

**PEACE RIVER MANASOTA REGIONAL WATER SUPPLY AUTHORITY
BOARD OF DIRECTORS WORKSHOP**

AGENDA

January 31, 2020 @ 10:00 a.m.

Peace River Facility
Water Quality/Training Center
8998 SW County Road 769 (Kings Highway), Arcadia, Florida

Additional information may be obtained by contacting the Peace River Manasota Regional Water Supply Authority, 9415 Town Center Parkway, Lakewood Ranch, Florida 34202 or through the Authority's website www.regionalwater.org. Persons with disabilities who need assistance may call (941) 316-1776 at least two business days in advance to make appropriate arrangements. No Stenographic record by a certified court reporter is being made of this meeting. Accordingly, any person who may seek to appeal any decisions involving the matters noticed herein will be responsible for making verbatim record of the testimony and evidence at this meeting which may be necessary to appeal such decisions.

BOARD OF DIRECTORS

Commissioner Ken Doherty, Charlotte County, Chairman
Commissioner Priscilla Trace, Manatee County, Vice Chairman
Commissioner Alan Maio, Sarasota County
Commissioner Elton A. Langford, DeSoto County

CALL TO ORDER

AGENDA

1. Budget Discussion for FY 2021
 - a. Board Calendar and Issues
 - b. Rate Consultant Water Rate Model
 - c. R&R Sufficiency
 - d. SWFWMD Cooperative Initiative Funding Projects
 - e. Budget Policies
2. Project Prairie Acquisition
3. Peace River Regional Reservoir No. 3 (PR³) – Mitigation model

BOARD MEMBER COMMENTS

PUBLIC COMMENTS

Public comment will be provided during the Board of Directors Meeting to be reconvened immediately following the workshop session.

ADJOURNMENT

Visit the Board Meetings page of our website www.regionalwater.org to access the Agenda Packet

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***PEACE RIVER MANASOTA REGIONAL WATER SUPPLY AUTHORITY
BOARD OF DIRECTORS WORKSHOP
January 31, 2020***

**WORKSHOP
ITEM 1**

Budget Discussion for FY 2021



1

Peace River Manasota
Regional Water Supply Authority

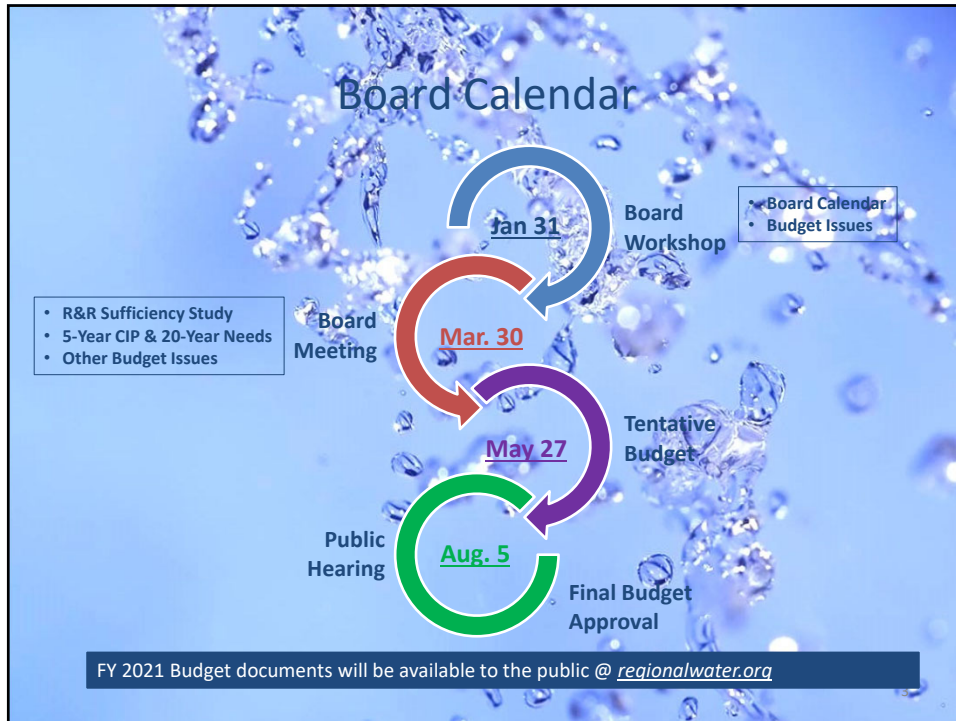
Mission of the Authority is:

“To provide the region with a sufficient, high quality, safe drinking water supply that is reliable, sustainable and protective of our natural resources now and into the future.”

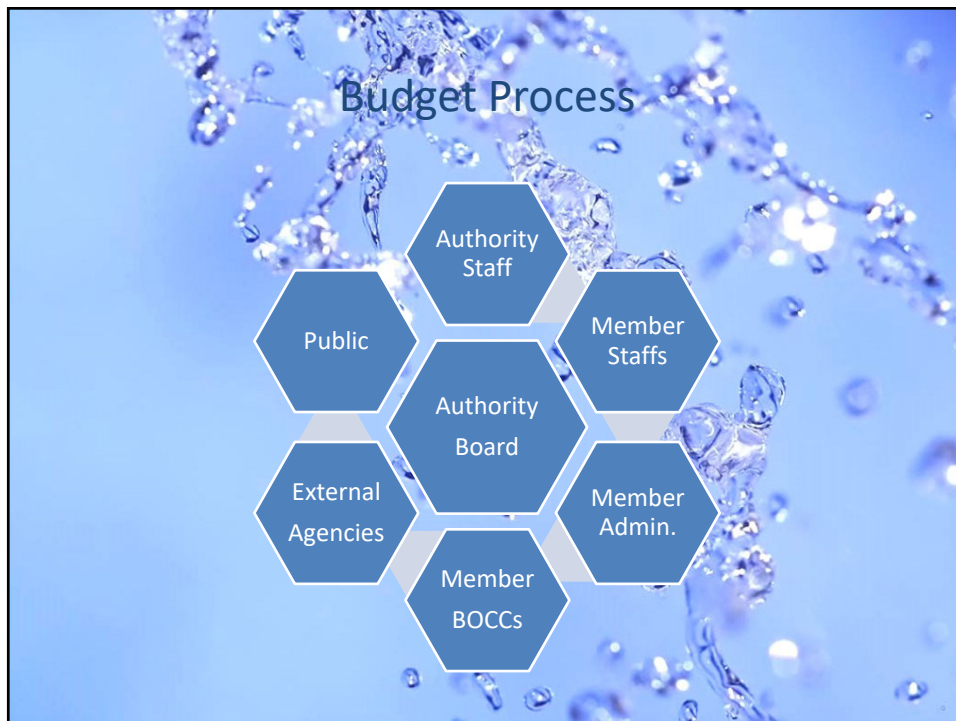
Vision of the Authority is:

