The Greater Trinity River Region
TMDL I-Plan
Implementation Status Report

June 2017

2014 – 2016

**North Central Texas
Council of Governments**

www.nctcog.org/TMDL

What is NCTCOG?

The North Central Texas Council of Governments is a voluntary association of cities, counties, school districts, and special districts which was established in January 1966 to assist local governments in **planning** for common needs, **cooperating** for mutual benefit, and **coordinating** for sound regional development.

As seen in Figure 1, NCTCOG serves a 16-county metropolitan region centered around the two urban centers of Dallas and Fort Worth. Currently the Council has **238 members**, including 16 counties, 169 cities, 22 independent school districts, and 31 special districts. The area of the region is approximately **12,800 square miles**, which is larger than nine states, and the population of the region is over **6.5 million**, which is larger than 38 states.

NCTCOG's structure is relatively simple; each member government appoints a voting representative from the governing body. These voting representatives make up the **General Assembly** which annually elects a 15-member Executive Board. The **Executive Board** is supported by policy development, technical advisory, and study committees, as well as a professional staff of 324.

NCTCOG's offices are located in Arlington in the CenterPoint Two Building at 616 Six Flags Drive (approximately one-half mile south of the main entrance to Six Flags Over Texas).

North Central Texas Council of Governments
P. O. Box 5888
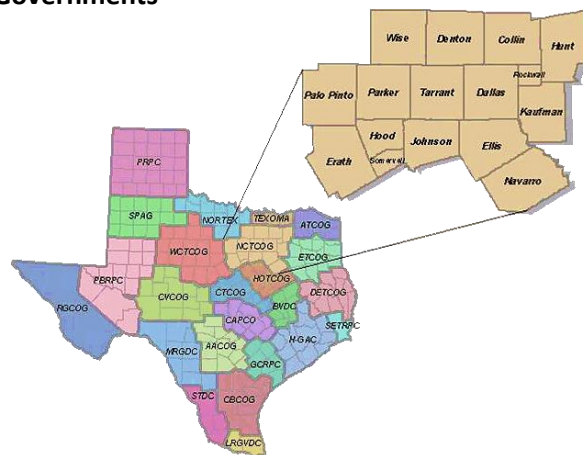**Arlington, Texas 76005-5888**
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Figure 1. NCTCOG Regional Planning Area

Abstract

The North Central Texas Council of Governments (NCTCOG), in conjunction with the Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) Coordination Committee and technical subcommittees, created this annual implementation status report (annual report) to outline progress that has been made on the implementation of management strategies pursued or initiated in 2014 – 2016, aimed to reduce the amount of bacteria loading in the Greater Trinity River region.

The first annual report, developed June 2017, is meant to provide the Coordination Committee the tools to efficiently review the implementation and impact of strategies outlined in the I-Plan, and coordinate further with the technical subcommittees to identify areas to focus resources and efforts on moving forward. Implementation efforts outlined in the annual report were solicited by NCTCOG through a TMDL area stakeholder survey and compiled from MS4 permit annual reports Additionally, NCTCOG received feedback on activities underway during technical subcommittee roundtable discussions. A summary table highlighting efforts for each implementation strategy can be found in Appendix A.

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Acknowledgements

Thank you to the TMDL Coordination Committee and Technical Subcommittee members who have engaged in valuable efforts to support the TMDL Implementation Plan.

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Abbreviations

ATU	aerobic treatment unit
BMP	best management practice
CIP	capital improvement plan/project
CLIDE	Celebrating Leadership in Development Excellence
C-MOM	capacity management, operation, and maintenance program
CRP	Clean Rivers Program
CWSRF	Clean Water State Revolving Fund
DART	Dallas Area Rapid Transit
DFW	Dallas-Fort Worth
E. coli	*Escherichia coli*
eDMR	electronic discharge monitoring report
EPA	Environmental Protection Agency
FOG	fats, oils, and grease
FY	fiscal year
GI	green infrastructure
H-GAC	Houston-Galveston Area Council
IDDE	illicit discharge detection and elimination
I-Plan	implementation plan
iSWM	*Integrated* Stormwater Management
LEED	Leadership in Energy and Environmental Design
LID	low impact development
MS4	municipal separate storm sewer system
MSGP	Multi-Sector General Permit
NCTCOG	North Central Texas Council of Governments
NELAP	National Environmental Laboratory Accreditation Program
NPDES	National Pollutant Discharge Elimination System
NTTA	North Texas Tollway Authority
OSSF	onsite sewage facility
P2	Pollution Prevention Task Force
PETF	Public Education Task Force
POTW	publicly owned treatment works
RSWMP	Regional Stormwater Management Program
SEP	supplemental environmental program
SOP	standard operating procedures
SSO	sanitary sewer overflow
SSOI	Sanitary Sewer Overflow Initiative
TCEQ	Texas Commission on Environmental Quality
TEA	Texas Education Agency
TMDL	total maximum daily load
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife
TRA	Trinity River Authority
TREC	Texas Real Estate Commission
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
WATER	Wastewater And Education Roundtable
WLA	waste load allocation
WWTF/P	wastewater treatment facility/plant

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Introduction

The Greater Trinity River Region Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) describes the steps that watershed stakeholders and the TCEQ are taking toward achieving the pollutant reductions identified in the Upper Trinity, Lower West Fork, Upstream of Mountain Creek Lake, and Cottonwood Branch and Grapevine Creek TMDLs technical reports. The TMDL area stakeholders also utilize the I-Plan as a schedule and guideline for implementation of beneficial activities. The I-Plan uses an adaptive management approach where measures are periodically assessed for efficiency and effectiveness by the voluntary stakeholders within the TMDL area (Figure 2). This iterative process of evaluation and adjustment ensures continuing progress toward achieving water quality goals, and expresses stakeholder commitment to the process.

At annual meetings, the I-Plan's managing body, the TMDL Coordination Committee, assesses progress using the schedule of implementation, interim measurable milestones, water quality data, priorities, and actions of the technical subcommittees. The TMDL Coordination Committee is made up of stakeholders within the TMDL area including: local governments, special districts, non-profit organizations, and other interested parties. There are three technical subcommittees that convene annually to review and evaluate the efforts underway related to relevant implementation strategies. The technical subcommittees make recommendations to the TMDL Coordination Committee on the priority status and efficacy of the implementation efforts underway within the TMDL area. If assessments find that insufficient progress has been made or that implementation activities have improved water quality, the implementation strategies can be adjusted or reprioritized. The first annual report is meant to provide the Coordination Committee the tools to efficiently review the implementation and impact of strategies outlined in the I-Plan, and coordinate further with the technical subcommittees to identify areas to focus resources and efforts on moving forward.

Implementation efforts outlined in the annual report reflect progress made since the inception of the I-Plan in 2013. The efforts were solicited by the North Central Texas Council of Governments (NCTCOG) through a TMDL area stakeholder survey and compiled from MS4 permit annual reports. Additionally, NCTCOG received feedback on activities underway during technical subcommittee roundtable discussions. Implementation strategies identified as having no progress made in the annual report will be considered as potential work plan projects based off priority for the coming fiscal year (FY) project development.

History

In 1996 portions of the Upper Trinity River and Lower West Fork Trinity River were listed as impaired for elevated bacteria in the *Texas Water Quality Inventory and 303(d) List* (now known as *Texas Integrated Report of Surface Water Quality for Clean Water Act Sections 305(b) and 303(d))*. In 2006, two tributaries of the Elm Fork Trinity River and multiple tributaries of the Lower West Fork Trinity were also added to the 303(d) list of impaired water bodies. These bacteria-impaired segments cover the heart of the Dallas-Fort Worth metropolitan area and impact 1.33 million people.

On May 11, 2011, the Texas Commission on Environmental Quality (TCEQ) adopted *Two Total Maximum Daily Loads for Indicator Bacteria in the Upper Trinity River, Dallas, Texas (*Segment 0805, Assessment Units 0805_03 and 0805_04). The TMDLs were approved by the U.S. Environmental Protection Agency (EPA) on August 3, 2011. On September 21 of that same year, the TCEQ adopted *Two Total Maximum Daily Loads for Indicator Bacteria in Cottonwood Branch and Grapevine Creek* (Segments 0822A and 0822B, Assessment Units 0822A_02 and 0822B_01). The EPA approved them on May 30, 2012. The TMDLs for the Lower West Fork Trinity River, Segment 0841 and its tributaries, were adopted September 24, 2013. On November 2, 2016 the TCEQ adopted *Four Total Maximum Daily Loads for Indicator Bacteria in the Cottonwood Creek, Fish Creek, Kirby Creek, and Crockett Branch Watershed Upstream of Mountain Creek Lake* (Segments 0841F, 0841K, 0841N, and 0841V, Assessment Units 0841f_01, 0841K_01, 0841N_01, and 0841V_01). The EPA approved them on December 7, 2016.

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Overview of the Implementation Strategies

1. **Wastewater** – Wastewater management encompasses a broad range of efforts that promote effective and responsible water use, treatment, and disposal while encouraging the protection and restoration of the TMDL watersheds.

2. **Stormwater** – Stormwater run-off is a major cause of water pollution in the urban watersheds of the TMDL area. Stormwater travels through the storm sewer system into lakes and streams, often carrying trash, pollutants, and notably, bacteria from the urban landscape into urban streams, impacting health and habitat.

3. **Planning and Development** – Concerns about population growth and stormwater run-off from developing areas effecting stormwater quality are addressed with the implementation of strategies aimed to reduce the impact of construction and stormwater run-off on bacteria loading in local waterways.

4. **Pets, Livestock and Wildlife** – While it is difficult to estimate the population levels of pets, livestock, wildlife, and unmanaged feral animals in the TMDL area, the impact as a potential contributor to bacteria loading in local waterways cannot be ignored and should be incorporated into watershed management efforts.

5. **Onsite Sewage Facilities** – Enforcement regarding onsite sewage facilities (OSSFs) vary throughout the TMDL area. Even with enforcement action, owners of failing OSSFs systems may not have the resources to repair or replace ineffective systems.

6. **Monitoring Coordination** – The TMDL Coordination Committee encourages use of all feasible monitoring programs and the collective analysis of the respective data to help determine the efficacy of the implementation strategies within the I-Plan.

7. **Education and Outreach** – Providing education and outreach resources to specific audiences and stakeholders in the TMDL area will support the implementation and longevity of the strategies outlined in the I-Plan.

8. **Best Management Practices Library** – Structural, procedural, and education best management practices (BMPs) are crucial to the success of the I-Plan, offering stakeholders the opportunity to maximize limited funds, minimize implementation of ineffective projects, and take advantage of the depth of regional knowledge and experience.

9. **Implementation Strategy Evaluation** – Given the broad scope of the I-Plan and the difficulties in attributing numeric values to various bacteria sources, regular review of the implementation strategies is necessary for ongoing, successful results.

Figure 2. TMDL Project Area

Greater Trinity River Bacteria TMDL Implementation Plan (I-Plan) Area

Legend

Impaired Stream Segments
Dallas-Fort Worth Airport

Streams
Roads

Lakes
Counties

Upper Trinity TMDLs

Mountain Creek TMDLs

Cottonwood Branch &
Grapevine Creek TMDLs

Lower West Fork TMDLs
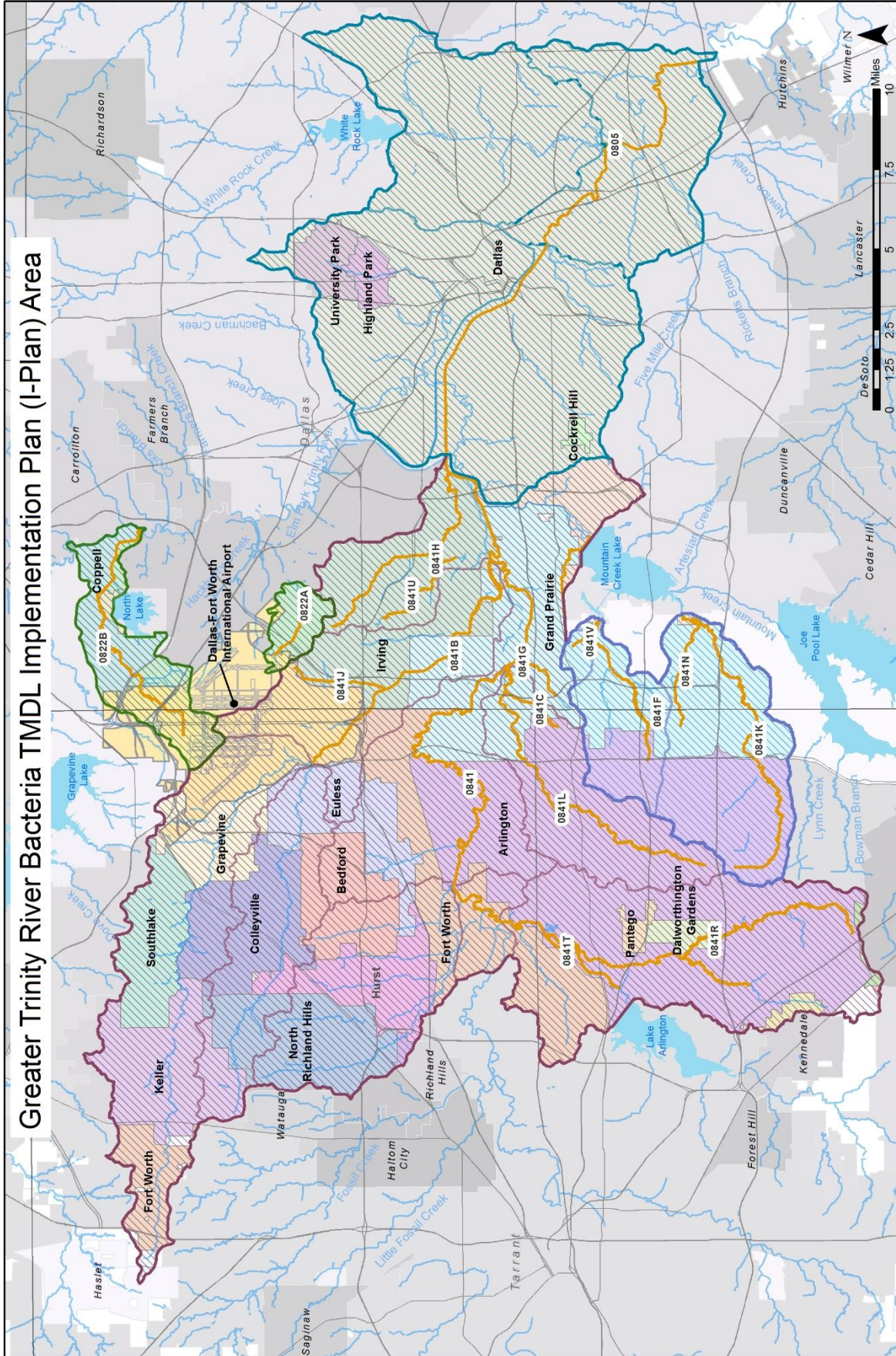
This map was created by the North Central Texas Council of Governments (NCTCOG) for use "as-is" and as an aid in a graphic representation only. The data is not verified by a Registered Professional Land Surveyor for the State of Texas and is not intended to be used as such. NCTCOG, its officials, and its employees do not accept liability for any discrepancies, errors, or variances that may exist.

