

Upper San Antonio River Watersheds: TMDL Implementation Status

Date of Status Report: September 5, 2019

I-Plan Approval Date: April 6, 2016

TCEQ Project Manager: Nicole Reed

Management Measures

Responsible Parties Abbreviations

BRWM – Bexar Regional Watershed Management Partnership

CoSA – City of San Antonio

CoSA-ACS – CoSA Animal Care Services

CoSA-CCDO – CoSA Center City Development & Operations Department

CoSA-PRD – CoSA Parks and Recreation Department

CoSA-TCI – CoSA Transportation & Capital Improvements Department

KSAB – Keep San Antonio Beautiful

NRCS – Natural Resources Conservation Service

RWWA – River Walk Watershed Alliance

SARA – San Antonio River Authority

SAWS – San Antonio Water System

SWCD – Soil & Water Conservation District

TxDOT – Texas Department of Transportation

TSSWCB – Texas State Soil & Water Conservation Board

Management Measure 1: Implement Wastewater Collection and Transmission System (WCTS) Operation and Maintenance Programs to Reduce Sanitary Sewer Overflows (SSOs)

Responsible Party	Implementation Goal	Status
SAWS	Continue to develop SSO reduction principals that focus proactively on best management practices (BMPs) to improve program management; capacity assessment; remedial measures; capacity, management, operation, and maintenance; and information services.	As a part of the Consent Decree with the Environmental Protection Agency (EPA) to reduce sewer spills, SAWS's Capacity and Condition Assessment reports were submitted in January 2018. Remedial measure plans, and alternatives analysis and 30% design were submitted in January 2019 and approved in March 2019 by EPA. Design and construction for remediation is set to begin in early 2019 and extend through 2023 with a possible extension.

Management Measure 2: San Antonio Zoo UV Treatment System Implementation

Responsible Party	Implementation Goal	Status
CoSA-TCI, SAWS	Continue the on-going operation and maintenance of the UV system. Additionally, continue to monitor the UV treatment efficiency and effectiveness as a part of the municipal separate storm sewer system (MS4) permit.	On-going sampling and testing of water quality is conducted by SAWS. On-going maintenance and operation of the UV system is conducted by CoSA.

Management Measure 3: Advancement of Low Impact Development (LID)

Responsible Party	Implementation Goal	Status
SARA	Provide LID education and training,	Conducted 80 audience-targeted workshops, 31 field trips, and two requested lunch and learns that were focused on LID education. An additional nine annual LID trainings were given with online databases, two of which were formal credentialing courses co-founded by Bexar County.
SARA	Unified Development Code Attend CoSA's Master Development Plan meetings, Preliminary Plan Review meetings, and meetings of the Historic Design Review Commission, and under an Interlocal agreement with the City, identify upcoming developments within the River Improvements Overlay District and offer LID assessments and stormwater BMP options. Also provide LID assessment assistance in coordination with CoSA on development plans that are self-identified as having LID components.	The 2015 and 2017 UDC updates included voluntary LID standards and CoSA incentives (Section 35-210), and a LID mandate (referencing UDC 35-210 for standards) for San Antonio River (RIOs 1-3 and 4-6) and San Pedro Creek (EIO 7a-e). SARA has continued to attend Master Development Plan, Preliminary Plan Review, and Historic Design Review Commission meetings upon request. LID review assistance is also given to CoSA upon request too.
SARA	SA2020 Continue LID advocacy and promotion to relevant development parties to implement LID projects. Also, promote LID to at least eight significant development projects annually and work to implement more Unified Development Code (UDC) amendments in 2020, if necessary.	Since 2016 there have been a total of 96 LID projects received. Of those 96 applications, 41 have been approved and 26 projects have been completed.