“Through cooperation and collaboration the Authority and its members shall create, maintain and expand a sustainable, interconnected regional water supply system.”

2

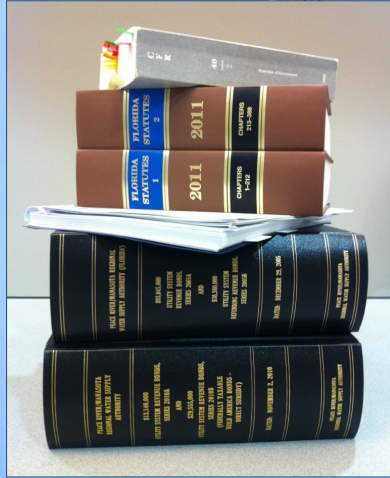


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Compliance Documents

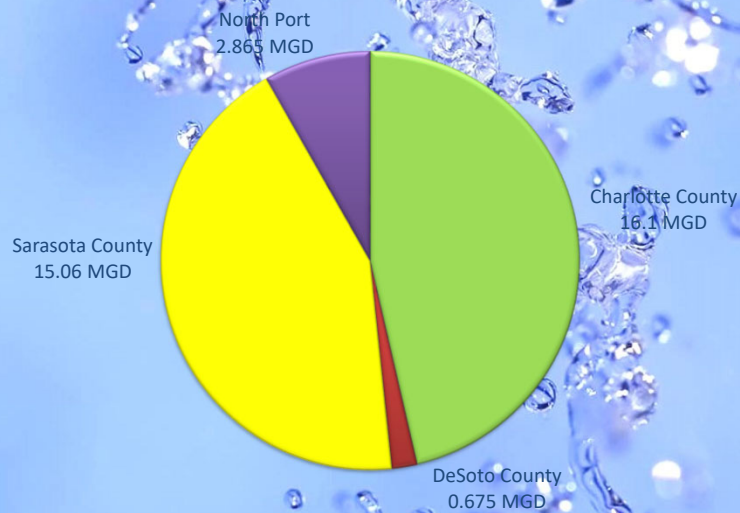


- Federal Regulations
- Florida Statutes
- Authority Governance
- MWSC
- Bond Documents
- Board Policies
- Guidelines/Procedures
- Standard/General Practice

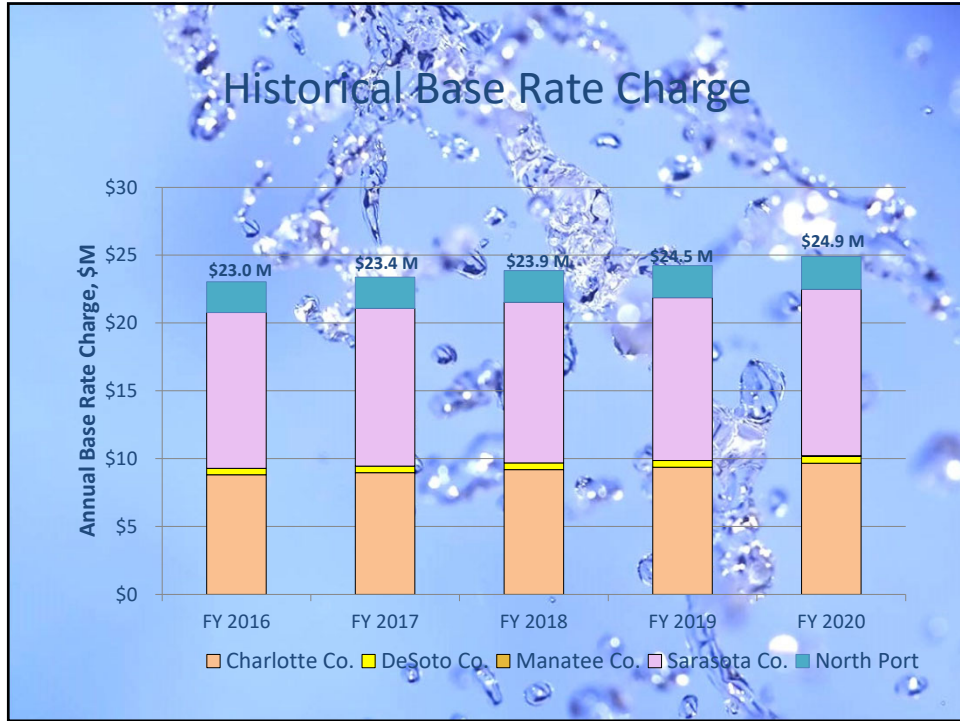
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MWSC Water Allocations

