

Chapter 6 Plan Implementation

Introduction

A successful WPP requires implementation strategies and an outlined schedule to enact these different measures (Table 5-10). Additionally, a successful WPP needs multiple sources of support that vary depending on the level of their complexities and the BMPs being adopted. These sources include but are not limited to technical, financial, and educational outreach assistance. The implementation of this plan is an extended effort that will require active participation from various stakeholders and local entities outlined over a 10-year period.

To achieve this plan’s goal of improving Rowlett Creek’s water quality, it is important to identify the key sources. Working collaboratively with the existing water quality initiatives and other beneficial programs can best maximize the implementation of the management measures described in CH 5. The estimated costs and scheduled for this WPP were made based on current best knowledge of the different BMPs. This chapter identifies the sources available for Rowlett Creek stakeholders for WPP implementation. A summary of the key stakeholders that should be engaged for the implementation of the management measures are found in Table 6-1.

Table 6-1. Rowlett Creek watershed stakeholders to engage throughout the implementation of the WPP.

Rowlett Creek Stakeholders	
Private Entities	Residents, landowners, businesses, HOAs, developers
Non-profit NGOs	Feral Friends Community Cat Alliance, TCAP, SNN, Friends of Rescue Animals, SPCA of Texas, DORBA
Local Governments	Collin and Dallas counties, Cities of Allen, Frisco, Garland, Murphy, Parker, Plano, Richardson, Rowlett, and Sachse, ISDs
State Agencies	TCEQ, TSSWCB, TWDB, TPWD, AgriLife Extension, TWRI
Regional Entities	NTMWD, TRA, NCTCOG, SWCDs (#535 and #519), ESC Region 10
Federal Agencies	USDA, NRCS
Colleges	Collin College Plano Campus, Dallas College Garland Center

Homeowner Association (HOA); Texas Coalition for Animal Protection (TCAP); Spay Neuter Network (SNN); Independent School Districts (ISD); Texas Commission on Environmental Quality (TCEQ); Texas State Soil and Water Conservation Board (TSSWCB); Texas Water Development Board (TWDB); Texas Parks and Wildlife Department (TPWD); Texas A&M AgriLife Extension Service (AgriLife Extension); Texas Water Resources Institute (TWRI); North Texas Municipal Water District (NTMWD) Trinity River Authority (TRA); North Central Texas Council of Governments (NCTCOG); Soil and Water Conservation District (SWCD) ; Education Service Center (ESC); United States Department of Agriculture (USDA); Natural Resources Conservation Service (NRCS)

Schedule, Milestones, and Estimated Costs

The implementation schedule of the Rowlett Creek WPP is set over a 10-year period. However, it can be expected to encounter challenges so additional management and time may be needed through adaptive management. The schedule, milestones, and estimated costs associated with planned implementation were discussed and developed in coordination with watershed stakeholders during the WPP development process. Management measures were selected for their ability to mitigate E. coli loading in the watershed and effectively manage the target sources at a reasonable cost.

A complete list of management measures, participating parties, estimated costs, and implementation goals are in Table 5-10. Implementation goals are included incrementally to reflect their anticipated implementation time frames. In many instances, acquiring funding, hiring personnel or program initiation could delay implementation, which is why operating under the adaptive management approach is important. This approach sets incremental implementation objectives that can monitor and evaluate implementation progress. If sufficient progress is not made, adjustments will be made to increase implementation so that the established goals can be succeeded. Additionally, adaptive management can be employed to modify the approach if the initial strategy is no longer feasible.

Education and Outreach

The success of WPP implementation heavily depends on education and outreach activities to enhance understanding and acceptance of BMPs for reducing pollutant loads in a watershed, mainly *E. coli* for the Rowlett Creek watershed. Nearly every management measure for this plan includes education and outreach components, the details can be found in CH 5. For effective outcomes, it is essential to provide stakeholders with continuous, well-organized, and relevant information and training tailored to the watershed's specific challenges. Educational programs will leverage resources and connections from various entities, utilizing local staff, topical experts, and industry specialists to deliver valuable content across different subjects. Existing programs related to identified pollutant sources in the WPP will be used, and where regional programming is insufficient, additional funding will be sought to develop new local-focused initiatives. Though the main objective is *E. coli* reductions for this WPP, other topics such as nutrient reduction, eutrophication, green infrastructure (GI), industrial/petrochemical contamination, illegal dumping, floatable trash, flooding, and water conservation will also be covered. It is also important to discuss these topics since they have an impact on water quality. Detailed information on the general and specific education and outreach resources for this WPP is provided in Table 6-2.