Responsible Party	Implementation Goal	Status
SARA	<p>LID BMP Monitoring Continue current BMP water quality monitoring at its Guenther Street and Euclid Avenue properties and conduct post-implementation monitoring to gauge effectiveness of the BMP's. Also, amend appropriate watershed master plans with recommendations based upon the described modeling efforts.</p>	<p>BMP monitoring is still occurring at Guenther Street and Euclid Avenue. Additional monitoring is now occurring at Hausman Road, Ray Ellison Drive, and Elmendorf Lake Park.</p> <p>SARA will develop a comparative case study analysis of several of the projects upon completion of the Ray Ellison project's post-construction monitoring (anticipated Fall 2019).</p>
SARA	<p>Modeling Amend appropriate watershed master plans with recommendations based upon modeling efforts</p>	<p>SARA implements site-scale modeling for the Green Stormwater Infrastructure Master Plan. The plan seeks to integrate water quality with water quantity concerns and provides recommendations on best management practices that can achieve both results. Modeling tools help to identify and prioritize sites within the affected watershed that have the highest potential for green stormwater implementation.</p>
SARA	<p>Watershed Master Plans Update the Upper San Antonio River and Salado Creek Watershed Master Plans annually.</p>	<p>On-going updates are expected for the Upper San Antonio River Watershed for 2021.</p>
SARA	<p>Long Term Monitoring Review monitoring annually with TCEQ and other monitoring partners in a coordinated monitoring process. Provide the TMDL I-Plan group, at its annual meeting, an updated monitoring map, and a summary of changes in E. coli concentrations at all on-going routine monitoring sites in the I-Plan area.</p>	<p>An updated monitoring map was provided for 2020 at the annual I-Plan meeting.</p>

Management Measure 4: MS4 Related Activities and MS4 Phase 1 Water Quality Protection Activities

Responsible Party	Implementation Goal	Status
SAWS, CoSA, TxDOT	Continue to manage the MS4 permit in compliance with its requirements and identify bacteria reduction related BMPs that can be implemented.	SAWS continues to collect monitoring samples for compliance with the MS4 permit. Specifically, SAWS monitors instream influent and effluent for the Zoo's UV System, collects various <i>E. coli</i> samples at different upstream and downstream sections of the San Antonio River, and implements their IDDE Program to identify dry weather discharges and cross connection points at a minimum of 150 locations annually. SAWS continues to implement the Capacity Management Operation Maintenance program, SSO program and a water related public education program.

Management Measure 5: Avian Management for the River Walk and Other Riparian Areas

Responsible Party	Implementation Goal	Status
CoSA-CCDO	Continue to use a falconer for six months of the year, and a laser device the other six months of the year to reduce the grackle population in the downtown area. Also, utilize continued effort through public awareness and early detection to aid in the reduction of avian-related load contributions.	CoSA continues to utilize a falconer for six months out of the year and a laser device the other six months of the year to reduce grackle population in the downtown area under normal conditions and as a response to citizen complaints.

Management Measure 6: Expansion of Pooper Scooper Program

Responsible Party	Implementation Goal	Status
CoSA-PRD	Continue installation of Mutt Mitt Stations with future linear creekway trail projects and community outreach.	<p>CoSA-PRD has installed three additional Mutt Mitt stations for a total of 24 stations.</p> <p>In addition, CoSA has added information on their website about “Scoop Your Pet Poop.” Information includes city regulations, tips, and education about bacteria in waterways that results from pet waste. (source: https://www.sanantonio.gov/Remember-the-River/Residential/Scoop-Your-Pets-Poop)</p>

Management Measure 7: Increase Awareness and Enforcement of Pet Control Ordinance

Responsible Party	Implementation Goal	Status
CoSA-ACS	Continue education and outreach programs for relevant topics such as animal vaccinations and spay and neutering programs.	<p>CoSA has increased the frequency of outreach and public engagement through news spots and public events regarding the Remember the River program which helps promote action to address pollution reduction and prevention in local waterways. This includes a recent trend of new enrollees to the City’s Adopt-a-Spot program, which supports additional cleanup efforts outside of the normal budgeted maintenance cycles. CoSA also has developed the “Floatable Four” radio and video campaign to educate the public about contaminants such as plastic bags, water bottles, aluminum cans, and Styrofoam and the importance of proper disposal. Print materials such as brochures, cards, and signs are distributed in both English and Spanish and include:</p> <ul style="list-style-type: none"> • Runoff Is Your Business: Best Management Practices for San Antonio Businesses • Keep Soaps & Leaks out of Our Rivers & Creeks • Scoop Your Pet Poop, SA • Keep Your Lawn Green & Your River Clean • See a Dump, Be a Grump / Report It • What’s in Your Runoff? • Household Waste & You • What Flows down our Storm Drains When It Rains in San Antonio?

