Stormwater Implementation Strategies

In the watershed areas covered by the Greater Trinity River Bacteria TMDL I-Plan Project, as in most urban areas, stormwater runoff is a major cause of water pollution. When rain falls on less developed areas, the water is absorbed and filtered by soil and plants. When rain falls on the roofs, streets, and parking lots of the Dallas-Fort Worth metropolitan area, however, the water cannot soak into the ground. Here, like most urban areas, stormwater is drained through engineered collection systems and discharged into nearby lakes and streams. The stormwater carries trash, heavy metals, other pollutants, and notably for this project, bacteria, from the urban landscape, degrading the quality of the receiving waters. Higher flows can also cause erosion and flooding in urban streams, damaging habitat, property, and infrastructure.

Bacteria sources, such as waste from pets, wildlife, and even humans, can be washed into storm drains and then discharged into local waterways. Because stormwater systems are designed to quickly and efficiently remove stormwater from developments, stormwater often bypasses the natural vegetative barriers that filter sheet flow over the land, thus, exacerbating bacteria loading. Infrastructure, such as pipes, inlets, culverts, interceptors, basins, reservoirs, outfalls, and channelized waterways, can also increase direct bacterial loading. The TMDLs for the project area indicate that stormwater from permitted MS4s is thought to be a significant source of bacteria loading (TCEQ 2011a and 2011b).

Effective stormwater management is often achieved from a management systems approach, as opposed to one that focuses on individual practices. That is, the pollutant control achievable from any given management system is viewed as the sum of the parts, taking into account the range of effectiveness associated with each single practice, the costs of each practice, and the resulting overall cost and effectiveness. Some individual practices may not be very effective alone but, in combination with others, may provide a key function in highly effective systems and, in the case of the Dallas-Fort Worth metropolitan area, reduce bacteria levels in area waterways.

About the Regional Stormwater Management Program

NCTCOG works with local governments and other stakeholders to develop and implement a regional strategy to address stormwater quality issues impacting the region. Created in 1999 by the Regional Stormwater Management Coordinating Committee (RSWMCC), the *Regional Policy Position on Managing Urban Stormwater Quality* provides guidance for the regional strategy, setting out the key elements for a cooperative and comprehensive regional approach to stormwater management. Among the goals of the Regional Program are to:

- Protect the health and welfare of citizens and the environment;
- Effectively address state and federal regulations;
- Share professional knowledge and experience; and
- Provide training to governmental staff and the development community.

The program is built upon a series of cooperative initiatives in the following areas:

- Public education;
- Control of construction site stormwater runoff;
- Management of stormwater impacts associated with post-construction;

Once high levels of bacteria are present in a water body, it is more difficult and expensive to restore it to a less impacted condition. The widespread use of BMPs for pollution prevention, illicit discharge detections, and elimination (IDDE), erosion and sediment control, and outreach and education are critical in meeting water quality goals for the Trinity River and its tributaries.

Existing requirements of MS4 permits address some important elements of bacteria loading in stormwater, offering an adaptive rather than prescriptive approach to bacteria reduction. Structural BMPs, such as modifications to stormwater outfalls that may reduce bacteria through aeration, treatment by sunlight, or physical removal of contaminants, have the potential to reduce bacteria loading into waterways. Because there is limited data regarding how well such BMPs might reduce bacteria loading, the Coordination Committee has identified the evaluation of the effectiveness of stormwater implementation activities as one of the top research priorities. Any research, particularly research relevant to the Greater Trinity area, should be reported and shared with Project stakeholders, so that stakeholders can devise appropriate strategies for integrating structural stormwater BMPs into their activities (see Implementation Strategy 8.0).

A map of MS4s in the project area is shown in Figure 9. A list of stormwater permits in the project area is provided in Tables 21, 22, 23, and 24.

Implementation Strategy 2.0: MS4 participation in Regional Stormwater Management Program

Local and state governments along with transportation entities with MS4 permits currently employ extensive and innovative stormwater programs, and many participate in the Regional Stormwater Management Program (RSWMP). The RSWMP already includes several programs relevant to bacteria loading and this I-Plan. The programs include Construction, Illicit Discharge, Monitoring, Pollution Prevention, and Public Education. Additionally, regionally developed initiatives and cooperative purchases are also part of the program. Because of the extensive involvement of the RSWMP in existing stormwater efforts, as well as its regional scope and contacts, partnering with the program and supporting the inclusion of bacteria-specific elements is the logical choice and takes advantage of existing knowledge and infrastructure. A list of RSWMP participants can be found in Table 25, while a summary of this implementation strategy can be found in Table 18.

