Monitoring Coordination Implementation Strategies

The Project area is home to approximately 390 miles of rivers and streams as defined by U.S. Census Bureau's TIGER/Line (Topologically Integrated Geographic Encoding and Referencing) data set (USCB, 2012). One hundred and fifty-three of those miles are impaired by elevated *E. coli* levels. Understanding the condition of rivers and streams in the region through monitoring and analyzing monitoring data is critical for developing effective plans for maintaining, managing, and restoring the waterways.

There are several different surface water monitoring programs with data that help demonstrate the effectiveness of BMPs and other implementation strategies discussed in this I-Plan. One of the best known is the Clean Rivers Program (CRP). Established in 1991, the Texas Clean Rivers Program is a state fee-funded, non-regulatory program created to provide a framework and forum for managing water quality issues in a more holistic manner. The focus of the program is to work at the watershed level, within each river basin, by coordinating the efforts of diverse organizations. CRP is comprehensive — collecting samples region-wide and should remain one of the primary sources of data for ambient water quality. This monitoring network includes dozens of sites and provides long-term data accredited through the National Environmental Laboratory Program (NELAP) for the evaluation of ambient conditions in the region's waterways. Monitoring sites are strategically chosen to give the greatest degree of coverage while also attempting to isolate individual waterways or their smaller units to allow for the accumulation of data with direct relevance to local conditions. Monitoring is conducted under a regional Quality Assurance Project Plan (QAPP) (TCEQ, 2012b).

The Regional Wet Weather Characterization Program (RWWCP) is a NCTCOG-coordinated program for Phase I MS4 regulated entities with stormwater permit requirements to monitor stormwater during wet weather (rainfall) events. NCTCOG assists local entities through a cooperative regional monitoring program designed to meet these requirements. The regional program includes the cities of Dallas, Fort Worth, Arlington, Garland, Irving, Plano, and Mesquite; and the North Texas Tollway Authority (NTTA). Data is gathered quarterly, analyzed by a NELAP-accredited laboratory, and an annual report is provided to participants. The program operates in five-year terms in conjunction with the TPDES permit term.

Sampling resulting from an IDDE investigation can be useful in determining and eliminating some bacterial sources. An illicit discharge is any discharge to the MS4 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.

Another potential source of information is effluent monitoring. Since 2010, new and renewed WWTF permits include an effluent monitoring requirement for *E. coli*. Currently required monitoring frequency is detailed in Table 8.

Texas Stream Team is a network of trained volunteers and supportive partners working to gather information about surface water quality in the state and ensure the information is publicly available. Established in 1991, Texas Stream Team is administered through a cooperative partnership between Texas State University, TCEQ, and the EPA. For the purpose of this I-Plan, Stream Team volunteers are stakeholders in the Project area committed to helping fill gaps in monitoring data wherever possible.

The Coordination Committee encourages all feasible use of monitoring programs and the collective analysis of their respective data to help determine the efficacy of the implementation strategies within this I-Plan.

Implementation Strategy 6.0: Routine sampling

Stakeholders currently participating in voluntary or permit-required monitoring programs, such as CRP, RWWCP, and WWTF effluent monitoring, will continue routine sampling as feasible. For voluntary programs such as CRP, the routine sampling will occur at the monitoring stations detailed in the QAPP and as resources allow. To help determine the efficacy of implementation strategies, the Monitoring Coordination Technical Subcommittee will provide analysis of routine sampling results for the Coordination Committee. Figure 14 shows the CRP monitoring locations on impaired segments in the Project area, while Table 43 summarizes the implementation strategy for routine sampling.

Table 1. Implementation Strategy 6.0 Summary — Routine sampling

Targeted Source(s)	All potential sources
Estimated Potential Load Reduction	IS 6.0 will allow tracking and verification of bacteria load reductions and may result in a 2% reduction over 25 years
Technical and Financial Assistance Needed	Technical: some technical assistance may be necessary should entities new to monitoring wish to participate Financial: grants or existing funding as appropriate
Education Component	Some education of governing bodies may be necessary to start, maintain, or expand monitoring programs
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	Collective analysis of monitoring data
Progress Indicators	Number of results analyzed Ability to compare results to efficacy of BMPs
Monitoring Component	Monitoring Coordination technical subcommittee will report analytical results to NCTCOG
Responsible Entity	Monitoring Coordination Forum will collectively analyze data to determine efficacy of implementation strategies NCTCOG will compile results into a report for the Coordination Committee

Implementation Strategy 6.1: Monitoring coordination forum

A coordinated, regional approach to monitoring and data analysis is a key component of this implementation strategy. As resources are available, NCTCOG will facilitate a forum of monitoring participants, including those involved with CRP, RWWCP, IDDE, wastewater treatment effluent monitoring, and the Texas Stream Team. The schedule for forum meetings will be determined by forum participants, although meetings will take place at least annually. Table 44 details the strategies for the monitoring coordination forum.