Management Measure 8: BMP Assessment, Pilot Studies ad Mission Drive-In Redevelopment

Responsible Party	Implementation Goal	Status
CoSA-TCI	Provide on-going operations and maintenance at the Mission Drive-In project.	The Mission Library ensures regular trash pickup and general maintenance of the LID features in this area. CoSA-TCI performs on-going monitoring of the features, which continue to function as designed since their construction.
SARA	Complete monitoring of Mission Drive-In Library, erosion control project at SARA’s Environmental Center, rain garden education videos and educational website, LEEDS certification for maintenance facility, and pre- and post-construction monitoring on Hausman Road, Ray Ellison Drive and at Hemisfair Park. Also, complete the stormwater improvement project at SARA’s main office.	<p>The Mission Drive-in Library final report has been submitted. Four rain garden educational videos have been completed and posted on the SARA website. LEED certification was awarded to the MROC facility.</p> <p>Pre-construction monitoring has been completed on Hausman Road, Ray Ellison Drive, and Hemisfair Park. Post-construction monitoring is complete for Hausman Road, is on-going for Ray Ellison Drive, and has not been completed for Hemisfair.</p>

Management Measure 9: Feral Hog Management

Responsible Party	Implementation Goal	Status
Texas A&M AgriLife Extension, TSSWCB, SARA	Host feral hog workshops in the affected watershed.	From 2015 - 2017, AgriLife hosted six feral hog educational programs where SARA presented. SARA has also participated in TPR and KSAT interviews; supported AgriLife in the creation of thirteen blog articles, eleven videos, seven news releases, and one publication. Finally, SARA has purchased 20 loaner gates that are still catching hogs.

Responsible Party	Implementation Goal	Status
TSSWCB, SARA	Promote feral hog abatement activities in different stakeholder meetings in the watershed.	SARA has presented at the EAC, SARA Parks Committee and the Heritage Land Institute regarding feral hog abatement. There is no current information available on from TSSWCB for this management measure at this time.

Management Measure 10: Livestock Management

Responsible Party	Implementation Goal	Status
TSSWCB, Alamo SWCD, Wilson County SWCD, NRCS, SARA	Promote programs that help implement BMPs for grazing livestock and develop WQMPs on livestock operations within affected watershed.	SARA has financially supported BMP implementation programs for the SWCD in Bexar and Wilson Counties.
TSSWCB, Alamo SWCD, Wilson County SWCD	Promote annual status reviews on existing WQMPs in the affected watershed.	There is no update on this management measure at this time.

Management Measure 11: Inspection of New Construction Sites

Responsible Party	Implementation Goal	Status
Bexar County	Ensure that all construction sites over one acre are permitted and inspect all permitted construction sites at regular intervals.	As of August 2019, Bexar County has conducted 442 inspections in the Upper San Antonio Watershed.

Management Measure 12: Evaluate Restoration of Westside Creeks

Responsible Party	Implementation Goal	Status
CoSA, SARA, Bexar County	Finish construction on Elmendorf Lake Park improvements (Apache Creek).	Elmendorf Lake Park Improvements were completed in January 2017. Improvements included were rain gardens, bio-retention swales, constructed wetlands, and lake aeration. A water quality monitoring station has been established on Lake Elmendorf and BMP monitoring is on-going.

