the City's first five-year USEPA permit term (1997-2001), 11 existing flood control structures at sumps of the Trinity River were evaluated for retrofit options to improve water quality. The report found that these sites were not good candidates for retrofitting due to site-specific conditions.

Under a new stormwater utility established in 2006, Fort Worth sold $150 million in revenue bonds to fund stormwater improvements, primarily for flood control purposes. For all flood control projects, consultants are asked to consider the feasibility of incorporating stormwater pollution removal components in each planning study and design project they are given by the City. In 2012, a consultant was retained to provide peer review of flood control projects as an additional means of identifying and evaluating feasible water quality options. Feasibility studies addressing localized neighborhood and street flooding are required to evaluate implementation of the MS4 permit requirement for flood control projects. Additional initiatives with water quality benefits during the reporting period are highlighted below:

- Eastern Hills Project: In phase one, a trash rack to collect floatables and improve water quality in the project vicinity was installed at the downstream side of the road culvert draining to the detention area. The second and third phases, which address flooding in the northern part of the watershed, were designed and constructed during the 2013-2014 reporting period. Water quality improvements from these phases include removal of accumulated sediment from a lake, a grate at the lake spillway to reduce downstream flow of debris, and stream bank and bed armoring to reduce erosion at outfalls. Phase 2 of the project is completed. Phase 3 is scheduled to begin in 2017 in conjunction with a street bond project.

- Luella Merrett Regional Detention Facility: Building on the experience and partnership from Eastern Hills project between the Fort Worth Independent School District (FWISD) and the City of Fort Worth, a stormwater detention facility to temporarily store runoff during major rainfall events was constructed in the available open space at the Luella Merrett Elementary school. During periods of dry weather, the facility was enhanced to provide community amenities such as: walking trails, soccer and softball practice fields, and a basketball court. The side slopes were planted with native grasses which require less mowing and irrigation. Stormwater discharge is treated with a Bay Separator (structural BMP), which removes sediment and trash before discharge enters the facility.

- Geomorphological Studies: Localized erosion problems in urban creeks are symptomatic of reach-wide instability issues as creeks respond to increased flow regimes from urbanization. To address reach-wide erosion processes, a geomorphologist will prioritize erosion hot spots, and perform geomorphologic and engineering analyses to identify underlying contributing instability processes and alternatives for remediation. During the fourth reporting period geomorphological assessments were conducted for Little Dossier Creek, parts of Cottonwood Creek downstream of Sandy Lane crossing within Sandy Lane Park, Edgecliff Creek within Candleridge Park, and Howards Branch Creek within Overton Park north of Bellaire Drive South. During the fifth reporting period, the Sandy Lane design was complete and construction begun. Major components of engineering design guided by geo-morphology were stream bank stabilization with toe protection to scour depth, matching of storm drain flow line to creek flow line, and creek grade control with grouted rock and self-launching stone drop structures. Construction is on-going. New geo-morphological assessments were performed for the culvert and outfalls at the Cooks and Ederville road crossings of an un-named tributary of Cottonwood Creek, and at the 28th Street crossing of Lebow Creek. The City-wide erosion potential map is undergoing final reviews for its use as an educational tool in development.

  The Sandy Lane stream project was completed during reporting period. The City-wide erosion potential map was completed during reporting period. Geo-morphology based engineering design erosion mitigation at the downstream end of the Cooks culvert was completed during report period. Geo-morphology assessment recommended leaving culvert and stream bed and bank “as is” at the Ederville crossing.

- Lower Como Erosion Control: Parts of the channel banks downstream from the Lake Como dam have degraded. In order to restore the channel banks to more natural conditions, natural channel design techniques are being evaluated to reduce stream erosion. Engineering design was completed during the 2013 permit year. Erosion control design consisted of replacing existing concreted riprap, which was being undermined, with articulating block mat and redi-rock blocks along slopes. Along the vulnerable meander sections of the Lower Como Creek bend way weirs and soil retention blankets with native vegetation will be installed. The project was bid on in April 2016, and was completed during the reporting period.

- Central Arlington Heights: This area of the City has significantly undersized storm drains. Due to limited availability of open space for flood control, detention is being located below streets in box culverts along Western Avenue and Ashland Street. Additional surface detention with water quality benefit for the first flush runoff is being located on a lot at the southeast corner of Hulen Street and Bryce Avenue. The Ashland Street underground detention was completed in a previous reporting period. Construction of detention at corner of Hulen Street and Bryce Avenue and underground detention below Western Avenue was completed during the reporting period.

- Mercado Channel: This channel has experienced bank erosion and reduced flow capacity. During the reporting period, the banks were stabilized with retaining walls, articulated concrete blocks, and soil retention mats, and the project is complete.

- Trinity Boulevard: This bridge project replaces undersized culverts and raises the roadway to convey a 100-year flood. A stilling basin to dissipate flow energies is being constructed upstream of the bridge to prevent downstream scouring. Articulating blocks are being used for erosion protection of the embankments. This project was completed during the reporting period.

- Dry Branch Detention: The Dry Branch Creek drains a 3.69 square mile area of the north-central portion of the City into the Trinity River. This project aims to relieve downstream flooding by construction of an 8.3 acre detention basin on City-acquired property in an area between Hollis and East 28th Street and Blandin Avenue and North Chandler Drive. A forebay will remove debris and sediment, and the detention basin will detain and slowly release flood waters. The project was bid in May 2016 and has been substantially completed during the reporting period.

- Northside Service Center: Low impact development (LID) features are being incorporated, to the extent practicable, at a proposed new service center. Permeable pavement, bioswales, bioretention, rainwater harvesting, and wet ponds are under consideration. The project will serve as a demonstration site for water quality management practices that could be implemented at development sites. Best management practices will include bioretention areas along parking lot medians, wet ponds, water reuse for irrigation from wet ponds, and structural BMP units to remove trash and suspended solids from runoff. During the reporting period relevant permits were obtained, including mitigation for wetlands, and a construction contract was negotiated. Phase 1 and 2 (of 3 phases) construction began during reporting period, and construction activities are on-going. Wet ponds are on-hold pending water rights approval from TCEQ. The Northside Service Center is a multi-phased capital project established to effectively and efficiently provide City services to the City's northern areas.

  The bio-swales associated with Phase 1 of construction has been completed. Phase 2 bio-swales/bio-retention areas are under final design review and will be completed during the next reporting period. The water-rights application for the wet ponds has been given administrative review, and is undergoing technical review.

- Stream Assessment Studies: Stream-wide assessments were conducted on 42 flood control studies. These assessments are being conducted to identify areas of potential stream instability and erosion/sedimentation problems so that corrections can be considered in the planning and design process. For more erosion prone creeks, such as Royal Creek, stream geomorphologic surveys were conducted by specialists. As of the reporting period, 23 studies were completed with the rest at 90% completion. Erosive areas identified from the stream assessments are being investigated and remedied for localized problems as practicable.

All but 2 watershed studies are completed. The remaining 2 watershed studies (Big Bear Creek, and Seybold Creek) are at 90% of completion and anticipate to be complete during the next reporting period.

- Neighborhood Studies

  During the reporting period 6 neighborhood studies were conducted to resolve closed storm drain and localized street block level flooding. These studies used specialized two dimensional modeling software to evaluate and resolve the localized flooding problem. When feasible and practicable, the neighborhood studies may advance to more detailed engineering design and construction projects.

The following new projects were initiated during the reporting period.

- Oakwood Trail Storm Drain Improvements: An earthen channel behind Oakwood Trail Town Homes infalls into a 48-inch line which outfalls into a lower channel at the north side of the townhomes. The existing channels were in very poor condition; including severe erosion adjacent to the townhomes and bank erosion within the channel. The project was constructed as part of the Miscellaneous Contract during the current reporting period. The construction consisted of extending the intermediate pipe section 25' upstream and 40' downstream to address the worst areas of bank erosion. Headwalls were added, as well as, a ShoreFlex mat pilot channel over a portion of the intermediate pipe section where it is currently eroded and exposed.

- Greenfield Acres Drainage Improvements: The Greenfield Acres neighborhood has county-type roads with an existing barrow ditch drainage system. An undersized existing channel with a mapped floodplain runs through the neighborhood creating numerous historic drainage problems, and potential flooding downstream to Marine Creek Lake. The drainage improvement project incorporates underground storm drain system with drop inlets or headwalls in the barrow ditches, which are to remain in place. Two detention ponds acting in series will occupy several properties within the extent of the current floodplain, which will reduce flooding of the neighborhoods south and southeast of Greenfield Acres. Additionally, by slowing flows, detention ponds help with sediment removal. The southerly detention basin will be constructed in Phase 2. A channel will be built across this basin site under the current project, and is scheduled for construction during the next reporting period. An early phase, North Hill Lane, was separated out from the major project and was constructed under the miscellaneous contract in January 2017.

3.0 Illicit Discharge Detection and Elimination

3.1 Illicit and Allowable Discharges

The City of Fort Worth has listed all allowed non-stormwater discharges in the Environmental Protection and Compliance Chapter of City Code. The Environmental Code was formally adopted by the City Council on November 28, 1995 and continues to be updated as necessary.

Chapter §12.5, Article III, Stormwater Protection, describes what constitutes a stormwater violation and what enforcement actions can be taken and can be found online at http://library.amlegal.com/nxt/gateway.dll/Texas/ftworth_tx/cityoffortworthtexascodeofordinances?f=templates$fn=default.htm$3.0$vid=amlegal:fortworth_tx. USEPA made this code available as a model ordinance for use by other cities by publishing it on their national Web Page. A list of 17 prohibited non-stormwater discharges can be found in Chapter §12.5-302 of the City Code.

3.2 TRWD and TxDOT Programs

See Attachments 1 and 2 respectively, for TRWD and TxDOT IDDE programs.