Hosting workshops in the watershed is an important part of successfully implementing education programs. These workshops provide residents and stakeholders the opportunity to learn about the sources of potential pollutants, and feasible management strategies used to mitigate them and the resources to do so. Educational programs already exist for most of the management measures. Programs include Healthy Lawns & Healthy (HLHW), Active Community & Citizen Education for Science & Stewardship (ACCESS), the Texas Riparian & Stream Ecosystem Education Program, and the Take Care of Texas initiative, etc. (Table 6-2). Though educational resources exist, education and outreach program development are needed for feral cat management in urban areas related to water quality impacts, and for the construction and maintenance of GI (i.e., low impact development) BMPs to expand adoption. More details and resources on these efforts will be provided below.

Perhaps the most important component of ensuring successful WPP implementation is the role of the Watershed Coordinator. The Watershed Coordinator leads efforts to establish and maintain the working partnerships of stakeholders necessary for plan implementation. This individual also serves as the point of contact and facilitator for all WPP related development and implementation. The Watershed Coordinator is usually paramount for delivering education and outreach programs by engaging with the residents to gain their participation and adoption of BMPs.

The stakeholder group along with the Watershed Coordinator will coordinate the transition from WPP development to implementation. Engagement can be sustained by continuing to host public meetings and educational programs, updating the website, participating in local events to promote WPP

awareness, and applying for implementation funding. This can grow partnerships with key stakeholder groups that have yet to be engaged, like TNR organizations. Likewise, electronic newsletters, the project website, and news articles will be primary tools used to regularly communicate with watershed stakeholders. These communication tools will be developed to update readers periodically on implementation progress, new implementation opportunities, inform them on available technical or financial assistance, and other information related to the WPP effort.

Table 6-2. Summary of existing education and outreach programs and the entities that provide it available to the Rowlett Creek watershed. This list is not all inclusive of available resources.

Education Program	Description	Providing Participant
Lone Star Healthy Streams	Aims to protect Texas waterways from bacterial contamination from livestock operations and feral hogs that may pose a serious health risk to Texas citizens	AgriLife Extension
Water My Yard	Subscribers receive customized weekly watering advice specific to their lawn and irrigation system	
Active Community & Citizen Education for Science & Stewardship	Program that connects teachers and students to water education resources available in the state through workshops.	TWRI, Texas A&M Engineering Experiment Station
Healthy Lawns & Healthy Waters	Aims to improve and protect surface water quality by enhancing Texas residents' awareness and knowledge of BMPs for residential landscapes.	AgriLife Extension, TWRI
Texas Riparian & Stream Ecosystem Education	Aims to increase stakeholders' awareness and knowledge on the benefits of riparian zones and the BMPs that can be implemented to protect them while minimizing NPS pollution	
Water 4 Otter	Engages with children in classrooms and provides online TEKS-aligned curriculum to increase family conversations and awareness around the One Water concept	NTMWD
Take Care of Texas	Online only resource for K-12 educators to teach students on environmental pollutants and stewardship through pre-developed lesson plans	TCEQ
Storm Drain Marking ¹	Collaboration between member cities to install storm drain markers with volunteering residents that educate residents not to dump into storm drains to increase stormwater protection	Watershed Coordinator, member cities
E-Newsletters ¹	Electronic newsletters provide updates and upcoming actions on WPP implementation to stakeholders via email and webpage	Watershed Coordinator
Trap-Neuter-Return ¹	Engages communities on the benefits of TNR programs and effective BMPs and the resources available while also educating residents on the importance of fixing their pets	City of Garland, TCAP, Feral Friends

Blue-Green Infrastructure Network ¹	Aims to improve the adoption of BGI practices by connecting, guiding, and educating professionals, academics, and communities	TWRI, AgriLife Extension
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¹ Programs that need development

Technical Assistance

Various sources of technical assistance will be required to design, plan, and implement many of the management recommendations in this plan. Below lays out some of the available sources for each management measure. Some technical assistance relies on funding that may come from a variety of sources. A summary of the identified potential technical assistance sources is provided in Table 6-3.

