

# Water Quality Planning for the Houston-Galveston Region

## Final Project Summary, FY 2019

Prepared by the Houston-Galveston Area Council, in coordination with the Texas Commission on Environmental Quality. This project was funded under a Clean Water Act Section 604(b) grant.

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## Table of Contents

Purpose .....	4
Project Objectives .....	4
Project Results .....	5
Objective 1 – Administration .....	5
Task 1.1 – Project Oversight.....	5
Task 1.2 – QPRs .....	5
Task 1.3 – Reimbursement Forms.....	5
Task 1.4 – Contract Communication .....	5
Task 1.5 – Final Project Summary .....	5
Objective 2 – Quality Assurance .....	5
Task 2.1 – QAPP Planning Meeting .....	5
Task 2.2 – QAPP Annual Review Certification.....	6
Task 2.3 – QAPP Amendments.....	6
Objective 3 – Watershed Data Update and Coordination/Geographic Information System GIS).....	6
Task 3.1 – Wastewater Infrastructure GIS Data.....	6
Task 3.2 – Wastewater Data Analysis .....	6
Task 3.3 – Clean Water State Revolving Fund Application Review.....	6
Objective 4 – Support Watershed Planning.....	7
Task 4.1 – San Bernard River Watershed Coordination.....	7
Task 4.2 – General Water Quality Coordination .....	7
Task 4.3 – Urban Forestry Support and Coordination .....	7
Objective 5 – OSSF Planning, Coordination, and Outreach Activities.....	7
Task 5.1 – Permitted OSSF Update .....	7
Task 5.2 – Unpermitted OSSF Update.....	8
Task 5.3 – Coordination with Authorized Agents .....	8
Task 5.4 – Supplemental Environmental Project (SEP) Coordination and Outreach.....	8
Task 5.5 – OSSF Outreach and Education .....	8
Objective 6 – WQMP Update / Final Report.....	8
Task 6.1 – Draft WQMP Update.....	8
Task 6.2 – Final WQMP Update .....	9
Project Significance .....	9

## Purpose

This Final Project Summary report summarizes Contract 582-19-90146 (Project), a 604b project administered by the Texas Commission on Environmental Quality (TCEQ). The Project entailed a series of six (6) administrative, data collection, and coordination activity objectives completed by the Houston-Galveston Area Council (H-GAC) in conjunction with the TCEQ. The purpose of these activities is to provide data and analysis regarding wastewater infrastructure, watershed planning, and sources of nonpoint source (NPS) pollution that impact water quality in the 13-county Houston Galveston area Region (Region) of the Upper Gulf Coast of Texas. This document is a summary of the results of this contract year.

This document is a contract-specific summary of the work conducted by H-GAC on behalf of TCEQ. For a broader summary of efforts and results, please refer to the companion FY 2019 Water Quality Management Update document located on H-GAC's website at the following URL:

<http://www.h-gac.com/community/water/quality/>.

## Project Objectives

The ongoing efforts of the FY 2019 project focused on acquiring and analyzing regional wastewater infrastructure data, updating spatial datasets of OSSF locations, supporting local watershed protection planning, and coordinating and supporting OSSF outreach activities.

The Objectives addressed in the FY 2019 Project are described below.

**Objective 1 – Administration:** To effectively coordinate and monitor all technical and financial activities performed under this contract, prepare regular progress reports, and manage project files and data.

**Objective 2 – Quality Assurance:** To update or develop Quality Assurance Project Plans (QAPPs) for acquired and geospatial data to ensure environmental data acquired is of known and acceptable quality.

**Objective 3 – Watershed Data Update and Coordination/Geographic Information System GIS:** To collect and integrate wastewater infrastructure and permit data to support planning for wastewater treatment plants and water quality projects in H-GAC's region, and to support TCEQ in the *WQMP Update* process.

**Objective 4 – Support Watershed Planning:** To support watershed planning in H-GAC's region, including the San Bernard River Watershed, and to support regional information sharing on water quality and related topics.

**Objective 5 – OSSF Planning, Coordination, and Outreach Activities:** To administer and coordinate H-GAC's On-Site Sewage Facility (OSSF) program activities. These activities include maintaining and continuing to develop H-GAC's existing spatial database of permitted OSSFs and projected unpermitted OSSF locations to support regional water quality and wastewater infrastructure projects, and coordination of H-GAC's Supplemental Environmental Project (SEP) to repair or replace failing OSSFs within the watershed, and H-GAC's outreach and education programs.