Management Measure 13: Mission Reach Ecosystem Restoration and Recreation Project

Responsible Party	Implementation Goal	Status
SARA	Provide project and technical management, and coordinate between project partners. Conduct on-going operations and maintenance activities after project completion. Implement a trash collection system at outfalls if feasible.	SARA conducts on-going operations and maintenance activities in accordance with the O&M document with the United States Army Corps of Engineers. Two trash BMPs have been installed on tributaries to the Mission Reach to assess future implementation feasibility.
SARA, KSAB	Promote the “Adopt a Spot” program, and secure at least one sponsor in areas that drain to Mission Reach and at least five sponsors in areas that drain to Museum Reach.	A join press conference was conducted with SARA and KSAB to promote the Adopt a Spot program, but there are not sponsors as of this time.

Management Measure 14: Environmental Investigators

Responsible Party	Implementation Goal	Status
SARA	Environmental Investigators will continue to investigate activities and conditions in the San Antonio River Basin adjacent to rivers, creeks, and waterways that have the potential for adverse environmental impact or that threaten public health and safety.	SARA has two Environmental Investigators that look into spills, fish kills, bed and bank encroachment, destruction of habitat, and dumping in Bexar, Wilson, Karnes and Goliad counties.

Management Measure 15: “Be Watershed Wise” Campaign

Responsible Party	Implementation Goal	Status
SARA	Utilize the “Be Watershed Wise” initiative and related stormwater education outreach to reach over 75,000 individuals and have over 1,500 citizens signed up to be Watershed Wise Warriors/Citizen Scientists.	As of 2019, there are 775 Watershed Wise Warriors/Citizen Scientist signed up and a total of 50,182 total number of students reached through the campaign.
SARA	Conduct a statistically valid public survey and compare results with previous surveys to determine if trends indicate a growing appreciation of the San Antonio River Watershed and knowledge of sustainability issues.	A phone survey was conducted in 2018.

Responsible Party	Implementation Goal	Status
SARA	Offer and promote a training opportunity in association with the Paseo del Rio Association for restaurant operators to train staff on “Don’t feed the wildlife” and other water quality BMPs associated with the River Walk area.	A new outreach campaign emphasizing “Don’t feed the wildlife” is set to be launched in Fall 2019 for all areas of the River Walk, Museum Reach, and Mission Reach.

Management Measure 16: Homeless and Vagrant Population: Cleaning and Control of Brush and Dumping at Encampments

Responsible Party	Implementation Goal	Status
CoSA-CCDO, CoSA-TCI, CoSA-Code Department, CoSA-Police Department	Continue to coordinate with the CoSA Code and Police Departments and document through their annual report to TCEQ the amount of debris removed at encampments along drainage structures by this management measure.	In coordination with various departments, CoSA-TCI continues to remove debris from encampments along drainage structures on a weekly basis through its Drainage Maintenance Program.

Management Measure 17: Inspection and Repair of Septic Systems

Responsible Party	Implementation Goal	Status
Bexar County	Continue to educate and inspect septic systems that have been identified in older developed areas that are not being served by public sanitary sewer as a part of the County’s OSSF Program.	Bexar County attends two HOA events per year, conducts at least one neighborhood cleanup per year, participates in the Basura Bash annually, and allows online reporting of septic issues. To date, the County has inspected 13,352 septic systems within the affected watershed.

Management Measure 18: Specially Designed Boat (Lady Eco)

Responsible Party	Implementation Goal	Status
CoSA-CCDO	Continue to remove trash and debris from the river annually.	To date, CoSA has removed 84 tons of debris along the River Loop Area by utilizing Lady Eco.

Management Measure 19: Implement Measures to Improve Maintenance and Cleaning Operations for River Loop Area

Responsible Party	Implementation Goal	Status
CoSA-CCDO	Improve maintenance practices to reduce runoff and chemical spills, and continue to implement the zero-tolerance policy.	With the construction of the Museum Reach, sediment reduction in the River Loop area has been significant. CoSA-TCI performs regular outreach to area landowners and other stakeholders to educate them about water contaminants and how to reduce them. CoSA-TCI has also partnered with the SARA to perform this outreach. CoSA-CCDO, in partnership with their contractor Centro, performs maintenance around the River Loop. In particular, they ensure that all runoff from power washing is captured before it enters the river. With regards to maintenance, there has not been any in the past couple of years but the River Loop will be drained and cleaned in early 2020.