Source: NCTCOG; TCEQ, 2017

Wastewater Implementation Strategies

Summary

Wastewater can be managed through the sanitary sewer system where it is treated by publicly owned treatment works (POTW) or managed through liquid waste hauling, which provides service to onsite sewage facilities and portable/chemical toilets. Wastewater is derived from several types of sources and has the ability to greatly impact the bacteria loading of the impaired waterways in the TMDL area. Wastewater treatment facilities (WWTFs), sanitary sewer systems, lift stations, and liquid waste haulers must all be properly designed, operated and maintained to prevent unexpected discharges of wastewater into local waterways.

Activity
- The Wastewater Technical Subcommittee met on May 22, 2014; April 29, 2015; and May 5, 2016.

Focus of Implementation Strategies
- Ensure all wastewater treatment facilities in the TMDL area begin or continue monitoring for *E. coli.*
- Promote opportunities for sanitary sewer overflow prevention.
- Encourage participation in regional programs providing standard operating procedures and education and outreach for liquid waste.
- Provide information on funding and management for repairs and replacements of wastewater infrastructure.

Overview of Progress
- All wastewater implementation strategies have been initiated
- 3 wastewater implementation strategies are in progress

Update to Strategy Priority Levels
- Upon review of the wastewater implementation strategies, the Wastewater technical subcommittee moved strategy 1.0 Wastewater treatment facility effluent limits, 1.2 Lift station evaluation, and 1.7 liquid waste management and liquid waste hauler program expansion to low priorities.
    - The subcommittee noted that the changes made to effluent limits does address reducing bacteria loadings as effectively as other strategies, and opted to dedicate resources to strategies that involve outreach and engagement.
    - Lift station evaluations do not affect every entity participating, and it was determined that relevant resource development could be incorporated into other outreach-based implementation strategies.
    - Liquid waste management was identified as best addressed as a part of MS4 pollution prevention efforts. NCTCOG will engage the TMDL Stormwater Technical Subcommittee regarding these efforts.

Water Quality Standards in Texas

Texas established standards for the water quality of streams, rivers, lakes, and bays throughout the state. The standards are developed to maintain the quality of surface waters in Texas so that it supports public health and enjoyment, and protects aquatic life.

Water quality standards are used to identify appropriate uses for the state's surface waters, including aquatic life, recreation, and sources of public water supply. The waterways in the TMDL area are designated as recreational use, and, therefore; must meet a higher water quality standard because of the potential impact to public health and safety.

The state has established a threshold for bacteria (*E. coli*) in a waterway, which is not to exceed 126 MPN/100mL. Because the waterways in the TMDL area are already impaired for bacteria, stakeholders have agreed to monitor effluent for *E. coli* at a reduced level to help achieve the goal of returning the waterways to the designated water quality standard over time.

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1.0 Wastewater treatment facility effluent limits

Summary

Wastewater treatment facilities (WWTFs) in the TMDL area are responsible for the proper treatment of wastewater collected in the sanitary sewer system before it is safely discharged back into the Trinity River and its tributaries. Entities that operate a WWTF must obtain a Texas Pollutant Discharge Elimination System (TPDES) permit to discharge treated effluent from the WWTFs into local waterways (Figure 3).

Currently, there are only three permitted WWTFs that have a direct impact in the Greater Trinity River TMDL area. Because these permitted WWTFs discharge into TMDL waterways, the WWTFs are allocated a daily waste load allocation (WLA$_{WWTF}$). Entities responsible for the WWTFs within the TMDL area will continue or begin to monitor *E. coli* concentrations in WWTF effluent as required by individual WWTF permits. TMDL stakeholders have supported the effluent *E. coli* limits, defined as one-half of the state water quality standard (63 MPN/100mL), and encourage the adoption of *E. coli* limits in the next amendment or revision of WWTF TPDES permits.

Interim Milestones

- The number of permits requiring bacteria monitoring with reduced daily average limits

Project Status: Initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort

Table 1. Update to Table 6. Permitted WWTFs in the Greater Trinity River Watershed, the Greater Trinity River Region I-Plan

Facility Name	Permit Number	Permit Daily Average *E. coli*[a]	Permit Effective Date	*E. coli* Permit Monitoring Frequency
Dallas Central WWTF	WQ0010060-001	63 MPN/100 mL	8/13/2012	5x/wk
FTW Village Creek WWTF	WQ0010494-013	126 MPN/100 mL[b]	10/27/2014	5x/wk
TRA Central Regional WWTF	WQ0010303-001	n/a[c]	2/ 4/ 2008	n/a[c]
~~Alta Vista WWTF[d]~~	~~WQ0011032-001~~	~~126 MPN/100 mL~~	~~9/15/2011~~	~~1x/quarter~~

[a] There is also a daily maximum of 394 MPN/100mL.
[b] Subsequent renewals will include an E. coli limit of 63 MPN/100mL.
[c] Permit currently in renewal process. Renewed permit will include an *E. coli* limit of 63 MPN/100 mL and a monitoring frequency of 5x/wk.
[d] Permit was cancelled 7/17/2015. TMDL will be updated to reflect change at some point in the future.

- The current Forth Worth Village Creek WWTF (WQ0010494-013) is in the renewal process. The renewed permit should begin permit monitoring for *E. coli* at a limit of 63 MPN/100mL.
- Due to an issue unrelated to *E. coli* monitoring, the Trinity River Authority (TRA) Central Regional WWTF (WQ0010303-001) is stuck in the renewal process indefinitely and therefore has not implemented *E. coli* monitoring. The renewed permit will include an *E. coli* limit of 63 MPN/100 mL and monitoring frequency of 5x/wk.
- The Alta Vista WTTF (WQ0011032-001) permit was cancelled and no longer will be discharging effluent into the Greater Trinity River Watershed.

Figure 3. Wastewater Treatment Plant and TPDES Permitted Dischargers in the TMDL Area
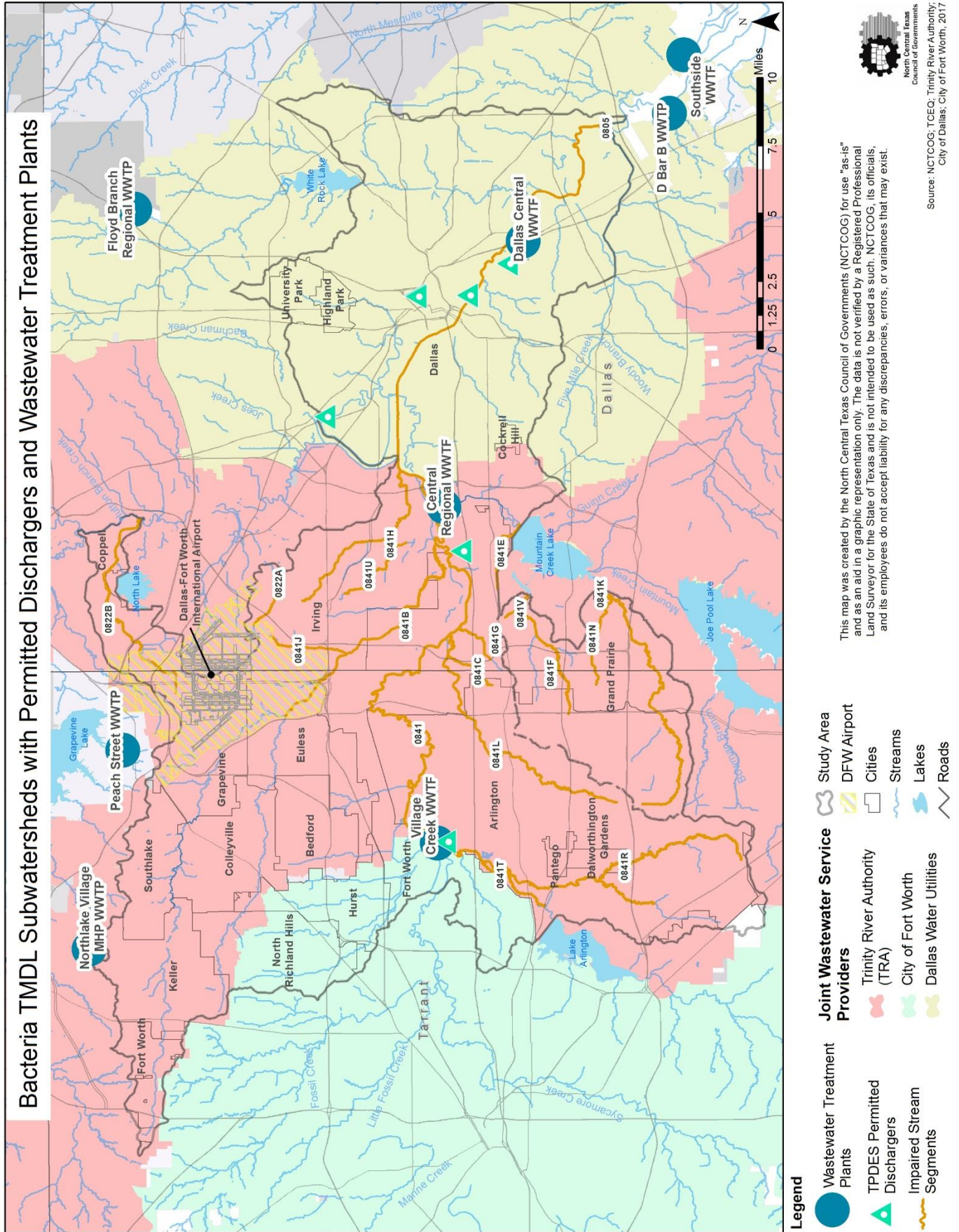
1.1 Evaluation of non-participants in Sanitary Sewer Overflow Initiative (SSOI) and Capacity Management, Operation, and Maintenance (C-MOM) programs

Summary

Sanitary sewer overflows (SSOs), a discharge of sewage from the collection system, can be the result of inadequate system capacity, infiltration/inflow into collection systems, or improper operation and maintenance. Figure 4 displays SSO discharges by gallons reported to TCEQ from 2011 - 2016 throughout the TMDL area. In order to reduce the amount of bacteria entering the waterways from preventable SSO events, TMDL Coordination Committee and Wastewater Technical Subcommittee encourage entities with sanitary sewer systems to participate in the TCEQ Sanitary Sewer Overflow Initiative (SSOI) or a Capacity Management, Operation, and Maintenance (C-MOM) program. These programs are voluntary but offer entities opportunities to implement actions that help prevent or more effectively respond to SSOs.

Interim Milestones
- By 2018, all non-participating MS4s will have been contacted by the Coordination Committee members, either as a whole or individually
- By 2028, SSOI/C-MOM participation will increase by 15%

Project Status: ⟶○⟶ In progress

TMDL Coordination Committee Priority Level: 💧💧💧 High

Implementation Effort
- Since 2013, 2 new TMDL area communities have begun participating in the TCEQ SSOI.
- 3 TMDL area entities reported to be participating in a C-MOM program.
- In December 2015, NCTCOG held a Sanitary Sewer Overflow Workshop to address challenges associated with SSOs. The workshop provided options for proper prevention and best management, a peer exchange regarding the benefits of SSOI participation, and information on available funding opportunities to over 60 municipal and public entity staff.
- NCTCOG worked with the Wastewater Technical Subcommittee to target TMDL stakeholders not currently participating in the SSOI with available resources.

Benefits of Participating in the SSOI or C-MOM

Participating facilities benefit from the SSOI by not being subjected to formal enforcement for most continuing SSO violations, as long as facilities address SSOs with an implemented SSO plan. C-MOM programs involve proper management, operations and maintenance of the collection system. Participation in a C-MOM program ensures adequate capacity for peak flows, which helps to prevent or mitigate SSOs.

