

Captiva Island Wastewater Alternative Study

(Updated based on a meeting with the Captiva Community Wastewater Panel on November 8, 2107 and subsequent communications with Lee County)

Lee County has requested professional consultant services for the Captiva Island Wastewater Alternative Study. Currently the island's wastewater management is provided by septic systems serving individual properties and localized collection systems to three small scale (package) wastewater treatment plants serving resorts (Tween Waters, Captiva Shores, Sunset Captiva) and a somewhat larger wastewater treatment plant serving the South Seas Island Resort south to Captiva Drive. Based on available information the study is to assess the feasibility of alternative wastewater collection and treatment systems on Captiva Island based on current land use, and to develop wastewater collection and treatment alternatives that best suit the environment and the needs of the community. The planning period will extend about 30 years in the future to 2050, a benchmark used in related studies and projections.

To meet this objective and to provide sufficient information for making informed decisions going forward, Lee County has authorized TKW Consulting Engineers Inc. to perform the following tasks. Note the task numbers do not indicate the sequence of completing the tasks.

Task 1.00 - Review of Existing Information

1.01 Meet with the Captiva Community Wastewater Panel.

1.02 Review existing documents and related public information, including those documents collected by the Wastewater Panel and provided to TKW.

1.03 Estimate the number of existing individual on-site and septic systems, and where possible based on public information, the number of more advanced performance based on-site systems, and if uncovered the number of properties underserved by substandard or rudimentary wastewater treatment.

1.04 Relying on available information and FDEP public records, review the permitted capacity, age, condition, and anticipated useful life of the four existing wastewater treatment plants located on Captiva Island. If they are willing to disclose obtain information on long-range plans FGUA may have for the South Seas facility.

Task 2.00 - Water Quality and Regulatory Review

2.01 Review published studies pertaining to wastewater and impacts to water quality in coastal SW Florida. In making this review and to the extent information is available, project the environmental impacts of a no action scenario.

2.02 Review available public records and general information related to effectiveness of septic systems, identify septic system compliance inspection programs that may be in place in similar communities in Florida, and qualitatively evaluate their effectiveness on improving water quality.

2.03 Review decisions related to septic tank replacement and government decisions to convert or not convert to centralized wastewater collection and treatment system for the City of Sanibel, as well as other relevant communities on the West Coast of Florida, such as Marco Island, Fort Myers Beach

(Estero Island), Long Boat Key, and Boca Grande (Gasparilla Island), and communities in the Florida Keys generally.

2.04 Obtain and review data collected by the City of Sanibel on local water quality impacts resulting from their transition to a central sewer system.

Task 3.00 - Wastewater Treatment System Feasibility Analysis

3.01A Identify feasible current technology for advanced on-site systems; and the potential benefits and life cycle costs.

3.01B Provide a qualitative discussion of the most common SW Florida septic system compliance and inspection programs.

3.02 Develop and evaluate (both pros and cons) of an alternative for a centralized collection and treatment system based on screening the possible scenarios of: (1) treating all wastewater on Captiva Island by partnering with the FGUA-SSIR; (2) treating a portion of wastewater collected on Captiva Island by maintaining (and improving) the FGUA-SSIR; and (3) the possibility of partnering with Sanibel to export and treat all or a portion of wastewater at Sanibel's existing facilities considering the probable requirement for upgrades to handle additional flow. In this process, explore and evaluate collection system alternatives (conventional gravity and feasible alternative collection systems practical for an island community) based on existing land use. In performing this evaluation and for planning, Captiva will be subdivided into four distinct service areas each with differing conditions: South Seas, The Village, Tween Waters Stretch, and the "Gold Coast" (larger estate type properties on the south end of Captiva).

3.03 For any centralized treatment alternative identify treated effluent disposal options including shallow and deep injection wells, and potential for effluent reuse.

3.04 Develop realistic planning, permitting, design and construction costs, including demolition and septic tank abatement and easement acquisition if anticipated, as well as life-cycle operating costs for the central system developed in Task 3.02. In task 5.00 following, estimates will be made of connection fees and billing costs to support the capital investment and the on-going operations and debt repayment of a public (or semi-public) central system.

3.05 For comparison, provide a qualitative discussion and estimate the up-front and long term operating costs (including on-going inspection and enforcement) of feasible advanced onsite performance based systems that best suit the community while meeting comparable performance standards.

3.06 Identify the potential impact of rising sea levels on systems under consideration, including a no-action scenario. For the purpose of this study a 2 foot sea level rise locally will be assumed for the year 2050.

3.07 Identify impacts of severe weather, storm surge, and power outages on systems under consideration. For the purposes of the study add 2 feet to existing Flood Elevations and Storm Surge estimates provide by FEMA.

Task 4.00 - Prepare Report

4.01 Prepare draft Captiva Island Wastewater Alternative Study with a qualitative discussion of the alternatives identified and evaluated, including a no-action scenario.

4.02 Conduct a meeting and present the findings of the study to Lee County Utilities staff.

4.03 Finalize the Captiva Island Wastewater Alternative Study.

4.04 Prepare a PowerPoint presentation summarizing the key findings.

4.05 Present and facilitate (2) public meetings on Captiva using the PowerPoint presentation.

Task 5.00 - Financial Evaluation (PRMG)

Note the financial evaluation will be performed by Public Resource Management Group and will be based on capital and long term cost projections developed by TKW. It is anticipated that the financial impacts for the concepts developed will be included in the final report and in the information presented in public meetings. The following tasks will be performed for the identified most feasible centralized systems and where applicable a feasible distributed system that may be based on advanced on-site systems and partial centralize portions in feasible locations. In performing this evaluation and as a bench mark, the probable life cycle costs of a no action scenario will be addressed. This may include projections of future more stringent regulations for septic systems, enhanced enforcement, and impacts of sea-level rise on existing wastewater infrastructure.

5.01 Data Acquisition

5.02 Customer Forecast

5.03 Develop Capital Flow

5.04 Develop Wastewater Revenue

5.05 Develop Operating Expenses

5.06 Capital Funding Analysis

5.07 Projection of Debt Service

5.08 Compliance Analysis

5.09 Rate Comparison with Other Similar Utilities

5.10 Develop Net Revenue Requirements

5.11 Prepare Technical Memorandum for inclusion in the Captiva Island Wastewater Alternative Study