3.3 Detection and Elimination of Illicit Discharges

During the permit year, the following illicit discharge detection and elimination activities were accomplished:

405	Dry weather field screens
50	Wet weather field screens
57	Spill or abandoned waste responses
222	Complaint responses
4,461	Inspections
953	Verbal notice of correction action
105	Corrective notices issued
0	Criminal citations issued

The City of Fort Worth, as per the permit, requires a discharger to eliminate an illicit discharge or stop the improper disposal practice as soon as possible. If is it not possible within 30 days to eliminate the discharge, a schedule or plan to eliminate the discharge must be submitted by the discharger. Until the discharge is eliminated, the discharger shall take all reasonable measures possible to minimize the pollutant discharge to the MS4.

3.3.1 Status of Complying with New Requirements

The SWMP includes a list of techniques used for detecting illicit discharges which includes dry weather and wet weather field screening as well as complaint investigations and inspections. Appropriate actions and enforcement procedures for removing the source of an illicit discharge are outlined in the SWMP as well. These include corrective notices and issuance of criminal citations.

3.4 Overflows and Infiltration

The City's Water Department participates in TCEQ's voluntary Sanitary Sewer Overflow Initiative (SSOI) program. All sanitary sewer overflows (SSOs) are reported to the TCEQ. The goals of the initiative are to reduce the number of SSOs that occur each year in sewer collection system and to address SSOs before they harm human health, safety, or the environment and before they become enforcement issues. In general, a significant overflow contains a large volume of sanitary sewer discharge (>50,000 gallons or more) that could adversely affect a public or private source of drinking water or the environment.

The following sanitary sewer overflows were reported for permit year:

26	Significant overflows	91,755 gallons
157	Total overflows	123,010 gallons

The Water Department continues a proactive preventative sewer cleaning and maintenance program. The program includes routine city-wide inspections, cleaning, repair, oil and grease removal, utility access point inspections, long-term sewer line rehabilitation and public outreach activities. There are two distinct programs for investigating the condition of its existing sanitary sewer collection system.

The Sanitary Sewer Condition Assessment Program (SSCA) involves the cleaning and inspection of small diameter sanitary sewer lines (less than 24-inch diameter) throughout the City. The SSCA program uses closed-circuit television (CCTV) to inspect the sanitary sewer collection system for pipe defects, blockages, and line capacity. The lines are thoroughly cleaned as part of the process. As problems in the sanitary sewer collection system are identified, field operations staff recommends repairs, replacement, and/or schedules future maintenance.

The program is a comprehensive investigation of all sanitary sewer lines 24-inch diameter and above. The program consists of simultaneous sonar/laser/CCTV investigation of the large diameter sewer lines to identify segments requiring cleaning and those requiring repair. Lines requiring cleaning are cleaned immediately while segments requiring repair are identified for rehabilitation or replacement.

The Water Department responds to sewer collection system discharges or other problems on a seven-day per week, 24-hour per day basis as generated by customer complaints. In an area where a sanitary sewer discharge has occurred, wastewater is removed by impoundment and/or by-pass pumping into the sewer collection system. The area is cleaned and disinfected to lessen or eliminate the impact of wastewater discharge to the environment and public health.

The Water Department aggressively attempts to determine sanitary sewer collection system defects such as cracked pipes or offset joints that allow seepage of wastewater from the sanitary sewer collection system. Joint repairs are conducted as problems are identified. Additionally, recommendations are made for replacement or trenchless rehabilitation. Any potential seepage into the stormwater system is monitored and repairs made as necessary.

3.5 Household Hazardous Waste and Used Motor Vehicle Fluids

In 1997, the City of Fort Worth established a permanent Household Hazardous Waste (HHW) collection facility, the Environmental Collection Center (ECC), to serve residents of Fort Worth and other participating neighboring municipalities. In addition to waste drop off at by residents at the ECC, personnel also conduct mobile collection events throughout the year. Acceptable wastes include acids, aerosol cans, batteries, antifreeze, brake fluid, craft and hobby chemicals, degreasers, drain cleaners, fertilizer, fluorescent and other light bulbs,

cooking oil, herbicides, pesticides, motor oil, paint, stain, paint thinner, photo chemicals, and pool chemicals.

During the first year of operation, Fort Worth established interlocal agreements with 17 other municipalities and served 7,118 households from residents of Fort Worth and the participating cities. The program has grown steadily and now serves more than 26,000 households from Fort Worth and 51 participating entities, collecting approximately 1.7 million pounds of household chemicals and waste, of which 26 percent was recycled or reused. Table 1 shows disposal, recycling, and reuse of materials collected at the ECC during the reporting period. Table 2 illustrates total number of households served for participating cities.

Table 1 - HHW from Fort Worth residents, disposal, recycling, and reuse of waste (in pounds) collected from Fort Worth Residents at the ECC and mobile events for the reporting period August 2016 – July 2017

	Pounds of Waste: August 2016 – July 2017
DISPOSAL	
Aerosols	59,881
Pesticides	76,995
Flammables	46,895
Flammable Liquids	225,968
Dry Cell Batteries	28,164
Corrosives	8,211
Latex Paint & Related Material	983,436
Other HHW (not elsewhere classified)	954
Household Cleaners	29,676
RECYCLING	
Cooking Oil	26,362
Motor Oil & Filters	163,811
Antifreeze	19,415
Light Bulbs	26,209
Lead Acid Batteries	8,660
REUSE	
Help Yourself Shelf (mostly paint)	215,695
TOTAL:	**1,920,332**

Table 2 - Households served by the ECC (including mobile events) for the reporting period of August 2016–July 2017

Households Served August 2016 - July 2016				
Municipality:	**Households**		**Municipality:**	**Households**
Alvarado	3		Kennedale	158
Arlington	4,760		Lake Worth	2
Azle	38		Lakeside	3
Bedford	551		Mansfield - City Program exists now	21
Benbrook	410		Midlothian	51
Briaroaks	1		North Richland Hills	300
Burleson	451		Oak Leaf	9
Cedar Hill	281		Pantego	64
Cleburne	210		Parker County	29
Colleyville	595		Reno	1
Crowley	6		Rhome	1
Dalworthington Gardens	55		Richland Hills	88
Decatur	35		River Oaks	104
Edgecliff Village	1		Roanoke	59
Ellis County	-		Saginaw	239
Euless	374		Sherman	40
Everman	1		Southlake	575
Forest Hill	69		Springtown	-
Fort Worth	9,002		Stephenville	-
Glenn Heights	-		Tarrant County	25
Godley	7		Trophy Club	36
Grand Prairie	1,210		TRWD	-
Grapevine	976		Upper Trinity Regional Water District	226
Haltom City	258		Watauga	63
Haslet	4		Waxahachie	81
Hood County	141		Weatherford	11
Hurst	872		Westlake	3
Johnson County	9		Westover Hills	2
Joshua	7		Westworth Village	14
Justin	22		White Settlement	50
Keller	639		**Total For All Participating Cities:**	**23,243**

3.6 Dry Weather Field Screening

The permittees have implemented Dry Weather Screening Programs, as described in Section 8.1 of this annual report, to locate portions of the MS4 with suspected illicit discharges and improper disposals. Results of screening efforts during this permit term as well as a more complete description of the program may also be found in Section 8.1 of this report. The entire MS4, but not necessarily each individual outfall, will be screened at least once during the five-year permit term.

3.7 NPDES and TPDES Permittee List

The City of Fort Worth maintains an industrial and a construction database containing a list of operators and construction sites that are located within the city limits. This database contains the name, location and permit number issued by the TCEQ that authorizes stormwater discharges from construction activities.

3.8 MS4 Map

All MS4 assets have been mapped from schematics (drawings/plans) and have been field verified. The field survey was completed in 2013. Waters of the U.S. are encompassed in the National Hydrography Dataset (NHD) as maintained by the United States Geological Survey (USGS). Currently, stormwater infrastructure data are maintained by the Stormwater Management Division within the Transportation/Public Works Department. MS4 assets are mapped in any newly developed areas, annexations or redevelopments.

3.9 Spill Prevention and Response

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 hazardous materials (HazMat) Squad to address major incidents and Environmental Management has a response team to address minor incidents.

3.9.1 FWFD Prevention Program

The City of Fort Worth provides spill response via FWFD's five HazMat squads strategically located throughout the city. For most small motor vehicle accidents, FWFD remediates any spills and transports waste absorbent and other materials to the fire station. On a regular basis, the Environmental Management Division picks up collected waste from the fire stations for proper disposal.

3.9.2 Environmental Management Division Spill Response

Environmental Management staff are on-call to assist FWFD in remediating small spills such as those generated in motor vehicle accidents. They also routinely address incidents such as abandoned waste drums and large chemical spills in or threatening waterways.

During the 2016–2017 permit year, this group responded to 57 spill incidents and disposed of approximately 2,133 gallons of waste (primarily auto fluids from motor vehicle accidents) collected by the FWFD. Large scale spill clean-up and remediation is conducted through two contracts with third party companies.

4.0 Pollution Prevention and Good Housekeeping for Municipal Operations

Because the City of Fort Worth has been under continuous MS4 permit coverage since 1996, some of the components of this MCM, such as reduction of pollutants from road repair and from pesticide, herbicide, and fertilizer applications, were requirements of previous permit terms and were established prior to the current term. Waste handling procedures to ensure proper disposal of waste, although not a previous permit requirement, were in place prior to the current permit term. For the remaining new requirements, programs were developed or existing programs were enhanced to ensure compliance as discussed in this section.