Table 6-3. Summary of the potential technical assistance sources available and the management measure they relate to.

Management Measure	Technical Assistance Sources
1	Cities public works departments, AgriLife Extension & Research, TFS, TWRI
2	Cities, Counties, TRA, AgriLife Extension, NCTCOG
3	City of Garland Animal Services, Feral Friends, TCAP, SNN, Alley Cat Allies, TWRI
4	SWCD, NRCS, Counties, AgriLife Extension
5	TCEQ, AgriLife Extension, TWRI, NTMWD, TRA, ISDs
6	City law enforcement, TxDOT, TRA
7	AgriLife Extension, TWRI, NTMWD, TRA
8	TWDB, AgriLife Extension, TWRI, Cities public works and planning departments, NCTCOG, NTMWD, TRA, USACE, South Central CASC

Urban Stormwater Runoff

Urban stormwater infrastructure and stormwater management efforts are well developed in the watershed but face challenges financially and technically upkeeping with rapid population expansion. Municipalities can benefit from technical assistance provided through education programs, BMP demonstrations, and public or privately funded projects. Specifically, this need is most for GI stormwater BMPs, as demand is higher than the available resources. GI BMP demonstrations provide physical and interactive teaching tools that also allow decision makers to see how GI BMPs look and function. TWRI, AgriLife Extension, TRA, and Texas A&M Forest Service (TFS) will coordinate with city and county officials to develop and implement GI demonstrations sites and full-scale projects. Lack of knowledge and understanding of GI BMPs for stormwater management is the largest barrier for adoption of these practices, demonstrations help overcome this.

Technical assistance with education and outreach programming is available through AgriLife Extension, TFS, and TWRI. Stakeholders have expressed interest in expanding the current efforts on urban GI BMP implementation within the watershed. There is a need for an education and outreach program that removes the technical barriers (e.g., maintenance, design, and construction) that still hinder the widespread adoption of GI BMPs. One grass-roots local effort is the Blue-Green Infrastructure Network that actively works in the North Texas area to expand GI implementation for managing stormwater. This member-driven initiative has received inquiries about establishing GI BMP maintenance and construction workshops to remove the existing technical barriers. In coordination with this network and

the previously stated technical assistance providers an education and outreach program with technical training workshops need to be developed and implemented throughout the Rowlett Creek watershed.

Pet Waste

Currently technical assistance is widely available in the watershed to reduce pet waste runoff as part of municipalities MS4 permitting requirements. Programs are delivered by NTMWD, member cities, TRA, and NCTCOG from a shared campaign called “Doo the Right Thing”. Expanding this program to deliver education and outreach resources to K-12 schools and multi-family residential properties (i.e., apartment complexes) to teach proper pet waste disposal practices is recommended, and this can be done in coordination of municipalities with ISDs and property managers. Due the extensive urbanization of this watershed pet waste runoff persists and is the surmised leading cause of bacterial pollution, so the addition of GI and installation of pet waste stations can reduce the pollution by treating the runoff before it enters the waterways. This will require some planning ahead to identify the public or private spaces that need them most.

Feral Cat Management

Feral cat management TNR programs operate across the Dallas metroplex, including some in the Rowlett Creek watershed. However, not all TNR program resources are easily accessible to stakeholders in the Rowlett Creek watershed. The jurisdiction, location, and operating hours of TNR clinics vary which can limit the ability of residents to voluntarily contribute to TNR efforts which are often essential for these programs to operate. The City of Garland’s Animal Shelter and Adoption Center has partnered with Operation Kindness and Friends of Rescue Animals to offer their residents free spay/neuter and vaccination to community cats they bring on one day each month for the first 100 cats. Additionally, this program loans traps to colony managers bi-weekly every Monday. This TNR program is a demonstration of how other municipalities in the watershed can expand and manage feral cat populations. Integrating existing non-profit programs with the city program would lead to the most effective implementation for reducing populations. An education and outreach program should be developed with the collaboration of the identified technical sources (Table 6-3) that educates stakeholders on the impacts that unmanaged feral cat colonies have on the watershed health.