Table 2. Update to Table 8. SSOI Participants, the Greater Trinity River Region I-Plan

Currently Participating (as of March 2017)	Not Currently Participating
City of Arlington	City of Cockrell Hill
City of Bedford	City of Colleyville
City of Dallas	City of Coppell
City of Euless	City of Dalworthington Gardens
City of Fort Worth	City of Haslet
City of Grand Prairie	City of Heller
City of Grapevine	City of Kennedale
City of Hurst	City of Mansfield
City of Irving	City of Richland Hills
City of North Richland Hills	City of Southlake
City of University Park	~~City of University Park~~
Town of Highland Park	~~Town of Highland Park~~
Trinity River Authority – Central WWTP System	Town of Pantego

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Figure 4. Sanitary Sewer Overflows in the TMDL Area
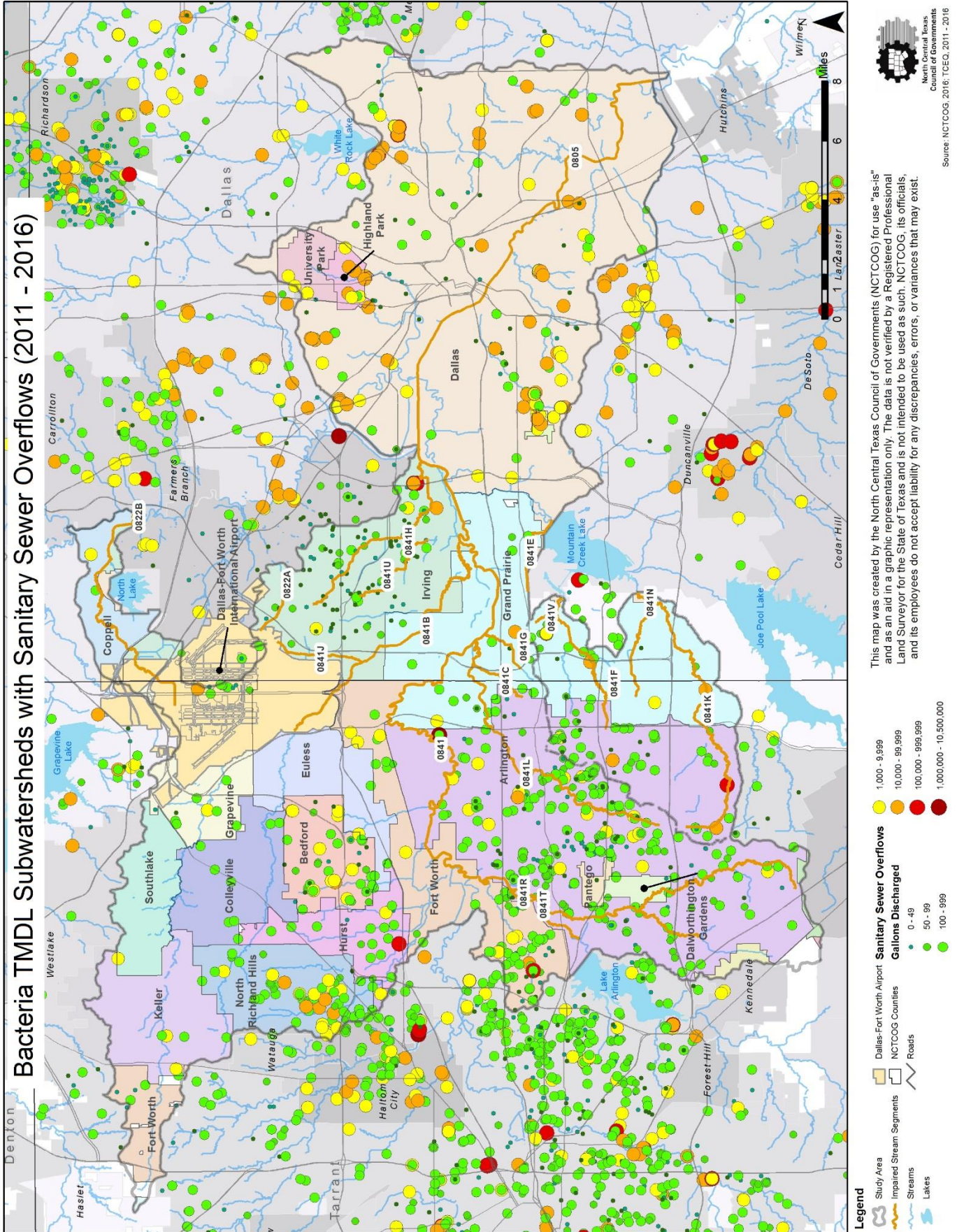
1.2 Lift station evaluation

Summary

Not all TMDL area stakeholders have lift stations within their jurisdictional boundaries, however improper maintenance and operation can lead to large discharges of sewage which impacts surrounding areas. To prevent large discharges, the TMDL Coordination Committee and Wastewater Technical Subcommittee recommend proper operation and maintenance through standard operating procedures and evaluation. Entities can implement design criteria that exceeds the state standard for lift station design and perform consistent review of the system to ensure proper functionality and limit opportunity for wastewater discharge.

Interim Milestones

- By 2018, all entities with lift stations will have evaluated the need for maintenance programs to reduce SSOs caused by non- or malfunctioning lift stations

Project Status: Initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort

- NCTCOG has worked with the TMDL area stakeholders to identify lift station operators as well as establish what entities have lift stations within their jurisdictional boundaries.
- NCTCOG has compiled lift station evaluation standard operating procedures and design requirements, which are included in the Best Management Practices (BMP) Library.
- 3 TMDL area entities reported having lift station repairs/evaluations in their Capital Improvement Plans (CIPs).

> **Lift Station Programs in the TMDL Area**
>
> The City of Irving operates a computerized supervisory control and data acquisition system (SCADA) which monitors and reports the level of wastewater in the lift stations within their jurisdiction. This monitoring program aides in alerting the City of potential failures or exceedance of wastewater within the system, providing a proactive approach to prevent the discharge of wastewater into local waterways.

1.3 Regional participation in fats, oils, and grease program

Summary

The TMDL Coordination Committee and Wastewater Technical Subcommittee encourage all entities and wastewater operators to participate in the existing regional fats, oils, and grease (FOG) program. The Wastewater And Treatment Education Roundtable (WATER), formerly the North Texas Grease Abatement Council, is an educational partnership between the North Central Texas Council of Governments, municipalities, and water utilities in the North Texas region. The main mission of WATER is to educate the public about the proper disposal of fats, oils, and grease; wipes; medicines; and other products that can cause property damage, health hazard and environmental problems.

Wastewater And Treatment Education Roundtable

Interim Milestones

- By 2018, outreach will be conducted to all MS4s with sanitary sewer systems not participating in WATER
- Over 25 years, all sanitary sewer system owners and/or operators will actively participate in WATER

Project Status: In progress

TMDL Coordination Committee Priority Level: Medium

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Implementation Effort

- As of 2017, WATER coordinates outreach with 20 regional entities, 12 of which are TMDL area communities.
- 5 TMDL area entities were involved in the original development of the North Texas Grease Abatement Council.
- Since 2014, the WATER Holiday Grease Round-Up event has collected and diverted 9,130 gallons of grease from going down the drain (Figure 5).
- The June 2016 Restaurant & Grease Interceptor/Trap Inspections workshop provided classroom and field training opportunities to 47 municipal and public entity staff.
- The Holiday Grease Round-Up outreach campaign utilizes social media, utility bill inserts, website banners, and press releases to advertise the round-up with consistent, regional messaging (Figure 6). The round-up provides residents the opportunity to recycle their grease for free at convenient drop off locations throughout the participating cities. Additionally, Dallas County Schools partners with several participating communities to process the event's collected grease into biodiesel to power school buses.

Why Can't Grease Go Down the Drain?

Fats, oils, and grease (FOG) come from meats, butters and margarine, lard, food scraps, sauces, salad dressings, dairy products, and cooking oil. When FOG goes down the drain, it hardens and causes sewer pipes to clog. This can lead to a SSO where raw sewage backs up into a home, lawn, neighborhood, and streets. Not only does this nasty mess cause health issues, it also can run into a nearby stream or river, which increases the bacteria loading in local waterways.

Gallons of Grease Collected from 2014-2016 Holiday Grease Round-up Events

1,899 Gallons

7,231 Gallons

■ TMDL Communities   ■ Other Participants
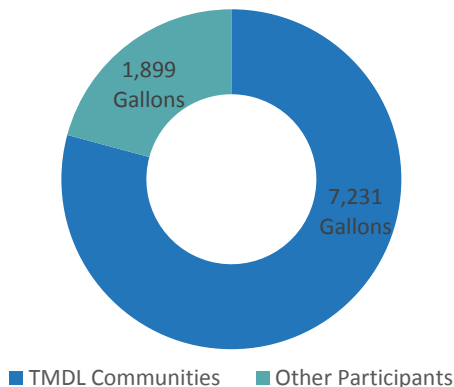
Figure 5. Holiday Grease Round-up Collection

Don't pour your Thanksgiving grease down the drain. Recycle it for free instead!

Cease the GREASE

Figure 6. Holiday Grease Round-up Marketing Material

- WATER coordinated the development of the 2013 & 2015 Update to the Regional Grease Inceptor Brochure. The brochure is a city by city guide for Food Service Establishments (FSE) that provides best management practices and city specific information regarding grease trap maintenance. The brochure is publicly available on the WATER website, www.CeaseTheGreaseNTX.com.
- WATER supports the www.DefendYourDrainsNorthTexas.com, which is an expansion of the educational efforts pursued by WATER to encourage residents to properly dispose of items that can harm a home's plumbing system, regional wastewater systems and water quality.

- WATER works in conjunction with the Regional Stormwater Program's Cooperative Purchase to facilitate the purchase of outreach items related to educating communities on the proper disposal of grease. Items that have been purchased through the program are: motor oil recycle pan, motor oil funnel, grease funnel, fat trapper bag, grease pan scrapper, grease lid, FOG door hanger, pot holder, and the captain crud activity book.
- NCTCOG has worked with the Wastewater Technical Subcommittee and WATER to engage TMDL area communities not currently participating in WATER activities. NCTCOG sent targeted emails with information about WATER meetings, available public education material, and permission to post the WATER websites on their city webpages.

> **Cease the Grease North Texas**
>
> The website houses additional education and outreach material aimed at residents, restaurants, and grease transporters. Videos and publications highlight best practices for the proper disposal of fats, oils, and grease. Also available is the Grease Recycling Locator map, which indicates drop off locations for grease collection across North Central Texas.

1.4 Sanitary sewer overflow reporting

Summary

The TMDL Coordination Committee and the Wastewater Technical Subcommittee support the recommendation of updates to the TCEQ SSO reporting requirements.

Interim Milestones
- Deployment of an appropriate database for tracking SSOs
- Wastewater licensing classes emphasizing accurate SSO reporting
- Reporting form changed for most accurate SSO cause description

Project Status: Initiated

TMDL Coordination Committee Priority Level: Medium

Implementation Effort
- On September 24, 2015, the EPA signed the final NPDES Electronic Reporting Rule, which requires NPDES regulated entities to electronically submit information instead of filing paper. The rule is being implemented in two phases:
    - **Phase 1:** Effective December 21, 2016 – States must transmit basic facility/permit information to EPA for all permits; States transmit inspections, violations, and enforcement actions to EPA; Mandatory eDMR reporting from NPDES permittees unless the entity applies for and is granted a waiver.
    - **Phase 2:** Effective December 21, 2020 – Mandatory e-filing of General Permit records; Mandatory e-filing of Program Reports for all facilities, including Sewer Overflow/Bypass Event Reports (SSOs).
    - The TCEQ is migrating to the EPA NetDMR System by June 2017.
- The TMDL Wastewater Technical Subcommittee has discussed concerns relating to the electronic SSO reporting after challenges with notification were identified when system customers report SSOs against a wastewater permit within the TMDL area. The TMDL Wastewater Technical Subcommittee will continue to monitor these concerns and make recommendations to TCEQ as necessary.

1.5 Funding opportunities for repair/replacement of sanitary sewer lines

Summary

The TMDL Coordination Committee and TMDL area stakeholders identify the need for financial support to successfully implement programs to reduce the amount of untreated wastewater entering the waterways; this includes repairing and replacing damaged sanitary sewer infrastructure.

Interim Milestones

- Available funding opportunities as identified on the NCTCOG webpage

Project Status: In progress

TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort

- NCTCOG has compiled available resources to fund activities related to the prevention of SSOs; the repair and replacement of infrastructure; and necessary FOG education and outreach initiatives to limit the impact of sanitary sewer discharges in the TMDL area.
- Funding information has been made available to TMDL area stakeholders in the quarterly reports during FY2017.
- Funding resources and opportunities can be found at www.nctcog.org/TMDL.
- Some TMDL area stakeholders have acted to repair or replace wastewater infrastructure through preventative maintenance included in the SSOI plan, and others reported to have begun development of a spatial database of active and historical sanitary sewer lines to assist with prioritizing resources for inspection, repair and replacement.
- Since 2013, at least 15 TMDL area entities have implemented wastewater infrastructure improvements through funding from the Clean Water State Revolving Fund (CWSRF) and Capital Improvement Plans (CIPs).

1.6 Relocation of sewer mains from waterways

Summary

The TMDL Coordination Committee and Wastewater Technical Subcommittee encourage the relocation of sanitary sewer mains from waterways due to the negative impacts line failures can have on water quality and bacteria levels.

Interim Milestones

- Over 25 years, as many sewer lines as practicable will be relocated from waterways

Project Status: In progress

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- 3 TMDL area stakeholders reported that their entity has acted to relocate sewer mains away from waterways since 2013.
- NCTCOG has provided funding information to support wastewater infrastructure improvement efforts including the relocation of sanitary sewer mains. Funding information is available at www.nctcog.org/TMDL.

www.nctcog.org/TMDL

1.7 Liquid waste management and liquid waste hauler program expansion

Summary

Liquid waste hauler management helps ensure the proper disposal of untreated wastewater. Utilizing permits, trip tickets, manifests, and checklists within a liquid waste management and hauler program allows municipalities to maintain documentation of bacteria-laden materials traveling through their jurisdiction. The TMDL Coordination Committee and Wastewater Technical Subcommittee encourage TMDL area municipalities to evaluate and expand the liquid waste hauler inspection programs as needed.

Interim Milestones
- By 2028, 100% of large MS4s will have liquid waste hauler inspection and tracking programs in place
- By 2033, 25% of small MS4s will have liquid waste hauler inspection and tracking programs in place

Project Status:　　⬤――――――――　　Initiated

TMDL Coordination Committee Priority Level:　💧💧💧　　Low

Implementation Effort
- TCEQ updated the Transporting Sludge Wastes in Texas guidance document that requires notification to the proper authorities if a sludge operation is occurring in a Texas county with bacteria-impaired water bodies.
- 4 large MS4s in the TMDL area utilize manifest trip tickets to track liquid waste from origin to disposal.
- The City of Dallas Liquid Waste Program implemented a reciprocal inspection program with surrounding cities, such as Fort Worth and Grand Prairie, for liquid waste transporters.
- Liquid waste hauler program municipal permits and checklists from the TMDL area entities are available in the BMP Library.
- The WATER group provides educational material for grease transporters, available at www.ceasethegreasentx.com

Stormwater Implementation Strategies

Summary

The Greater Trinity River region watersheds are primarily located in urban areas, causing increased stormwater run-off due to the impervious cover from urban development. The stormwater is carried through the metropolitan area in the storm drain collection system which discharges directly into the Greater Trinity River and its tributaries. Stormwater is not treated before it enters waterways and can be a major source of non-point source pollution, picking up trash and pollutants as it runs over the urban hardscape. Stormwater in the TMDL area is managed by several different municipal separate storm sewer (MS4) permits, held by municipal and public entities within the area. The MS4 permits require entities to implement best management practices to reduce the pollution of stormwater.

