

## SECTION 1: INTRODUCTION

### Section 1

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.

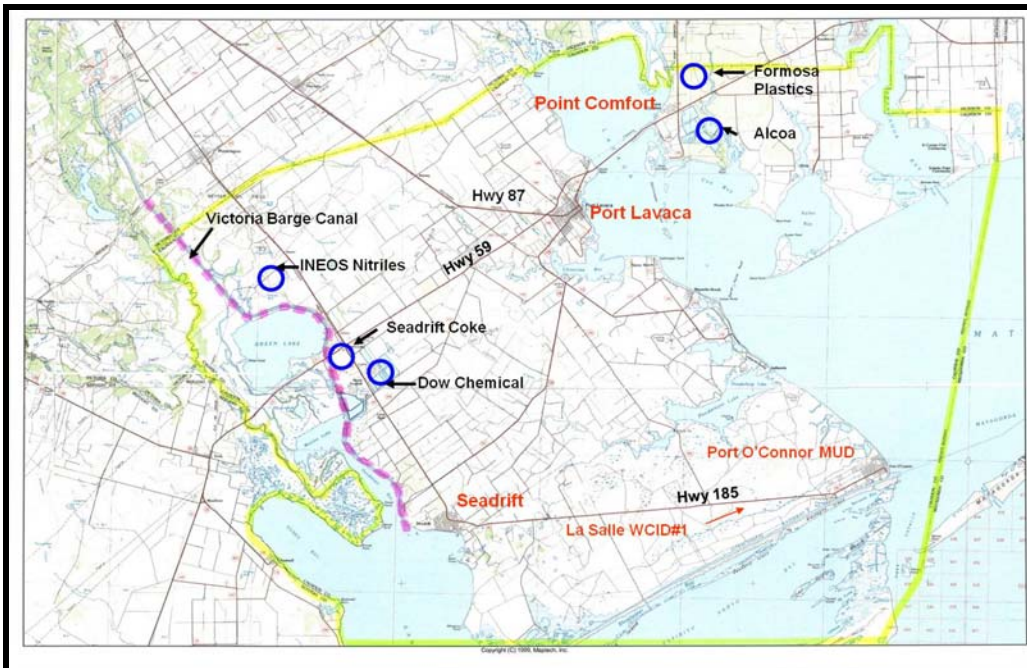
Susan Roth Consulting, LLC, served as Project Manager of the study on GBRA's behalf; she developed the scope of work for the project, secured the project partnerships, prepared the grant application for funding, coordinated and led the project meetings, developed the population projections for the cities,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

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 funding options are also included in this study.

## 1.1 BACKGROUND

### *Service Area Description*

The proposed study involves a number of cities, industrial companies and the economic development corporation located in Calhoun County. The study area includes the entire Calhoun County boundary, as well as the incorporated limits and extraterritorial jurisdictions of the Cities of Point Comfort, Port Lavaca and Seadrift and the surrounding unincorporated areas within the County. A map of the study area is shown in **Figure 1-1**.



**Figure 1-1: Map of Study Area**

### ***Basis for the Study***

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. This planning study for Calhoun County considered several regional solutions and focused on the following areas of interest of the project participants:

- Feasibility of developing a regional wastewater system to replace and/or supplement the multiple systems currently in service;
- Investigate alternatives for providing centralized wastewater service from existing and/or new treatment facilities to the unincorporated areas with failing septic systems; and,
- Determine options for regional wastewater reuse system(s) to serve the study area.

Many of the entities and industrial companies located on the western and eastern areas of Calhoun County were interested in investigating the possibility for regional wastewater reuse and finding ways to reduce their demands on the raw water supplies.

The regional wastewater system was evaluated from a phased-approach perspective with consideration of permit issues, anticipated growth areas and project cost-effectiveness. The proposed system(s) would be designed in conformance with the flow and effluent limits of the State Water Quality Management Plan and would be committed to water conservation.

## **1.2 SCOPE OF STUDY**

The scope of work for this study involved evaluating the feasibility of developing regional wastewater collection and treatment facilities to serve existing and future development in Calhoun County. The following items were included in the study from an engineering standpoint, as well as to satisfy the requirements of the TWDB grant program:

- ***Population and Wastewater Flow Projections*** – Population and growth projections, utility development agreements and additional wastewater system information were collected from each of the entities. This data was

used to develop population and wastewater flow projections for each entity in five year increments through year 2040.

- **Collection System Alternatives** – Alternatives were developed for connecting existing collection lines into an overall regional wastewater collection system within the study area. The study also considered the feasibility of developing community or regional wastewater systems in areas of the county that have traditionally been developed with OSSFs.
- **Treatment Alternatives** – An evaluation of each existing treatment facility was made for the possibility of expansion and potential for regional operation. The quality or level of treatment required for a regional plant to discharge into Lavaca and/or San Antonio Bay was taken into consideration during the analysis of potential regional alternatives.
- **Operation and Reuse Alternatives** – Potential operation alternatives were examined for each of the entities, including the operation of individual facilities, as well as a regional system. The potential distribution of effluent from existing and proposed treatment facilities was examined in conjunction with an inventory of possible application sites.
- **Environmental Assessment** – Water quality issues and assessing the impacts of population growth and increased wastewater loadings to the San Antonio Bay were analyzed.
- **Implementation Schedule** – An implementation plan was developed for the phased construction of collection and treatment facilities for the study area through 2040. This plan takes into consideration the existing collection and treatment capacities, water quality issues, future developments, anticipated growth and cost-effectiveness.
- **Cost Estimates and Recommendations** – Estimates of the capital and O&M costs for each identified entity for the various alternatives were determined. The capital and O&M costs for the final regional collection and treatment system alternatives were combined and utilized a present worth analysis.
- **Funding Options** – Potential funding sources and traditional financing programs for the construction of various options of the Calhoun County Regional Wastewater Systems were provided.
- **Water Conservation and Drought Contingency Plans** – TWDB requires project participants receiving grant funding through the Regional Water and Wastewater Facilities Planning Grant Program to prepare and implement water conservation and drought contingency plans. Copies of

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both of these plans from each of the project participants are included in **Appendix A.**

Information about each of the items listed in the scope of work is detailed in the following sections of the report.

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