**Objective 6 – WQMP Update / Final Report:** To summarize all contract activities and findings that are relevant to the water quality goals of the region in a *Draft WQMP Update*. In accordance with Texas Water Code Section 26.037, H-GAC will provide a notice of participation to review the *Draft WQMP Update*. H-GAC will incorporate all comments received, including those by the Natural Resources

Advisory Committee (NRAC), to prepare and provide to TCEQ a comprehensive final report on the water quality management planning activities. H-GAC will provide documentation that H-GAC's Board of Directors has accepted the completed FY 19 project *WQMP Update*.

## Project Results

Each of the six project objectives is composed of a series of tasks. The results of the efforts conducted by H-GAC during this project year are summarized below.

### Objective 1 – Administration

This objective involves tasks related to the oversight of the project contract and related administrative duties.

#### Task 1.1 – Project Oversight

H-GAC oversaw all aspects of the logistical, financial and project management aspects of developing, implementing, and reporting on this project during this fiscal year, in conjunction with TCEQ project management.

#### Task 1.2 – QPRs

H-GAC submitted quarterly progress reports to TCEQ on a quarterly basis, summarizing the work completed during that quarter.

#### Task 1.3 – Reimbursement Forms

H-GAC tracked financial expenditures according to contractual requirements and submitted reimbursement paperwork on a quarterly basis for the first three quarters, and monthly for the last quarter of the project year.

#### Task 1.4 – Contract Communication

H-GAC and TCEQ project staff discussed aspects of the project on a regular basis and engaged in formal quarterly project review calls. H-GAC produced notes for each formal meeting.

#### Task 1.5 – Final Project Summary

This report satisfies the requirement to submit a final project summary of activities conducted under the project.

### Objective 2 – Quality Assurance

This objective includes tasks related to maintenance and update of two existing Quality Assurance Project Plans (QAPPs): the Regional Water Quality Data Acquisition and Compilation QAPP (Data QAPP) for acquisition, compilation and assessment of TPDES permit data and related information as part of Objective 3; the Regional Geospatial Data QAPP (Geospatial QAPP) for the collection and analysis of geospatial data as described in Objectives 4 and 6.

#### Task 2.1 – QAPP Planning Meeting

H-GAC and TCEQ staff formally discussed the QAPP needs for the Water Quality Management Plan Update Project (Project) as part of a Project kickoff conversation on 10/2/18 after the initiation of the contract. The outcome of the meeting was a confirmation of the elements covered by each QAPP and a briefing for TCEQ staff on the Project background. Informal

discussion regarding the maintenance and update of the QAPPs occurred continuously throughout the Project term, including revisions of both QAPPs.

### Task 2.2 – QAPP Annual Review Certification

QAPPs for this Project are reviewed annually in their entirety, amended as necessary, and certified by the H-GAC Project Manager and the TCEQ Nonpoint Source Project Manager. QAPPs are effective for three years (spanning multiple project years) and must be reviewed and recertified each year as part of the Annual Review Certification.

During the Fiscal Year 19 (FY 19) Project year, it was necessary completely revise both QAPPs, as both QAPPs had reached their respective end dates of approval. A new Regional Water Quality Data Acquisition and Compilation QAPP was approved by TCEQ on 7/3/19. A new Regional Geospatial Data QAPP was submitted to TCEQ in July. Pending comments from the TCEQ, H-GAC will finalize this QAPP revision.

### Task 2.3 – QAPP Amendments

During FY 19, it was not necessary to make an amendment to either QAPP as a new revision of each QAPP was created instead.

## Objective 3 – Watershed Data Update and Coordination/Geographic Information System GIS)

This objective includes tasks related to wastewater infrastructure data acquisition, dataset updates, and SRF project proposal reviews.

### Task 3.1 – Wastewater Infrastructure GIS Data

The Service Area Boundaries Dataset (SABD) is the spatial representation of the wastewater dischargers' service area boundaries. Typically, this boundary data include municipalities, public districts and private utilities. The Outfall Locations Dataset (OLD) is a companion dataset to the SABD, and identifies the location of wastewater treatment facility (WWTF) outfalls for the Region. During this project period, H-GAC GIS staff used data from EPA and TCEQ permit databases to update the SABD and OLD datasets.