4.1 Status of Complying with New Requirements

Current street maintenance practices and street sweeping activities are described in MCM 1. Discharge of pollutants from road repair disturbing an area of one acre or a common plan of development that is an acre or greater is controlled through BMPs established as part of the required construction permitting (TXR150000). Contracts for road repair and maintenance or other projects that may result in soil disturbance, such as building demolition, include requirements to maintain stormwater permit coverage and stormwater Best Management Practices as necessary. For municipal facilities subject to this MCM, BMP guides have been designed to reduce pollutants to the maximum extent practicable.

For the City's airports and wastewater treatment plant, industrial stormwater permit training is used to satisfy the training requirement of this MCM. For facilities with established Spill Prevention, Control, and Countermeasures (SPCC) plans, stormwater training is incorporated into the required SPCC training. For other facilities, stormwater training is either presented as a stand-alone unit or incorporated as part of safety training, or other established training programs, using videos and other materials developed by NCTCOG. Training was conducted at one City facility: Meacham International Airport during this permit term.

The most effective training may not be scheduled classes but rather reminders provided by environmental personnel regarding proper procedures as they routinely visit sites for collection and disposal of waste, petroleum storage tank inspections, facility inspections, or other purposes. Inspections were conducted at Brennan Service Center and the Southeast Landfill. Technical assistance was provided at James Service Center.

The City of Fort Worth continues to participate in internal recycling. During this permit term, internal recycling was increased from just paper to include plastics (including plastic bags) and metals. One hundred and ten facilities operated by the City of Fort Worth now participate in single-stream recycling efforts. Individual facilities choose the recycling program that works best for their building. A few facilities still haul their own recycling due to logistical issues or lease restrictions.

4.2 Waste Handling

For a discussion of management practices associated with MS4 maintenance, refer to the report Section 1.0 MS4 Maintenance Activities.

The City maintains a contract for recycling of used oil and other fluids collected as a result of equipment maintenance activities. Contracts are also held with waste disposal contractors for proper disposal of wastes including, but not limited to hazardous, non-hazardous, special, and solid wastes; a variety of lights including high pressure sodium high intensity discharge (HID) lamps, incandescent bulbs, fluorescent lamps and tubes, vapor lamps, and metal halide HID lamps; light ballasts that may or may not contain PCBs; e-waste; USDA regulated garbage; and biohazardous materials. Staff from the Environmental Management Division oversee these waste disposal activities and ensure that wastes are properly stored to prevent discharge of pollutants prior to collection and disposal.

The following waste amounts (in pounds) were collected and disposed of properly during the sixth permit term.

Hazardous waste	26,551
Universal waste	59,198
Biohazardous waste	3,310
Nonhazardous waste	86,313
Material reused or recycled	41,973

4.3 Pesticide, Herbicide, and Fertilizer Application

City staff from the Park and Recreation Department apply pesticides, herbicides, and fertilizers on City owned property. In addition, the City has an herbicide spraying program to minimize vegetative growth in storm drainage channels. Selected ditches are sprayed once or twice per year. Plants such as cattails and young willow trees are specifically targeted, as they are especially disruptive to stormwater flow. To prevent contamination of these storm drains, only products that are EPA approved for application in and around waterways 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 be properly licensed by the State of Texas Structural Pest Control Board to participate in any spraying program. Training for personnel involved in pesticide and fertilizer application was conducted at 13 City facilities (Golf, Parks, Airports) during the permit term. This training is ongoing at City facilities and two trainings for applicators were held during the reporting period by the Parks and Recreation Department.

4.4 List of Municipal Facilities

The City maintains a list of all city-owned or leased properties. Nineteen facilities have been identified as being subject to the requirements of the Pollution Prevention and Good Housekeeping for Municipal Operations Minimum Control Measures. The two airports and the

wastewater treatment facility are covered under the TPDES Multi-Sector General Permit for stormwater discharges associated with industrial activity.

5.0 Industrial & High Risk Runoff

The City of Fort Worth has an established Industrial and High Risk Runoff program to identify and evaluate facilities with a higher potential to negatively impact stormwater quality. A majority of the facilities identified in this section are governed by the monitoring, reporting, and inspection requirements of their own TPDES or NPDES stormwater permits. The stormwater leaving these sites ultimately reaches the City of Fort Worth's storm drain system and as such, the quality of this water must be in compliance with the goals contained in the City's MS4 TPDES stormwater 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.

During the permit term, the City of Fort Worth offered two workshops for industrial facilities. One workshop was in September 2016 and focused on renewal of the Industrial Stormwater Multi-Sector General Permit TXR050000 which was renewed and effective on August, 14, 2016. The second workshop focused on stormwater compliance and was held in June 2017. Each workshop included an overview of stormwater compliance for industrial facilities as well as a time set aside for one on one assistance. Facilities were encouraged to bring their Stormwater Pollution Prevention Plan and monitoring results to review with inspectors. Facilities can schedule one-on-one educational and compliance assistance with an inspector throughout the year by appointment.

5.1 Priorities & Procedures for Inspecting and Monitoring High Risk Runoff Facilities

Notification data, investigations, inspections, and resulting enforcement actions conducted by the industrial inspection program during the reporting period of July 29, 2016–July 28, 2017 are summarized in the tables below. The Industrial Stormwater Multi-Sector General Permit TXR050000 was renewed and effective on August, 14, 2016. Notification data below represents both new facilities and facilities that the City of Fort Worth has received renewal information from. The City of Fort Worth continues to work with facilities to receive a copy of their renewal paperwork.

Notification Data

All Industrial Sites	Notices of Intent	No Exposure Certifications
71	54	7

Inspection Data

Investigation Type	Number of Investigations
Industrial inspection	29

Enforcement Data

Verbal Notice of Violation	Written Notice of Violation	Citations Written	Total
0	0	0	0

5.2 Industrial & High Risk Monitoring Program

In an effort to avoid duplication of effort, the City of Fort Worth uses benchmark monitoring data required by the Multi Sector General Permit (MSGP) of certain industries covered under this authorization. Monitoring data collected during this permit term was for the monitoring period of January 2016–December 2016. A summary of the results received by the City is included in this report in Appendix B. A result of "Fail" indicates that one or more parameters reported exceed one or more of the benchmark value for that facility.

Results of analysis are indicators that modifications of the SWP3 may be necessary. The facility's pollution prevention team must investigate the cause for each exceedance and document results of this investigation in the SWP3 within 90 days following the sampling event. Environmental Management Division staff review these plan modifications during normal site inspections.

6.0 Construction Site Stormwater Runoff

The City of Fort Worth and its co-permittees have established Construction Site Stormwater Runoff programs designed to reduce the discharge of pollutants in to the MS4 from construction sites that are one or more acre(s) in size or that are part of a larger common plan of development or sale that is one or more acre(s) in size. Section §12.5-302(a) of the City Code prohibits discharges of pollutants into the MS4 from all sources, including construction sites. EMD has an active TPDES construction site inspection program utilizing multiple 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.

6.1 Activities operated by the City of Fort Worth or its contractors

6.1.1 Inspection of Construction Sites and Enforcement of Requirements

The City's permit requires implementation of a construction site runoff program that includes the inspection of construction sites and enforcement of control measure requirements. The program, incorporating the above requirement, has been in operation since May 1999. The program currently includes seven employees for plan reviews, permit compliance inspections, educational activities, and enforcement.

Notification data, investigations, inspections, and resulting enforcement actions conducted by the construction inspection program during the reporting period of July 29, 2016–July 28, 2017 are summarized in the tables below.

Notification data

All Construction Sites	Large Construction Sites	Small Construction Sites
223	118	105

Inspection Data

Investigation Type	Number of Investigations
Construction Inspection	4,432

Enforcement Data

Verbal Notice of Violation	Written Notice of Violation	Citations Written	Total
887	95	0	982

6.1.2 Education and Training of Construction Site Operators

The City of Fort Worth participated with the cities of Dallas, Arlington, Irving, Garland, Mesquite, and Plano in assisting NCTCOG in designing a NPDES Construction Inspection Training Program. The final program consists of a one-day workshop offered by NCTCOG multiple times during the year. The course has evolved to cover topics including how to read and interpret a Stormwater Pollution Prevention Plan, how to identify improperly installed BMPs, methods to prevent stormwater pollution, regulatory requirements, techniques for conducting site inspections, and record keeping requirements for site operators. New staff are required to complete the training, and one staff member completed during the reporting period. On-site education is provided as necessary as part of regular compliance inspections. Staff are also available by appointment to give general compliance or topic specific presentations.

6.1.3 Notification of Requirements to Construction Site Operators

EMD inspectors continue to be a part of the City's plan review process and provide information to developers and builders during predevelopment conferences and on-site once construction activities have commenced to ensure operators are aware of TCEQ compliance requirements related to construction.

The recently adopted grading ordinance incorporates the evaluation of planned construction stormwater controls (BMPs) to ensure sites meet TPDES requirements related to construction as well as locally adopted requirements in the Fort Worth *i*SWM manual. This provides another avenue to ensure construction site operators are aware of regulatory requirements and have designed adequate controls to manage stormwater runoff during construction.

Fliers have been developed and placed in the City of Fort Worth's permitting center to inform permit applicants of the permitting requirement for construction site operators.

Environmental Management web pages contains information and links providing guidance to construction site operators on the TPDES requirements related to construction and links to the necessary information and resources to ensure compliance.

6.1.4 List of Construction Sites

The City of Fort Worth maintains a database of operators and construction sites located within the Fort Worth city limits. During the reporting period of July 29, 2016–July 28, 2017, approximately 475 active construction sites were regularly inspected.

6.2 Activities operated by TRWD or its contractors

See Attachments 1 and 2 for TRWD and TxDOT activities.

7.0 Public Education, Outreach, Involvement, and Participation

The City implements a multi-faceted outreach and education program to fulfill permit requirements to promote, publicize, and facilitate the public reporting of the presence of illicit discharges or improper disposal of materials into the MS4; the proper management and disposal of used oil and household hazardous waste; and the proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators and distributors. Table 3 provides a summary of public education and outreach by permit requirement.

