



INDIAN RIVER COUNTY, FLORIDA DEPARTMENT OF UTILITY SERVICES

Date: April 10, 2019
To: Jason E. Brown, County Administrator
From: Vincent Burke, PE, Director of Utility Services
Prepared By: Arjuna Weragoda, PE, Capital Projects Manager
Subject: Barrier Island Reclaimed Water Main System Analysis - Results

DESCRIPTIONS AND CONDITIONS:

Indian River County Department of Utility Services (IRCDUS) has historically provided reclaimed water (a.k.a. reuse) to area golf courses for irrigation. As part of the February 24 2018, Reclaimed Water Franchise Agreement between the Town of Indian River Shores (Town) and Indian River County, there is a requirement for the County to study the feasibility of serving other Town communities with reclaimed water within three years. On December 11, 2018, the Indian River County Board of County Commissioners (BCC) approved Work Order No. 3 to Schulke, Bittle & Stoddard, LLC, (SBS) to perform an engineering feasibility analysis to run a reuse transmission main along the A1A corridor to a proposed storage and repump station at the Sea Oaks Wastewater Treatment Plant (SOWWTP) site.

The primary goal of the evaluation was to look at the feasibility of constructing a reuse distribution and/or transmission main along the A1A corridor. Therefore, please note flow rates to the barrier island, distribution points, and tank siting are very preliminary and are based on numerous assumptions and could be subject to change. Currently, IRCDUS delivers reuse to numerous golf course sites, and the quantities vary depending on our disposal needs, their irrigation needs, and seasonal precipitation.

ANALYSIS:

The analysis primarily focused on the following three (3) tasks:

- Existing Utility Locates
- Hydraulic Modeling
- Preliminary Opinion of Probable Cost

Existing Utility Locates: Given the tight constraints of existing infrastructure within the A1A corridor, in order to accurately determine the feasibility of a reuse distribution and/or transmission main, SBS's sub-contractor performed extensive existing utility locates in, around, and under the A1A right-of-way corridor. SBS's sub-contractor physically located the existing underground utilities via pot holing.

Hydraulic Modeling: As part of the analysis, several modeling scenarios were evaluated. Those scenarios are detailed in the report under Hydraulic Analysis. The hydraulic analyses were divided into four (4) specific scenarios based on existing and proposed flow rates.

Scenario A – Current Delivery:

These flows were based on a one year snap shot of what IRCDUS has delivered.

Scenario B – Flows to Barrier Island Communities within the IRCDUS service area plus John’s Island:

The consultant evaluated all the existing Consumptive Use Permits (CUPs) within the IRCDUS service area and included the allocated amounts from the CUPs. For areas that did not have a CUP, the consultant assumed 1 million gallons per year to irrigate one acre. Also included in this scenario is the requested demand of 1 million gallons per day (mgd) for John’s Island. These allocations are detailed under Appendix B of the report.