2.0.1: Request Regional Stormwater Management Coordinating Council include bacteria in RSWMP program efforts and materials

Given the broad scope of RSWMP programs and tools, the Coordination Committee requests the Regional Stormwater Management Coordinating Council (RSWMCC) direct their committees to review each program's materials for inclusion of relevant information on bacteria load reduction.

2.0.1.1: IDDE program participation

An illicit discharge is defined as any discharge to the MS4 that is not composed entirely of stormwater (except for discharges allowed under a TPDES permit). Non-stormwater discharges can originate from direct connections to the storm drain system, from business or commercial establishments (illicit connections), or indirectly as improper surface discharges to the storm drain system.

Illicit plumbing connections may be intentional or may be unknown to a property owner and often are due to the connection of floor drains to the storm sewer system. As a result of these illicit connections, wastewater that should receive treatment from a WWTF directly enters storm drains and local surface waters and subsequently negatively impacts bacteria loading. Additional sources of illicit discharges may come from failing septic systems, illegal dumping

practices, and the improper disposal of sewage from recreational practices such as boating or camping.

NCTCOG and the Coordination Committee encourage all MS4s within the Project area to participate in the RSWMP and continue and expand, where necessary, their programs for IDDE through participation in existing training and educational initiatives. Stakeholders also encourage the RSWMP's IDDE Task Force to introduce or add bacteria-enhancing pollutant detection training and materials with examples from slaughter facilities, pet training/housing, farmers markets, sewage processors, zoos, etc.

2.0.1.2: Inclusion of bacteria load reduction in Pollution Prevention Peer-to-Peer program and evaluation of modified Peer-to-Peer program for five years

Peer-to-Peer is a program of the RSWMP's Pollution Prevention (P2) Task Force. The program provides site visits to assess good housekeeping procedures in MS4s which can result in cost savings in production, materials, and disposal; increase public awareness of local water quality issues; and provide safer working conditions for city/county staff.

The Coordination Committee requests the RSWMCC direct the P2 Task Force to expand the existing Peer-to-Peer review program to include awareness about good housekeeping procedures that may help reduce bacteria loading. Additionally, the Committee requests the P2 Task Force continue the modified Peer-to-Peer program over a five-year permit term allowing for reevaluation of program effectiveness.

Table 1. Implementation Strategy 2.0 Summary — MS4 participation in Regional Stormwater Management Program

Targeted Source(s)	Stormwater
Estimated Potential Load Reduction	IS 2.0 – 2.0.1.2 may result in a 10% reduction over 25 years by contributing to the reduction of the stormwater bacteria load through education and cooperative efforts among various stakeholders
Technical and Financial Assistance Needed	Technical: participation in the RSWMP provides technical assistance for MS4s under several areas including construction, illicit discharge, monitoring, pollution prevention, and public education; some technical assistance may be necessary for the RSWMP to incorporate bacteria in their programs Financial: participation in the RSWMP is based on cost share and varies depending on MS4 size; inclusion of bacteria information is unlikely to exceed existing funding sources
Education Component	Outreach to non-participating MS4s regarding benefits of participation in the RSWMP Outreach to RSWMP's RSWMCC for inclusion of bacteria in their existing programs

Schedule of Implementation	Beginning immediately as appropriate Coordination Committee members, technical subcommittee members, and NCTCOG will conduct outreach to non-participants regarding benefits of RSWMP Beginning immediately as appropriate Coordination Committee and technical subcommittee members already involved in RSWMP and/or the RSWMCC will approach the RSWMCC regarding inclusion of bacteria in existing programs and materials
Interim, Measurable Milestone	Non-RSWMP MS4s approached RSWMCC approached for inclusion of bacteria in materials and programs
Progress Indicators	Number of RSWMP participants increases Bacteria-specific information included in RSWMP programs and materials
Monitoring Component	NCTCOG will collect data on RSWMP participation and programs and materials
Responsible Entity	Coordination Committee and technical subcommittee members with ties to RSWMP and/or RSWMCC will conduct outreach to non-participating MS4s and RSWMCC RSWMCC will consider inclusion of bacteria-specific information in RSWMP outreach materials and programs NCTCOG will assist the Coordination Committee and Stormwater technical subcommittee with outreach and will present participation data and material and program updates annually to the Coordination Committee and Stormwater technical subcommittee

Implementation Strategy 2.1: Local Supplemental Environmental Projects

At the state level, the TCEQ defines supplemental environmental projects (SEPs) as, "[A] project that prevents pollution, reduces the amount of pollution reaching the environment, enhances the quality of the environment, or contributes to public awareness of environmental matters." A respondent in an enforcement action may negotiate an agreement to perform a SEP in return for an offset of the administrative penalty. The proposal to include a particular SEP in an agreed order will be presented to the Commission or Executive Director for consideration and final approval. Potential SEPs include such diverse projects as cleanups of abandoned tire sites or illegal dump sites, community collections of household hazardous waste, and pollution prevention projects that exceed regulatory requirements. SEPs that have a direct benefit allow a respondent to offset one dollar of its penalty for every dollar spent on the SEP (TCEQ, 2012a)."