To meet these requirements, the City uses interdepartmental and interagency cooperation. Several departments, divisions, and sections within Fort Worth are tasked with promoting stormwater education messages and raising awareness of the issues and providing information on steps that can be taken to improve water quality in addition to providing multiple opportunities for meaningful public engagement. See Table 4 for a summary of City-provided stormwater outreach to the public.

The City also partners with the North Central Texas Council of Governments (NCTCOG) and with co-permittee Tarrant Regional Water District (TRWD) to amplify local and regional campaigns focused on stormwater quality education and outreach.

7.1 Public Education and Outreach

The goal of the City's public education and outreach efforts is to improve stormwater quality by promoting greater awareness of issues related to stormwater management. This includes topics related to basic water quality, illicit discharges and proper waste disposal, appropriate use and storage of yard chemicals, proper household hazardous waste and used oil disposal, pet waste and yard debris disposal, and correct litter and trash disposal. Program effectiveness is measured by participation at outreach events, educational items distributed, and overall general public feedback on the education efforts.

Table 3 - Summary of public education and outreach by permit requirement

Topic	Numbers distributed
Public reporting of illicit discharges or improper disposal of materials	2,813
Proper management and disposal of used oil and household hazardous wastes	12,567
Proper use, application and disposal of pesticides, herbicides, and fertilizers	4,204
Environmental Stewardship	115,887
General stormwater quality	33,059
Total pieces distributed	**168,530**

Table 4 - Education and outreach events and presentations

Litter, Stormwater & Water Quality Events		
Type	**Number**	**Participant Numbers**
Neighborhood Association	316	9,380
School & After-School Presentations	656	17,238
Community Events	152	8,546
Total	**1,124**	**35,164**

7.1.1 Public reporting of illicit discharges or improper disposal of materials, including floatables, into the MS4.

The City has a multi-pronged approach to encourage the public to report illicit discharges and promote proper disposal of floatables.

- Environmental hotline information is displayed prominently at the upper right-hand position on each page of the Environmental Management website.
- A bilingual environmental hotline card for reporting illicit discharges and instances of stormwater pollution includes telephone and online options for reporting. Cards are distributed by Environmental Management, TPW Stormwater Management, Code Compliance, and Community Engagement staff. Cards are also available in the Planning and Development Department permit center.
- Hotline reporting information is also included on the Environmental Collection Center brochure and other stormwater printed materials.
- The marketing logo, “Trash in the Can, Not the Creek,” is used as part of a campaign to help reduce litter and other pollutants in the watershed.
- A bilingual hotline poster, PowerPoint presentation, and fact sheet are used by the Community Engagement office for presentations. How to identify reportable

instances of water pollution is addressed in the presentation in printed and visual formats.
- Rack cards explaining procedures for construction stormwater permits, industrial permits, and power washing permits are distributed through Planning & Development, Code Compliance, Environmental Management, and Stormwater Management employees.
- The city sponsors a host of adopt-a-park, street, waterway, etc. programs to help with litter prevention and general beautification. Several departments help promote and organize these programs. Keep Fort Worth Beautiful continues its efforts with the Green Schools program, volunteer recognitions, and neighborhood clean ups.

7.1.2 Proper management and disposal of used oil and household hazardous wastes.

- The location, participation levels, and public feedback are annually analyzed to determine the following year's HHW mobile collection locations. Twenty-six mobile events were held within Fort Worth and an additional 73 for participating cities during the reporting period.
- Through the City's water bill insert, 225,000 residential and commercial water customers were alerted to not only the dates, times, and locations of the mobile collection events, but also the location, hours, and contact information for the Environmental Collection Center. An additional 2,000 were printed for distribution by Community Engagement educators.
- Notices of Crud Cruiser events are posted each week on the City of Fort Worth online Calendar of Events and printed elevator calendars. The Calendar is included in City News, the weekly subscriber email sent to over 8,000 households across the city. Specific events were posted on online and community calendars as appropriate. City council members also promote individual events in their district correspondence and on social media.
- All Fort Worth and participating cities mobile collection events are posted on the City of Fort Worth website in two separate lists for easier searchability.
- Updated information regarding the Environmental Collection Center (ECC) and Crud Cruiser is sent periodically to the city call center and Community Engagement educators.
- Bilingual tri-fold brochures containing information about the ECC and Crud Cruiser mobile HHW collection events are distributed at city and regional events, the City's three drop-off stations, community centers, and facilities with high levels of walk-in customer traffic.
- An annual newsletter is sent to participating cities. It contains items of interest, notices, collection statistics, and information in an inviting, graphic format.
- Web banners, print-ready banners, posters, and event signage are available for use by the City of Fort Worth and participating cities to advertise the ECC and Crud Cruiser events.
- Educational YouTube videos about the ECC and Crud Cruiser are posted to the Environmental Management web page. These videos help residents understand the processes of bringing HHW for proper disposal to the facility or mobile events.
- Display materials for the ECC/Crud Cruiser are used by Community Engagement and program coordinator in schools and at presentations. The displays include both full-

size cutouts and tabletop displays of the cartoon characters Captain Crud and the Cruddies.
- Two videos created through the Regional Stormwater Management Program, are being shown by Community Engagement to teach both younger and older students about the deleterious effects of various pollutants on stormwater.

7.1.3 Proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators and distributors.

- Three Master Composter classes were held, teaching 71 residents how to use lawn trimmings and household waste to reduce runoff pollution and use fewer chemicals.
- Garden Smart fliers with recommended residential procedures for protecting stormwater while doing yard work were distributed by Community Engagement educators at events and meetings.
- A bilingual Storm Drain poster, PowerPoint presentation, and fact sheet are used by Community Engagement for presentations. The application, use and disposal of lawn and pool chemicals are addressed in the presentation.
- Code Compliance Environmental Management Water Quality staff are members of the NCTCOG Stormwater Public Education Task Force. The task force created an education program of videos and brochures for lawn care companies regarding disposal of lawn debris, proper use of pesticides and fertilizers, and proper watering techniques. The Task Force continues to work on programs and educational materials to target residential and commercial landscapers.
- A bilingual NCTCOG publication, “Leave It a Lawn,” is routinely included in informational packets distributed about stormwater pollution prevention. The tri-fold brochures discuss the proper way to dispose of grass clippings and fallen tree leaves (mulch and leave on the lawn).
- To promote Texas SmartScape, the NCTCOG and several other Metroplex cities, including Fort Worth, teamed up with Home Depot (and in Fort Worth with Weston Gardens) to offer a series of water-conserving, native and adaptive plant sales.. Home Depot agreed to promote the SmartScape brand on its products. NCTCOG, City staff and master gardeners continue to work with Home Depot to have future sales and educational events.
- The Water Department sponsored a series of water-saving seminars that focused on water issues, including sessions on landscape design, landscape basics, new home owner association landscape rules and regulations, container gardening, and proper irrigation operation. All of these sessions promote water conservation which reduces nutrient pollution runoff.

7.2 Public Involvement and Participation

The City engages the community in stormwater related activities to encourage the protection and enhancement of stormwater quality. These activities include opportunities for a wide variety of people who live, work, and recreate in Fort Worth.

- The TPDES Stormwater Permit is posted in easy-to-read, searchable pdf format on the Environmental Management web page.

- Four email addresses are posted on the TPW Environmental Management web page and in print materials to increase public involvement. Each address has a specific distribution list to ensure timely, professional responses to questions and complaints from residents and businesses.
  - o environmental@fortworthtexas.gov
  - o constructionstormwater@fortworthtexas.gov
  - o industrialstormwater@fortworthtexas.gov
  - o hhw@fortworthtexas.gov
- Collateral items, including educational posters for Community Engagement educators, are printed in both English and Spanish.
- The stormwater quality pages on City of Fort Worth's website are regularly spot-checked and updated (includes all permitting information, HHW pages, pollution hotline information/form, general stormwater education, and HHW information contained on ECC participating cities websites) to improve information, navigation, and functionality.
- Updates are provided to the call center and Community Engagement to make sure that all residents have access to current and accurate information.
- Code Compliance Environmental Management Water Quality staff, and the public education program coordinators for Stormwater Management, and a Water Department conservation specialist are members of the NCTCOG Stormwater Public Education Task Force. Regional efforts on stormwater pollution prevention are vital to clean water in North Texas.

7.3 TRWD and TxDOT Activities

See Attachments 1 and 2 for co-permittee activities.

8.0 Monitoring, Evaluation, and Reporting

8.1 Dry Weather Screening Program

The objectives of this program are to continue efforts to detect the presence of illicit discharges and assess dry weather water quality changes. Analyses performed include air and water temperature, pH, color, turbidity, copper, ammonia, phenols, chlorine, specific conductivity, 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. The test method results in a measurement given as less than a numerical value (<0.1, <0.2), which indicates the range of the value. Portable meters are used to measure pH, specific conductivity, and turbidity. Tests and observations are performed twice in a 24-hour period, separated by a minimum of four hours, to increase the potential to detect illicit flows. Also, sampling and analyses are only

conducted when there has been no significant precipitation (less than 0.10 inch) within 48 hours.

TPDES Permit WQ0004350000 requires that, "All areas of the MS4 must be screened at least once during the permit term." Between July 29, 2016 and July 28, 2017, 405 sites were visited for the purpose of dry weather field screening. Of these sites, seventeen (4.2%) had enough flow to sample during at least one visit. Table 5 provides a summary of analyses conducted during both visits at these sites. Detections are those cases where the parameter was found above the established trigger level for source tracking in the City or outside the standard range. Standard range used for pH is between 6 s.u. and 9 s.u.; trigger levels for specific conductivity are $\geq$1500 µS/cm; turbidity > 15 NTUs, and ammonia $\geq$ 1.0 mg/L. The trigger level for detergents, chlorine, copper, and phenols is $\geq$ 0.20 mg/L. Water temperature is presented without an established trigger level. If water temperature is unusually high or low, further investigation is initiated.