Management Measure 20: Street Sweeping Activities

Responsible Party	Implementation Goal	Status
Bexar County	Continue to perform street sweeping within the un-incorporated area of the county.	The County continues to sweep throughout the year and moves by order of their schedule or call-ins.
CoSA	Continue to perform street sweeping in the downtown area (except for two holidays), twice a year for residential streets, and four times a year for arterial/collector streets.	CoSA continues to maintain a continuous street sweeping schedule that sweeps twice a year for residential streets and four times a year for arterial streets. The city also maintains a website with a sweeping schedule and city map (source: https://www.sanantonio.gov/TCI/Projects/Street-Sweeping-Schedule).

Management Measure 21: San Antonio River Loop Sediment Removal

Responsible Party	Implementation Goal	Status
CoSA-TCI	Continue to review the River Loop every two years (even numbered years) and evaluate and clean as necessary, the River Loop, Loop Extension, and Main Channel, if feasible.	This measure is on-going. In January 2020, the Main Channel is scheduled to be drained and dredged for sediment removal.

Management Measure 22: Urban Horse Stable Assessment

Responsible Party	Implementation Goal	Status
CoSA-ASC	Provide number of citations/warnings issued as well as the number of animals impounded. Inspect all private livestock pens annually during the existing permit process and provide number of citations and warnings issued as well as number of animals impounded.	To date, CoSA-ASC has issued 154 citations, impounded 44 animals since 2016, and has inspected 376 private livestock permits and 13 commercial carriage horse permits.

Management Measure 23: Creek Book

Responsible Party	Implementation Goal	Status
SARA	A new revision of the Creek Book will be scheduled with plans to enhance the content on LID and sustainability.	6,000 copies of the Creek Book have been distributed since 2016 and a new edition of the book is set to be released in Fall 2019.

Management Measure 24: BMP Assessment Report – 2010

Responsible Party	Implementation Goal	Status
SARA, BRWM Water Quality Focus Group	Identify and assess potential sources of bacteria, and to evaluate BMPs to control those sources.	Completed prior to I-Plan development.

Management Measure 25: Provide Illegal Dumping Signs for Existing Vegetated Swales/Filter Strips

Responsible Party	Implementation Goal	Status
CoSA-TCI, SARA	Conduct site inspections to verify that refuse is no longer being dumped into the bugger area and place signs to discourage dumping.	Completed prior to I-Plan development.

Management Measure 26: Animal Pound Wash-Down

Responsible Party	Implementation Goal	Status
CoSA-ACS	Reduce potential load from routine wash-down practices at the animal control center near the San Antonio Zoo.	Completed prior to I-Plan development.

Management Measure 27: Wildlife – Bat Colony in Houston Street Bridge

Responsible Party	Implementation Goal	Status
CoSA-CCDO	Examine roost beneath Houston Street Bridge and perform work to keep the bats from roosting in the future. Perform annual inspections to verify that the colony is not roosting under any bridges in the River Walk area.	Completed prior to I-Plan development.

Management Measure 28: SAWS’ Recycled Water Program and Streamflow Augmentation Discharges

Responsible Party	Implementation Goal	Status
SAWS	Increase water quality by augmenting streams as a part of the Recycled Water Program to increase flow and reduce concerns for DO and fecal coliform.	Completed prior to I-Plan development.

Management Measure 29: Connection of 117 Homes in the Espada Community Located on Southwest Bexar County

Responsible Party	Implementation Goal	Status
SAWS	Connect 117 homes in the Espada community to sewer service from private septic systems.	Completed prior to I-Plan development.

Management Measure 30: San Antonio River Walk Implementation Project and Plan (to include new sections of the River Walk)

Responsible Party	Implementation Goal	Status
CoSA, SARA, Bexar County, RWWA	Educate citizens on bacteria controls and identify merchants’ and patrons’ behaviors that contribute to elevated bacteria levels.	Completed prior to I-Plan development.