6.1.1: Existing *E. coli* monitoring network evaluation

As part of the monitoring forum, the stakeholders will evaluate the existing *E. coli* monitoring network in the impaired subwatersheds and refine it based upon data gaps. Data considered may include CRP, RWWCP, IDDE monitoring, wastewater treatment facility effluent monitoring, and data collected by Texas Stream Team.

6.1.2: New source review for data

The monitoring forum will identify sources of data and existing monitoring which may not be appropriate for screening, for example monitoring data that are not collected under a QAPP or analyzed under a NELAP-accredited program, but that could be helpful in identifying bacteria sources.

6.1.3: Data assessment of overall trends for BMP efficacy

As monitoring results become available, the forum participants will evaluate CRP and RWWCP data to assess overall trends in water quality within the impaired water segments in the Greater Trinity River basin. These analyses may be used to determine efficacy of BMPs, overall improvement or degradation within the applicable sub-basins, and the potential need to implement additional BMPs. Data analysis results will be shared with the Coordination Committee annually.

6.1.4: Funding in relation to gaps in sampling data

Monitoring forum participants, including TRA, may work with TCEQ to address available funding in response to gaps in sampling data.

6.1.5: Reevaluating monitoring technologies for pilot projects and/or research partnerships

Monitoring forum participants will continue to reevaluate monitoring technologies, such as surrogate testing, no less than every five years for use in pilot projects or partnerships with researchers in local universities.

6.1.6: Evaluate need for online data consolidation and access

Accessing monitoring data online remains difficult for those without technical backgrounds in the monitoring field. Monitoring forum participants and the Coordination Committee will periodically evaluate the need for online data consolidation and access.

Table 2. Implementation Strategy 6.1 Summary — Monitoring coordination forum

Targeted Source(s)	All potential sources
Estimated Potential Load Reduction	IS 6.1 – 6.1.6 will allow tracking and verification of bacteria load reductions and may result in a 2% reduction over 25 years
Technical and Financial Assistance Needed	Technical: some technical assistance may be necessary should entities new to a given type of monitoring wish to participate Financial: grants or existing funding as appropriate
Education Component	Some internal education may be necessary for some forum participants on new or existing monitoring methods or programs
Schedule of Implementation	As resources are available, the implementation of this activity will begin immediately and will continue for the entire implementation process with forum meetings taking place annually at a minimum
Interim, Measurable Milestone	Existing E. coli monitoring networks evaluated New source review for data Data assessment of overall trends for BMP effectiveness Reevaluation of monitoring technologies Online data consolidation and access evaluation
Progress Indicators	Number of existing monitoring sites evaluated Number of data gaps identified Number of new non-traditional monitoring sources identified Number of data assessments (reports) in relation to BMP effectiveness Number of pilot projects evaluated
Monitoring Component	NCTCOG will collect results of evaluations, assessments, and other results from the Monitoring Coordination Forum
Responsible Entity	Monitoring Coordination Forum will evaluate existing E. coli monitoring and new sources for data, reevaluate monitoring technologies, evaluate online data access, and assess data for BMP effectiveness NCTCOG will compile results into a report for the Coordination Committee

Implementation Strategy 6.2: Source identification and monitoring review

Accurate identification and quantification of *E. coli* sources in the project area is needed. Without this information it is difficult to accurately assess the impact of any one implementation strategy, or for that matter, the impact of any one source. As explained in Table 45, in 2018 the Coordination Committee will review monitoring techniques and determine whether it is appropriate, in terms of financial and technical viability, to request the TCEQ make changes in their monitoring with particular regard to source identification.

Table 3. Implementation Strategy 6.2 Summary — Source identification and monitoring review

Targeted Source(s)	Species-specific and/or human versus non-human contributors to bacteria loading
Estimated Potential Load Reduction	IS 6.2 may result in a 10% reduction over 25 years of calculated bacteria loading by allowing better identification and targeting of bacterial sources, with consequent reductions in loading
Technical and Financial Assistance Needed	Technical: assistance from experts in source identification may be necessary to assist Coordination Committee in decision-making Financial: new source identification methods may have different costs than known methods
Education Component	The Coordination Committee and TCEQ will need to be aware of technological and cost changes of source identification
Schedule of Implementation	In 2018 the Coordination Committee will review monitoring techniques and technologies to see if requesting source identification by TCEQ is appropriate
Interim, Measurable Milestone	New source identification methods and costs identified
Progress Indicators	Greater source identification results available to better target effectiveness of implementation strategies
Monitoring Component	Report to the Coordination Committee on new source identification availability and costs
Responsible Entity	Monitoring Coordination Forum will identify and evaluate new methods, techniques, and costs for source identification NCTCOG will prepare a report of the results from the technical subcommittee for the Coordination Committee The Coordination Committee will evaluate new methods and determine if a request to TCEQ for guidance or approval on the new method or type of test is warranted NCTCOG will coordinate dialogue between stakeholders and TCEQ to facilitate TCEQ consideration, and possible adoption or use of new source identification methods.

Figure 1. Monitoring Locations on Impaired Segments Map