

## EXECUTIVE SUMMARY

In December 2009, the Guadalupe-Blanco River Authority (GBRA) submitted an application to the Texas Water Development Board (TWDB) to receive funding assistance to conduct a regional wastewater planning study for Calhoun County. TWDB awarded GBRA, as the primary applicant, the planning grant in March 2010. As a result, GBRA, in conjunction with 10 other cities and entities, has promoted this study to evaluate the feasibility of developing regional wastewater facilities to serve existing and future populations in Calhoun County. A complete list of the official project participants is provided below:

- Guadalupe-Blanco River Authority;
- Calhoun County;
- Calhoun County Economic Development Corporation;
- City of Point Comfort;
- City of Port Lavaca;
- City of Seadrift;
- Alcoa;
- Dow Chemical;
- Formosa Plastics Corporation;
- INEOS Nitriles;
- Seadrift Coke L.P.

Although Port O'Connor Municipal Utility District (Port O'Connor MUD) did not sign up as an official project participant, this study references information about their service area and wastewater facilities. Their existing wastewater infrastructure is an important component in the southern portion of Calhoun County, especially if one of the regional alternatives presented later in this report is implemented.

Camp Dresser & McKee, Inc. (CDM) and their team, Urban Engineering, Inc., served as the engineering consultant for this study in Calhoun County. They were responsible for determining the wastewater flows, identifying and evaluating several options for regional wastewater collection and treatment, and developing cost estimates and implementation schedules to phase the construction of the proposed infrastructure. They also prepared wastewater reuse profiles for each of the industrial participants.

Susan Roth Consulting, LLC, served as Project Manager of the study on GBRA's behalf; she developed the scope of work for the project, secured the project partnerships, prepared the grant application for funding, coordinated and led the project meetings, developed the population projections for the cities, prepared the write-up for funding options and participated in the development of the regional alternatives and wastewater reuse analysis.

Planning for regional wastewater collection and treatment facilities is important at this time for prevention of problems due to aging infrastructure, failing septic systems and to develop a plan for efficient sharing of resources. The population in the study area has increased in the past 10 years, and the population is projected to substantially increase over the next 20 years due to future developments along the coastal area.

The Calhoun County Regional Wastewater Study considered several regional solutions and focused on the areas of interest of the project participants. This report summarizes the findings of this study; information regarding the study area, projected population and wastewater flows, description of collection and treatment alternatives, wastewater reuse alternatives, proposed effluent standards, cost estimates and potential funding options are also included in this study.

The study area was divided into four areas geographically (Refer to Figure 4-5 in Section 4) to identify regional alternatives that would be economical to implement. These areas and the regional alternatives are described in Section 6. In summary, Areas 1A & 1B are located in Figure 4-6; Area 2 is located in Figure 4-7, Area 3 in Figure 4-8 and Area 4 in Figure 4-9. In general, alternatives for regional wastewater services consisted of collecting wastewater and transporting it to existing and perhaps expanded regional wastewater treatment facilities, collecting wastewater and constructing a new package wastewater treatment plant for each subdivision, collecting wastewater and transporting it to new package wastewater treatment plants located near several subdivisions.

In addition, the subdivisions in the vicinity of the project participants that have onsite sewage facilities (OSSFs) with documented OSSF failures or subdivisions on OSSFs similar in age and density to the subdivisions with OSSF failures were included in this study to address future potential scenarios of OSSF failures currently being experienced in some of the subdivisions which might cause water quality issues. A summary of the regional options associated with each of the four geographical areas is presented below:

#### **AREA 1A**

- **Option 1** - All wastewater from the subdivisions of concern is conveyed to the existing City of Port Lavaca WWTP.
- **Option 2** - All subdivisions get their own package WWTP.

## Executive Summary

- **Option 3** - The subdivisions are grouped geographically and the combined flows are directed to a new regional WWTP.
- **Option 4** - Crestview WWTP extends its service to the nearby subdivisions, while subdivisions to the north of City of Port Lavaca get a new regional WWTP and City of Port Lavaca extends its service to the Double D subdivision.

The cost comparisons for these options can be found in Table 6-1 in Section 6 of this report.

### **AREA 1B**

- **Option 1** - All wastewater from the subdivisions of concern is conveyed to the existing City of Point Comfort WWTP.
- **Option 2** - Each subdivision has their own package WWTP.
- **Option 3** - The flows from all the subdivisions are combined and treated at a new regional WWTP.

The cost comparisons for these options can be found in Table 6-2 in Section 6 of this report.

### **AREA 2**

- **Option 1** - all wastewater from the subdivisions of concern is conveyed to either City of Seadrift WWTP or the Port O'Connor MUD WWTP.
- **Option 2** - Each subdivision has an individual package WWTP.
- **Option 3** - The flow from each of the subdivisions is directed to a proposed regional WWTP.
- **Option 4** - The flows from the subdivisions of Lane Road, Powderhorn Ranch, Seaport Lakes and Costa Grande are directed to a new regional WWTP and the remaining subdivisions convey wastewater to the closest regional WWTP either in City of Seadrift or in Port O'Connor MUD.

The cost comparisons for these options can be found in Table 6-3 in Section 6 of this report.

### **AREA 3**

- **Option 1** - all wastewater from the subdivisions of concern is conveyed to SCC WCID No.1 WWTP.
- **Option 2** - each subdivision will have its own package WWTP.
- **Option 3** - all the subdivisions convey wastewater to a regional WWTP.

The cost comparisons for these options can be found in Table 6-4 in Section 6 of this report.

**AREA 4**

One option which was considered to reduce the demand on water and wastewater facilities was water and wastewater reuse by the industrial participants. Strategies discussed included internal water reduction opportunities, internal reuse of wastewater (treated or untreated, depending on the origin and intended reuse of the wastewater), and reuse of wastewater by other industrial facilities. Some of the participants have already considered and/or implemented reduction and reuse measures. Summaries of the potential for additional reduction and reuse and measures implemented to date, as identified in this study, are presented in Section 4.