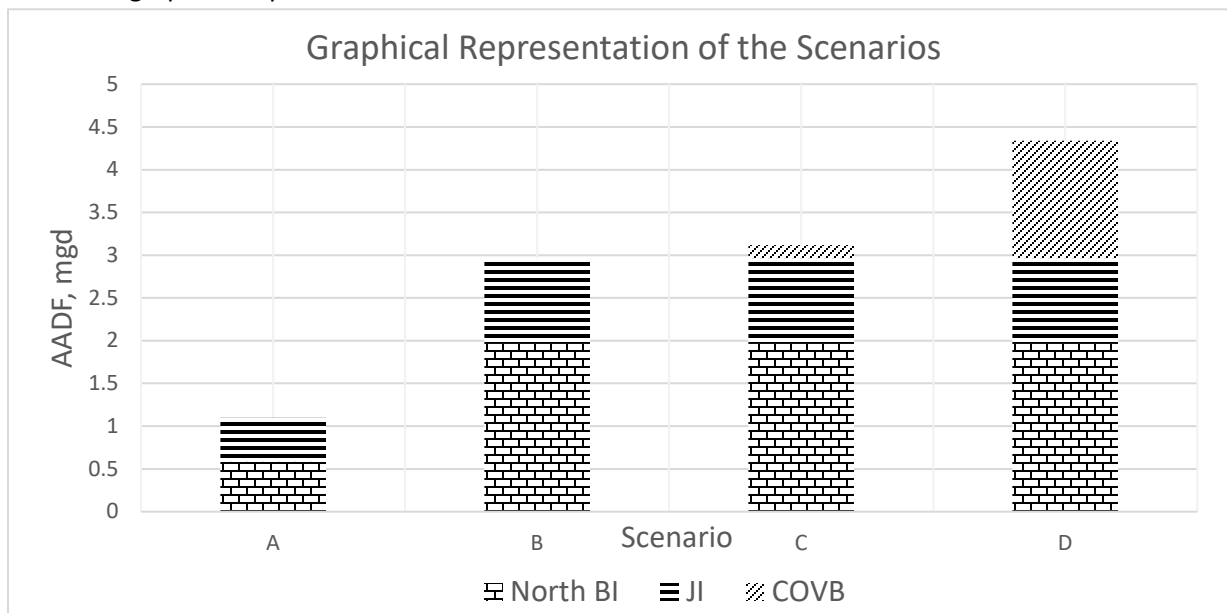
Scenario C – Flows to Barrier Island Communities within the IRCDUS service area plus John’s Island plus a portion of City of Vero Beach Service Area:

The difference in this Scenario versus Scenario B is the addition of The Shores and Carlton River Club.

Scenario D- – Maximum Capacity of System:

In this scenario, minimum flows were allocated as done in Scenario C. The only difference is that additional demands were placed at different locations until system pressures fell below minimum criteria. The purpose of this scenario was to evaluate the maximum capacity that could be delivered given some of the existing infrastructure, proposed infrastructure, and proposed assumptions.

The below graphical representation outlines the above scenarios.



Preliminary Opinion of Probable Cost: The Engineering consultant performed a preliminary opinion of probable cost based on recent projects and industry pricing. The opinion of probable cost was broken into three (3) components as follows:

- Proposed Transmission Main
- Proposed Distribution Main
- Proposed Storage and Re-pump Station

Proposed Transmission Main:

This portion of the project entails installing a 16-inch reuse transmission main along the east side of A1A approximately 4,500 linear feet (LF) from the intersection of County Road (CR) 510 and A1A south to the existing SOWWTP (currently not in operation). The consultant's construction estimation for this portion is approximately \$1.5 million.

Proposed Distribution Main:

The subject estimation was to run a 12-inch reuse distribution and/or transmission main south from the SOWWTP to Old Winter Beach Road along the east side of A1A approximately 8,300 LF. The estimation for this portion is approximately \$2.2 million. Although the consultant did not perform any utility locates, geotechnical information, and surveying data, they did compute an opinion of probable cost to run a 12-inch reuse main from Old Winter Beach Road approximately 1000 LF south to Johns Island's existing pump station. The engineers estimated cost for this is an additional \$219,000.00

Proposed Storage and Re-pump Station:

Proposed installation of a three-million-gallon storage tank and pumping facilities within the inactive SOWWTP. The engineer's opinion of probable cost is approximately \$3.1 million.

The soft costs, which include fees associated with engineering, surveying, bidding, and construction engineering inspection, are approximately \$485,875.00, or 7% of the total project cost.

Pending the outcome of today's Indian River County Board of County Commissioners (BCC) decision(s), a preliminary schedule, subject to change, could look as follows:

TASK	DESCRIPTION	ESTIMATED TIME
1	Procure Engineering Consultant	3 to 6 months from BCC direction
2	Biddable Contract Documents & Plans	6 to 8 months from notice to proceed
3	Recommend award of Contract	2 to 3 months from Task 2 completed
4	Begin Construction/Pre-Con	1 month from Task 3 completed
5	Substantial Completion	6 to 8 months after Task 4
6	Final Completion	1 to 2 months after Task 5
TOTAL ESTIMATED PROJECT COMPLETION TIME FOR THE PIPE LINE		19 TO 27 MONTHS
TOTAL ESTIMATED PROJECT COMPLETION TIME FOR THE TANK		24-MONTHS FROM NTP FOR CONSTRUCTION