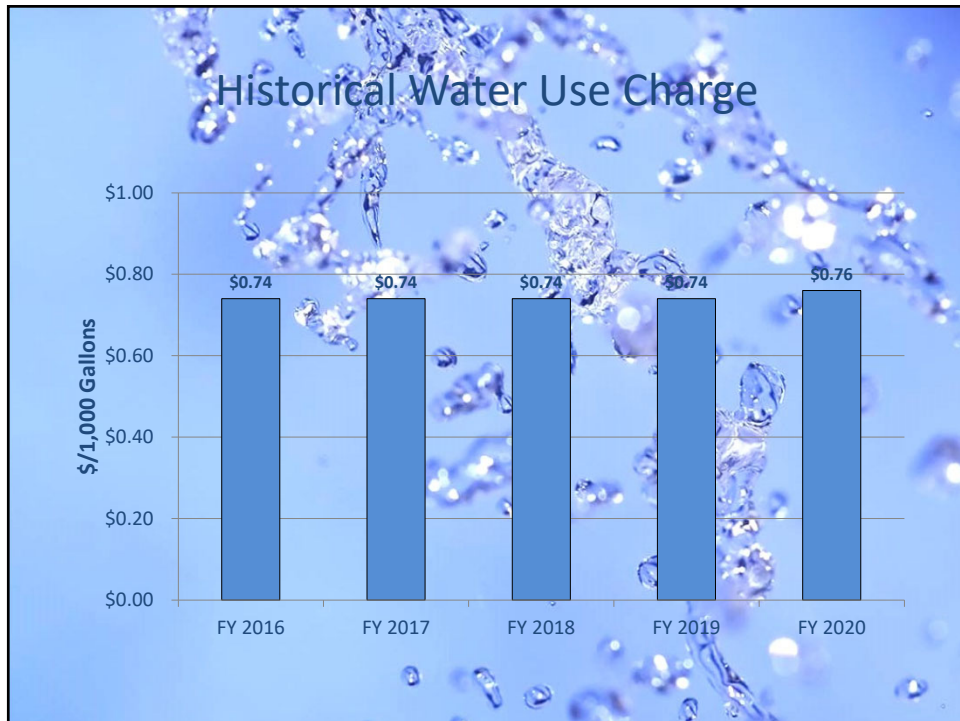
34.7 MGD



6



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8

Budget Issues & Priorities

Budget Issues

- ✓ Rate model to project revenue/expenditure needs
- ✓ Prioritize funding to maintain infrastructure – R&R Sufficiency Study
- ✓ SWFWMD Cooperative Initiative Funding Projects
- ✓ Emergency Disaster/Relief Reserve

Fiscal Sustainability

- ✓ Maintain Bond Ratings at 'aa' category or higher
- ✓ Maintain reasonable water rates
 - Next fiscal year FY 2021
 - Near-term [2-5 years]
 - Long term [5-20 years]
- ✓ Plan for debt reallocations in FY 2022 and FY 2028

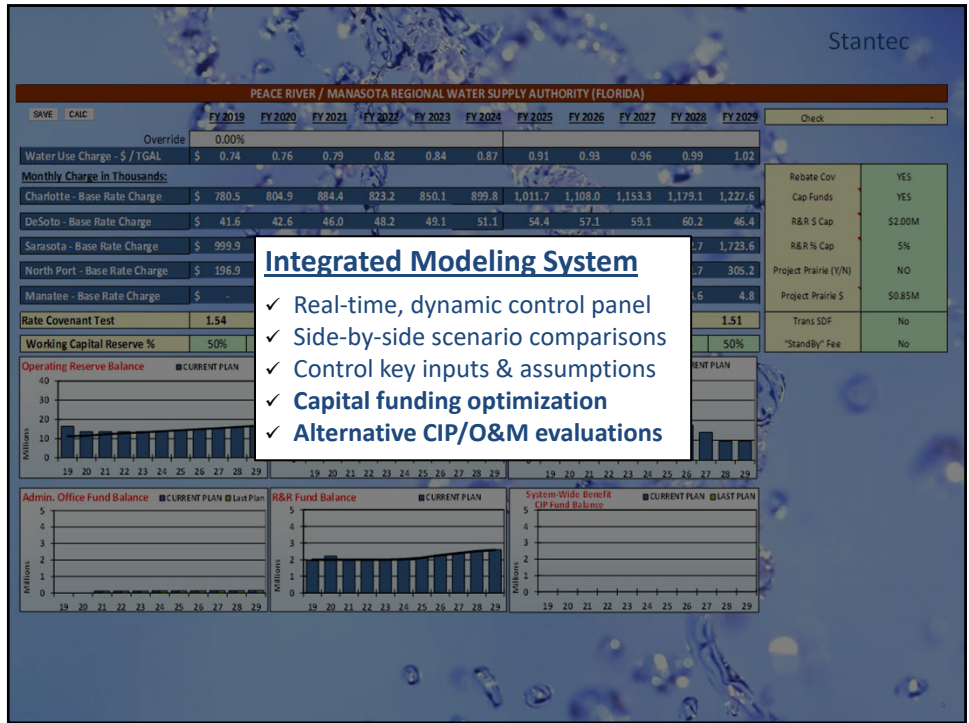
CIP Initiatives

- ✓ Planning for long term water demands and resiliency
- ✓ Update and Adopt 5-Year CIP and 20-Year Needs Assessment for FY 2021
- ✓ Provide CIP funding for future projects

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RATE MODEL

10



11



12

Per Master Bond Resolution

- ✓ "Renewal and Replacement Fund Requirement" shall mean, on the date of calculation, an amount of money equal to (1) five percent of the Gross Revenues for the preceding Fiscal Year or (2) such greater or lesser amount as may be certified to the Issuer by Consulting Engineers as an amount appropriate for the purposes of this Resolution