Current versions of the SABD and OLD are included in digital format on the media accompanying the Final WQMP Update Report.

### Task 3.2 – Wastewater Data Analysis

H-GAC acquired self-reported Discharge Monitoring Report data for regional permitted facilities to evaluate bacteria permit limit exceedances. H-GAC also attempted to acquire Sanitary Sewer Overflow data for the region, but was unable to acquire a complete data set. Detailed results of the wastewater data analysis are included in the Final WQMP Update Report.

### Task 3.3 – Clean Water State Revolving Fund Application Review

As part of this Project, H-GAC staff used data gathered under this and previous projects to provide comment on four (4) Clean Water State Revolving Fund projects for the TCEQ. Those project summaries and findings are included in the Final WQMP Update Report.

## Objective 4 – Support Watershed Planning

Objective 4 provides targeted support for ongoing source water and watershed planning in priority watersheds of the region. The efforts under this objective include continued stakeholder group maintenance for the San Bernard River Watershed and its WPP (Task 4.1), general coordination with other regional water quality efforts (Task 4.2), and Urban Forestry efforts (Task 4.3).

### Task 4.1 – San Bernard River Watershed Coordination

During this project, staff worked to maintain an active and engaged stakeholder base. H-GAC staff met with Friends of the River San Bernard three times during the year to discuss various outreach and support activities H-GAC is providing them, including mapping support. H-GAC staff provided updates through presentations at key partner meetings (such as the GBEP) and through outreach at local events. Quarterly updates are provided to the NRAC.

In addition to the outreach activities, H-GAC worked closely with Texas Stream Team monitors conducting volunteer monitoring at seven active monitoring stations within the watershed.

### Task 4.2 – General Water Quality Coordination

As an extension of H-GAC's role as a coordinator of regional planning efforts in a variety of fields, staff members develop and maintain relationships with other local and state governments, community groups, and other organizations involved in efforts related to the aims of this Project.

Staff members facilitate the NRAC, which provides policy recommendations for H-GAC's Board of Directors and serves as a regional roundtable for coordinating environmental efforts. The NRAC provides an efficient communication network and point of contact for H-GAC staff with other local and regional water quality decision makers.

The NRAC developed an annual awards program to recognize projects and programs in the region that help improve water quality conditions through innovative water infrastructure projects and improvements. This program, the Water Innovation Strategies of Excellence (WISE) Awards, honors projects in four categories.

### Task 4.3 – Urban Forestry Support and Coordination

Support for Urban Forestry issues has become a major focus for H-GAC in recent years. As part of these activities, H-GAC staff worked regularly with various entities, such as Houston Wilderness, The Nature Conservancy, and Trees for Houston, to provide data for urban forest research projects.

## Objective 5 – OSSF Planning, Coordination, and Outreach Activities

The goal of this task is to coordinate the Houston-Galveston Area Council's (H-GAC) various On-Site Sewage Facility (OSSF) program activities.

### Task 5.1 – Permitted OSSF Update

H-GAC staff continued to update the OSSF location database with data from Authorized Agents, including permitted OSSF locations and related permit data as appropriate. The updated database is included with the Final WQMP Update Report.

### Task 5.2 – Unpermitted OSSF Update

H-GAC staff evaluated and estimated the probable locations of unpermitted systems, which were typically installed prior to the requirement that OSSFs be permitted. This analysis is performed using parcel, census block, and 911 address data.

### Task 5.3 – Coordination with Authorized Agents

H-GAC staff worked in coordination with Authorized Agents to receive OSSF permit data submissions for inclusion into H-GAC's Geographic Information Systems (GIS) database. For counties in the Coastal Zone (Brazoria, Chambers, Galveston, Harris, and Matagorda), H-GAC facilitated data gathering and sharing with Texas A&M AgriLife Extension, who are currently developing a Coastal Zone OSSF database for TCEQ.

### Task 5.4 – Supplemental Environmental Project (SEP) Coordination and Outreach

H-GAC staff performed SEP coordination and outreach activities in support of a SEP program to address failing OSSFs within the region. These efforts target priority watersheds (such as those monitored by the Clean Rivers Program or subject to a watershed protection plan [WPP] or total maximum daily load [TMDL]) to identify areas with failing OSSFs and evaluate best management options such as repairing the system, replacing the system, or tying in to nearby sewer lines (if feasible). Efforts were coordinated with the appropriate H-GAC staff for each watershed project, as well as the local permitting and enforcement agencies, such as local Authorized Agents. Outreach to public officials and enforcement agencies was conducted through various meetings, such as presentations to the Bacteria Implementation Group, Natural Resources Advisory Committee, Clean Waters Initiative workshop, and the H-GAC Board of Directors. Outreach to OSSF professionals was conducted through county, regional, and statewide conferences and workshops.