Pollutant Trace Back

When screening results indicate the possible presence of illicit discharge, field staff begin a trace back investigation of the pollutants of concern within the MS4. A variety of investigative tools such as: additional DWFSs, watershed reconnaissance, videotaping the storm drain lines, dye tracing, and tunnel entries, etc., may be used in follow-up activities as appropriate for each situation. If a responsible party is found, appropriate actions are taken to ensure the discharge is eliminated.

Trace back investigations were performed on nine outfalls with flow during the permit year. There were six outfalls with chlorine levels above trigger levels during at least one of the sampling events. Trace back on one outfall revealed ongoing lawn watering. Four outfalls with chlorinated flow were turned over to the Water Department for water system break investigation. Two of those outfalls also tested with above trigger levels for ammonia. The water department found two City system breaks that were repaired, and two private line breaks that were also repaired. One additional outfall which tested above trigger levels for chlorine and ammonia also was above trigger levels for turbidity (76.8 NTU) and conductivity (above testing range of 2,000 µS/cm). Follow up investigation found the industry which was associated with the discharge was powerwashing the roof of their building with a hypochlorite solution and it was discharging to the outfall. Immediate measures were taken to cease the discharge and they will discontinue the practice.

One outfall tested above the trigger level for turbidity (41.8 NTU). The original outfall point is at a concrete crushing operation. The outfall discharges into a retention pond which has a spillway as the discharge point. The site used for testing for dry weather screening was moved to the spillway at the end of the retention pond. There was no flow during the first sampling event, and low flow over the spillway during the second sampling event. The concrete crusher reuses the retention pond water for dust suppression, and regularly pumps water out of the pond. Pumping measures were immediately taken to ensure no flow was going over the spillway from the retention pond.

Two outfalls tested above trigger level for pH. One of those outfalls also had a blue color to the flow. The outfall with only the high pH resolved with no action, although the associated

airport facility will continue to investigate any possible sources. The outfall with a high pH and a blue color is associated with an apartment complex with a pond system which is fed by a groundwater well. The complex was using a blue dye in their ponds to control algae, and the pond water is discharged via an overflow to the storm drain system. They have discontinued using the dye.

Table 5 - Summary of dry weather field screen data collected from July 29, 2016–July 28, 2017

	pH s.u.	Conductivity µs/cm	Turbidity NTU	Water temp °C
N of samples	28	28	27	28
Detections	4	1	2	0
Minimum	7.41	290	0.10	6
Maximum	9.21	1000	76.80	30.3
Median	8.25	720	2.01	25.6
Mean	8.29	687	7.55	22.6
Standard Dev.	0.499	182.2	16.294	7.08

	Detergent mg/L	Chlorine mg/L	Copper mg/L	Phenols mg/L	Ammonia mg/L
N of samples	27	29	25	26	27
Detections	0	8	0	0	3
Minimum	0.1	0.00	0.00	0.00	0.15
Maximum	0.2	3.94	0.10	0.19	2.87
Median	0.1	0.06	0.01	0.00	0.34
Mean	0.1	0.63	0.02	0.02	0.54
Standard Dev.	0.03	1.044	0.028	0.054	0.555

8.2 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 are collected and analyzed. Locations are 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, 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 are collected from runoff resulting from a rain event that is greater than 0.10 inch in magnitude and that occurs at least 72 hours after the last measurable rain event. The greater than 0.10 inch rainfall guideline may be waived during drought conditions. Sample analyses will consist of, at a minimum, pH, specific conductivity, and turbidity. Additional analyses which may be

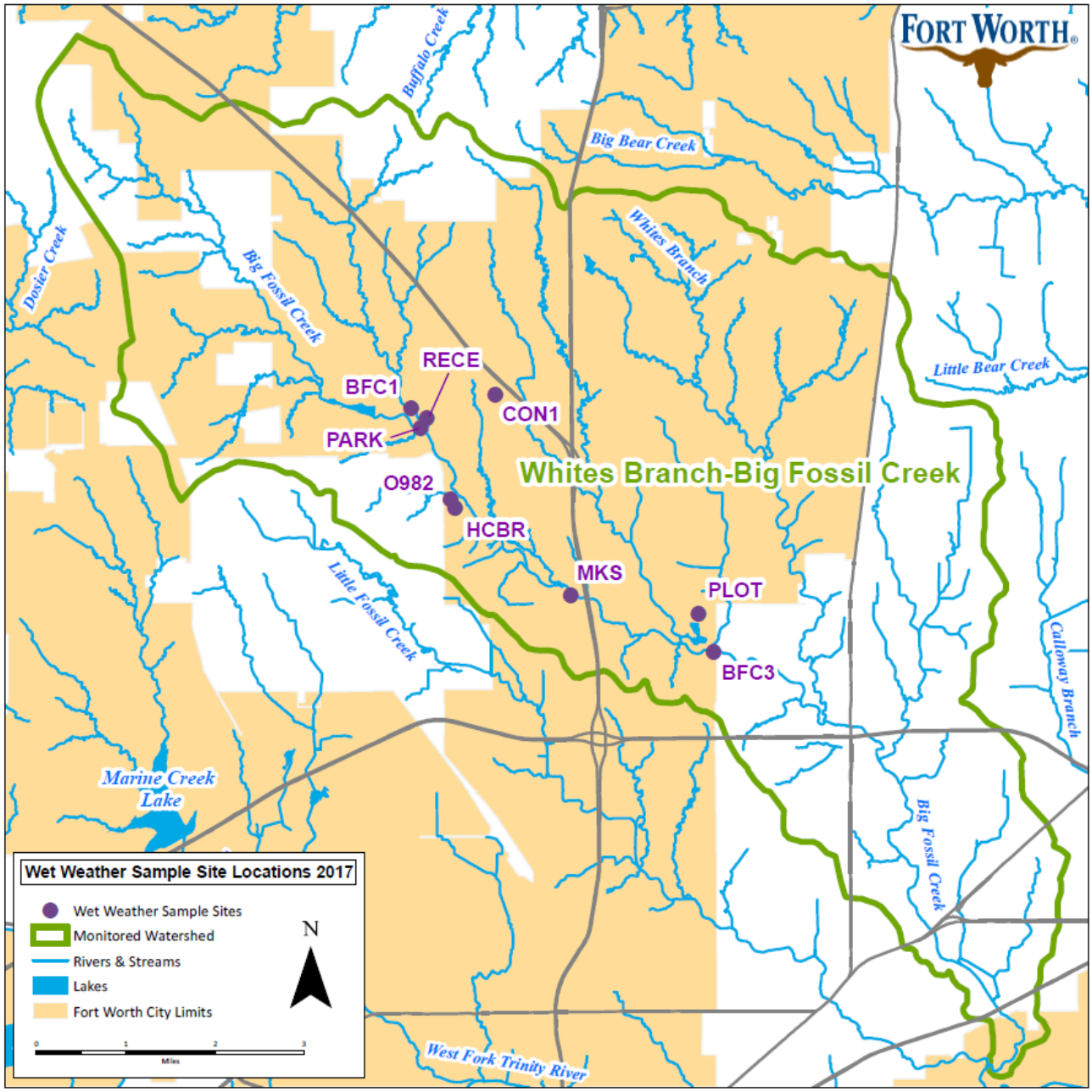
performed include, but are not limited to ammonia-nitrogen, nitrate-nitrogen, phosphate, chromium, copper, zinc, COD, total coliform, and *E*. coli bacteria. The selection of additional analyses to be performed will be determined by senior personnel on a case-by-case basis based upon land use and potential 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 are presented in the Annual Report.

During the 2016 permit year, 50 runoff samples were collected during eight rain events at 20 locations (Table 6). Figures 1 and 2 show the sample site locations and watersheds sampled within the permit year. Results of chemical analyses are provided in Table 7 and summary statistics of the chemical analyses is provided in Table 8.

Table 6 - Sample locations for wet weather field screens conducting during the 2016 permit year

