

Mid and Lower Cibolo Creek Watershed Meeting Overview

Clare Entwistle

Texas Water Resources Institute



Topics for Today

- ⦿ Management Measures and Implementation Schedule
- ⦿ Review of Draft WPP & Open Discussion
- ⦿ Open Discussion & Questions

Review of Previous Meetings



Watershed Waterbodies

- Mid-Lower Cibolo Creek (~92 miles)
- Martinez Creek (~26 miles)
- Salitrillo Creek (~11 miles)
- Clifton Branch (~8 miles)





What is a Watershed Protection Plan?

- ⦿ Watershed Protection Plans (WPP) address complex water quality issues across multiple jurisdictions
- ⦿ The goal is to improve, restore or maintain good water quality within a particular watershed
- ⦿ WPPs are tools to better leverage the resources of local governments, state and federal agencies, and non governmental organizations
- ⦿ WPPs are a voluntary, proactive approach to integrating activities and prioritizing BMP implementation

Key Elements of Watershed Plans

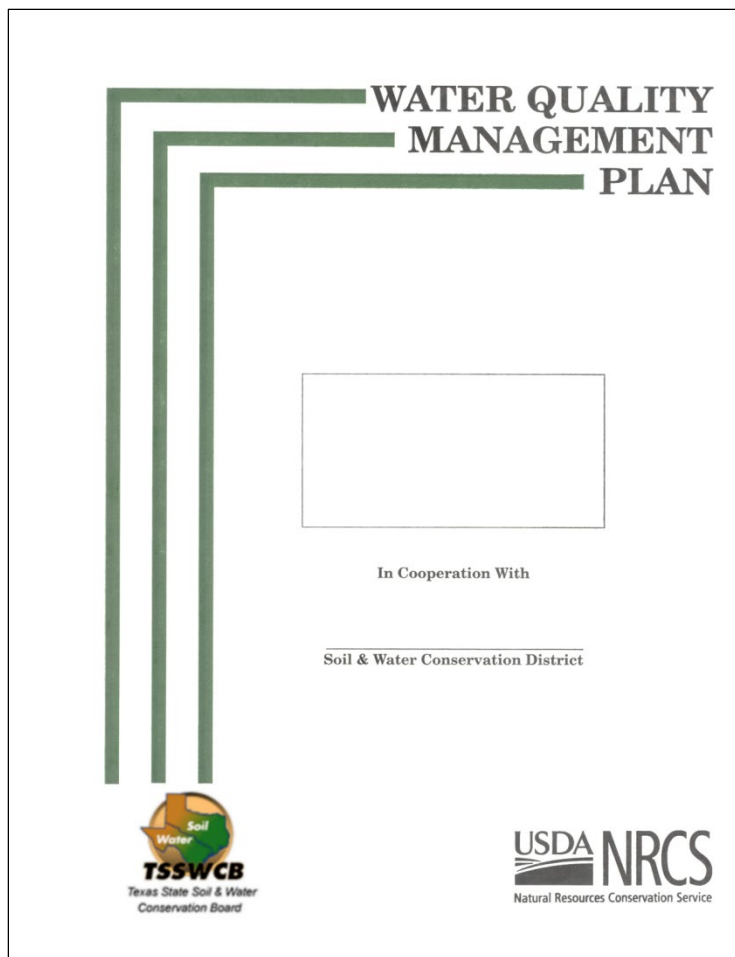
- Identification of Sources of Bacteria
- Estimated Loading Reductions Needed
- Description of Management Measures
- Education and Outreach Needed
- Schedule for Implementation
- Implementation Milestones
- Possible Sources of Financial Assistance and Estimated Costs
- Measures of Success (i.e. indicators to measure reductions)
- Monitoring plan to evaluate effectiveness

Ag/Wildlife Workgroup

- ⦿ Develop and implement TSSWCB certified Water Quality Management Plan (WQMP) and NRCS conservation plans. Engage with NRCS technicians.
- ⦿ Bring in educational programs:
 - ⦿ for conversion from agricultural tax valuation to wildlife management tax valuation
 - ⦿ Vegetation programs
 - ⦿ BMPs
 - ⦿ Offer CEUs
- ⦿ Illicit dumping – Install education signs, no parking signs
- ⦿ Feral Hog Trapping loaner program
- ⦿ Develop and implement wildlife management plans



Water Quality Management Plans



- ⦿ Site-specific plan for land improvement measures developed through SWCD for agricultural lands
- ⦿ Provides farmers and ranchers a voluntary opportunity to achieve a level of pollution prevention or abatement consistent with state water quality standards
- ⦿ Includes appropriate and essential land treatment practices, production practices, management measures, or technologies applicable to the planned land use
- ⦿ Best available management and technology as described in NRCS Field Office Technical Guide

Urban/Stormwater Workgroup

- ⦿ MS4 trainings, share fact sheets and outreach materials
- ⦿ BMP demonstration sites and green stormwater infrastructure projects/education
 - ⦿ Seguin Outdoor Learning Center
- ⦿ Riparian habitat restoration
- ⦿ Stream Clean up events and Collection events
- ⦿ Texas Stream Team – volunteer monitoring
 - ⦿ Engage with school districts
- ⦿ Enclosed trash facilities at restaurants
- ⦿ Low cost Spay/Neuter programs
- ⦿ Pet waste stations/ free pet waste bags at events
- ⦿ Get homes connected to centralized wastewater