Activity
- The Stormwater Technical Subcommittee met on May 29, 2014; April 30, 2015; and April 26, 2016.

Focus of Implementation Strategies
- Increase participation in the Regional Stormwater Management Program (RSWMP) and associated Task Forces.
- Inclusion of bacteria specific information in the RSWMP Pollution Prevention and Public Education Task Force efforts.
- Increase access to funding through Supplemental Environmental Program (SEPs) and other available funding resources.
- Work with the TCEQ to review the Industrial Stormwater Multi-Sector General Permit (MSGP) classification review to require facilities in bacteria-impaired watersheds to perform benchmark sampling for bacteria.

Overview of Progress
- 2 stormwater implementation strategies have not been initiated
- 1 stormwater implementation strategy is in progress

Update to Strategy Priority Levels
- Upon review of the stormwater implementation strategies, the Stormwater Technical Subcommittee downgraded Implementation strategy 2.1 Local supplemental environmental projects (SEP) from a medium to a low priority. The technical subcommittee cited the reactive nature of local SEPs, making it difficult to plan the implementation of those types of programs.

2.0 MS4 participation in Regional Stormwater Management Program

Summary

Local and state governments along with transportation entities with MS4 permits employ extensive stormwater management programs to meet the requirements of the TCEQ MS4 permit. Several MS4s in the TMDL area already participate in the Regional Stormwater Management Program (RSWMP), which includes programs relevant to bacteria loading and the implementation strategies outlined in the I-Plan. The RSWMP engages large and small MS4s through task forces that address stormwater topics such as construction, illicit discharge, monitoring, pollution prevention, and public education. The TMDL Coordination Committee and Stormwater Technical Subcommittee support the efforts initiated under the RSWMP and encourage participation in the regional approach to achieve the inclusion of bacteria specific elements within the existing program.

Interim Milestones

- Non-RSWMP MS4s approached by the TMDL Coordination Committee to participate in the regional program
- RSWMP approached for inclusion of bacteria related outreach in regional stormwater materials and programs

Project Status: In progress

TMDL Coordination Committee Priority Level: High

Implementation Effort

- NCTCOG provides TMDL I-Plan program activity updates at the quarterly RSWMP meetings to continually engage the MS4s participating in the TMDL and educate non-participants in the activities to reduce bacteria loading.
- The Illicit Discharge Detection and Elimination (IDDE) and Pollution Prevention Task Forces (P2) developed resources for municipalities to properly identify and prevent illicit discharges and stormwater BMP failures. The scope for the resources provide "non-stormwater" municipal staff a baseline knowledge to help staff recognize and report water pollution when traveling and working within the community.
  - Illicit Discharge Detection and Elimination: Stormwater Training Series
  - Preventing Stormwater Pollution: What We Can Do
- The Pollution Prevention Task Force provides annual site visits for participants to learn good housekeeping measures first hand from different municipal practices. 5 site visits have been conducted since 2013.
- NCTCOG has compiled a selection of standard operating procedures (SOPs) for stormwater Phase II communities in North Central Texas to support the good housekeeping/pollution prevention measures in MS4 permits.
- NCTCOG has provided targeted outreach to TMDL area stakeholders not currently participating in the Regional Stormwater Management Coordinating Council or Task Forces and has made resources available to entity staff.

www.nctcog.org/TMDL

Table 3. Update to Table 21. RSWMP Participation in Project Area, the Greater Trinity River Region I-Plan

Participants in RSWMP (as of FY2017)	Non-Participants
City of Arlington	City of Cockrell Hill
City of Bedford	City of Dalworthington Gardens
City of Colleyville	City of Haslet
City of Coppell	~~Dallas-Fort Worth International Airport~~
City of Dallas	Town of Pantego
City of Euless	
City of Fort Worth	
City of Grand Prairie	
City of Grapevine	
City of Hurst	
City of Irving	
City of Keller	
City of Kennedale	
City of North Richland Hills	
City of Southlake	
City of University Park	
Dallas Area Rapid Transit (DART)	
Dallas County	
North Texas Tollway Authority (NTTA)	
Dallas-Fort Worth International Airport	
Tarrant County	
Texas Department of Transportation (TxDOT) Dallas District	
TxDOT Fort Worth District	
Town of Highland Park	

2.1 Local Supplemental Environmental Projects

Summary

Local level Supplemental Environmental Projects (SEPs) can provide opportunity to expand watershed improvement initiatives and other environmentally beneficial projects that respondents can undertake in the settlement after an enforcement action. The TMDL Coordination Committee and Stormwater Technical Subcommittee encourage municipalities to engage in local level SEPs to bolster the expansion of stormwater management enforcement programs.

Interim Milestones
- By 2023, 50% of large municipal MS4s will have local SEP programs in place
- By 2028, 15% of small municipal MS4s will have local SEP programs in place

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort
- The City of Arlington implemented a local SEP to provide incentive to residents with septic systems.
- NCTCOG provided information regarding the state level SEP procedures to become a Third-Party Administrator.
- No additional progress has been made for this implementation strategy.

2.2 Land use, business, and regulatory review

Summary

Many existing rules, codes, and ordinances do not address bacteria sources as a pollutant in stormwater discharge. The TMDL Coordination Committee and Stormwater Technical Subcommittee encourage TMDL area municipalities to review applicable ordinances and codes that could be revised to address the discharge of bacteria, including land use and business practices.

Interim Milestones
- Number of reported program expansion and/or modifications to address high risk business
- Changes to MSGP requirements

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Medium

Implementation Effort
- At the 2016 TCEQ Stormwater and Water Quality Seminar, TCEQ provided information regarding future updates to the Stormwater Multi-Sector General Permit (MSGP) TXR050000, requiring indication if the receiving waters are identified as either category 4 and 5 impaired waters.
- No additional progress has been made on this implementation strategy.

Planning and Development Implementation Strategies

Summary

The TMDL area is experiencing rapid population growth resulting in increased land development, which creates challenges associated with increased stormwater run-off over expansive impervious land cover. Figure 7 shows land use in the TMDL area based on 2015 land use data. The impact of stormwater quality from construction and land development should be addressed as a part of reducing bacteria loading in local waterways. Implementing development practices, such as green infrastructure and low impact development (GI/LID), can help manage water quality by slowing down stormwater run-off and allowing natural processes and filtration to clean the water before it is delivered to local waterways. GI/LID can also provide habitat, flood protection, and aesthetic benefit which supports economic development by increasing the quality of life for North Texans. Proper management of stormwater run-off through GI/LID can reduce the impacts of the built environment on surrounding areas and water resources.

Activity

- The Stormwater Technical Subcommittee assumed the responsibilities of the Planning and Development Implementation Strategies and first met on May 29, 2014.
- The Stormwater Technical Subcommittee then met April 30, 2015; and April 26, 2016.

Focus of Implementation Strategies

- Increase adoption, implementation, and reduce barriers to, green infrastructure/low impact development (GI/LID).
- Encourage participation in the regional recognition program, *integrated* Stormwater Management (iSWM).
- Increase capacity and dissemination of technical and educational resources available regarding the impact of construction sites and disturbed lands on stormwater quality.
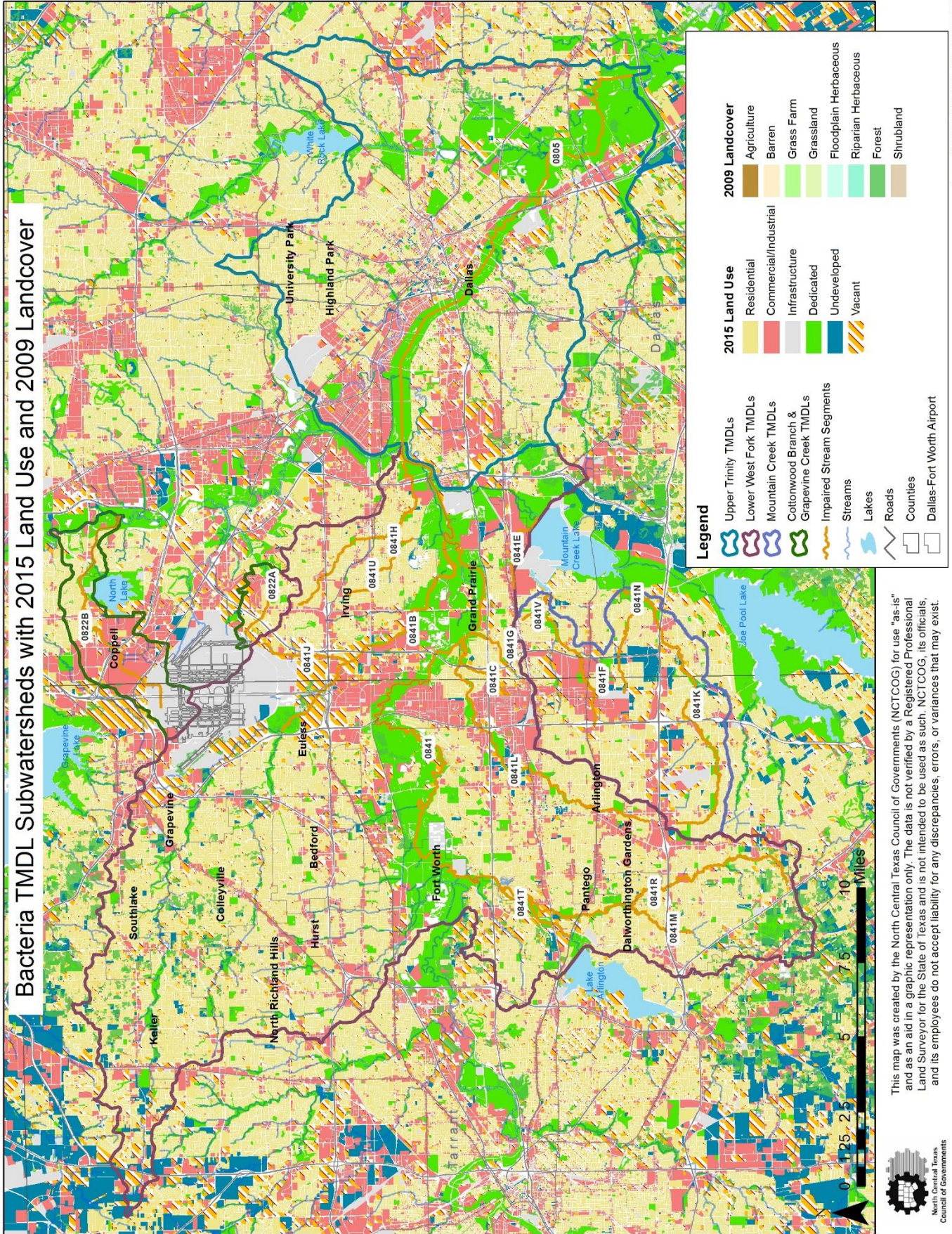
Overview of Progress

- 2 planning and development implementation strategies have been initiated
- 1 planning and development implementation strategy is in progress

Update to Strategy Priority Levels

- Upon review of the planning and development implementation strategies, the Stormwater Technical Subcommittee assigned a priority level of medium to implementation strategies 3.0 Adoption of green infrastructure and low impact development standards by municipalities and 3.1 Recognition program, which were previously identified as "ongoing". The technical subcommittee identified green infrastructure-centric programs as important contributors to strategic planning within a municipality. Additionally, implementation strategy 3.2 Construction sites was upgraded from a low to medium priority by the technical subcommittee to address current challenges associated with inspection documentation.

Figure 7. Land Use in TMDL Area

www.nctcog.org/TMDL

3.0 Adoption of green infrastructure and low impact development standards by municipalities

Summary

The TMDL Coordination Committee and Stormwater Technical Subcommittee support the implementation of green infrastructure and low impact development (GI/LID) throughout the TMDL area to help slow stormwater run-off and increase filtration to reduce bacteria entering into local waterways.

Source: Ranjan S. Muttiah, City of Fort Worth

Interim Milestones

- 25% of municipalities will evaluate their ordinances for impediments that discourage actions or practices that may improve water quality by 2017 with 50% doing so by 2023
- 25% of municipalities encouraged to adopt GI/LID standards by 2023 with 50% adopting such standards by 2038

Project Status: ⬤━━━━━ Initiated

TMDL Coordination Committee Priority Level: 💧💧💧 Medium

Implementation Effort

- NCTCOG held a Green Infrastructure/Low Impact Development for Improving Water Quality in North Central Texas workshop on July 12, 2016, engaging 60 participants about the influence of GI/LID on bacteria load reduction.
- The NCTCOG Regional Stormwater Management Program coordinated a Stormwater Management BMP and Post Inspection Workshop held in April 2016.
- 4 TMDL area stakeholders reported having GI/LID projects in their capital improvement plans (CIPs).
- 32 GI/LID resources are available in the BMP Library.
- The *integrated* Stormwater Management Program (iSWM™) addresses low impact development in the criteria for certification.
- iSWM™ has resources from previous workshops available online related to Low Impact Development in North Texas.

3.1 Recognition program participation

Summary

Recognition programs that provide awards or certification for the inclusion of GI/LID help increase awareness of these practices and promote adoption throughout the TMDL area. Through the Public Works Council, NCTCOG has developed the *integrated* Stormwater Management (iSWM™) Program that has expanded into a tiered, certification program offering communities recognition for utilizing the iSWM criteria in their stormwater management programs. This program, along with other voluntary recognition programs, emphasize the importance GI/LID can help reduce the amount of bacteria that is carried into local waterways from stormwater run-off.

