

Arroyo Colorado Watershed Protection Plan Implementation Scope of Work

I. Background

This project Scope of Work describes tasks necessary for TCEQ, its partner agencies, and its contractors to facilitate implementation of the Arroyo Colorado Watershed Protection Plan (Arroyo WPP) to address low dissolved oxygen in the tidal segment of the Arroyo Colorado. The Arroyo Colorado WPP shall be completed under a previous Clean Water Act Section 319(h) project through Texas Sea Grant. Concurrent to WPP finalization, this project will begin facilitating its implementation.

Since assessments of water quality were first conducted by the state of Texas in the mid 1970s, the tidal segment of the Arroyo Colorado (segment 2201) has consistently failed to meet the state's water quality standards designed to protect aquatic life use in tidal streams of the state. Segment 2201 is again included in the most recent list of impaired water bodies of the state of Texas, the draft 2004 Texas Clean Water Act Section 303(d) List, because dissolved oxygen concentrations in the upper 8 miles of the segment are often lower than the criteria established to assure optimum conditions for aquatic life.

Extensive agricultural activity in the watershed and millions of gallons of treated, marginally treated, and, essentially untreated wastewater contribute to high levels of pollutants entering the Arroyo Colorado on a daily basis. In addition to high loadings of oxygen-demanding substances and nutrients, the Arroyo Colorado stream system has been physically modified extensively to convey storm water and wastewater produced within its watershed. The tidal segment of the Arroyo is also dredged for navigation from the intercoastal waterway in the Laguna Madre to the Port of Harlingen.

In 1998 the Texas Commission on Environmental Quality (TCEQ) initiated an effort to develop a TMDL for pollutants causing low dissolved oxygen (DO) in the tidal segment of the Arroyo Colorado.

The TMDL effort was completed in 2002. However, because of lingering uncertainty surrounding cause-and-effect relationships associated with the observed DO impairment, the TMDL analysis completed in 2002 was unable to support a quantitative, water quality target-based allocation of loadings of constituents associated with DO dynamics in the tidal segment of the Arroyo Colorado.

The Arroyo Colorado TMDL study completed in 2002 also concluded the following:

- A) DO dynamics in the Arroyo Colorado are highly influenced by physical characteristics of the stream (i.e. dredged tidal channel hydraulics)
- B) Load reductions necessary to comply with current DO criteria are not realistically achievable (i.e. the study found that a 90% reduction in loading would be necessary)

- C) There is need for further study to gain a better understanding of cause-and-effect relationships associated with the observed impairment and also to reduce uncertainty in the analysis.

The (2002) TMDL effort did not result in TCEQ adoption. However, as a direct result of this initial TMDL effort, TCEQ led efforts to develop a comprehensive strategy to address low DO in the tidal segment of the Arroyo Colorado. The strategy includes efforts to reduce pollutant loadings, improve aquatic habitat, and conduct additional monitoring and modeling for refinement of the existing TMDL analysis. Development of the Arroyo Colorado Watershed Protection Plan was a consensus-based effort initiated by a group of stakeholders with assistance from several state and federal agencies.

The stakeholder group associated with this project, the Arroyo Colorado Watershed Partnership, was formed in Weslaco, Texas in July, 2003 and includes members of the previous Arroyo Colorado TMDL Stakeholder Committee and the Arroyo Colorado TMDL Science and Technical Advisory Committee, both of which were formed in 1998.

The Arroyo Colorado Watershed Partnership, in close cooperation with TCEQ, formed the Arroyo Colorado Watershed Steering Committee and five separate work groups to provide direction for the Partnership and to address and develop five major components of the comprehensive Arroyo Colorado Watershed Protection Plan. These components were identified as a result of TMDL development efforts in the Arroyo Colorado and are as follows:

- Wastewater Infrastructure
- Agricultural Issues
- Habitat Restoration
- Further Study/ Refinement of TMDL Analysis
- Outreach and Education

The five workgroups created to address issues associated with each of the components described above were responsible for developing recommendations for improving water quality, including reducing current pollutant loadings, restoring/improving aquatic habitat, increasing public awareness and education, and conducting additional monitoring and research. Recommendations provided by the workgroups were integrated into the comprehensive Watershed Protection Plan for the Arroyo Colorado.

II. Project Description

Recognizing the need to assist and track implementation of the WPP, assess effectiveness of the WPP in improving water quality, continue facilitation of the Arroyo Colorado Watershed Steering Committee, provide necessary outreach and education, and seek funding opportunities to ensure implementation of the WPP, TCEQ and Arroyo Colorado Watershed Steering Committee will fund the position of Watershed Coordinator and Grant Writer/Water Quality Analyst for the Arroyo Colorado watershed.