According to the consultant's evaluation of the A1A corridor, the constructability of a transmission and distribution main along the east side of A1A is feasible. As part of that investigation, the consultant

recommends the construction of a storage and re-pump facility. These facilities were also recommended in the 2004 and 2007 Master Plans. Furthermore, the Consultant recommends a phased approach where the first phase would install the transmission and distribution mains along A1A, and the second phase would construct the storage and pumping facility. Although IRCDUS staff can support a phased project, IRCDUS's goal is a long-term sustainable delivery of reclaimed water to the Barrier Island communities, thus a storage and re-pump solution is a necessary part of this project for operational efficiency and future deliveries.

Keep in mind that this is a JIWM project, and while the BCC directed staff to research the viability of installing water mains along the A1A corridor, the following information in the report and agenda item is presented to assist the BCC in deciding which option may be the best path forward. However, the County does not have the ability to unilaterally choose the preferred route. Additionally, there may be limitations on the ability of JIWM to utilize the funding, already assessed for the subaqueous line, to be used instead for the A1A route, based on conversations between county staff and JIWM.

Options for consideration:

A1A Route: If the BCC decides to move forward with the A1A option after hearing the other items pertaining to the directional bore project under the Indian River Lagoon and the right-of-way issues associated with that project, then:

1. Direct staff to re-negotiate with John's Island for the A1A project cost, less the storage and re-pump facilities. The storage and re-pump facilities are not currently programmed in the Utilities capital improvement element.
2. Direct staff to work with Sea Oaks on the logistics and schedule of the storage and re-pump station. Note Sea Oaks property management is currently utilizing the inactive SOWWTF site to conduct daily management tasks.
3. Direct staff to negotiate surveying, design, bidding and construction services assistance contracts and prepare a Request for Qualifications (RFQ) package to solicit qualified consultants in order to comply with the Consultant's Competitive Negotiation Act (CCNA). An RFQ process will add approximately three to six months.

Subaqueous Route: If the BCC decides to proceed with the sub-aqueous route, then this A1A study can be retained for future use. The subaqueous line will need to gain regulatory approval and all Utility Construction Permit (UCP) approvals not only before the construction begins, but while the construction occurs and post installation. If the installation is deficient or not up to acceptable horizontal directional drill (HDD) installation standards and/or County standards, then the transfer of assets cannot occur and IRCDUS may be unable to accept the operation and maintenance responsibilities.

FUNDING:

The Barrier Island Reuse water main feasibility was previously approved by the BCC for a total amount of \$102,800.00 and was budgeted in the 472-169000-18532 account. If the project does not come to fruition, the Utility Capital Fund reserve expenses, associated with growth and expansion in the system, will have to be transferred to Other Professional Services in the operating fund.

The Subaqueous line will be funded by JIWM and will only be dedicated to the County upon successful completion of all regulatory agency approvals and Utility Construction Permit requirements. If the A1A route is considered, JIWM contribution would need to be negotiated /determined. If the A1A line project moves forward, a portion of the costs (storage tank/re-pump facility) would likely be funded by the Utilities Capital Fund.

RECOMMENDATION:

Staff recommends that the Indian River County Board of County Commissioners consider the results of the A1A Barrier Island Reuse Water Main Feasibility Study. The report indicates that the east side of the A1A corridor is in fact feasible and cost-competitive with the subaqueous route. It is important to note that John's Island Water Management is constructing the subaqueous line, and while the County does not have the ability to unilaterally determine the routing of the proposed line, it does and will require the design and construction to meet or exceed industry standards as well as the County's utility construction requirements.

ATTACHMENT(s):

1. Preliminary Engineering Report for the North IRC Barrier Island Reuse Water Storage and Pumping Facilities *(47 Pages)*
2. Plans for North County Reuse Water Main Study *(22 Pages)*