The *integrated* Stormwater Management (iSWM™) Program for Construction and Development

iSWM™ is a cooperative initiative that assists cities and counties to achieve their goals of water quality protection, streambank protection, and flood mitigation, while also helping communities meet their construction and post-construction obligations under state stormwater permits.

www.nctcog.org/TMDL

Interim Milestones

- NCTCOG and participating stakeholders will promote and encourage participation in voluntary recognition programs that encourage GI/LID
- Stakeholders will review ordinances, policies, and procedures for impediments for participation in such programs

Project Status: In progress

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- 7 TMDL area stakeholders reported utilizing portions of the iSWM™ manuals and available tools to implement stormwater management measures in their MS4s.
- NCTCOG has expanded the iSWM™ program into a tiered, certification-based approach. As local communities are implementing iSWM™ standards, they are working to achieve specific benefits and outcomes that positively impact the stormwater system. Applicants can be awarded Bronze, Silver, or Gold classification.
- NCTCOG has made iSWM™ program guidance available to local governments which highlight the benefits of joining the iSWM™ program and the updates that have been made since 2014 to streamline the program.
- NCTCOG is working to develop a map of GI/LID projects planned or implemented throughout the region. This tool can be used to identify locations within the TMDL area that engage recognition programs that prioritize efforts to protect water quality. Projects could include those achieving SITES certification, LEED certification, CLIDE Award winners, and GI/LID capital improvement projects.

City of Grand Prairie receiving iSWM™ Community Plaque.

> **TMDL Area iSWM™ Silver Certification**
>
> The City of Kennedale
>
> The City of Grand Prairie
>
> The City of Fort Worth

3.2 Construction sites

Summary

Construction sites can pollute stormwater run-off with nutrients, sediment, and bacteria if improper sediment and erosion controls are not in place. Construction sites can increase the amount of bacteria in the environment with the use of landscaping fertilizer and portable toilet facilities on site. Best management practices need to be in place to ensure that control measures to reduce erosion of sediments are properly installed and maintained. The Regional Stormwater Management Program and the TMDL Coordination Committee support the dissemination of education and outreach materials and expansion of construction site inspection programs at the municipal level.

Interim Milestones

- Evaluations conducted regarding the need or requirement for staffing an appropriate construction inspection program and subsequent increases in staffing levels as needed
- Development, distribution, and offering of educational materials and trainings

Project Status: Initiated

www.nctcog.org/TMDL

TMDL Coordination Committee Priority Level: 　◌◌◌　Low

Implementation Effort

- Construction controls are required as a mandatory outcome in the new iSWM tiered certification program.
- The iSWM™ program offers a Technical Manual for Construction Controls that cities and counties can adopt as a component of their stormwater management related development regulations.
- NCTCOG Regional Training Center offers Stormwater Pollution Prevention during Construction training courses to member governments; 427 entity staff have been trained since 2013.
- Several TMDL area entities provide construction BMP educational material to permit applicants upon review of construction site applications.
- RSWMP developed the Construction Stormwater Awareness video series, which equips non-stormwater municipal staff with the knowledge and resources necessary to recognize and report construction site BMP failures.
- RSWMP hosted a Stormwater Management BMP and Post Inspection Workshop in April 2016, training 40 attendees on BMP maintenance and post-construction inspections.

What Do Some Cities Do?

In the City of Arlington, construction site inspections are performed a minimum of 2 times per month. The City is working to implement a method of tracking construction site review to streamline the process.

The City of Bedford discusses best management practices (BMPs) with construction permit applicants during the review process. City stormwater inspectors are regularly sent into the field to ensure proper BMPs are in place and enforced.

The City of Dallas offers educational opportunity to operators, consultants and municipal staff through construction stormwater control workshops.

The City of Fort Worth implemented the 2012 Grading Ordinance to control the impacts of earth-disturbing activities within the city boundary.

The City of Irving issues verbal notices, written warnings, and stop work orders to permit holders in the event of non-compliance with a construction site BMP measure.

www.nctcog.org/TMDL

Pets, Livestock, and Wildlife Implementation Strategies

Summary

E. coli can be found deposited in the environment as fecal bacteria found in pet waste, livestock, and unmanaged wildlife waste. Wildlife, specifically feral hogs, are attracted to riparian corridors and have direct access to deposit high concentrations of waste into streams and rivers. Pet waste, livestock waste, and wildlife waste can be carried over the landscape and washed into waterways by stormwater run-off. The deposition of waste within the TMDL area is a potential contributor to the bacteria loading in the Greater Trinity River region and can be managed by a myriad of strategies, including outreach and education and regional coordination.

Activity

- The Pet, Livestock, and Wildlife Technical Subcommittee met on April 23, 2015 and suspended meetings May 2015.
- The Stormwater Technical Subcommittee assumed the responsibilities of the Pet, Livestock, and Wildlife Technical Subcommittee and met on April 26, 2016.

Focus of Implementation Strategies

- Increase public education and outreach for proper disposal of pet waste.
- Engage with TMDL area stakeholders to discuss management strategies to reduce the impacts from feral hog populations on riparian areas and water quality.
- Define livestock populations within the TDML area entity jurisdictions.
- Create model management plans and ordinances for wildlife and pet waste management.
- Increase the inclusion of provisions for pet waste, wildlife waste, livestock waste, and stocking rates in municipal ordinances.

Overview of Progress

- 2 pet, livestock, and wildlife implementation strategies have been initiated
- 3 pet, livestock, and wildlife implementation strategies have not been initiated
- 2 pet, livestock, and wildlife implementation strategies are in progress

Update to Strategy Priority Levels

- Upon review of the pet, livestock, and wildlife implementation strategies, the Stormwater Technical Subcommittee upgraded implementation strategy 4.5 Pet waste collection stations and BMPs at parks from a low priority to a medium priority. The technical subcommittee discussed how the goals of this strategy will support other pet waste initiatives underway, which are identified as important to the success of stormwater management.

4.0 Feral hog management

Summary

Feral hogs are presenting increasing challenges to urban communities within the TMDL area. The large populations are not only destructive, causing property damage and infrastructure damage, but are a source of bacteria loading in TMDL area waterways through waste contributions and destabilization of riparian areas. The TMDL Coordination Committee and Stormwater Technical Subcommittee support the peer exchange of regional entities to engage in continual management strategies to curtail feral hog populations in both the urban and rural areas of North Texas, since wildlife populations do not follow jurisdictional boundaries.

Interim Milestones

- An annual training workshop will be offered to stakeholders
- A feral hog forum will be initiated for control effort coordination

Project Status: ──○────────────── Initiated

TMDL Coordination Committee Priority Level: 🜄🜄🜄 High

Implementation Effort

- 3 TMDL area stakeholders reported the implementation of some type of feral hog management strategies since 2013.
- In August 2015, Texas Parks and Wildlife (TPWD) provided a presentation to the Upper Trinity River Coordination Committee on feral hog and wildlife management and the impacts of bacteria loading in North Texas waterways.
- NCTCOG coordinated the second regional Urban Feral Hog Forum on May 1, 2017, engaging over 40 participants. The event convened stakeholders, policy makers, and experts to discuss management strategies for the increasing challenges and impacts associated with urban feral hog populations.
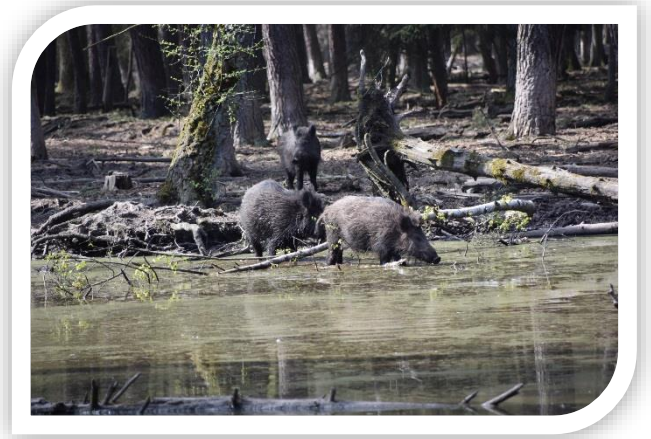
4.1 Ordinance evaluation for livestock waste management, stocking rates, and related measures

Summary

Bacteria can be present in livestock operations from waste contributions and manure distribution. It is difficult to assess livestock numbers, locations, and stocking rates from the municipalities in the TMDL area because management strategies vary greatly from city to city. This information is important in ensuring that land is not exceeding its stocking rate, or animals per acre, which would result in the land's inability to properly allow for enough infiltration of bacteria-laden stormwater. The TMDL Coordination Committee and Stormwater Technical Subcommittee encourage MS4 permit holders to evaluate the number of livestock and establish an ordinance, guidelines, or permitting process for allowing livestock within the city limits.

Interim Milestones

- Development of educational materials for livestock owners and property owners housing livestock
- Provide information to municipalities on stocking rates and livestock management to assist with ordinance or guideline development

www.nctcog.org/TMDL

Project Status: ⭘━━━━━━━━━━━━━━━ Not initiated

TMDL Coordination Committee Priority Level: 💧🜄🜄 Low

Implementation Effort
- 2 TMDL communities reported having a permitting process and/or ordinance in place for livestock within city limits.
- One TMDL community identified and removed an illegal horse operation of over 100 stalls and 200 horses from the floodplain of the West Fork Trinity River, alleviating the impacts from an unknown source of concentrated bacteria.

4.2 Pet waste control measures

Summary

It is estimated that there are more than 580,000 cats and dogs living within the TMDL area. The large population of pets and pet waste is likely contributing to bacteria loading in the waterways. The TMDL Coordination Council and Stormwater Technical Subcommittee encourage municipalities to implement stronger pet waste public education and enforcement programs to minimize the impact of pet waste on the bacteria loading in the Greater Trinity River region.

Interim Milestones
- All municipalities are encouraged to have pet waste control measures within their ordinances by 2033

Project Status: ━━━━━━⭘━━━━━━━━ In progress

TMDL Coordination Committee Priority Level: 💧💧🜄 Medium

Implementation Effort
- 4 TMDL area municipalities reported having provisions regarding pet waste control management strategies in established ordinances that prohibit residents from leaving deposited pet waste in public areas.
- NCTCOG has added the City of Dallas' "Specific Requirements for Dogs and Cats" ordinance to the BMP Library.

Doo The Right Thing!
www.dfwstormwater.com/petwaste

- 7 TMDL area entities outreach to residents through the Doo the Right Thing campaign, a regional pet waste pledge and calendar contest that educates residents on the public health and water quality impacts associated with improper disposal of pet waste.
- Since 2014, 23% of the pledges received to 'Doo the Right Thing' were from residents in the TMDL area.

4.3 Avian management plan

Summary

Feeding of avian species in waterways or ponds promotes higher populations that would not exist without that activity. Because of the increased populations, the TMDL Coordination Committee and Stormwater Technical Subcommittee recommend implementation of measures that discourage avian feeding around waterways to limit the amount of avian waste entering the waterway, causing increased bacteria levels.

www.nctcog.org/TMDL

Interim Milestones

- Existing or new avian-related educational materials will be developed for municipalities to educate their citizens
- MS4s will evaluate the need for avian management plans

Project Status: ⬤───────────── Not initiated

TMDL Coordination Committee Priority Level: 💧💧💧 High

Implementation Effort

- Currently, no TMDL area communities have an avian management plan.
- Examples of avian feeding guidelines and education strategies have been made available in the BMP library.

4.4 Model ordinance development

Summary

To offer guidance to TMDL area entities, NCTCOG and the Stormwater Technical Subcommittee aim to develop a model ordinance document that will be a resource to municipalities working to include provisions for pet waste education and enforcement, livestock waste control measures, and stocking rates control measures into city ordinances.

Interim Milestones

- The development or adaptation of a model ordinance
- Evaluation of existing ordinances for pet waste control and livestock waste control provisions

Project Status: ⬤───────────── Not initiated

TMDL Coordination Committee Priority Level: 💧💧💧 Low

Implementation Effort

- No progress has been made on this implementation strategy.

4.5 Pet waste collection stations and BMPs at parks

Summary

Pet waste contributions can be controlled through education and outreach programs and installation of BMPs in areas with high concentration of pets. BMPs include buffer strips, swales, and other methods that allow for natural filtration of stormwater run-off from high concentration of pet locations, such as dog parks. The TMDL Coordination Committee and the Stormwater Technical Subcommittee encourage adequate usage of pet waste collection stations within municipal parks in conjunction with a strong education and outreach campaign focusing on the impacts pet waste on local water quality.

Interim Milestones

- Development or adaptation of public education materials for park goers regarding pet waste and park best management practices
- MS4s with parks used by pets will use best management practices to help reduce bacteria loading

Project Status: Initiated

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- During 2016, 5,750 pet dog-waste-bag dispensers were purchased through NCTCOG's stormwater cooperative purchase. 3 TMDL area entities participated in the cooperative purchase.
- NCTCOG has worked with the TMDL area stakeholders to identify entities that install pet waste stations at municipal parks within jurisdictional boundaries. 6 TMDL area entities reported having pet waste stations installed in municipal parks.
- The RSWMP Public Education Task Force creates educational resources available to local governments as a part of the Doo the Right Thing campaign.
- A map of dog parks in the NCTCOG region is available on the Doo the Right Thing campaign website.

4.6 Distribution of pet waste education materials

Summary

As a part of the existing Doo the Right Thing campaign, educational materials and resources are developed and made available for distribution to residents, providing increased education on impacts of pet waste on water quality. The TMDL Coordination Committee and Stormwater Technical Subcommittee encourage TMDL stakeholders to participate in, and maximize use of, existing pet waste education and outreach materials.

Interim Milestones

- Use existing pet waste education materials and distribute to general public
- Include pet waste education materials with pet adoption and/or pet registration
- Increase in ordering of Doo the Right Thing materials through the RSWMP cooperative purchase

Project Status: In progress

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- The RSWMP Public Education Task Force compiled resources on Doo the Right Thing campaign webpage, www.dfwstormwater.com/petwaste, which educates residents on the health and water quality risks associated with improper disposal of pet waste.
- The Doo the Right Thing Calendar Contest encourages residents to take the Doo the Right Thing pledge and offers a chance to submit a photo of their dog to be entered in the "cutest dog photo contest". The winning dogs are featured in a calendar, which is made available to residents and organizations on the website.
- A Doo the Right Thing video was created by the Cities of Irving, Farmers Branch, Lewisville, Sherman, Grand Prairie and Plano to support education and outreach efforts related to pet waste disposal (the video is also available in Spanish).

www.nctcog.org/TMDL

On-Site Sewage Facility Implementation Strategies

Summary

Onsite Sewage Facilities (OSSFs), encompassing all septic and aerobic systems, treat and dispose of wastewater through natural processes on the same property that it was produced. Documentation of OSSF locations within the TMDL area is fragmented, due in part to the amount of unpermitted systems, installed prior to 1989, which causes difficulty in defining the distribution of OSSFs within the TMDL area. There are 4 different entities authorized to permit and enforce proper management of OSSFs within the TMDL area. The authorizing agent is responsible for enforcement action when a system becomes ineffective or fails, however, if the owner does not have the resources to repair or replace their system, the improperly discharged wastewater will continue to impact local waterways.