This project will: 1) fund a watershed coordinator and grant writer, 2) facilitate, coordinate, and track actual implementation measures described in the WPP, 3) continue to identify additional feasible measures for reducing pollutant loading to the Arroyo Colorado, 4) identify and seek additional funding to continue watershed protection efforts in the Arroyo Colorado, 5) link partners and projects to available funding sources, 6) sponsor local workshops with state, local, and regional agencies and organizations, and 7) publicize and build awareness of the watershed improvement efforts and bolster local support and participation in these efforts. This project will also analyze all available water quality monitoring data to examine and document changes in pollutant loading, water quality, and habitat during the implementation of the Arroyo Colorado WPP and continued outreach and education efforts.

Facilitation, coordination and management of the Arroyo Colorado Watershed Steering Committee and implementation of the WPP will entail a substantial commitment of time and resources. The Watershed Coordinator will provide a single point of contact for activities of the work groups, manage and track work group activities, facilitate information exchange among participants, and, ultimately, ensure implementation of the WPP for the Arroyo Colorado. The Arroyo Colorado Watershed Coordinator will be responsible for coordinating management of the Steering Committee and facilitating implementation of the WPP by providing the extensive outreach and education activities that will be needed to successfully achieve successful implementation.

The Grant Writer/Water Quality Analyst will identify and help acquire additional resources for use by the Watershed Steering Committee, Partnership, and individual work groups, to implement the WPP. The Grant Writer/Water Quality Analyst will also compile water quality data collected throughout the Arroyo and periodically assess it for water quality trends and improvements.

The work specified in this project Scope of Work will be documented through meeting summaries, quarterly progress reports, and a final report describing implementation of the Comprehensive Watershed Protection Plan for the Arroyo Colorado.

III. Tasks

TASK 1: Project Administration

TWRI will effectively coordinate and monitor all technical and financial activities performed under this contract, prepare progress reports, and maintain project files and data. TWRI will be responsible for hiring and supervision of all project personnel.

Task 1.1: Project Oversight –TWRI will provide technical and fiscal oversight to ensure Tasks and Deliverables are acceptable and completed as scheduled and within budget.

Task 1.2: Quarterly Progress Reports (QPRs) – TWRI, with the assistance of the Arroyo Colorado Watershed Coordinator (ACWC) and Arroyo Colorado Grant Writer/Water Quality Analyst (ACGC), will submit QPRs to TCEQ by the 15th of the month following

each state fiscal quarter for incorporation into the Grant Reporting and Tracking System (GRTS). The Reports will include:

- *status of deliverables for each Objective and Task*
- *narrative description of activities for each task outlined in this Scope of Work in Progress Report format*

Task 1.3: Quarterly TTVN or Teleconference – To facilitate good communication between project participants, a quarterly TTVN (Trans-Texas Videoconference Network) or teleconference will be scheduled and hosted by TWRI.

Task 1.4: Arroyo Colorado Website – TWRI will maintain and improve the Arroyo Colorado website

Task 1.5: Reimbursement Forms – Texas Cooperative Extension will submit reimbursement forms by the last day of the month following each state fiscal quarter.

Task 1.6: Final Report – TWRI, with assistance of the ACGC and ACWC, will provide TCEQ and EPA with a comprehensive report on the activities and success of the WPP conducted during the course of this project. An assessment of data collection and analysis efforts conducted under Task 5 of this scope of work will also be included in the final report.

Task 2: Steering Committee and Work Group Facilitation

The ACWC will provide a structure/encouragement for continued stakeholder participation and involvement; arrange and facilitate Arroyo Colorado Watershed Steering Committee meetings; ensure activities of work groups are consistent with goals and objectives of the Watershed Steering Committee and will advance the goal of implementing individual components of the Watershed Protection Plan. The ACWC will also document all Steering Committee and work group activities.

Task 2.1: Facilitate and Coordinate Meetings – The ACWC will facilitate the Arroyo Colorado Watershed Steering Committee and Work Group meetings by working with the chairman and work group leaders. Specifically, the ACWC will be responsible for:

- *Developing agendas, arranging meeting facilities and sending E-mail notices for Quarterly Steering Committee meetings*
- *Assisting all individual work groups with facility arrangements, developing and distributing agendas, and developing meeting summaries as requested by the Work Group Leaders; Work Group meetings will be held as needed, but, at least, semi-annually*
- *Providing information requested by work group leaders prior to and following work group meetings*
- *Attending all individual work group meetings*
- *Compiling and submitting all individual work group meeting agendas and meeting summaries to the TWRI project manager (these will be attached to QPRs and submitted to the TCEQ contract manager and posted on the webpage)*

- *Coordinating efforts of the individual work groups and the Watershed Steering Committee to facilitate the integration of the different components of the Watershed Protection Plan implemented by each workgroup*
- *Updating all Steering Committee meeting participants on the progress of individual workgroups (and/or arranging for individual workgroup leaders to provide these updates) and of the overall implementation of the Watershed Protection Plan*
- *Facilitating a forum for open discussion among Steering Committee meeting participants and interested parties attending the meetings*
- *Arranging presentations by guest speakers offering useful information to Steering Committee participants*
- *Preparing and disseminating summaries of Watershed Steering Committee meetings to all participants*

Task 2.2: Provide Bi-Monthly Updates – The ACWC will provide e-mail updates to TWRI, TCEQ and the Arroyo Colorado Watershed Partnership on progress made in implementation of the ACWPP at least twice monthly.