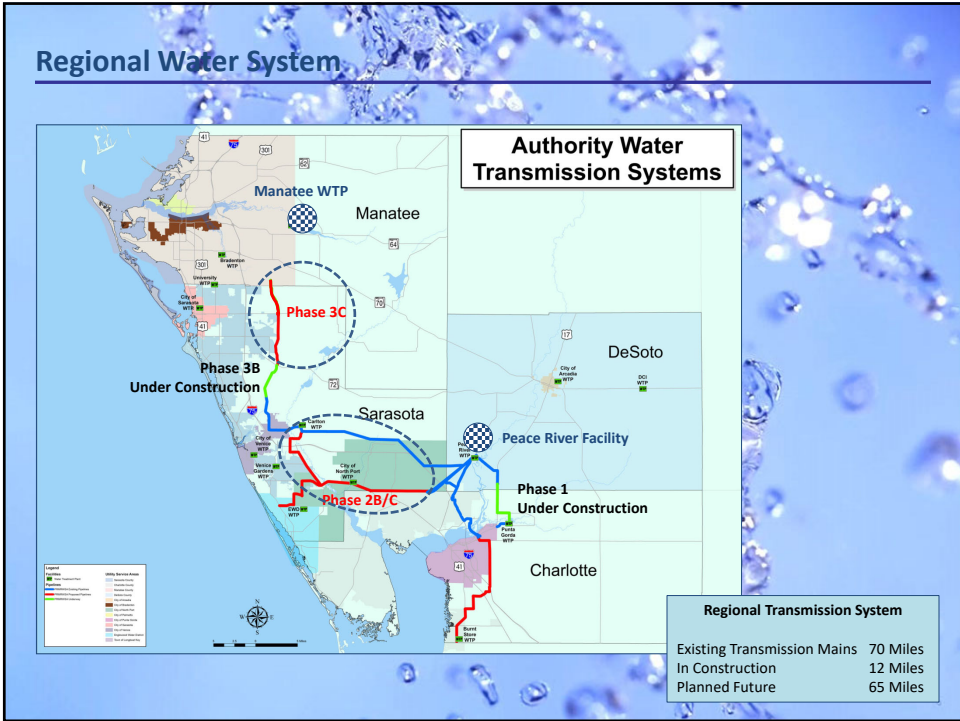
R&R Sufficiency Study

- ✓ Black & Veatch currently evaluating levels of requirement
- ✓ Rate model will be updated consistent with R&R Study recommendations
 - As well as all other FY 2021 budgetary requirements

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COOPERATIVE INITIATIVE PROJECTS

14

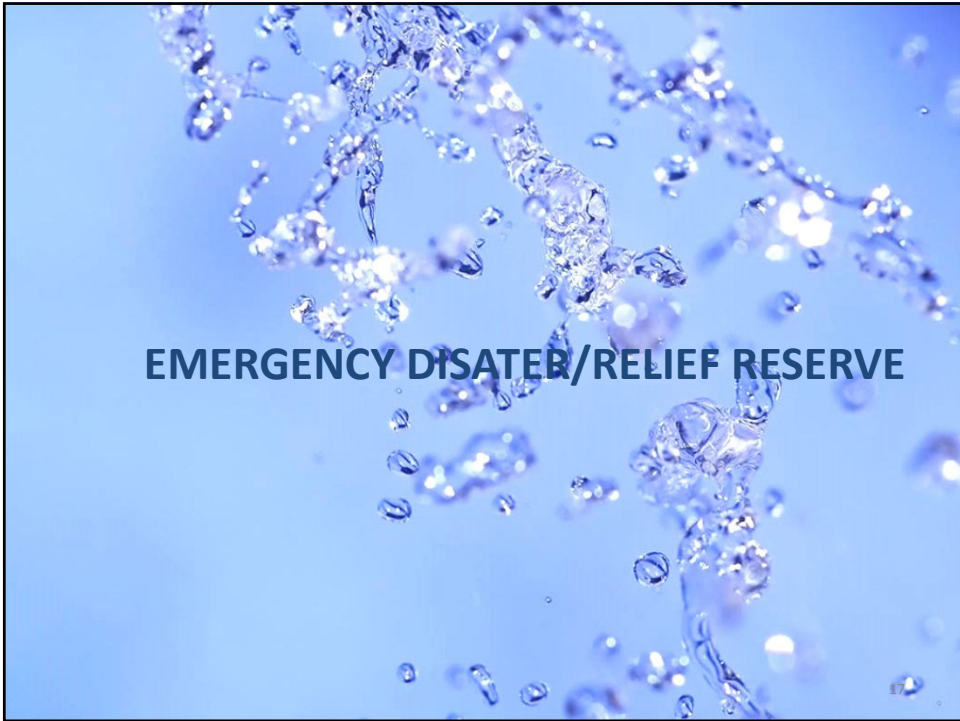


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Cooperative Funding Projects

Project	SWFWMD Funding Request	State Funding Request	Authority Funds	Total Project Cost
Peace River Reservoir No. 3 (PR ³) Siting and Feasibility Study	\$625,000	\$1,500,000	875,000	\$3,000,000
Southern Regional Loop (Segment 2B & 2C) Routing and Feasibility Study	\$200,000		\$200,000	\$400,000
Regional Loop Phase 3C Routing and Feasibility Study	\$300,000		\$300,000	\$600,000
TOTAL	\$1,125,000	\$1,500,000	\$1,375,000	\$4,000,000

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Budget Policies

Policy	Last Review	Recommend Review	Consider New Policy
Utility Reserve Fund	2019	No	
Rate Stabilization Account	2019	No	
Renewal and Replacement Fund	2019	No	
Debt Service Coverage	2019	No	
General Fund	2019	No	
Member Contribution	2019	No	
Customer Planning Assessment	2019	No	
Fees & Charges for New System Connections	2019	No	
Capital Improvement Projects • New Water Supply Projects • System-Wide Benefit projects	2019	No	
Emergency/Disaster Relief Reserve			Yes