After discussion with TMDL area authorizing agents, NCTCOG did not update the OSSF map from the I-Plan for the annual report. It was determined that due to a slowdown of requests for permitting OSSFs within the TMDL area, the 2013 map is still an accurate representation of permitted OSSF locations within the TMDL area.

Activity
- The Wastewater Technical Subcommittee assumed the responsibilities of the OSSF Technical Subcommittee and met on May 22, 2014; April 29, 2015; and May 5, 2016.

Focus of Implementation Strategies
- Provide resources to funding opportunities for repair and replacement programs aimed at poorly functioning OSSFs.
- Increase training opportunities and education and outreach to real estate agents, property inspectors, and homeowners.
- Develop recommendations for the TCEQ to increase enforcement efforts and develop standardized guidance documents for authorizing agents and municipalities.

Overview of Progress
- 1 OSSF implementation strategy is in progress
- 5 OSSF implementation strategies have not been initiated

Update to Strategy Priority Levels
- Upon review of the wastewater implementation strategies, the Wastewater Technical Subcommittee upgraded 5.1 Aerobic treatment unit maintenance to a medium priority, and changed 5.4 Service to annexed areas from an ongoing, to a low priority. With over 7,000 aerobic treatment units in Tarrant County alone, the subcommittee determined that education and outreach for homeowners with aerobic treatment units is necessary and should be addressed and incorporated in near-future work plans. Providing service to annexed land is an important way to reduce the number of OSSFs in the TMDL area, but requires little engagement to ensure implementation. The technical subcommittee determined to dedicate resources to other high priority, outreach-based implementation strategies.

www.nctcog.org/TMDL

5.0 Funding for failing OSSFs

Summary

The TMDL Coordination Committee and TMDL Wastewater Technical Subcommittee identify the need for financial support to successfully implement programs to repair, replace, or remove OSSFs by connecting to sanitary sewer systems. This also includes programs that provide education and outreach for residents and owners of OSSF systems.

Interim Milestones

- Authorizing agents and NCTCOG will collect and distribute information on funding availability

Project Status: In progress

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- NCTCOG has compiled available resources to fund activities related to the replacement of OSSFs and education and outreach programs aimed at residents to limit the impact of improperly treated and discharged wastewater in the TMDL area.
- Funding information has been made available to TMDL area stakeholders in the quarterly reports during fiscal year 2017.
- Funding resources and opportunities can be found at www.nctcog.org/TMDL.

5.1 Aerobic treatment unit maintenance

Summary

Due to the maintenance complexity and increased need for homeowner attentiveness, the TMDL Coordination Committee and Wastewater Technical Subcommittee encourage authorizing agents to develop policies to increase maintenance of Aerobic Treatment Units (ATUs), including mandatory lifetime maintenance contracts, increased inspections and increased monitoring.

Interim Milestones

- Public education efforts for ATU owners regarding maintenance contract requirements
- Educational efforts developed geared towards district attorneys and justices of the peace regarding environmental impact of malfunctioning OSSFs

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- No progress has been made on this implementation strategy.

What is an Aerobic Treatment Unit?

Aerobic treatment units (ATUs) are similar to septic systems in that they both use natural processes to treat wastewater. But unlike septic systems, which use anaerobic processes, the aerobic treatment process requires oxygen. ATUs use a mechanism to inject and circulate dissolved oxygen inside the treatment tank. This mechanism requires electricity to operate. As a result, the basic unit tends to be more expensive to own and operate than a septic tank and requires more frequent pumping of solids to be properly maintained.

5.2 OSSF education efforts for real estate agents, property inspectors, and homeowners

Summary

The TMDL Coordination Committee and Wastewater Technical Subcommittee encourage authorizing agents and other entities to provide educational opportunities to real estate agents, property inspectors, and consumers about identifying failing OSSFs and the consequences of inadequate maintenance for failing OSSFs.

Interim Milestones

- NCTCOG will pursue an agreement with the Houston-Galveston Area Council (H-GAC) regarding the use of the Texas Real Estate Commission (TREC) approved curriculum for OSSF inspector training
- By 2014, the Wastewater Technical Subcommittee will investigate potential training modules with the goal of ensuring the regional availability of OSSF inspector training

Project Status: Not initiated

TMDL Coordination Committee Priority Level: High

Implementation Effort

- No progress has been made on this implementation strategy.
- The Wastewater Technical Subcommittee will investigate potential training modules for OSSF inspector training as a part of the FY2018 work plan.

OSSF Operation and Maintenance

OSSFs are small scale wastewater treatment systems that can cause large impacts if not maintained properly. OSSF owners need to be mindful of what goes down the drain, including water, chemicals, and organic material as increased amounts can affect the operation of the system. OSSFs need to be pumped about every 3 - 5 years to alleviate the amount of sludge accumulating in the tank. This helps ensure proper functionality and will reduce the potential for an OSSF failure, causing a discharge of sewage into the surrounding environment.

5.3 Property inspections and document review

Summary

Pre-sale real estate inspections should include a complete review of OSSF maintenance documents and system history. The TMDL Coordination Committee and Wastewater Technical Subcommittee request that the Texas Real Estate Commission (TREC) utilize the forms developed for sales and inspections to better aid in home buyer education.

Interim Milestones

- Creation of modification of homebuyer education materials for use in the TMDL area
- Outreach to TREC regarding pre-sale inspections and OSSFs

Project Status: Not initiated

TMDL Coordination Committee Priority Level: High

Implementation Effort

- TMDL area entities reported to having ordinance language requiring homes to tie into existing sanitary sewer service if within a certain distance of the sewer line.

5.4 Services to annexed areas

Summary

The TMDL Coordination Committee and Wastewater Technical Subcommittee encourage municipalities who are expanding city boundaries to meet stated timelines for providing sanitary sewer services to the annexed areas.

www.nctcog.org/TMDL

Interim Milestones

- Expansion of sanitary sewer service to annexed areas within stated timelines to transition from OSSFs to sanitary sewer lines
- Outreach to municipal MS4s regarding providing services to annexed areas

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort

- No progress has been made on this implementation strategy.

5.5 Replacement and conversion of poorly functioning OSSFs

Summary

The TMDL Coordination Committee and the Wastewater Technical Subcommittee encourage MS4s with their own aging OSSFs to replace the systems and convert to sanitary sewer, grinder pump systems, or upgraded OSSFs.

Interim Milestones

- Outreach to municipal MS4s regarding replacement or conversion of poorly functioning OSSFs

Project Status: Not initiated

2016 TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort

- No progress has been made on this implementation strategy.

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Monitoring Coordination Implementation Strategies

Summary

141 miles of waterway make up the impaired streams within the TMDL area. Understanding the condition of those rivers and streams within the TMDL area through monitoring and analyzation of monitoring data allows for the development of effective plans for maintaining, managing and restoring the impaired waterways. Data from existing water quality monitoring programs demonstrate whether the BMPs and other implementation strategies defined in the I-Plan are aiding the improvement of water quality in the Greater Trinity River region. The TMDL area has a monitoring network made up of several programs, including: the Clean Rivers Program (CRP); Texas Stream Team; additional municipal monitoring sites; and stormwater monitoring through the RSWMP. The Coordination Committee and Monitoring Coordination Forum encourage the use of all feasible monitoring programs and collective analyses of bacteria parameters to help determine the efficacy of the implementation strategies underway.

Activity

- The Monitoring Coordination Forum agreed to meet bi-annually.
- The Monitoring Coordination Forum met on May 28, 2014; January 13, 2015; November 12, 2015; and May 3, 2016.

Focus of Implementation Strategies

- Create a map of monitoring sites to establish an *E. coli* monitoring network within the TMDL area and identify gaps in monitoring efforts.
- Analyze water quality data and bacteria parameters to help identify priority watersheds or stream segments for source identification studies.
- Research the feasibility of performing source identification studies within the TMDL area.
- Utilize any available monitoring data to develop a more robust picture of *E. coli* presence in the TMDL area.

Overview of Progress

- 1 monitoring coordination implementation strategy is not initiated
- 1 monitoring coordination implementation strategy is in progress
- 1 monitoring coordination implementation strategy is initiated

Update to Strategy Priority Levels

- Upon review of the monitoring coordination implementation strategies, the Monitoring Coordination Forum upgraded the priority level for strategy 6.0 Routine sampling from a medium, to a high priority. This was due to the necessity of the development of the efficacy report to enable the prioritization of watersheds/stream segments within the TMDL area for potential source identification studies.

6.0 Routine sampling

Summary

Stakeholders who participate in voluntary or permit-required monitoring programs will continue to routinely sample water quality as feasible. The Monitoring Coordination Forum will analyze the routine sampling data and provide an overview of the results to the TMDL Coordination Committee.

Interim Milestones

- Collection and analyzation of monitoring data to compare results to the efficacy of BMP implementation

Project Status: Initiated

TMDL Coordination Committee Priority Level: High

Implementation Effort

- NCTCOG is working with the TCEQ to obtain data from the TMDL area CRP monitoring sites and provide the information to the Monitoring Coordination Forum for analysis of the routinely sampled data.

Photo Credit: Trinity River Authority
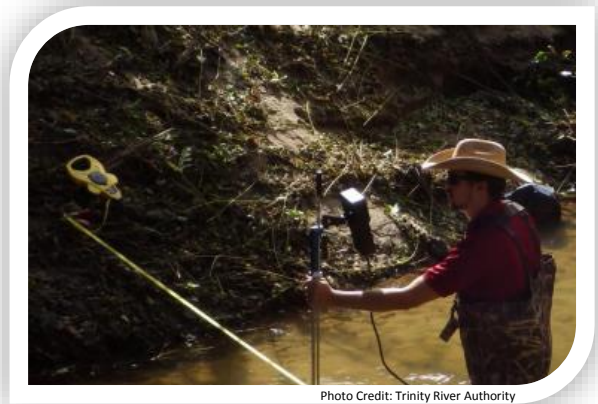
6.1 Monitoring coordination forum

Summary

The Monitoring Coordination Forum aims to develop a regional approach to monitoring and data analysis, through the evaluation of the existing *E. coli* monitoring network and identification of new sources of data within the TMDL area. This includes non NELAP-accredited program data, which would not be appropriate for screening but could be helpful in identifying bacteria sources.

Interim Milestones

- Internal education for Forum participants on new or existing monitoring methods or programs
- The Monitoring Coordination Forum meetings will take place annually
- Evaluation of existing *E. coli* monitoring networks and new sources of monitoring data, reevaluate monitoring technologies, evaluate online data access, and assess data for BMP effectiveness
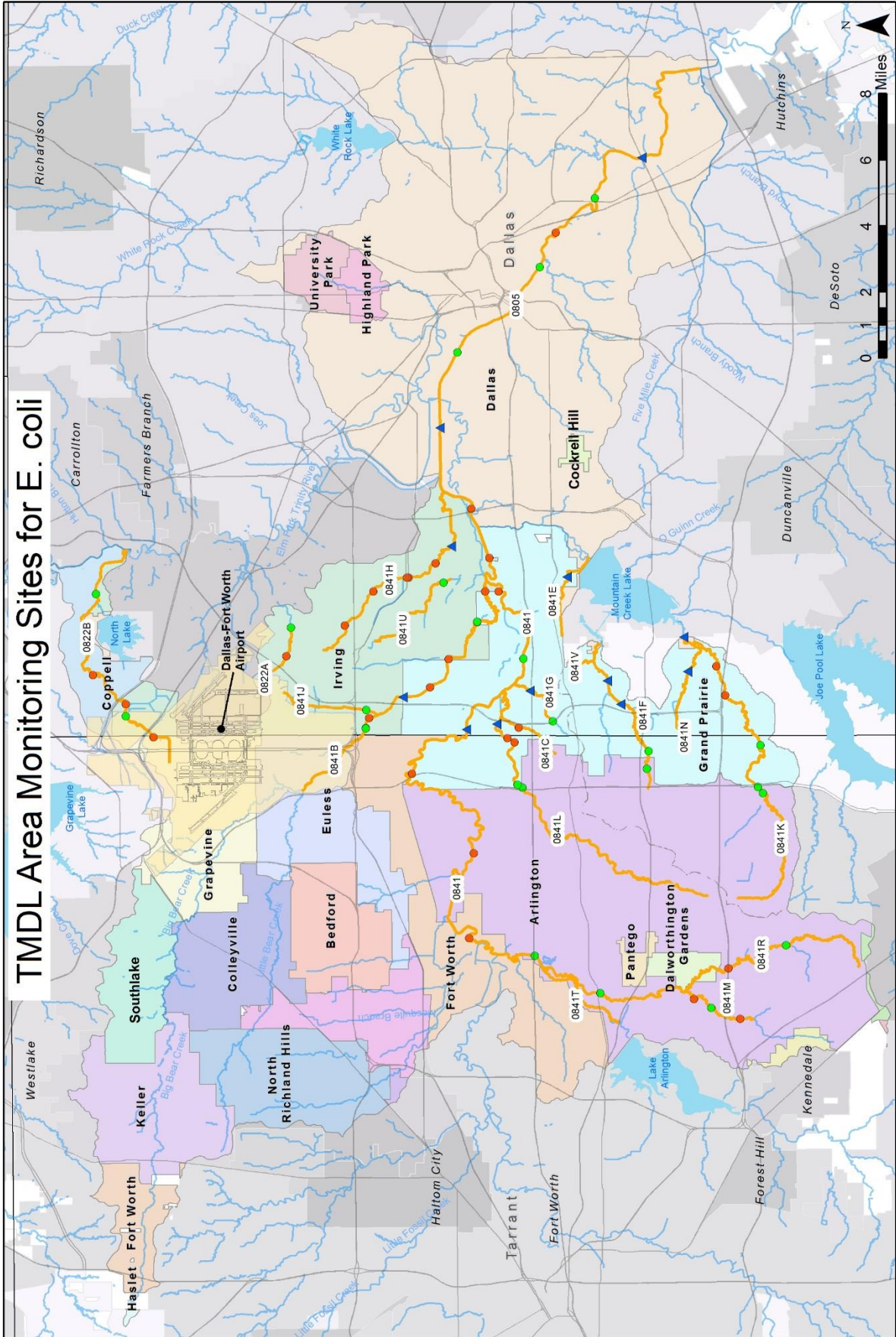
Project Status: In progress

TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort

- The Monitoring Coordination Forum agreed to meet bi-annually and has met 6 times since 2014.
- NCTCOG has developed a map representing monitoring sites that monitor specifically for *E. coli* (Figure 8). This tool will aid the Monitoring Coordination Forum in the evaluation of the existing *E. coli* network within the TMDL area.