Detailed in Table 19, the purpose of Implementation Strategy 2.1 is to bring the idea of SEPs to the local level — outside of the scope of the state and solely the purview of the individual local jurisdiction. Local SEPs are intended for watershed improvements and other environmentally beneficial projects that a respondent agrees to undertake in settlement of an enforcement action, but which the respondent is not otherwise legally required to perform, and for which he/she does not receive any other benefit. The

local SEPs can be negotiated through the regulatory enforcement process with the city or other regulated MS4s with enforcement capabilities.

The Coordination Committee encourages local municipalities to adopt or continue using local SEPs — separate, but not to the exclusion of the state SEP program — in addition to fines, as part of escalating enforcement programs for unfunded local stormwater projects to reduce bacteria loading. As such, a goal of 75 percent of large municipal MS4s within bacteria-impaired watersheds will have local SEPs as part of stormwater enforcement by 2028 and 25 percent of small municipal MS4s will have such a program by 2033.

Table 2. Implementation Strategy 2.1 Summary — Local Supplemental Environmental Projects

Targeted Source(s)	Stormwater
Estimated Potential Load Reduction	IS 2.1 may result in a 4% reduction over 25 years by providing an additional source of funds that can be used for projects that will reduce bacterial loads. Use of local SEPs may also better engage violators in the process of improving water quality locally
Technical and Financial Assistance Needed	Technical: technical assistance may be necessary for entities to implement their own local SEP program Financial: existing funding as appropriate
Education Component	Information will be made available for local SEP implementation
Schedule of Implementation	75% of large municipal MS4s will have local SEP programs in place by 2028 25% of small municipal MS4s will have local SEP programs in place by 2033
Interim, Measurable Milestone	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
Progress Indicators	Number of municipal MS4s with local SEP programs
Monitoring Component	NCTCOG will collect data on municipal MS4 local SEP programs
Responsible Entity	Municipal MS4s will adopt local SEP programs as feasible NCTCOG will compile information on SEP programs for an annual report to Coordination Committee and Stormwater technical subcommittee

Implementation Strategy 2.2: Land use, business, and regulatory review

Analyses by the Project's technical review subcommittee members revealed a potential gap in many existing stormwater codes and regulations with respect to addressing discharges with the potential to carry bacteria. As currently written, many rules, including the base stormwater discharge permits, focus on chemical or physical constituents, such as toxic chemicals or sediment, but may not completely address bacterial sources or discharges. Examples of facilities that may pose a risk for bacterial discharge include but are not limited to: slaughterhouses and meat-processing facilities, stables and pet-boarding facilities, sewage processors, produce packing facilities, and farmer's markets. Implementation strategies for land use and business evaluation are summarized in Table 20.

2.2.1: Business risk evaluation and enforcement

Municipalities will review their respective codes and ordinances and, as feasible, revise as necessary to address the discharge of bacteria, nutrients, and other substances that could contribute to bacterial growth in the environment.

2.2.2: Request to TCEQ for Industrial Stormwater Multi-Sector General Permit classification review and benchmark bacteria monitoring

TCEQ is encouraged to review, and as necessary amend the TPDES No. TXR050000, Multi-Sector General Permit (MSGP) to require facilities located in bacteria-impaired watersheds with operations having the potential to discharge bacteria, (such as the current Sector U, Food and Kindred Products Facilities), to perform benchmark sampling for bacteria.