Agricultural and Livestock Management

Technical assistance to develop and implement BMPs to improve livestock management is offered by TSSWCB, SWCD, NRCS, and AgriLife Extension. Producers that are interested must request planning assistance, then these agencies will work with the producer to determine operation-specific management goals and objectives and develop a management plan in the form of WQMPs or CPs. The plans prescribe effective practices that will achieve the stated goals while also improving water quality.

Urban NPS Pollution Education

Education and outreach programs are currently deployed throughout the watershed. In partnership between municipalities and AgriLife Extension NPS educational workshops can be delivered to residents. These participating sources can also provide the necessary technical assistance for further development of educational materials if needed. TWRI, in collaboration with Texas A&M Engineering Experiment Station and TSSWCB, have developed the ACCESS program that connects K-12 teachers and students to water education resources available in the state to foster citizen science participation. This program

involves workshops that educate teachers on opportunities in citizen science, GIS training, TEKS-aligned curriculum and provides toolkits for classrooms.

Illegal Dumping and Littering

Efforts to reduce illegal and accidental dumping will focus on education and outreach with the inclusion of volunteer-based trash clean-up events. Technical assistance is extensively available for all cities with many active programs, nonetheless TRA and AgriLife Extension can provide technical assistance with education and outreach efforts when requested. Working with local outdoor stewardship non-profits, such as Scout Troops and the Dallas Off-Road Bicycle Association (DORBA), can help execute clean-up events. City law enforcement is the primary source of enforcement and monitoring activities associated with illicit dumping. Accidental discharge on roads and railways are under TxDOT jurisdiction.

Lawn Residue and Waste

Lawn residue and waste is a stormwater-related issue, thus there is considerable overlap between the entities that will manage this issue and provide technical assistance. Their expertise will be critical in implementing the management measures and engaging communities. AgriLife Extension provides an educational training program that aims to improve and protect water quality by increasing resident awareness and knowledge of BMPs for residential landscapes. This program is called Healthy Lawns and Healthy Waters, it teaches BMPs on rainwater harvesting, turfgrass and landscape species selection, and soil testing for fertilizer application.

Adaptive Flood Management

Flooding and sediment erosion control GI BMP measures can be developed in step with urban stormwater management measures, as both are strongly linked. Many green stormwater BMPs can also offer flood mitigation so the implementation of these practices is the most beneficial. Technical assistance will rely heavily on municipal, regional, special district, higher education, AgriLife, TWRI, state and federal staff to support investigation, identification, design, installation, operations, maintenance, and monitoring of GI throughout the watershed. A coordinated effort between these various entities can develop a watershed-level adaptive flood management plan that incorporates water quality management BMPs. An adaptive management plan at the watershed scale can provide guidance on identifying problematic flooding areas, areas impacting downstream flooding, and the design type/size and locations of various GI BMPs to implement. One such report this plan can model after was an Opportunity Analysis for Dallas, Texas that indicates where green stormwater infrastructure can most effectively enhance urban flood resilience, developed by AgriLife Extension and The Nature Conservancy in collaboration with the City of Dallas and the Trust for Public Land (Jack et al., 2022). The development of this plan should include the allocation of municipality and city funds annually toward the implementation of the plan.

Financial Assistance

Successful WPP implementation requires significant financial resources. Diverse funding sources will be sought to meet these needs of the Rowlett Creek WPP. Resources will be leveraged where possible to extend the impacts of acquired and contributed implementation funds. Grant funds will be relied upon to initiate implementation efforts. Grant funds are not a sustainable source of financial assistance but are necessary to assist in WPP implementation. Other sources of funding must be utilized and creative

funding approaches that are applicable to this WPP will be sought as appropriate. Many funding opportunities are listed and described in this section, though other sources can be pursued (Table 6-4).

Table 6-4. Sources of potential financial assistance for WPP implementation.