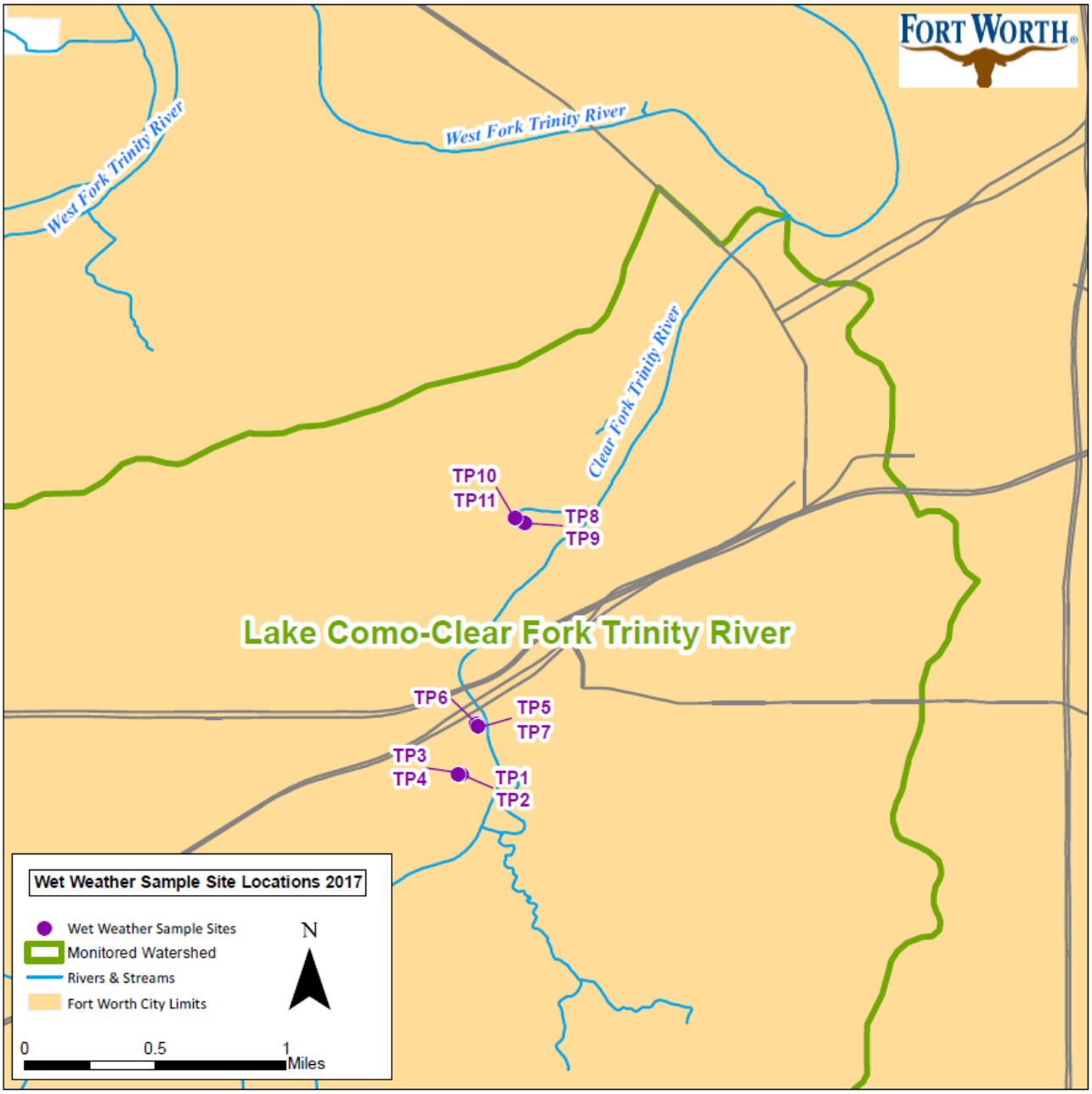
Site ID	Site location description	Latitude	Longitude
TP1	1545 Old University, north flow	32.729279	-97.360322
TP2	1545 Old University, south flow	32.729323	-97.360297
TP3	1544 Old University, south flow	32.729310	-97.360506
TP4	1544 Old University, north flow	32.729358	-97.360483
TP5	1639 Old University, north flow	32.732120	-97.359184
TP6	1638 Old University	32.732135	-97.359262
TP7	1639 Old University, south flow	32.732014	-97.359192
TP8	Trinity Park Dr at crossing just west of RR crossing, stream flow	32.743211	-97.355993
TP9	Trinity Park Dr at crossing just west of RR crossing, street flow	32.743233	-97.355955
TP10	Trinity Park Dr S of Crestline, street flow	32.743533	-97.356590
TP11	Trinity Park Dr S of Crestline, outfall flow	32.743554	-97.356557
MKS	Behind 2901 Western Center Blvd; grate inlet	32.863006	-97.317774
O982	NE of mailboxes at 7540 Howling Coyote Ln	32.878834	-97.340762
RECE	Receda Ct in cul-de-sac inlet	32.892089	-97.345166
CON1	W inlet on Harmon Rd, south of 287 Service Road	32.895800	-97.331872
PLOT	6490 Spoonwood Ln; at inlet	32.859794	-97.293217
PARK	8575 Blue Mound Rd; south of entrance to park	32.890467	-97.346390
HCBR	N of 7428 Howling Coyote Ln	32.877491	-97.339878
BFC1	6700 Blue Mound Rd; just south of Harmon	32.893778	-97.348185
BFC3	N of 4445 Paula Ridge	32.853588	-97.290401

Figure 1 - Wet weather field screen locations for 2016 permit year



Map Source: X:\07_ENVIRONMENTAL\GIS\WaterQuality\AnnualReport_2017\WetWeatherFieldScreening Amy LaMar

Figure 2 - Wet weather field screen locations for 2016 permit year



Map Source: X:\07_ENVIRONMENTAL\GIS\WaterQuality\AnnualReport_2017\WetWeatherFieldScreening Amy LaMar

Table 7 - Analysis results for wet weather field screens conducted in 2016 permit year

Site ID	Date	pH SU	Conductivity us/cm	Turbidity NTU	NH_3-N ppm	PO_4 ppm	NO_3-N ppm	Fe ppm	Cu ppm
PLOT	02/13/2017	8.51	80	6.91	0.71	0.3	0.54		0.07
MKS	02/13/2017	8.49	120	11.6	0.58	0.3	0.68		0.04
O982	02/13/2017	8.73	70	6.55	0.34	0.51	0.37		0.05
RECE	02/13/2017	8.82	80	6.04	0.49	0.19	0.36		0.07
PARK	02/13/2017	8.72	140	69.4	0.16	0	0.09		NR
BFC1-first flush	02/13/2017	8.36	450	10.36	0.54	0.1	0.61		0.08
BFC1-comp	02/13/2017	8.43	460	8.06	0.4	0.05	0.45		0.07
BFC3-first flush	02/20/2017	8.16	520	7.05	0.1	0	0.16	0.09	0.12
BFC3-comp	02/20/2017	8.22	510	7.65	0.14	0.08	0.23	0.21	0.05
MKS	02/20/2017	8.61	100	21.5	0.39	0.13	0.48	0.51	0.09
RECE	02/20/2017	8.85	50	5.64	0.54	0.17	0.33	0.14	0.01
O982	02/20/2017	8.16	100	13.9	0.33	0.63	0.53	0.8	0.12
PLOT	02/20/2017	8.27	70	8.74	0.42	0.16	0.25	0.15	0.07
MKS	03/24/2017	8.48	0	8.91	0.37	0.22	0.42	0.31	NR
O982	03/24/2017	8.29	210	1112	0.42	0	0	0.91	NR
PARK	03/24/2017	8.18	220	19.4	1.29	0.69	1.21	0.39	0.33
CON1	03/24/2017	8.05	230	67.9	2.89	0	0.28	0.51	0.07
PLOT	03/29/2017	7.85	80	7.92	2.15	1.07	0.16		0.51
MKS	03/29/2017	8.54	30	3.37	0.42	0.23	0.11		0.05
O982	03/29/2017	8.28	90	17.6	0.74	0.55	0.34		0.2
RECE	03/29/2017	8.41	50	7.03	0.85	0.44	0.19		0.24
CON1	03/29/2017	8.84	50	33.9	0.43	0.06	0		0.11
PLOT	04/02/2017	8.16	70	9.84	1.32	0.84	0.32	0.25	0.16
MKS	04/02/2017	8.32	50	2.39	0.58	0.05	0.32	0.09	0.03
O982	04/02/2017	8.28	60	19	0.43	0.26	0.25	0.52	0.04
PARK	04/02/2017	8.82	90	856	0.22	0	0	1.32	0
RECE	04/02/2017	8.58	50	3.88	0.66	0.19	0.24	0.13	0.06
CON1	04/02/2017	8.39	120	695	0.83	0	0	0.63	NR
O982	05/17/2017	8.22	400	16.6	0.87	0.16	0.87		0.16
PARK	05/17/2017	8.74	120	125	0	0	1.4		NR
CON1	05/17/2017	8.38	130	35.8	2.12	0.18	0.73		0
MKS	05/17/2017	8.72	50	6.91	0.42	0.27	0.35		0.04
MKS	06/02/2017	8.52	90	7.79	0.56	0.21			0.02
HCBR-1st flush	06/02/2017	8.08	90	9.39	0.54	0			0.06
HCBR-60min comp	06/02/2017	8.12	80	11.46	0.3	0.26			0.05
O982	06/02/2017	7.91	140	7.74	0.39	0.66			0.05
PARK	06/02/2017	8.31	140	116	0	0			
RECE	06/02/2017	8.57	50	4.34	0.39	0.14			0
CON1	06/02/2017	8.03	220	79.8	1.71	0			0.67

NR= not reported

Table 7 - Analysis results for wet weather field screens conducted in 2016 permit year (con't)

Site ID	Date	pH SU	Conductivity us/cm	Turbidity NTU	NH3-N ppm	PO4 ppm	NO3-N ppm	Fe ppm	Cu ppm
TP1	06/09/2017	8.19	300	50	1.22	0.24		0	0.23
TP2	06/09/2017	8.4	80	25.1	1.47	0.27		0	0.19
TP3	06/09/2017	8.21	190	72.9	2.8	0.52		0	0.38
TP4	06/09/2017	8.12	200	44.4	3.75	NR			0.16
TP5	06/09/2017	8.26	130	25.5	1.61	0.38		0.26	0.1
TP6	06/09/2017	8.45	80	24.3	1.26	0.98		0.07	0.18
TP7	06/09/2017	8.62	70	21.1	1.04	0		0.29	0.11
TP8	06/09/2017	8.86	50	23.1	1.03	0.08		0.01	0.12
TP9	06/09/2017	8.62	60	12.8	1.15	0.51		0.05	0.14
TP10	06/09/2017	8.03	440	10.58	0.17	0.16		0.2	0.04
TP11	06/09/2017	8.01	440	27.2	0.37	0		0.28	0.07

NR= not reported

Table 8 - Summary statistics of wet weather field screen analyses in 2016 permit year

	pH SU	Conductivity us/cm	Turbidity NTU	NH_3-N ppm	PO_4 ppm	NO_3-N ppm	Fe ppm	Cu ppm
N value	50	50	50	50	49	32	26	44
Min	7.85	0	2.39	0.00	0.00	0.00	0.00	0.00
Max	8.86	520	1112.00	3.75	1.07	1.40	1.32	0.67
Median	8.37	90	13.35	0.54	0.18	0.33	0.23	0.07
Mean	8.38	154	76.11	0.84	0.25	0.38	0.31	0.12
St Dev	0.27	139	213.19	0.78	0.27	0.32	0.32	0.13

8.3 Industrial and High Risk Runoff Monitoring Program

To satisfy this permit requirement, the City requires industries with benchmark monitoring requirements under the MSGP for stormwater discharges related to industrial activity to submit their monitoring results to the City.