Table 3. Implementation Strategy 2.2 Summary — Land use, business, and regulatory review

Targeted Source(s)	Businesses/facilities at risk for bacterial discharge
Estimated Potential Load Reduction	IS 2.2 – 2.2.2 may result in a 2% reduction in bacteria loading as problems are identified and corrected over 25 years
Technical and Financial Assistance Needed	Technical: technical assistance may be necessary for MS4s to develop and study their own land use and evaluate businesses with potential to discharge bacteria Financial: loans, grant funding and existing funding as appropriate
Education Component	Outreach to MS4s concerning land use and business evaluation may be necessary Educational efforts by MS4s regarding operations and land use to businesses with potential to discharge bacteria Outreach to impacted businesses should TCEQ amend MSGP requirements
Schedule of Implementation	As resources are available, the implementation of this activity will begin immediately and will continue for the entire implementation process

Interim, Measurable Milestone	Number of local evaluations completed Number of site visits to businesses with potential to discharge bacteria
Progress Indicators	Number of reported program expansion and/or modifications to address high risk businesses Changes to MSGP requirements
Monitoring Component	NCTCOG will collect data on local efforts and any changes to the TCEQ MSGP
Responsible Entity	MS4s will evaluate local land use and businesses for potential for bacteria discharges NCTCOG will coordinate dialogue between MS4s, stakeholders and TCEQ to identify potential modifications to the MSGP that will aid in addressing bacteria as a pollutant and benchmark bacteria monitoring NCTCOG will compile data collected on local efforts and any changes to the TCEQ MSGP and present it annually to Coordination Committee and Stormwater technical subcommittee

Table 4. MS4 Permittees by AU for 0805 and 0822 Segments

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
0805_03	City of Dallas	Upper Trinity	Fivemile Creek upstream to the confluence of Cedar Creek	WQ0004396
0805_03	TxDOT – Dallas	Upper Trinity	Fivemile Creek upstream to the confluence of Cedar Creek	WQ0004521
0805_03	North Texas Tollway Authority	Upper Trinity	Fivemile Creek upstream to the confluence of Cedar Creek	WQ0004400
0805_03	Dallas Area Rapid Transit	Upper Trinity	Fivemile Creek upstream to the confluence of Cedar Creek	TXR040000
0805_04	City of Dallas	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	WQ0004396
0805_04	City of Irving and co-permittees: Dallas Co. Flood Control District #1, Dallas County Utility & Reclamation District, Irving Flood Control District Sections I & III	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	WQ0004691
0805_04	TxDOT – Dallas	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	WQ0004521
0805_04	North Texas Tollway Authority	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	WQ0004400
0805_04	City of University Park	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	TXR040000
0805_04	Town of Highland Park	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	TXR040000
0805_04	City of Cockrell Hill	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	TXR040000
0805_04	Dallas Area Rapid Transit	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	TXR040000

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
0805_04	Buckley Oil Company [b]	Upper Trinity	Confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River	WQ0004663
0822A	City of Irving and co-permittees: Dallas Co. Flood Control District #1, Dallas County Utility & Reclamation District, Irving Flood Control District Sections I & III	Cotton Wood Branch	2.5 mile stretch of Cottonwood Branch running upstream from confluence with Hackberry Creek	WQ0004691
0822A	North Texas Tollway Authority	Cotton Wood Branch	2.5 mile stretch of Cottonwood Branch running upstream from confluence with Hackberry Creek	WQ0004400
0822A	DFW International Airport [a]	Cotton Wood Branch	2.5 mile stretch of Cottonwood Branch running upstream from confluence with Hackberry Creek	TXR040000
0822B	City of Irving and co-permittees: Dallas Co. Flood Control District #1, Dallas County Utility & Reclamation District, Irving Flood Control District Sections I & III	Grapevine Creek	Entire water body	WQ0004691
0822B	City of Dallas	Grapevine Creek	Entire water body	WQ0004396
0822B	TxDOT– Dallas	Grapevine Creek	Entire water body	WQ0004521
0822B	City of Coppell	Grapevine Creek	Entire water body	TXR040000
0822B	DFW International Airport [a]	Grapevine Creek	Entire water body	TXR040000

[a] Includes five outfalls covered under an individual industrial stormwater permit (WQ0001441).
[b] Individual industrial stormwater permit included as part of the MS4 allocation.

Table 5. MS4 Permittees by AU for 0841 Segments

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
0841_01	City of Irving and co-permittees: Dallas Co. Flood Control District #1, Dallas County Utility & Reclamation District, Irving Flood Control District Sections I & III	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004691
0841_01	City of Arlington and co-permittees: University of Texas at Arlington and TxDOT-Fort Worth	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004635
0841_01	City of Dallas	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004396
0841_01	City of Fort Worth and co-permittees: Tarrant Regional Water District, and TxDOT-Fort Worth	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004350
0841_01	North Texas Tollway Authority	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004400
0841_01	TxDOT – Dallas	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0004521
0841_01	City of Grand Prairie	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Keller	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Colleyville	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Southlake	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Grapevine	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
0841_01	City of Euless	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of North Richland Hills	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Bedford	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	City of Hurst	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	Tarrant County	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	Dallas County	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	TxDOT – Fort Worth	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	DFW International Airport [a]	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	Dallas Area Rapid Transit	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	North Texas Tollway Authority	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	Dallas Co. Flood Control Dist. No. 1	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	TXR040000
0841_01	Extex LaPorte LP [b]	Lower West Fork Trinity River	Confluence of the Elm Fork Trinity River to the confluence with Johnson Creek	WQ0001250

[a] Includes five outfalls covered under an individual industrial stormwater permit (WQ0001441).
[b] Individual industrial stormwater permit included as part of the MS4 allocation.