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***PEACE RIVER MANASOTA REGIONAL WATER SUPPLY AUTHORITY
BOARD OF DIRECTORS WORKSHOP
January 31, 2020***

**WORKSHOP
ITEM 2**

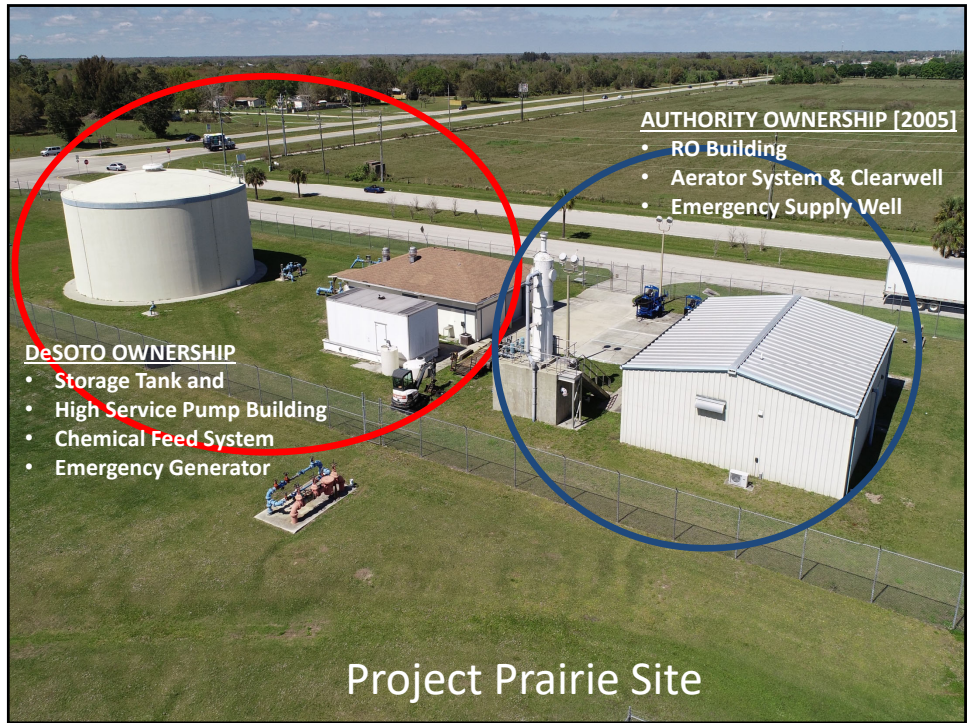
Project Prairie Acquisition



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Condition of Assets

- Visually inspected above ground equipment.
- Reviewed recent inspection reports.
- No unusual mechanical issues were noted.
- Upgrades were identified to bring facilities up to Authority's standards
- Facilities were determined to be in Good Condition and well maintained

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Valuation of Assets

- Majority of facilities are vintage 2005
- Certain equipment (electric components) recently damaged by lightning have been replaced.
- Adjusted:
 - Original cost using ENR CCI
 - Depreciation to NARUC standards.
 - Cost for new VFDs, meters and system upgrades
- Recommended acquisition cost: \$748,700

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Phase 1 Funding Projections

Component	State of Florida	Punta Gorda	SWFWMD	Total
Project Funds Budgeted	\$4,000,000	\$2,000,000	\$6,000,000	\$12,000,000
Projected Expenditures	State of Florida	Punta Gorda	SWFWMD	Total
Design, Permitting Construction & Land	\$4,000,000	\$2,000,000	\$4,800,000	\$10,800,000
Remaining Funds	\$0	\$0	\$1,075,000 (1)	
Project Prairie Acquisition Cost	\$0	\$0	\$748,700	\$748,700
Total with Project Prairie Acquisition	\$4,000,000	\$2,000,000	\$5,548,700	\$11,548,700

(1) Removes Land Acquisition Funds from SWFWMD Fundable Total

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Peace River Manasota Regional Water Supply Authority

Project Prairie Water System Evaluation

December 17, 2019





December 17, 2019

Mr. Patrick Lehman
Executive Director
Peace River Manasota Regional
Water Supply Authority
9415 Town Center Parkway
Lakewood Ranch, FL 34202

Re: Project Prairie Water System
Evaluation

Dear Mr. Lehman,

Stantec Consulting Services Inc. is pleased to present this Final Report of the Project Prairie Water System Evaluation that we have performed on behalf of the Peace River Manasota Regional Water Supply Authority. If you have any questions, please do not hesitate to call me at (407) 341-3083 or email me at harold.schmidt@stantec.com.

We appreciate the opportunity to be of service to the Authority and look forward to working with you again soon.

Sincerely,

A handwritten signature in blue ink, appearing to read "Harold E. Schmidt, Jr.", written in a cursive style.

Harold E. Schmidt, Jr., P.E., BCEE
South Wastewater Practice Director
777 South Harbour Island Boulevard, Suite 600
Tampa, FL 33602-5729
harold.schmidt@stantec.com

Enclosure

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1. PROJECT PRAIRIE UTILITY SYSTEM

1.1 BACKGROUND

In May 1991, DeSoto County (County) signed an agreement with the Peace River Manasota Regional Water Supply Authority (Authority) for the supply of an initial allocation of 0.05 million gallons per day (MGD) of potable water. Prior to this date, the County did not provide utility services. Since that date, the County has signed subsequent agreements with the Authority that increased the County's allocation to 0.675 MGD (annual average day) pursuant to the Master Water Supply Contract.