The City maintains a database of benchmark monitoring results that are received each spring. The permit required operators to initiate monitoring in the first full six month monitoring period. Sampling must be conducted once per monitoring period for a total of up to four years, or eight periods depending on when a facility obtained coverage. A summary of the results received by the City of Fort Worth is included in this report in Appendix B. A result of "Fail" indicates that one or more parameters reported exceed one or more of the benchmark value for that facility.

8.4 Storm Event Discharge Monitoring

The City of Fort Worth and its co-permittee, TRWD, have chosen to comply with Permit Part IV.A 1. monitoring requirements through the North Central Texas Regional Wet Weather Characterization Program (RWWCP) including the Representative Rapid Bioassessment Monitoring option. NCTCOG's Regional Stormwater Monitoring Program Third Term Final Report, July 2016 can be found in Attachment 3. Sites sampled during 2016 are shown in Figure 3. Results from 2016 regional wet weather sampling are provided in Table 9 below. Rapid bioassessment results are provided as Attachment 4.

Figure 3 - Regional (RWWCP) wet weather sample locations during the 2016 permit year

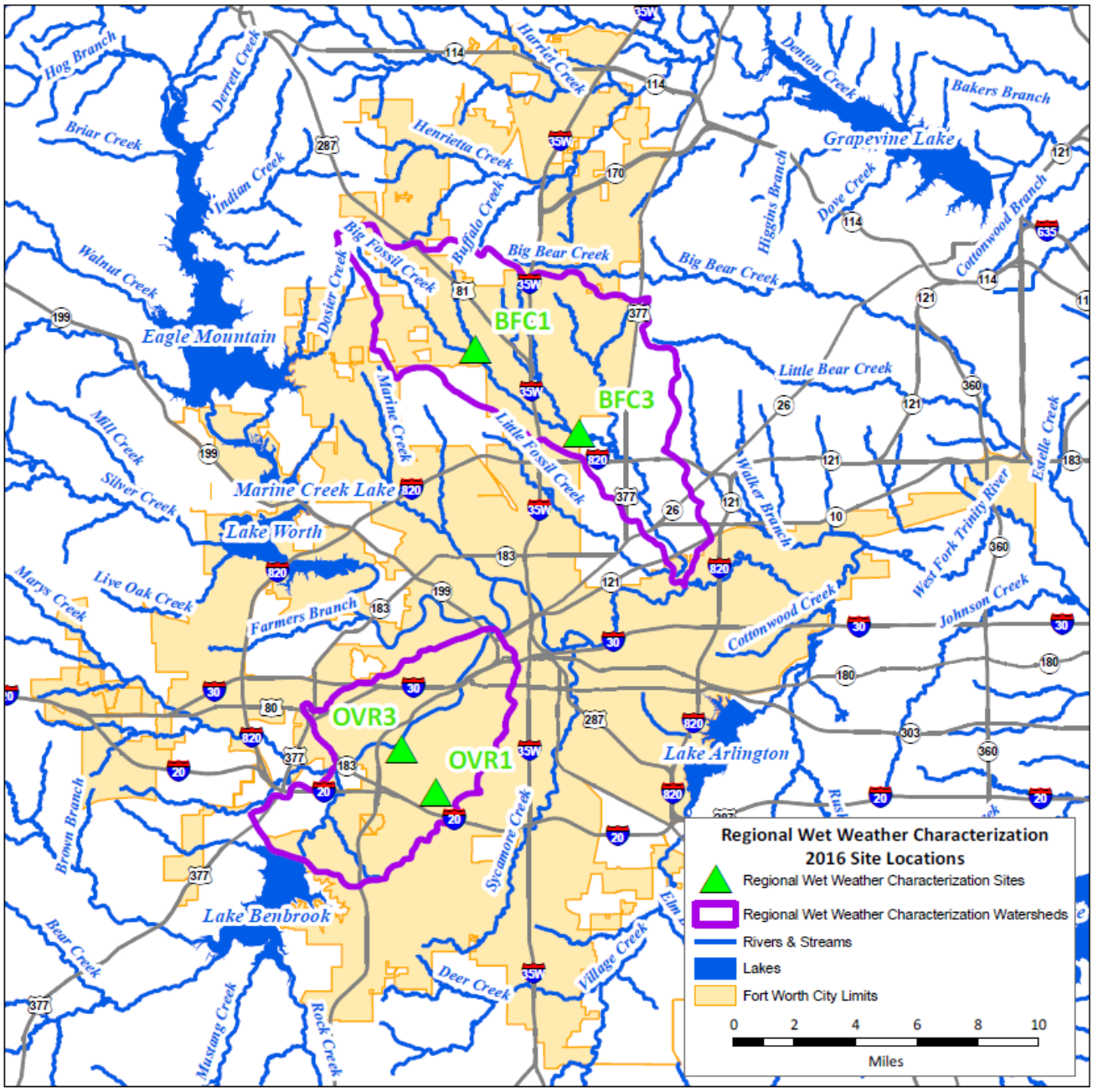


Table 9 - Wet weather data collected under RWWCP during the 2016 permit year

Station ID	Sampling Date	Rainfall Total (in)	Ambient Air Temp (^{0}F)	TDS (mg/L)	TSS (mg/L)	BOD (mg/L)	COD (mg/L)	Nitrogen Total (mg/L)
BFC3	08-10-16	N/A	90	450	8.9	2.1	<30	3.63
OVR3	08-10-16	N/A	90	364	3.5	2	<30	<0.50
OVR3	11-03-16	0.45	71	202	69	10.2	54	1.69
OVR1	11-28-16	0.09	62	202	39.5	25	72	2.46
BFC1	02-13-17	1.29	57	318	20.9	7.4	<30	0.63
BFC3	02-20-17	0.7	62	304	11	5	<30	<0.50

Station ID	Sampling Date	Phosphorus Dissolved (mg/L)	Phosphorus Total (mg/L)	Carbaryl (mg/L)	Arsenic Total (mg/L)	Chromium Total (mg/L)	Copper Total (mg/L)
BFC3	08-10-16	0.028	<1.00	ND	<0.005	<0.005	0.013
OVR3	08-10-16	0.025	<1.00	ND	<0.005	<0.005	0.018
OVR3	11-03-16	0.055	<1.00	ND	<0.005	<0.005	0.01
OVR1	11-28-16	0.088	<1.00	ND	<0.005	<0.005	0.015
BFC1	02-13-17	0.013	<1.00	ND	<0.005	<0.005	0.016
BFC3	02-20-17	ND	<1.00	ND	<0.005	<0.005	<0.005

Station ID	Sampling Date	Lead Total (mg/L)	Zinc Total (mg/L)	Oil and Grease (mg/L)	Spec. Cond. (uS/cm)	pH Field (su)	E. coli (MPN/100 mL)	Total coliforms (MPN/100mL)
BFC3	08-10-16	<0.005	<0.010	<5.00	790	7.85	126	30800
OVR3	08-10-16	<0.005	<0.010	<5.00	680	7.6	34	92100
OVR3	11-03-16	<0.005	0.038	<5.00	520	7.97	NS	NS
OVR1	11-28-16	<0.005	0.051	<5.00	460	7.92	NS	NS
BFC1	02-13-17	<0.005	0.026	<5.00	450	8.36	NS	NS
BFC3	02-20-17	<0.005	<0.010	<5.00	520	8.16	NS	NS

NA= not available; ND= below detection limits; NS= not sampled

8.5 Floatables Monitoring

Permit Part IV.B requires 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 River. Two net collectors were initially installed across from the Clear Fork

Pump Station under Rosedale Street. The nets were unable to stay intact due to rodent activity and have since been replaced with a boom to trap floatables in the river collection. The floatables are physically removed from the boom boundary following a storm event. A second set of 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 metal mesh boxes that trap floating debris as the water passes through. The boxes can be hoisted 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. For information regarding the floatable collections made during the 2017 permit year, refer to Attachment 1, the TRWD annual report.

Appendix A – City of Fort Worth Annual and Projected Expenditures

The following expenditure information addresses the major elements of the stormwater management program conducted by Environmental Management. The FY 17-18 data is Environmental Management's current operational budget for the TPDES program. The information for FY 16-17 represents most of the actual expenditures during the fiscal year (October 1, 2016 – September 30, 2017) that encompasses the majority of the permit year.

Program	FY 16-17	FY 17-18
Water Quality Program Pollution investigations Monitoring Spill response Industrial/construction inspections	$926,310	$1,010,621
Household hazardous waste	$939,424	$1,260,373
Administration & GIS section	$1,158,411	$1,548,055
Education/outreach	$89,275	$125,840
Totals	$3,489,979	$3,944,889

A Stormwater Utility fee was implemented in Fort Worth in 2006 as a way to provide a dedicated and focused revenue stream to reduce flooding, preserve streams, minimize water pollution and operate the stormwater system in a more effective manner. The numbers for FY 15-16 reflect actual expenditures (unaudited) of the Stormwater Utility Fund in the categories noted. The FY 16-17 numbers are projections based on the Stormwater Utility Fund's adopted budget.