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
0841_02	City of Arlington and co-permittees: University of Texas at Arlington and TxDOT-Fort Worth	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	WQ0004635
0841_02	City of Fort Worth and co-permittees: Tarrant Regional Water District, and TxDOT-Fort Worth	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	WQ0004350
0841_02	TxDOT – Dallas	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	WQ0004521
0841_02	City of North Richland Hills	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Hurst	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Bedford	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Grand Prairie	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Euless	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Dalworthington Gardens	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	Town of Pantego	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Kennedale	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	City of Colleyville	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000

AU	MS4 Permittees	River System	Segment	TPDES Permit Number
AU	**MS4 Permittees**	**River System**	**Segment**	**TPDES Permit Number**
0841_02	Tarrant County	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	Tarrant County College NE	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	TxDOT-Fort Worth	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000
0841_02	Dallas Area Rapid Transit	Lower West Fork Trinity River	From the confluence with Johnson Creek upstream to the confluence of Village Creek.	TXR040000

Table 6. TPDES and NPDES MS4 Permits associated with Segments 0841F, 0841K, 0841N, and 0841V

AU	MS4 Permittees	River System	Segment	TDPES Permit Number
0841K_01	City of Arlington	Fish Creek	From the confluence with Mountain Creek Reservoir in Grand Prairie, Dallas Co, to the upper end of the creek in Arlington, Tarrant Co.	TXS000301
0841V_01	City of Dallas	Crockett Branch	From the confluence with Cottonwood Creek to the upper end of the creek.	TXS000701
0841F_01	City of Grand Prairie	Kirby Creek	From the confluence with Fish Creek in Grand Prairie, Dallas Co. to just upstream of Great Southwest Parkway in Arlington, Tarrant Co.	TXR040065
0841N_01	Dallas County	Cottonwood Creek	6.5 mile stretch of Cottonwood Creek running upstream from approx. 1 mi. upstream of Mountain Creek Reservoir in Dallas Co. to SH 360 in, Tarrant Co.	TXR040120
0841K_01	Tarrant County	Fish Creek	From the confluence with Mountain Creek Reservoir in Grand Prairie, Dallas Co, to the upper end of the creek in Arlington, Tarrant Co.	TXR040052

Table 7. TPDES and NPDES MS4 Permits associated with Segment 0806E

AU	MS4 Permittees	River System	Segment	NDPES Permit Number
0806E_01	City of Fort Worth, Tarrant Regional Water District	Sycamore Creek	A 5 mile stretch of Sycamore Creek running upstream from the confluence with the West Fork Trinity River to the confluence with Echo Lake Tributary in Fort Worth.	TXS000901
0806E_01	Texas Department of Transportation	Sycamore Creek	A 5 mile stretch of Sycamore Creek running upstream from the confluence with the West Fork Trinity River to the confluence with Echo Lake Tributary in Fort Worth.	TXS002101
0806E_01	Town of Edgecliff Village	Sycamore Creek	A 5 mile stretch of Sycamore Creek running upstream from the confluence with the West Fork Trinity River to the confluence with Echo Lake Tributary in Fort Worth.	TXR040595
0806E_01	Tarrant County	Sycamore Creek	A 5 mile stretch of Sycamore Creek running upstream from the confluence with the West Fork Trinity River to the confluence with Echo Lake Tributary in Fort Worth.	TXR040052

Table 8. RSWMP Participation in Project Area as of FY2019

Cost Share Regional Stormwater Management Program (RSWMP) Participants	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	City of Keller
City of Dallas	North Texas Tollway Authority
City of Euless	TxDOT Dallas District
City of Fort Worth	Town of Pantego
City of Grand Prairie	
City of Grapevine	
City of Hurst	
City of Irving	
City of Kennedale	
City of North Richland Hills	
City of Southlake	
City of University Park	
Dallas Area Rapid Transit	
DFW Airport	
Dallas County	
Tarrant County	
TxDOT Fort Worth District	
Town of Highland Park	

Figure 1. MS4s in Project Area