### Task 5.5 – OSSF Outreach and Education

Through H-GAC's OSSF Outreach and Education programs, staff conducted or facilitated educational training courses on basic OSSF maintenance and fundamentals of operation. These training courses are offered to homeowners, real estate inspectors and other interested parties as requested.

## Objective 6 – WQMP Update / Final Report

In culmination of the activities described herein, H-GAC developed a regional Water Quality Management Plan Update document. Public feedback was taken at two public meetings, and written comments were accepted during a 30-day comment period.

### Task 6.1 – Draft WQMP Update

H-GAC developed the draft WQMP Update in conjunction with TCEQ staff feedback and internal review. H-GAC's Natural Resources Advisory Committee engaged in a 30-day review period in which H-GAC project staff took their feedback. The public was also allowed to comment during this period. On August 1, 2019, the NRAC voted to recommend that the Board formally accept the Update pending additional comments from NRAC and the public.

## Task 6.2 – Final WQMP Update

Comments received during the public comment period were addressed, and the draft report was updated to reflect any changes resulting from those comments. Comments, and a written response to comments, were included as an Appendix in the Final WQMP Update Report. The report was presented to the H-GAC Board of Directors on August 17, 2019 for formal acceptance.

A copy of the Final WQMP Update Report is available on H-GAC's website at the following URL:

<http://www.h-gac.com/community/water/quality/>.

## Project Significance

The data collection and analysis tasks completed under this Project have significant value for a variety of efforts in the Region, such as the development of Watershed Protection Plans (WPPs) or Total Maximum Daily Loads (TMDLs). This work greatly benefits local watershed planning, wastewater infrastructure planning, and program development efforts. The significance of efforts undertaken in this Project is demonstrated by the variety of capacities in which the outcomes are used. Ways in which H-GAC utilizes these data include:

- **Internal Data Collection and Regional Data Sharing** – The wastewater permit data, service area boundaries, and OSSF location data acquired and/or collected under this Project serve to augment existing data sets, inform project decisions on related efforts, and expand internal abilities of both the H-GAC and TCEQ to incorporate and produce future data and analyses. For example, data were used by the Houston-area Bacteria Implementation Group (BIG) and Basins 11 and 13 TMDL efforts, the Galveston Bay Estuary Program (GBEP), the Clean Rivers Program, and others.
- **Regional Project Coordination** – Maintaining and expanding data resources allows the H-GAC and TCEQ to better understand and facilitate regional efforts between parties involved in wastewater infrastructure decisions and general water quality/watershed protection efforts. Participation in regional groups and efforts helps ensure decisions benefit from Project resources and expand the reach of the Project's aims through partner efforts.
- **Source Water Protection** – A large portion of the Region's population is served by treated surface water originating in local rivers and lakes. The infrastructure planning and watershed coordination activities of this Project help foster a greater understanding of the relationship between these issues and protections for surface water drinking sources.
- **Project Review** – Data and analyses allow H-GAC Project staff to assist state and federal granting agencies in review of regional grant applications. These reviews ensure potential projects concur with regional priorities and regional data projections.
- **Education and Outreach** – Data gathered under this Project have been used as a focal point or basis for several education efforts, including the OSSF location database and various facilitated meetings, such as the ongoing Natural Resources Advisory Committee (NRAC).

One objective of this WQMP Project is to collect and analyze data related to wastewater infrastructure in the Region. Wastewater infrastructure is a potential contributor of bacteria into area waterways through improperly treated effluent discharges, or through the occurrence of sanitary sewer overflows (SSOs) from the plants or throughout the collection systems. Self-reported data from WWTF Discharge Monitoring Reports (DMRs) and SSO violation reports can be analyzed to better evaluate the potential impacts these sources have on bacteria impairments throughout the region. As the population continues to increase at a rapid pace and the infrastructure continues to age, the integrity of these treatment and collection systems may be harmed. It is important to continuously monitor these systems over time to ensure decision makers and water resource managers implement best management practices, repairs, or system replacements in areas with the most need.