Program	FY 2016-17	FY 2017-18
Management/Overhead/Debt Service	$11,357,863	$13,966,515
Public Education/Customer Service	$1,232,604	$1,535,425
Operations & Maintenance	$5,601,324	$5,736,419
Inventory	$800,001	$883,252
Floodplain Management	$805,442	$1,230,171
Engineering	$1,204,677	$1,363,771
Master Planning	$729,571	$874,370
Development Plan Review	$1,684,765	$2,112,338
Capital	$10,613,567	$11,253,996
Training/Tech. Update	$48,099	$90,786
Total Utility Expenses	$34,077,912	$39,047,046

Appendix B – Benchmark Monitoring Results
Period 1, January 1, 2016 – June 30, 2016

Result	Customer/ Job Site	Aluminum (1.2 mg/L)	COD (60 mg/L)	Copper (0.030 mg/L)	Iron (1.3 mg/L)	Lead (0.010 mg/L)	Nitrate + Nitrite (0.68 mg/L)	Phosphorous (1.25 mg/L)	TSS (100 mg/L or 50mg/L)	Zinc (0.16 mg/L)	pH (6.0-9.0 S.U.)
Fail	ALTEX HOMES INC		29.3						214		
Fail	AKZO NOBEL SURFACE CHEMISTRY LLC						0.178			0.255	
Fail	PALM HARBOR HOMES INC		32.0						29.3		
Fail	SIGN COMPANY	0.0738			0.0554		0.2395		5.475	0.0367	
Pass	AMERICAN PLANT FOOD CORP				0.28	0.0005	0.38	0.07	18	0.05	
Fail	TRINITY INDUSTRIES INC	11.4			17.8		0.55		1750	0.69	
Fail	US LIME COMPANY				1.5				23.3		7.5
Fail	ALLIED WASTE SYSTEM INC	No Discharge Occurred									
N/A	WESTEX IRON & METAL CO	No samples									
Pass	TRINITY INDUSTRIES INC						0.79*			0.97	
Pass	EX TEX LAPORTE LP				2.1*				71		
Pass	TRACE METAL INDUSTRIES INC	0.0848			0.18		0.6612		4.922	0.1177	
Pass	GAMTEX INDUSTRIES LP Gachman (Shamrock)	0.5	37.45	ND	0.15	0.0025			34.5	0.025	
Fail	THERMACOR PROCESS LP	0.144			0.29		2.9		1.8	0.46	
Pass	ACTION AUTO RECYCLING	0.395			0.35	ND			ND		

Result	Customer/ Job Site	Aluminum (1.2 mg/L)	COD (60 mg/L)	Copper (0.030 mg/L)	Iron (1.3 mg/L)	Lead (0.010 mg/L)	Nitrate + Nitrite (0.68 mg/L)	Phosphorous (1.25 mg/L)	TSS (100 mg/L or 50mg/L)	Zinc (0.16 mg/L)	pH (6.0-9.0 S.U.)
Pass	COMMERCIAL METALS CO (OLD DECATUR RD)	0.418	<20	0.0150	0.659	0.0070			8	0.0510	
Fail	PRODUCTION METALS INC	No Qualifying Discharges									
Fail	A AND I AUTO INC	0.088			0.256	0.005			4.5		
Pass	COWTOWN EXCAVATING COMPANY		ND		ND				3.0		7.5
N/A	MOSITES RUBBER COMPANY INC	not sampled									
Fail	SOUTHWESTERN PETROLEUM CORP								66.8		
Fail	AAA INDUSTRIAL CHROMIUM COMPANY INC	ND			ND		3.9		46.1	.067	
Pass	APAC TEXAS INC (Tech Blvd)								8.0		
Pass	APAC TEXAS INC (Cold Springs)								16.3		
*Annual average was less than or equal to benchmark value.											

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Period 2, July 1, 2016 – December 31, 2016

Result	Customer/ Job Site	Aluminum (1.2 mg/L)	COD (60 mg/L)	Copper (0.030 mg/L)	Iron (1.3 mg/L)	Lead (0.010 mg/L)	Nitrate + Nitrite (0.68 mg/L)	Phosphorous (1.25 mg/L)	TSS (100 mg/L or 50mg/L)	Zinc (0.16 mg/L)	pH (6.0-9.0 S.U.)
Fail	ALTEX HOMES INC		30.7						113.5		
Fail	AKZO NOBEL SURFACE CHEMISTRY LLC						0.494			0.0857	
Fail	PALM HARBOR HOMES INC		68.0*						163.0		
Fail	SIGN COMPANY	0.0492			0.0592		4.735		4.5	0.0431	
Pass	AMERICAN PLANT FOOD CORP				0.06	0.0003	0.43	0.20	1	0.003	
Fail	TRINITY INDUSTRIES INC	39.4			55.4		0.69*		1490	1.7	
Fail	US LIME COMPANY	No Qualifying Discharges									
Fail	ALLIED WASTE SYSTEM INC				3.9				167		
N/A	WESTEX IRON & METAL CO	Not Sampled									
Pass	TRINITY INDUSTRIES INC						0.51			0.74	
Pass	EX TEX LAPORTE LP				0.3				8.4		
Pass	TRACE METAL INDUSTRIES INC	Not Sampled									
Pass	GAMTEX INDUSTRIES LP Gachman (Shamrock)	Not Sampled									
Fail	THERMACOR PROCESS LP	Not Sampled									
Pass	ACTION AUTO RECYCLING	1.43*			1.4*	0.007			17.625		
Pass	COMMERCIAL METALS CO (OLD DECATUR RD)	No Qualifying Discharges									
Fail	PRODUCTION METALS INC	ND			3.7		15.5		ND	0.078	
Fail	A AND I AUTO INC	1.88*			2.255*	0.054			6.0		

Result	Customer/ Job Site	Aluminum (1.2 mg/L)	COD (60 mg/L)	Copper (0.030 mg/L)	Iron (1.3 mg/L)	Lead (0.010 mg/L)	Nitrate + Nitrite (0.68 mg/L)	Phosphorous (1.25 mg/L)	TSS (100 mg/L or 50mg/L)	Zinc (0.16 mg/L)	pH (6.0-9.0 S.U.)
Pass	COWTOWN EXCAVATING COMPANY		ND		ND				5.2		8.0
N/A	MOSITES RUBBER COMPANY INC	Not Sampled									
Fail	SOUTHWESTERN PETROLEUM CORP	Not Sampled									
Fail	AAA INDUSTRIAL CHROMIUM COMPANY INC	ND			0.58		0.52		68.1	.121	
Pass	APAC TEXAS INC (Tech Blvd)	No Qualifying Discharges									
Pass	APAC TEXAS INC (Cold Springs)	No Qualifying Discharges									
*Annual average was less than or equal to benchmark value.											

Appendix C – 2016 - 2017 TPDES Stormwater Permit Annual Report Minimum Control Measures Summary Table

MCM	Description	Requirements	Status	2016 - 2017 Annual Report Page
1	*MS4 Maintenance Activities*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	6-7
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	N/A	--
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	N/A	--
2	*Post-Construction Stormwater Control Measures*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	7-11
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	The Fort Worth Grading Ordinance was adopted in June 2012 to address the permit requirements for this MCM.	7
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	N/A	--
3	*Illicit Discharges Detection and Elimination*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	11-17

MCM	Description	Requirements	Status	2016 - 2017 Annual Report Page
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	The SWMP includes a list of techniques used for detecting illicit discharges which includes dry weather and wet weather field screening, as well as, complaint investigation and inspections. Appropriate actions and enforcement procedures for removing the source of an illicit discharge are outlined in the SWMP as well. These include corrective notices and issuance of criminal citations. All MS4 assets have been mapped from schematics (drawings/plans) and have been field verified. Field verification surveys have been completed. Waters of the U.S. are encompassed in the National Hydrography Dataset (NHD) as maintained by the United States Geological Survey (USGS). Currently, stormwater infrastructure data are maintained by the TPW Stormwater Management Division. MS4 assets are mapped in any newly developed areas, annexations or redevelopments. This is currently accomplished by contract.	11,16
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	N/A	
4	*Pollution Prevention / Good Housekeeping for*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	17-19

MCM	Description	Requirements	Status	2016 - 2017 Annual Report Page
	Municipal Operations	Status of implementing the SWMP (status of compliance with any schedules established under this permit)	Because the City of Fort Worth has been under continuous MS4 permit coverage since 1996, some of the components of this MCM, such as reduction of pollutants from road repair and from pesticide, herbicide, and fertilizer applications, were requirements of previous permit terms and were already established prior to the current term. Waste handling procedures to ensure proper disposal of waste, although not a previous permit requirement, were already in place prior to the current permit term. For the remaining new requirements, new programs were developed or existing programs were enhanced to ensure compliance as discussed in this section.	17
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A Summary describing the number and nature of enforcement actions and inspections	N/A	--
5	*Industrial & High Risk Runoff*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	19-20
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	N/A	--
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	Summary data from inspections and resulting enforcement action has been provided.	19-20
6	*Construction Site Stormwater Runoff*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	20-22
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	The Fort Worth Grading Ordinance was adopted in June 2012 to address the permit requirements for this MCM. Additional new permit requirements are covered under existing municipal ordinances.	7

MCM	Description	Requirements	Status	2016 - 2017 Annual Report Page
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	Summary data from inspections and resulting enforcement action has been provided.	20-21
7	*Public Education and Outreach /Public Involvement and Participation*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	22-26
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	The City uses multiple avenues for education, outreach and participation with residents. Items that are promoted through these messaging methods are identified throughout this report.	22
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	N/A	--
8	*Monitoring, Evaluation and Reporting*	Description of the portion of the current program that the permittees have implemented for each SWMP element	MCM has been fully implemented	26-36
		Status of implementing the SWMP (status of compliance with any schedules established under this permit)	N/A	--
		Any proposed changes to the SWMP in the coming reporting year	None at this time.	--
		A summary describing the number and nature of enforcement actions and inspections	N/A	--