6.2 Source identification and monitoring review

Summary

Accurate identification and quantification of *E. coli* sources in the TMDL area is needed. The Monitoring Coordination Forum aims to review source identification monitoring techniques and determine feasibility based on technical and financial viability. The results of the source identification feasibility review will potentially be shared with TCEQ to request changes in their monitoring with particular regard to source identification.

Interim Milestones
- In 2018, the Coordination Committee will review monitoring techniques and technologies to see if requesting source identification by TCEQ is appropriate
- Development of a report to the Coordination Committee on new source identification availability and costs

Project Status:　　　　　　　　　　　　　　　Not initiated

TMDL Coordination Committee Priority Level:　　　　　High

Implementation Effort
- The Monitoring Coordination Forum will use the results of the efficacy report to assist in the determination of priority waterways to implement source identification methods.

Education and Outreach Implementation Strategies

Summary

NCTCOG has many existing water-focused educational efforts, including the Doo the Right Thing campaign, cooperative purchase for stormwater educational materials, FOG education and outreach with the WATER group, and Texas SmartScape. These programs, in addition to the initiatives underway by the TMDL area entities will assist in increasing education and outreach efforts related to bacteria impairments in the Greater Trinity River region.

Activity

- The Education and Outreach Technical Subcommittee met on May 7, 2015. The subcommittee recommended to be incorporated into the RSWMP Public Education Task Force (PETF), as many of their goals aligned.
- The RSWMP PETF met on July 15, 2015; October 14, 2015; January 13, 2016; April 6, 2016; July 13, 2016; and October 26, 2016.

Focus of Implementation Strategies

- Expand engagement in education and outreach programs.
- Develop partnerships with regional public and private entities.
- Identify funding sources to sustain future educational programs for the TMDL area.
- Develop river-specific bacteria outreach materials for TMDLs.

Overview of Progress

- 3 education and outreach implementation strategies are in progress
- 1 education and outreach implementation strategy has been initiated
- 3 education and outreach implementation strategies have not been initiated

Update to Strategy Priority Levels

- Upon review of the 2016 priority levels for the education and outreach implementation strategies, NCTCOG and the technical subcommittees made no changes to the priority levels.

7.0 Ongoing stormwater public education participation and inclusion of bacteria-specific materials

Summary

The TMDL Coordination Committee and the technical subcommittees will continue to encourage the RSWMP Public Education Task Force to include information about bacteria sources and the impacts of bacteria in public education and outreach programs.

Interim Milestones
- MS4s and NCTCOG will continue existing public education programs as funding allows

Project Status: In progress

TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort
- The Pollution Prevention Task Force will be updating the "Preventing Stormwater Pollution: What Can We Do" video to include bacteria-specific information related to stormwater best management practices. The videos are used to assists local government and state agencies in training their employees on stormwater pollution prevention.
- The Public Education Task Force coordinates an annual cooperative purchase of stormwater pollution prevention giveaway items, including pet waste material and fats, oils, and grease material that address bacteria as a source of pollution within the region.

7.1 Education and outreach forum

Summary

The Education and Outreach Forum was recommended to be incorporated into the RSWMP Public Education Task Force (PETF) because many of the members, goals, and priorities for outreach and education overlapped. NCTCOG continues to support the PETF and participating TMDL stakeholders to develop resources that help facilitate a greater regional understanding of the impact of bacteria on water quality.

Interim Milestones
- Partnership formed with RSWMP's Public Education Task Force, Wastewater And Treatment Education Roundtable, and other relevant organizations to help facilitate greater regional understanding of the impact of bacteria on water quality

Project Status: In progress

TMDL Coordination Committee Priority Level: High

What is Texas SmartScape?

Texas SmartScape provides educational resources for residents on landscaping practices that improve the quality of stormwater run-off and conserve local water supplies. The program offers information on ecological, economic, and aesthetic benefits gained from utilizing native and drought tolerant species.

Educational resources include: information about landscaping BMPs; design tools for proper drainage; and a searchable plant database of species that will thrive in North Central Texas.

Implementation Effort
- The TMDL Implementation Plan Program has well-established relationships with the Regional Stormwater Management Program and associated Task Forces, the Wastewater And Treatment Education Roundtable, Texas SmartScape Program, and others to incorporate bacteria specific information into the programs missions.
- TMDL stakeholders and NCTCOG staff have been actively engaged in the Public Education Task Force meetings and work plan development.

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- NCTCOG is working to expand the public outreach and branding efforts of the TMDL Implementation Program and will coordinate with the Public Education Task Force, WATER Group and other TMDL area stakeholders to continue that effort.

7.2 Curriculum for Texas Education Agency

Summary

The TMDL Coordination Committee and Public Education Task Force encourage coordination with the Texas Education Agency (TEA) and local school districts to provide curriculum and tools for teachers and students regarding bacteria's impact on water quality.

Interim Milestones
- Coordinate with the TEA and local school districts to provide curriculum, modules, and tools for teachers and students, including an educator's 'tool box'
- Reevaluate education materials and relationship with TEA every five years in conjunction with the MS4 permit term
- NCTCOG will provide an annual report to the Coordination Committee

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort
- No progress has been made on this implementation strategy.
- The RSWMP Public Education Task Forces has created an Educator's Toolbox, compiling resources and helpful links for environmental educators related to stormwater issues. TMDL stakeholders will continue to work with the Public Education Task Force to incorporate bacteria-specific information into the toolbox.

7.3 Education and outreach funding

Summary

The TMDL Coordination Committee and TMDL area stakeholders identify the need for financial support to successfully establish long term funding opportunities and partnerships for education and outreach efforts. Funding includes, but is not limited to: government related funding; cost share from RSWMP for outreach programs; and non-governmental TMDL stakeholder identified sponsorships or donations.

Interim Milestones
- NCTCOG will compile available funding resources and make them available to TMDL area stakeholders
- NCTCOG will seek natural partnerships for long term funding of education and outreach efforts

Project Status: In progress

2016 TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort
- NCTCOG has compiled available resources to fund education and outreach programs related to the impacts of bacteria on water quality.
- Funding information has been made available to TMDL area stakeholders in the quarterly reports during fiscal year 2017.
- Funding resources and opportunities can be found at www.nctcog.org/TMDL.

www.nctcog.org/TMDL

7.4 Partnerships

Summary

The TMDL Coordination Committee and TMDL area stakeholders encourage MS4s to seek partnerships with environmentally-focused organizations, such as Keep Texas Beautiful, to further water quality outreach efforts. Municipalities are also encouraged to expand relationships with local businesses, volunteer groups and service organizations to promote stewardship and public education.

Interim Milestones

- Modify or develop public education material for use by partnering organizations for use in parks
- MS4s are encouraged to seek out and maintain partnerships with environmentally-focused organizations and utilize them as sources and distributors of information
- NCTCOG will report on progress of partnership efforts to the Coordination Committee

Project Status: Initiated

TMDL Coordination Committee Priority Level: Low

Luella Merrett Regional Detention Facility

The City of Fort Worth partnered with Fort Worth ISD to address neighborhood flooding from stormwater run-off with the construction of an outdoor, multi-use facility that detains stormwater during flooding events. The detention facility was built at Luella Merrett Elementary School and provides enhanced community amenities such as walking trails, soccer and softball practice fields, and basketball courts during dry periods.

Implementation Effort

- The TMDL I-Plan Program has established a partnership with the NCTCOG Regional Stormwater Management Program to coordinate on the development mutually beneficial stormwater related resources.
- 6 TMDL area entities reported having established partnerships with local and regional organizations, including: school districts, city departments, universities, volunteer groups, business tenants, non-profit organizations, and private organizations.
- 5 TMDL entities have participated in Texas SmartScape sponsored plant sale events, providing education and outreach on native and drought tolerant species and how they benefit water quality.

7.5 Development of river-specific bacteria TMDL materials

Summary

Because the method for limiting bacteria loading in inland streams differs greatly from coastal waters, the TMDL Coordination Committee encourages the EPA to develop more river-specific bacteria TMDL procedures and educational materials and recognize the inherent differences between coastal and inland waters.

Interim Milestones

- NCTCOG will encourage EPA to develop more public education materials focused on river-specific causes and sources of bacterial contamination in waterways.
- NCTCOG will assist with the formulation of a letter from the Coordination Committee to the EPA formalizing the request for river specific bacteria TMDL material.

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Low

Implementation Effort

- No progress has been made on this implementation strategy.

www.nctcog.org/TMDL

7.6 Bacteria-specific outreach to volunteer service groups

Summary

Working with volunteer service groups to help disseminate information about the impacts of bacteria on water quality is important in outreach and education efforts. The TMDL Coordination Committee and TMDL area stakeholders encourage the development of bacteria specific outreach by TMDL area entities, MS4s, and the Public Education Task Force.

Interim Milestones

- Modification or Development of public education materials focused on the impact of certain activities on bacteria levels in waterways and geared towards volunteer service groups

Project Status: Not initiated

TMDL Coordination Committee Priority Level: Medium

Implementation Effort

- No progress has been made on this implementation strategy.

Best Management Practices Library Implementation Strategies

Summary

Best management practices (BMPs) are the foundation of the I-Plan. Structural, procedural, and educational BMPs provide TMDL area stakeholders relevant resources and tools to implement methods and initiate efforts aimed to reduce bacteria loading in the Greater Trinity River region. Utilizing BMP resources, TMDL area stakeholders will be able to maximize limited funding, minimize implementing ineffective procedures or projects, and take full advantage of the depth of regional knowledge and experience that is made available through the clearinghouse of resources.

Activity
- NCTCOG has compiled BMP resources and made them publicly available in the BMP Library.

Focus of Implementation Strategies
- Develop and maintain a clearinghouse of best management practice resources including structural, procedural, or educational materials
- Identify potential funding sources and opportunities to assist the facilitation of BMP projects within the TMDL area

Overview of Progress
- All best management practices library implementation strategies are in progress.

Update to Strategy Priority Levels
- Upon review of the best management practices library implementation strategies, NCTCOG and the technical subcommittees made no changes to the priority levels.

8.0 Best management practices library

Summary

The TMDL Coordination Committee and technical subcommittees request that NCTCOG collect, compile and maintain a library of resources relevant to initiating efforts to support the implementation of the strategies outlined in the TMDL I-Plan. The library organizes resources by topic, and includes information on funding, ordinances, model documents, presentations, outreach, pilot projects, and other relevant resources.

Interim Milestones
- NCTCOG will create and maintain an online best management practices (BMP) library
- All technical subcommittees will provide NCTCOG with appropriate topic BMPs and other related information to include in the Library

Project Status: In progress

TMDL Coordination Committee Priority Level: High

Implementation Effort
- There are over 180 resources available in the BMP Library (Figure 9), categorized by each implementation strategy topic outlined in the I-Plan.
- NCTCOG consistently requests and receives new resources to be added. The Library is updated bi-monthly and is featured in the TMDL quarterly newsletters.
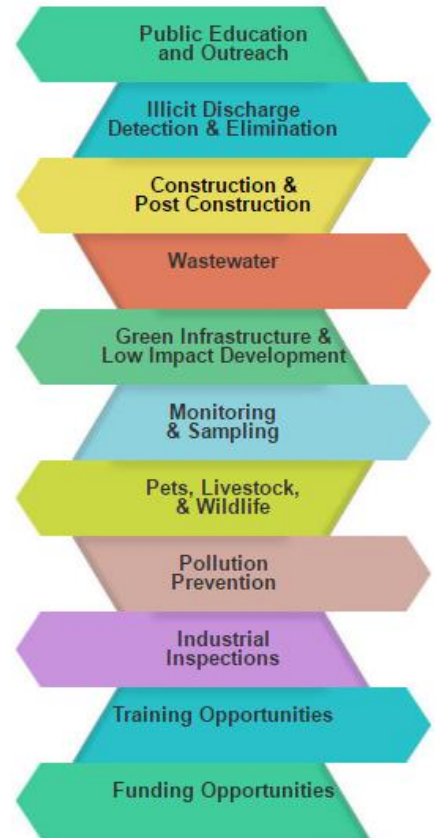
8.1 BMP project funding and evaluation

Summary

The TMDL Coordination Committee and TMDL area stakeholders identify the need for financial support to successfully establish long term funding opportunities to support the implementation and evaluation of the strategies outlined in the TMDL I-Plan.

Figure 9. TMDL Best Management Practices Library

Interim Milestones
- Stakeholders and NCTCOG will collect and distribute information on funding availability

Project Status: In progress

TMDL Coordination Committee Priority Level: High

Implementation Effort
- NCTCOG has compiled available resources to fund initiatives related to the impacts of bacteria on water quality.
- Funding information has been made available to TMDL area stakeholders in the quarterly reports during fiscal year 2017.
- Funding resources and opportunities can be found at www.nctcog.org/TMDL.

Implementation Plan Evaluation

Summary

The I-Plan was developed to serve as a multiyear document to reduce the bacteria loading by implementation of a variety of different implementation strategies. Given the broad scope of the document, regular review of the implementation strategies and efforts underway is necessary to establish ongoing successful progress and results. The implementation strategies shall be reevaluated on a regular basis through an iterative process with the TMDL Coordination Committee, TMDL technical subcommittees, NCTCOG, and TMDL area stakeholders. Recommendations for changes made to strategies in the I-Plan will be brought to the TMDL Coordination Committee for approval. NCTCOG will produce an annual report reflecting any changes incurred.