Management Measure	Financial Assistance Opportunities
1	State CWA §319(h) Grants (TCEQ); Environmental Education Grants; State Water Implementation Fund (TWDB); Texas Water Development Fund (TWDB); Urban & Community Forestry Program (TFS); Texas Water Action Collaborative (TxBN); Cynthia and George Mitchell Foundation; Clean Water State Revolving Fund (TWDB); Five Star and Urban Waters Restoration Program
2	State CWA §319(h) Grants (TCEQ); Environmental Education Grants; Supplemental Environmental Projects Program (TCEQ); Recreation Grants (TPWD); Communities Foundation of Texas
3	State CWA §319(h) Grants (TCEQ); Environmental Education Grants; American Humane; ASPCA Grants Program; Banfield Foundation; The Binky Foundation; Communities Foundation of Texas
4	Environmental Quality Incentives Program; Conservation Stewardship Program; Conservation Reserve Program; National Integrated Water Quality Program; National Water Quality Initiative; Federal and State CWA §319(h) Grants; TSSWCB WQMP Program; Dixon Water Foundation
5	State CWA §319(h) Grants (TCEQ); Environmental Education Grants; Supplemental Environmental Projects Program (TCEQ); Meadows Foundation; Cynthia and George Mitchell Foundation
6	State CWA §319(h) Grants (TCEQ/TSSWCB); USDA Water and Waste Disposal Loan and Grant Program; Supplemental Environmental Projects Program (TCEQ); Outdoor Recreation Grants (TPWD)
7	State CWA §319(h) Grants (TCEQ); Environmental Education Grants; Meadows Foundation
8	Floodplain Management Services Program Technical Assistance; FEMA Flood Mitigation Assistance; Meadows Foundation; Flood Infrastructure Fund (TWDB); Texas Water Development Fund (TWDB)

Federal Funding Sources

Clean Water Act §319(h) Nonpoint Source Grant Program

Grant funding is provided to the State of Texas by EPA for implementation of projects that reduce nonpoint source pollution through the CWA §319(h) NPS Grant Program. These grants are administered by TCEQ and TSSWCB. Implementation measures included in WPPs that satisfy EPA’s nine key elements of successful watershed-based plans and meet other program rules are eligible for funding through the 319(h)-grant program. Some commonly funded items include but are not limited to: development and delivery of education programs; water quality monitoring; water body cleanup events; OSSF repairs and replacements; BMP installation and demonstrations. Further information can be found on the NPS Grant Programs for TCEQ: [Nonpoint Source Grant Program - Texas Commission on Environmental Quality - www.tceq.texas.gov](http://www.tceq.texas.gov) and TSSWCB: [Texas Nonpoint Source Management Program | Texas State Soil and Water Conservation Board](http://www.tsswcb.com)

Environmental Education Grants

Funding provided by the EPA that seeks grant proposals from eligible applicants to support environmental education projects that promote environmental stewardship and help develop knowledgeable and responsible students, teachers, and citizens. This grant program supports projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques as described in the solicitation notice.

Environmental Quality Incentives Program (EQIP)

EQIP provides technical and financial assistance to agricultural producers and forest landowners to address natural resource concerns, such as improving and conserving soil, water, plant, animal, air, and other resources associated with agricultural land. This program is provided by the USDA-NRCS with support from the local SWCDs. Watershed stakeholders are strongly encouraged to participate in their local work group to promote the objectives of this WPP with the resource concerns and conservation priorities of EQIP. More information can be found at [Environmental Quality Incentives Program | Natural Resources Conservation Service](#).

Conservation Stewardship Program

The Conservation Stewardship Program (CSP) is a voluntary conservation program administered by the NRCS. CSP encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining, and managing existing conservation activities. Conservation practices include prescribed grazing, nutrient management planning, precision nutrient application, manure application, and integrated pest management. More information can be found on their website: [Conservation Stewardship Program | Natural Resources Conservation Service](#).