In February 1999, the County approved several Ordinances regarding the regulation of water and sewerage systems and bulk water utilities, and franchise rights within the County. The exclusive water and wastewater franchise rights east of the Peace River were granted to Florida Water Services Corporation (FWSC) and excluded the Lake Suzy Service Area. In November 2001, the FWSC franchise rights were transferred to the County by Stipulated Settlement Agreement.

In February 2002, County Ordinance 2002-04 created a County owned water and wastewater utility system (System). This Ordinance established rules and an exclusive service area encompassing all unincorporated areas of the County, less those areas serviced by the City of Arcadia and the Lake Suzy Service Area. The County subsequently entered into an agreement with Wal-Mart Stores Inc. to supply the Wal-Mart Distribution Center with potable water and wastewater treatment in July 2002. An agreement was reached between the Authority and the County in August 2002 to extend the Authority's regional transmission pipeline from the Authority's Water Treatment Plant (WTP), east and south on US Highway 17 to approximately the Charlotte County line. The County terminated this initial agreement in August 2003, and a revised agreement was executed in June 2004.

The construction of the water supply facilities that are located at the Project Prairie site, adjacent to the Wal-Mart Distribution Center, was completed in mid-February 2005. At that time, the Project Prairie facilities began to provide potable water to the Wal-Mart Distribution Center for purposes of cleaning and charging the refrigeration units. In September 2005, the Authority's 20-inch regional transmission main was certified by the Florida Department of Environmental Protection (FDEP), and during that same month construction was completed to connect the Authority's main and the County's 16-inch main located near the County's ground storage tank adjacent to the Wal-Mart Distribution Center.

In October 2005, the County executed two agreements with the Authority: a Transfer Agreement and a Master Water Supply Contract. The Transfer Agreement transferred the ownership of some of the facilities at the Project Prairie site, which included the raw water well, clear well and degasifier unit, and the metal building and provided the Authority with an easement for access to the Project Prairie site. The 0.5 million gallon (MG) ground storage tank, booster pump station building, inclusive of all the equipment (pumps, chemical feed, motor control centers, etc.) within the building, emergency generator, wastewater lift station, and associated piping system remained under the ownership of the County to operate and maintain. The Master Water Supply contract established the County as an exclusive provider customer and charged the Authority with the ultimate responsibility of planning, developing and providing the

County with water supply needs. In December 2005, the County began using the potable water from the Authority's Peace River WTP to service the Wal-Mart Distribution Center and began the process of decommissioning the Project Prairie water system assets no longer required.

1.2 THE PROJECT

As part of this project, the Authority investigated the possible acquisition of the remaining water assets of the Project Prairie Water Storage and Booster Station. The remaining assets at the Project Prairie site included the 0.5 MG ground storage tank, the emergency generator, the booster pump station building and the assets within the building, a wastewater lift station, and associated yard piping with the water and wastewater systems. The Project Prairie water and wastewater systems are situated on a site that consists of approximately 1.83 acres in size. The location of the facility is near the southeast corner of the intersection of US Highway 17 and SW Enterprise Boulevard. Presented in Figure 1-1 is an aerial view of the Project Prairie site that shows the facilities that are located on-site.



Figure 1-1: Project Prairie Utility Site

As members of the Authority understand, water is a capital-intensive enterprise. Consolidating some of the water services, such as storage/booster pumping facilities is one of many potential approaches that enables a water system to meet today's needs and tomorrow's demands. Pooling resources on a regional basis and streamlining operations and decision-making can enhance the overall efficiency of the Authority.

The benefits to the members of the Authority, by acquiring of the assets that are owned and operated by DeSoto County and located on Project Prairie site have many benefits, which include:

- **Economies of scale and operating efficiencies** – Maintaining a large network of assets rather than a smaller network of isolated assets can also be cost-effective. For example, the prices that individual members may pay for chemicals and services within their individual systems may often be much higher than the price paid by the Authority to provide a similar service.

- **Increased access to capital at a lower cost** – Water is a capital-intensive enterprise, and there are high costs associated with investing in and maintaining the vast infrastructure that a water utility may operate. Costs are climbing with the need to upgrade, retrofit, and make systems more resilient. For example, the Authority may receive better terms and interest rates on bonds and commercial loans, and/or qualify for subsidized funding options for nonregional efforts.
- **Improved planning, risk management and level of service** – Water service keeps local economies running, communities healthy, and the environment safe; that means the risks that the Authority plans for and manages can carry significant costs. With the completion of the interconnect to the City of Punta Gorda's WTP, this acquisition will permit the Authority to mitigate risk and benefit from integrated operation and planning on a regional basis. This acquisition will enable the Authority to deliver water in many directions, improving the level of service required for the local customers and lead to a more comprehensive, less piecemeal strategy than when spread across multiple systems.
- **Increased opportunities for economic development** – Some financial savings are apparent to the members of the Authority budgets, rates, and other financial considerations. Other benefits may occur in the broader region, in addition to those direct and visible outcomes from this acquisition. For example, this acquisition may have a direct impact on the region to grow or develop their local economies by improving the delivery of potable water and water infrastructure challenges that may deter growth or lead to decline.

1.3 PROJECT PRAIRIE FACILITIES

As noted earlier, a few of the remaining facilities that are located on-site are owned, operated and maintained by DeSoto County. These facilities include the following:

- 0.5 million gallon (MG) storage tank and associated yard piping
- Booster pump station, inclusive of all equipment contained within the building
- Emergency generator
- Wastewater lift station and control panel, and associated yard piping
- Mobile generator

Most of the facilities on-site are the original equipment that was installed and began operation in 2005. However, some of the equipment was damaged during an electrical storm this past year and is currently being replaced. The damaged equipment that is currently being replaced will be discussed below under the respective subsections of the report.