Activity
- The TMDL Coordination Committee assumes the responsibility of reviewing recommendations from the technical subcommittees and evaluating the efficacy of the plan.
- The TMDL Coordination Committee met on May 1, 2013; July 23, 2014; June 3, 2015; and June 16, 2016.

Focus of Implementation Strategies
- Annual review of the implementation strategies to evaluate the need for modifications, prioritization, updates or deletions to any implementation strategies.
- Continual engagement with stakeholders to formally or informally participate in activities related to the implementation strategies.

Overview of Progress
- All I-Plan evaluation implementation strategies are in progress.

Updates to Strategy Priority Levels
- Upon review of the I-Plan evaluation implementation strategies, NCTCOG and the technical subcommittees made no changes to priority levels.

9.0 Implementation strategy evaluation

Summary

The TMDL Coordination Committee, TMDL technical subcommittees, NCTCOG, and TMDL area stakeholders review the implementation strategies on an annual basis. Recommendations for changes made to strategies in the I-Plan will be brought to the TMDL Coordination Committee for review approval.

Interim Milestones
- Over 25 years, all implementation strategies will be evaluated annually or as deemed appropriate by the Technical Subcommittees and Coordination Committee

Project Status: In progress

TMDL Coordination Committee Priority Level: Ongoing

Implementation Effort
- The TMDL technical subcommittees have annually reviewed and evaluated the implementation strategies to develop a prioritization list.
- The established prioritization list has driven what efforts are currently underway and has helped identify strategies to pursue in future work plan development.

9.1 Expanding the geographic scope of the I-Plan as appropriate

Summary

Communities and stakeholders within the region are encouraged to participate in the I-Plan activities, either informally, voluntarily, or formally upon incorporation into the I-Plan by the TMDL Coordination Committee. In certain instances there may be desire to adopt watersheds outside the current project area or add segments within the project area to be incorporated into the Greater Trinity River I-Plan.

Interim milestones
- Once approved by the Coordination Committee, the I-Plan will be updated to reflect the additional segments via addendum attached to the I-Plan.

Project Status: In progress

TMDL Coordination Committee Priority **Level:** Ongoing

Implementation Effort
- NCTCOG has updated the Greater Trinity River Region I-Plan to reflect the addition of 4 segments upstream of Mountain Creek Lake (0841F, 0841K, 0841N, and 0841V).
- NCTCOG, the TMDL Coordination Committee, and the City of Fort Worth are working to adopt the developing Sycamore Creek TMDL into the Greater Trinity River Region I-Plan in FY2018.

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Conclusion

Upon review of the implementation efforts, NCTCOG and the TMDL Coordination Committee, with guidance from the technical subcommittees, were able to reestablish priority areas and strategies to address in the next phases of implementation. As a part of the next implementation phase, the technical subcommittees will begin meeting with NCTCOG bi-annually to offer guidance and recommendations on project-based work plans, based on the priority strategies. The goal is to better engage the TMDL stakeholders through the development of projects aimed to move priority strategy efforts forward. Work plans for each subcommittee will be provided to the TMDL Coordination Committee on an annual basis to ensure implementation efforts are effective and dedicated to appropriate strategies. Additionally, NCTCOG will continue to engage TMDL stakeholders through the coordination of I-Plan strategy related workshops and forums. The programs offer networking, peer exchange, and training opportunities to continue to move progress forward on the strategies outlined in the I-Plan. Previous workshop presentations can be found in Appendix B.

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Appendices

Appendix A. Summary Table of TMDL I-Plan Implementation Strategies

Strategy	Priority Level	Status Highlight	Page
Wastewater Implementation Strategies			
1.0 Wastewater treatment facility effluent limits	Low	• Wastewater permits currently in the renewal process will begin monitoring for *E. coli* at a limit of 63 MPN/100mL when new permit is in place.	8
1.1 Evaluation of non-participants in Sanitary Sewer Overflow Initiative (SSOI) and Capacity, Management, Operation, & Maintenance (CMOM) programs	High	• The Wastewater Technical subcommittee has identified this strategy as a priority for the FY2018 work plan. • NCTCOG and the Wastewater Technical Subcommittee aim to engage non-participants through education and outreach.	10
1.2 Lift station evaluation	Low	• NCTCOG has included lift station evaluation standard operating procedures and design requirements in the BMP Library.	12
1.3 Regional Participation in Fats, Oils, and Grease program	Medium	• NCTCOG and the Wastewater Technical Subcommittee has sent targeted emails to TMDL area entities not currently participating in the regional fats, oils, and grease program.	12
1.4 Sanitary sewer overflow reporting	Medium	• The Wastewater Technical Subcommittee has identified challenges some entities are experiencing with the electronic reporting requirements, and will continue to monitor the concerns and make recommendations to the TCEQ as necessary.	14
1.5 Funding opportunities for repair/replacement of sanitary sewer lines	Ongoing	• Funding opportunities are available at www.nctcog.org/TMDL.	15
1.6 Relocation of sewer mains from waterways	Medium	• Funding opportunities are available at www.nctcog.org/TMDL.	15
1.7 Liquid waste management and liquid waste hauler program expansion	Low	• Liquid waste hauler program permits and checklists from TMDL area entities are available in the BMP library.	16
Stormwater Implementation Strategies			
2.0 MS4 participation in Regional Stormwater Management Program	High	• NCTCOG and the Stormwater Technical Subcommittee will provide targeted outreach to MS4s not currently participating in the Regional Stormwater Management Program.	18
2.1 Local Supplemental Environmental Projects	Low	• NCTCOG has provided information regarding the state level supplemental environmental projects (SEPs) procedures to become a Third-Party Administrator.	19
2.2 Land use, business, and regulatory review	Medium	• TCEQ has made updates to the Multi-Sector General Permit that state receiving waters must be indicated as both category 4 and category 5 impaired waters.	20

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Planning and Development Implementation Strategies			
3.0 Adoption of green infrastructure and low impact development standards by municipalities	Medium	• NCTCOG held a Green Infrastructure/Low Impact Development for Improving Water Quality in North Texas workshop during summer 2016.	23
3.1 Recognition program participation	Medium	• The *integrated* Stormwater Management (iSWM™) program has expanded into a three-tier certification program.	23
3.2 Construction sites	Low	• NCTCOG Regional Training Center has trained over 400 entity staff on Stormwater Pollution Prevention for Construction Sites since 2013.	24
Pets, Livestock, and Wildlife Implementation Strategies			
4.0 Feral hog management	High	• NCTCOG and the Stormwater Technical Subcommittee will continue to engage interested stakeholders with the potential of establishing a regional feral hog forum to discuss management and coordination.	27
4.1 Ordinance evaluation for livestock waste management, stocking rates, and related measures	Low	• 2 TMDL communities reported having a permitting process and/or ordinance in place for livestock to be approved within the city limits.	27
4.2 Pet waste control measures	Medium	• 7 TMDL area entities have reported to engage residents through the Doo the Right Thing campaign, aimed to educate the public on health and water quality impacts associated with the improper disposal of pet waste.	28
4.3 Avian management plan	High	• Examples of education and outreach strategies for avian management have been added to the BMP library.	28
4.4 Model ordinance development	Low	• The Stormwater Technical Subcommittee identified developing ordinances as an undesirable route to addressing pets, livestock, and wildlife challenges. The subcommittee and NCTCOG will continue to engage in education and outreach efforts.	29
4.5 Pet waste collection stations and BMPs at parks	Medium	• 6 TMDL area entities reporting having pet waste stations at municipal parks within jurisdictional boundaries.	29
4.6 Distribution of pet waste education materials	Medium	• The Stormwater Technical Subcommittee will continue to work with the RSWMP Public Education Task Force to support the Doo the Right Thing campaign.	30
Onsite Sewage Facilities (OSSFs) Implementation Strategies			
5.0 Funding for failing OSSFs	Medium	• Funding opportunities are available at www.nctcog.org/TMDL.	32
5.1 Aerobic treatment unit maintenance	Medium	• The Wastewater Technical Subcommittee will work on the development of aerobic treatment unit outreach and education materials for homeowners, real estate agents, and inspectors in conjunction with efforts supporting strategy 5.2.	32

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5.2 OSSF education efforts for real estate agents, property inspectors, and homeowners	High	• The Wastewater Technical Subcommittee has identified this strategy as a priority for the FY2018 work plan.	33
5.3 Property inspections and document review	High	• TMDL are entities reported having ordinance language requiring homes to tie into existing sanitary sewer service if they are within a certain distance of the sewer line.	33
5.4 Service to annexed areas	Low	• NCTCOG and the Wastewater Technical Subcommittee will continue to encourage entities to expand service to annexed areas.	33
5.5 Replacement and conversion of poorly functioning OSSFs	Ongoing	• The Wastewater Technical Subcommittee will be developing education and outreach material related to OSSFs.	34
Monitoring Coordination Implementation Strategies			
6.0 Routine sampling	High	• The Monitoring Coordination Forum will begin the analysis of the water quality data for the Clean Rivers Program monitoring sites during FY2018 to develop an efficacy report of implementation effort.	36
6.1 Monitoring coordination forum	Ongoing	• The Monitoring Coordination Forum will use the monitoring site map developed by NCTCOG to begin the evaluation of the existing *E. coli* monitoring network within the TMDL area.	36
6.2 Source identification and monitoring review	High	• The Monitoring Coordination Forum will use the efficacy report to identify priority waterways to implement source identification methods.	38
Education and Outreach Implementation Strategies			
7.0 Ongoing stormwater public education participation and inclusion of bacteria-specific materials	Ongoing	• NCTCOG and the technical subcommittees will continue to engage the RSWMP Task Forces for the inclusion of bacteria-specific material.	40
7.1 Education and outreach forum	High	• NCTCOG will continue to be engaged in the RSWMP Public Education Task Force meetings and work plan development.	40
7.2 Curriculum for Texas Education Agency	Low	• NCTCOG will continue to be engaged in the RSWMP Public Education Task Force meetings and work plan development.	41
7.3 Education and outreach funding	Ongoing	• Funding opportunities are available at www.nctcog.org/TMDL.	41
7.4 Partnerships	Low	• The TMDL I-Plan Program has established partnerships with several NCTCOG programs to coordinate the development of mutually beneficial resources.	42
7.5 Development of river-specific bacteria TMDL materials	Low	• NCTCOG will continue to be engaged in the RSWMP Public Education Task Force meetings and work plan development.	42
7.6 Bacteria-specific outreach to volunteer services groups	Medium	• NCTCOG will continue to be engaged in the RSWMP Public Education Task Force meetings and work plan development.	43

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Best Management Practices Library Implementation Strategies			
8.0 Best management practices library	High	• NCTCOG consistently requests and receives new resources to be added. The Library is updated bi-monthly and is featured in the TMDL quarterly newsletters.	45
8.1 BMP project funding and evaluation	High	• Funding opportunities are available at www.nctcog.org/TMDL.	45
Implementation Strategy Evaluation			
9.0 Implementation strategy evaluation	Ongoing	• NCTCOG will develop an annual report to outline the implementation effort underway related to relevant implementation strategies.	47
9.1 Expanding the geographic scope of the I-Plan as appropriate	Ongoing	• The TMDL Coordination Committee is working with the City of Fort Worth to formally incorporate the Sycamore Creek TMDL into the TMDL I-Plan.	47

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Sanitary Sewer Overflow Workshop, December 2015
Presentations
- City of Dallas Water Utilities – Cease the Grease
  Helen Cantril Dulac, City of Dallas
- EPA Clean Water State Revolving Fund (CWSRF) SSO Funding
  Ashley Howard, Environmental Protection Agency
- SSO Prevention
  Wayne Hunter, RPS Group
- SSOI Case Study – Fort Worth Water Department
  Stacy Walters, City of Fort Worth
- TCEQ SSOI Program Overview
  Greg Diehl, Texas Commission on Environmental Quality
- Texas Department of Agriculture CDBG Program Overview
  David Kercheval, Texas Department of Agriculture
- Texas Water Development Board (TWDB) State Funds for SSO Related Work
  Luis Farias, Texas Water Development Board

Green Infrastructure and Low Impact Development for Improving Water Quality in North Central Texas, July 2016
Presentations
- Stormwater Assessment Tool (SWAT) GI-LID Model and Hydrologic and Water Quality System
  Dr. Allan Jones, Texas A&M AgriLife Research
- Stormwater Green Infrastructure: Evaluation, Performance, and Modeling
  Dr. Fouad Jaber, Texas A&M AgriLife Research and Extension
- Soils, Low Impact Development, and Landscape Architects
  Lindsey White, Caye Cook Associates
- Stormwater Quality Site Review Spreadsheet Tool
  Michael Daniels, City of Denton
- Green Infrastructure Experiences in Fort Worth's Stormwater Management
  Ranjan Muttiah, City of Fort Worth

On-Site Sewage Facility (OSSF) Webinar, February 2017
Presentations
- Water Quality Initiatives in North Central Texas
  Rachel Evans, North Central Texas Council of Governments
- Houston-Galveston OSSF Program
  Will Merrell, Houston-Galveston Area Council
- Septic Systems/OSSFs: A Nuisance or an Asset?
  Dr. Anish Jantrania, Texas A&M AgriLife Extension and Research
- USDA Water and Waste Disposal Loan and Grant Program
  Terri Chenoweth, USDA Rural Development
- Webinar Recording

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North Texas Urban Feral Hog Forum, May 2017

Presentations

- [Feral Hog Impacts to Water Quality in North Texas](#)
  Rachel Evans, North Central Texas Council of Governments
- [Feral Hogs in North Texas – A Growing Urban Issue](#) (video)
- [Urban Feral Hogs: Problems and Management Resources](#)
  Rachel Richter, Texas Department of Wildlife
- [Texas Wildlife Services: Urban Swine](#)
  Adam Henry, Texas Wildlife Services
- [Feral Hog Impact – What are the Regional Needs and is it Worth the Cost?](#)
  Brett Johnson, City of Dallas