Five Star and Urban Waters Restoration Program

Its goal is to meet the conservation needs of important species and habitats, providing measurable and meaningful conservation and educational outcomes. The program focuses on the stewardship and restoration of coastal, wetland and riparian ecosystems across the country. The program requires the establishment and/or enhancement of diverse partnerships and an education/outreach component that will help shape and sustain behavior to achieve conservation goals. More information available at [Five Star and Urban Waters Restoration Grant Program | NFWF](#)

State Funding Sources

Clean Water State Revolving Fund

The Texas Water Development Board (TWDB) provides low-cost financing for a variety of wastewater, stormwater, reuse, and other pollution control projects. Political subdivisions and private entities are eligible to apply for loans at lower than market rates to plan, design, acquire or construct projects. The loans can spread project costs over a repayment period of up to 20 years. More information available at [Clean Water State Revolving Fund | Texas Water Development Board](#)

Supplemental Environmental Projects (SEP)

The SEP program is administered by TCEQ which directs fines, fees, and penalties for environmental violations toward environmentally beneficial uses. A respondent in an enforcement action may negotiate an agreement to perform a SEP to offset a portion of the assessed administrative penalty. The 3rd party

administrators who can apply for SEP are non-profit or governmental organizations. Information can be found at [Supplemental Environmental Projects \(SEPs\) - Texas Commission on Environmental Quality - www.tceq.texas.gov](https://www.tceq.texas.gov).

Clean Rivers Program (CRP)

TCEQ administered a state fee-funded program that provides surface water quality monitoring, assessment, and public outreach. Allocations are made to 15 partner agencies throughout the state to assist in routine monitoring, special studies, and outreach efforts. The Trinity River Authority (TRA) is the CRP partner for the Rowlett Creek watershed. [The Texas Clean Rivers Program - Texas Commission on Environmental Quality - www.tceq.texas.gov](https://www.tceq.texas.gov)

Recreation Grants

The Recreation Grants are administered by the Texas Parks and Wildlife Department (TPWD) to support communities across Texas with their outdoor recreation needs through grant assistance and outreach programs. Providing grants to communities across Texas helps build access to outdoor experiences and encourages a connection with nature that is vital for promoting conservation and good environmental stewardship among Texans young and old. More information at [Recreation Grants — Texas Parks & Wildlife Department](#).

Flood Infrastructure Fund (FIF) Program

The FIF program is administered by the TWDB to provide financial assistance in the form of loans and grants for flood control, flood mitigation, and drainage projects. The Flood Intended Use Plan, Flood IUP, details the structure of each funding cycle. Program eligibility for municipalities, counties, and other political subdivisions, for more information go to [Flood Infrastructure Fund \(FIF\) | Texas Water Development Board](#).

State Water Implementation Fund for Texas (SWIFT)

The SWIFT program helps communities develop and optimize water supplies at cost-effective rates. The program provides low-interest loans, extended repayment terms, deferral of loan repayments, and incremental repurchase terms for projects with state ownership aspects. Funding is available to municipalities, counties, river authorities, and water control and improvement districts. More information available at [State Water Implementation Fund for Texas \(SWIFT\) | Texas Water Development Board](#).

Texas Farm and Ranch Lands Conservation Program

The Texas Farm and Ranch Lands Conservation Program was established and is administered by TPWD to conserve working lands to protect water, fish, wildlife and agricultural production that are at risk of future development. The program's goal is to educate citizens on land resource stewardship and establish conservation easements to reduce land fragmentation and loss of agricultural production. More information available at [Texas Farm and Ranch Lands Conservation Program - TPWD](#).

Additional Sources

Private foundations, non-profit organizations, land trusts, and individuals can potentially assist with implementing some aspects of the WPP. Funding eligibility requirements for each program should be reviewed before applying. Examples of applicable additional funding sources include:

- Cynthia and George Mitchell Foundation: provides grants for water and land conservation programs to support sustainable protection and conservation of Texas' natural resources.
- Dixon Water Foundation: provides grants to non-profit organizations to assist in improving/maintaining watershed health through sustainable land management.
- Meadows Foundation: provides grants to non-profits, agencies, and universities engaged in protecting water quality and promoting land conservation practices to maintain water quality and availability on private lands.
- Texas Land Conservancy: funding provided by the trust assists communities, private landowners, governments, and other partners to protect Texas' natural areas.
- Partnerships with local industry in the watershed could provide in-kind donations or additional funding for implementation projects.