The current operation of the Project Prairie Water Storage and Booster Pump Station site system is that the finished water from the Authority's 20-inch regional transmission main along US Highway 17 fills the 0.5 MG ground storage tank via a 16-inch diameter water main. Potable water from the ground storage tank is then pumped to the Wal-Mart Distribution Center for use and to boost the pressure to the County's water system to serve customers outside of Wal-Mart. The yard piping is configured to recirculate the

water in the ground storage tank to keep the water fresh. Illustrated in Figure 1-2 is the yard piping plan for the Project Prairie Water Storage and Booster Pump Station site.

There is an Agreement between the County and Wal-Mart for potable water and fire protection supply that appears to govern the operation of the Storage Tank and Booster Pump Station. Although this Agreement was not provided for review, it is understood that a minimum of 14 feet must always be maintained in the storage tank to provide the minimum fire protection requirements of the Agreement. During our site visit it was also understood that Wal-Mart is required to notify the County that a fire test will be conducted; however, from discussions with the County's operations staff, this is not always the case. Regardless, it is recommended that prior to the acquisition of the Project Prairie facilities, the Authority understands fully the requirements outlined in the Agreement. Additionally, there might be opportunities for the Authority to renegotiate or provide similar services using alternative means.

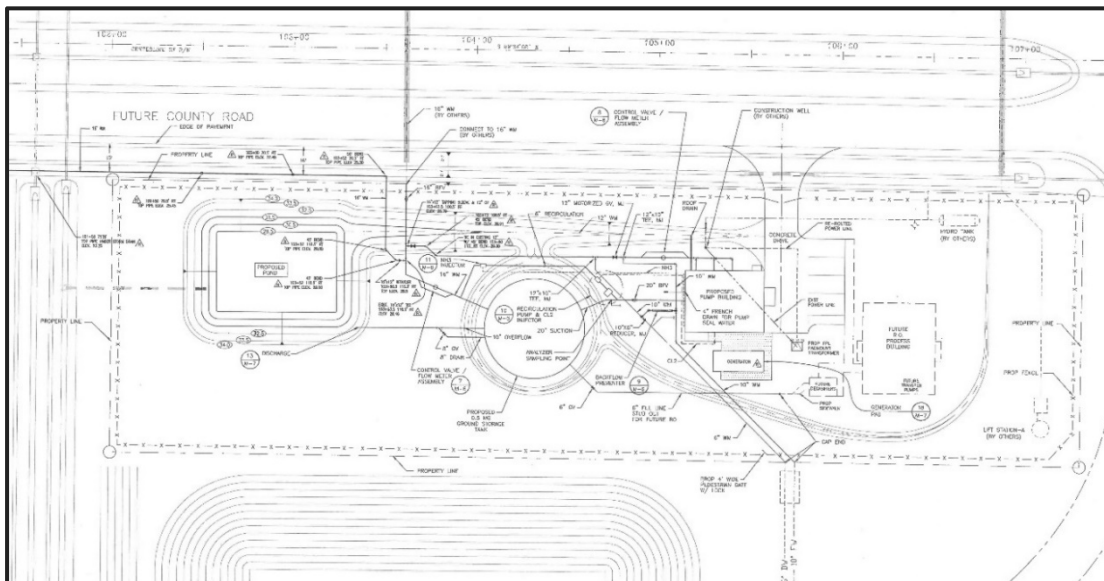


Figure 1-2: Project Prairie Water Storage and Booster Pump Station System - Yard Piping Plan

(Source: TetraTech Record Drawings, July 2006)

1.3.1 0.5 MG Ground Storage Tank

The 0.5 MG ground storage prestressed concrete tank receives potable water from the Authority's 20-inch regional transmission main via a 16-inch water main. There is a propeller meter connected to the facility's supervisory control and data acquisition (SCADA) system. The tank is 55-feet in diameter with a side water depth of 28-feet 2-inches and is shown in Figure 1-3.



Figure 1-3: 0.5 MG Ground Storage Tank and Recirculation Piping

The tank is equipped with a 4-foot diameter vent that is located at the center of the dome. In addition, there is an access hatch (35-inches by 44-inches) that is located at the top of the tank on the north-northwest side of the tank. The access hatch is locked and provides proper access to the tank interior through the concrete roof. An aluminum ladder and safety cage provide access to the access hatch on the roof dome. There are two screened overflows (48-inches wide by 20-inches high) that are evenly spaced on the outside edge of the dome roof. The tank is also equipped with a manway (55-inches by 20-inches) that is located approximately 20-inches above grade along the west-southwest outside wall of the tank. The screen material that surrounds the cap at the roof dome vent and the two overflows appeared to be securely attached to prevent entry of birds, insects or debris into the interior of the tank.

The interior of the tank is not baffled, and was inspected in November 2016 by Cheyenne Diving, LLC and the exterior of the tank was inspected in May and June 2017 by Weiler Engineering Corporation (WEC). Overall the tank and its structural aspect appear to be in good condition.

Our inspection of the tank on October 29, 2019, confirmed the findings of the June 2017 inspection performed by WEC. Along the exterior of the tank there are several tight shrinkage cracks at various locations on exterior of the walls. It was noted that some cracks have been previously treated and there are no signs of leakage or structural changes in the wall. However, at some of the locations where these shrinkage cracks were observed, it appears that the coating has separated at the cracks and is no longer sealing the concrete and could impact the tank membrane.

The interior of the tank was not inspected on October 29th, but the latest inspection of the interior of the tank was performed by Cheyenne Diving, LLC in November 2016. That inspection indicated that the tank floor, walls and ceiling appear to be in good condition, with some minor surface cracking, but no evidence of coating failure. No spalls or exposed concrete was observed along the interior wall or floor of this tank. There was some sediment (1/16 to 1/4-inches deep) that covered approximately 75% of tank floor, which

did impact the determination of the floor coating. However, there was no floating debris or material in the water of the tank during the time of inspection. The interior ladder that provides access from the top of the tank, and the fiberglass reinforced plastic (FRP) anti-vortex plate did exhibit some surface staining, but no other concerns. The 10-inch diameter overflow riser pipe and wall supports for the overflow pipe did exhibit some corrosion at the areas of coating failure.