Wastewater Workgroup

- ⦿ Explore or implement nonpotable wastewater reuse
- ⦿ Install updated treatment technologies
 - Increasing services with building of new WWTFs
- ⦿ Provide tours of WWTFs
- ⦿ Increase education opportunities for employees and general public
 - Fats, Oils, and Grease
 - Collection system education
- ⦿ SSO Initiative

**MANAGEMENT
MEASURES
&
IMPLEMENTATION
SCHEDULE**

MM 1: Developing and Implementing Water Quality Management Plans or Conservation Plans

- ⊙ Work with landowners to develop property-specific CPs and WQMPs (40 over 10 years)
- ⊙ Develop funding to hire WQMP technician
- ⊙ Deliver education and outreach programs and workshops for landowners

MM 1	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Develop WQMPs and CPs	\$15,000 per plan	10	10	20	\$600,000
Deliver O/E	NA	1	1	1	NA

MM 2: Promote technical and direct operational assistance to landowners for feral hog control

- ⊙ Work with landowners to reduce feral hog populations by 15%
 - ⊙ Voluntarily construct fencing around deer feeders
 - ⊙ Voluntarily trap/remove/shoot feral hogs
- ⊙ Provide education and outreach to stakeholders
- ⊙ Develop and implement wildlife management plans and wildlife management practices

MM 2	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Construct Feeders	\$200 per feeder	As many as possible			NA
Trap/Remove/Shoot feral hogs	NA	1,587 hogs per year (15% reduction)			NA
Feral Hog Education	\$3,000 each	1	1	1	\$9,000

MM 3: Identify and repair or replace failing on-site sewage systems

- ⦿ Inspect failing OSSFs in the watershed and secure funding to promote OSSF repairs
- ⦿ Repair or replace OSSFs (50 over the 10 years)
- ⦿ Educate homeowners on proper maintenance

MM 3	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Identify, inspect, repair/replace OSSFs, as funding allows	\$8,000-10,000	10	20	20	\$400,000 - \$800,000
Deliver O/E	\$3,500	1	1	1	\$10,500

MM 4 - Increase proper pet waste management

- ⦿ Expend education and outreach messaging on disposal of pet waste
- ⦿ Install and maintain pet waste stations in public areas (50 stations over the 10 years)

MM 4	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Pet waste stations	\$500 per station	10	20	20	\$25,000
Pet waste education materials	NA	1	1	1	NA

MM 5 – Implement and expand urban and impervious surface stormwater runoff management

- ⊙ Education and Demonstration sites to inform residents about stormwater BMPs (Green Stormwater Infrastructure)
- ⊙ Identify and Install stormwater BMP sites, stream restoration projects

MM 5	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Identify and Install stormwater BMPs	\$4,000 - \$45,000 per acre	As many as possible			NA
Deliver O/E	NA	1	0	1	NA

MM6 – Manage SSOs and Unauthorized Discharges

- ⦿ Reduce unauthorized discharges and SSOs
- ⦿ Replace and Repair infrastructure where problems have been identified
- ⦿ Develop and Deliver education material to resident and property owners
- ⦿ Proper Disposal Fats, Oils and Grease and unflushables

MM 6	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Identify and replace pipes / Infrastructure contributing to problems	\$3,000 - \$20,000 per site	As identified/needed			
Deliver O/E	NA	1	1	1	NA

MM 7 – Planning and Implementation of Wastewater Reuse

- ⦿ Identify sites within Mid and Lower Cibolo Creek watershed with high potential for wastewater reuse
- ⦿ Irrigation on city properties

MM 7	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Inventory, Identify, and prioritize sites within the watershed that could use wastewater reuse	N/A	As needed			N/A

MM 8 – Reduce Illicit Dumping

- ⦿ Increase awareness of proper disposal techniques and reduce illicit dumping of waste and animal carcasses
 - ⦿ Develop and deliver educational and outreach materials to residents
 - ⦿ Hazardous Waste Collection events watershed-wide (Annually).

MM 1	Estimated Unit Cost	# Implemented (year 1-3)	# Implemented (year 4-6)	# Implemented (year 7-10)	Estimated Total Cost
Hazardous waste collection events	\$35,000 - \$60,000 per event	3	3	3	\$315,000 - \$540,000
Deliver O/E	\$7,000	1	1	1	\$7,000

Questions?

Clare Entwistle
Texas Water Resources Institute
210-277-0292 ext 205
clare.entwistle@ag.tamu.edu

Patty Carvajal
San Antonio River Authority
pmcarvajal@sara-tx.org

Michael Schramm
Texas Water Resources Institute
979-458-9191
michael.schramm@ag.tamu.edu

Lucas Gregory, PhD
Texas Water Resources Institute
lfgregory@ag.tamu.edu

"This effort was funded through a State Nonpoint Source grant from the Texas State Soil and Water Conservation Board."