Task 2.3: Provide Membership Lists – The ACWC will provide TWRI updated lists of the Steering Committee and their contact information for posting on the project website.

Task 2.4: Engage Stakeholders – The ACWC will encourage participation and involvement of key stakeholders in the implementation of the WPP.

Task 3: Facilitate Watershed Protection Plan Implementation

The ACWC will facilitate implementation of the Watershed Protection Plan through outreach and education activities in the Arroyo Colorado watershed, and other activities designed to promote private and public support for the implementation of the WPP. The ACWC will identify local, regional and national groups and agencies planning, or engaging in activities with goals similar to those of the Arroyo Colorado Partnership and, to the highest extent practicable, coordinate and integrate the efforts of the Arroyo Colorado Partnership with the activities of the groups identified.

Task 3.1 Facilitate and Coordinate Implementation of Education and Outreach Measures as Outlined in ACWPP

- *Implement the outreach campaign described in the Arroyo WPP by working closely with TCE specialists, county Extension agents and administrative personnel, and other agencies and groups. Education and outreach will be directed to targeted audiences to:*
 - Inform them of the initiative*
 - Inform them how impairments within the Arroyo Colorado impact them*
 - Provide them a means for involvement or collaboration. Particularly, emphasize what they can do to improve the Arroyo Colorado and how they can help disseminate information on the ACWPP*

d. Encourage adoption of measures and resolutions to work towards improving the quality of water in the Arroyo Colorado, and when possible, formation of partnerships and/or partnership agreements

e. Targeted audiences may include, but not limited to the following:

- *Sportsmen Groups such as the CCA and Valley Sportsmen Club*
- *Ecotourism Vendors such as World Birding Centers*
- *Schools and museums (IMAS)*
- *Gardeners and Homeowners through local Master Naturalist Groups, Audubon Society, Sierra Club, Homeowners Associations, and Nature Conservancy*
- *Community Leaders*
- *Elected officials such as county judges and commissioners, city mayors and council members, State Legislators and Congressional representatives*
- *Cities (City Managers and staff)*
- *Rio Grande River Water Authority*
- *Lower Rio Grande Valley Development Council (LRGVDC)*
- *Lower Rio Grande Valley Texas Pollutant Discharge Elimination System Storm Water Task Force (LRGV Task Force)*
- *River Authorities (Nueces River Authority and IBWC)*
- *Local Soil and Water Conservation Districts*
- *Irrigation Districts*
- *Drainage Districts*
- *Media Personnel (Newspaper, Radio, Television, and billboards)*
- *Chambers of Commerce*
- *Civic Organizations*
- *Evaluate outreach campaign effectiveness.*
 - a. Create an evaluation instrument for presenters to circulate at select events to assess the effectiveness of their tools, outreach and presentations.*
 - b. Develop a survey instrument and circulate annually to the Steering Committee and Partnership members to assess their satisfaction with the campaign and solicit inputs for improvements.*
 - c. Integrate audience and stakeholder suggestions to improve and feed new data to the outreach campaign, continually shaping its messages and tactics.*
- *Publicize Arroyo Colorado Watershed Protection Efforts*
 - a. Work to obtain TXDOT approval and installation of roadway signage indicating location of Arroyo Colorado watershed or significant crossing areas.*
 - b. Develop press releases quarterly and distribute to local media personnel*
 - c. Work with cities to stencil storm drains to raise awareness of connection between storm water and pollution*
- *Collaborate with the LRGV Storm Water Task Force, LRGVDC, Texas Watch, Rio Grande Basin Initiative (RGBI) and others to enhance delivery of the outreach campaign*
- *Track implementation of education and outreach measures*

Task 3.2: Facilitate and Coordinate Implementation of Agricultural Pollution Control Measures as Outlined in ACWPP

- *Encourage implementation of BMPs and participation in TSSWCB, NRCS, TCE, and TAES programs / workshops by providing information on these agencies and available incentive programs through outreach efforts described in Task 3.1.*
- *Participate in Arroyo BMP Education Coordination meetings and Arroyo Ag Monitoring Oversight Committee to ensure consistency with WPP and Steering Committee objectives*
- *Track implementation of agricultural pollution control measures*

Task 3.3: Facilitate and Coordinate Implementation of Recommended Measures Described in the Habitat Component of the ACWPP

- *Coordinate and integrate efforts of the Arroyo Colorado Partnership with:*
 - a. Ongoing efforts of federal, state, and local agencies and organizations to implement terrestrial habitat conservation objectives in the Arroyo Colorado watershed;*
 - b. Drainage districts to improve drainage ditches and maintenance practices to reduce channel and stream bank erosion; and*
 - c. IBWC during channel development or maintenance projects for the Arroyo Colorado to implement bank/slope stabilization.*
- *Inform targeted audiences about benefits of wetlands, riparian systems, and habitat restoration projects to the environment and the public in outreach and education efforts to encourage:*
 - a. The protection and restoration of existing riparian areas, resacas, and freshwater wetlands;*
 - b. Implementation of projects that would detain storm water runoff, reduce sediment load, and reduce the volume and velocity of the flow of runoff in drainage ditches and the Arroyo Colorado;*
 - c. Increased use of vegetated filter strips around agricultural production and urban development areas to slow storm water runoff from these areas;*
 - d. Implementation of wetland systems to treat storm water in urban developments, redevelopments and in areas under agricultural production to reduce non-point source pollutant loading to the Arroyo Colorado;*
 - e. Development of large off-channel treatment wetlands that treat flows from both point and non-point discharges and provide habitat; and*
 - f. Development of constructed wetlands for tertiary treatment of waste streams from individual wastewater treatment plants and/or for polishing flows from multiple wastewater treatment plants in close proximity with habitat features when feasible.*
- *Track implementation of habitat restoration and pollution reduction measures.*

Task 3.4: Facilitate and Coordinate Implementation of Wastewater Infrastructure Pollution Control Measures as outlined in the ACWPP

- *Track implementation of wastewater infrastructure measures and wastewater-related pollution reduction measures*

Task 3.5: Newsletter Publication

- *The ACWC will produce and distribute via email, the website, and U.S. Postal Service the Arroyo Colorado Newsletter to the Partnership and Steering Committee on a semi-annual basis.*
- *The semi-annual newsletter will contain summaries of work group activities; progress in achieving goals of the Watershed Partnership and the ACWPP; and a general update of habitat, monitoring, outreach and water quality improvement activities in the Arroyo Colorado watershed for all interested parties.*

Task 4: Resource Identification and Grant Writing

Identify potential state, federal, non-profit, and private sector resources useful to the Watershed Partnership for implementation of the Watershed Protection Plan and assist individual work groups in resource identification and grant writing for activities and projects associated with individual work group goals.

Task 4.1: Track Grants and Assist Partners in Grant Applications – In coordination with TWRI, the Arroyo Colorado Grant Coordinator/Water Quality Analyst (ACGC), with assistance from the ACWC, will: 1) actively seek and pursue funding opportunities for watershed protection and restoration projects, 2) track appropriate grants that fund activities outlined in the WPP and assist Arroyo Partners in the grant application process and 3) link appropriate partners and projects.

Task 4.2: Lead proposal development to request/acquire funding for Implementation of Measures as Outlined in ACWPP. A minimum of 10 grant proposals will be developed during the project period by the ACGC, in cooperation with the ACWC, TWRI, and project partners. Upon completion, the grant proposals will be submitted by either project partners or TWRI/TCE, whichever is most appropriate. Potential proposals may include, but not limited to funding requests to:

- *Implement recommendations of the Outreach and Education Work Group.*
- *Produce an educational video.*
- *Increase wastewater and surface water infrastructure development within cities and public utility systems for colonias.*
- *Design and construct individual and/or regional enhanced biological treatment projects.*
- *Conduct feasibility studies and final engineering designs for development of individual and regional constructed wetland demonstration projects throughout the watershed.*
- *Establish individual and regional constructed wetland projects.*
- *Conduct feasibility studies for modifying the drainage channels to maintain moist soils to sustain wetland plants for treatment of nonpoint source pollution.*

Task 5: Data Gathering and Analysis to Assess Effects of Water Quality Protection Plan

The ACGC will assemble and maintain a data clearinghouse for all data collected in the Arroyo and from that data, evaluate changes in BOD, TSS, fecal bacteria, and nutrient loading to Segments 2201 and 2202 of the Arroyo Colorado. Data collection will include:

- *Pollutant removal effectiveness of enhanced treatment projects through effectiveness monitoring conducted by participating cities.*
- *Wastewater permit holders self reporting data to better characterize loading of nutrients from WWTPs to the Arroyo Colorado*
- *Data collected through the Arroyo Colorado Agricultural Nonpoint Source Assessment Project*
- *Texas Clean Rivers Program*