The inspection report recommended:

- Cleaning of the tank floor to reduce deterioration and/or compromise the coating material.
- Patch all minor exterior and interior surface cracks and recoat.
- Clean interior piping, fittings and supports to remove corrosion and recoat exposed areas.

The tank level is monitored via redundant pressure transmitters manufactured by Endress+Hauser. Due to the location of the transmitter's installation, facing the sun, the LCD display is foggy and not easy to read the tank level locally. The storage tank is filled via an altitude valve with a remote control (solenoid valve), the potable water entering the storage tank from the Authority's transmission main and finished water leaving the booster pump station back to the system are measured by individual stainless steel battery powered master meters Model Octave Ultrasonic battery powered (10 year warranted lifetime), respectively. The pressure transmitters and the influent master meter is shown in Figures 1-4 and 1-5 respectively.



Figure 1-4: Redundant Tank Level Transmitters



Figure 1-5: Battery Powered Octave Ultrasonic Meter (Influent)

The water within the tank is recirculated using a 10 horsepower (HP) centrifugal pump with a rated capacity of 350 gallons per minute (gpm). Water recirculated in the tank is withdrawn from the 20-inch diameter booster pump suction line. The recirculation pump is shown in Figure 1-6.



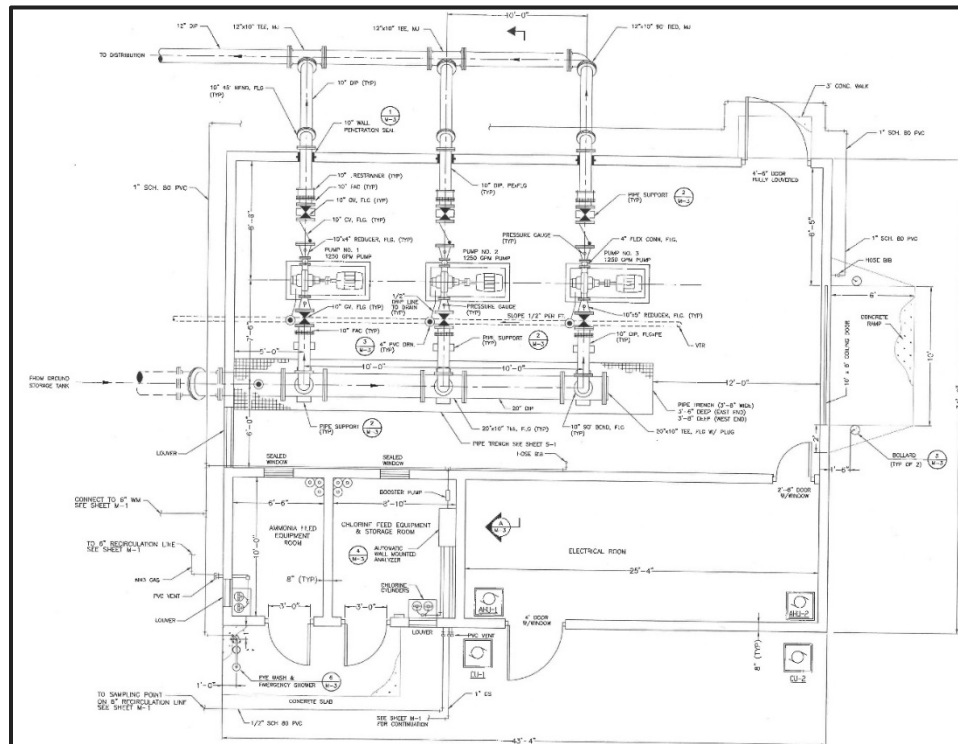
Figure 1-6: Recirculation Pump and Piping

1.3.2 Booster Pump Station Building

The Booster Pump Station Building houses the equipment that delivers the potable water from the 0.5 MG ground storage tank back into the County's potable water transmission/distribution system. This building is divided into four rooms that consist of the:

- Pump equipment room and operator room
- Electrical equipment room
- Chlorination equipment room
- Ammoniation equipment room

The Record Drawing for the Booster Pump Station Building is shown in Figure 1-7.



**Figure 1-7: Project Prairie Water Storage and Booster Pump Station System
Booster Pump Station Plan (Source: TetraTech Record Drawings, July 2006)**

There are three horizontal split-case centrifugal pumps that are connected via a 10-inch main that pull suction from a common 20-inch diameter main from the ground storage tank that is installed within a trench inside of the building. Each pump discharges via a 10-inch main that is connected a common 12-inch discharge main, which increases to a 16-inch main on-site. The three high service pumps are manufactured by Flowserve and have a rated capacity of 1,250 gpm at a total dynamic head (TDH) of 175-feet. Each pump is equipped with a 75 HP motor. Two of the motors were recently replaced as a result of damage associated with a lightning strike, and a third motor was replaced approximately 2 years ago. In addition, there was a smaller booster pump that was still in a crate. This pump was also a

Flowsolve pump with a capacity of 280 gpm at 182-feet TDH. The three high service pumps in the booster pump station room are shown in Figure 1-8.



Figure 1-8: High Service Pumps

In addition to the pumping equipment some of the instruments are installed on the southern interior wall of this room. These instruments include one HF Scientific Residual Chlorine Analyzer, one Yokogawa EXA PHH02 pH Analyzer, and one Yokogawa EXA SC402 Conductivity Analyzer. There was an office installed in the room that was located at the east end of the suction pipe trench that is used by the County's operations staff when they are present at the site.

The electrical room is located on the south side of the eastern portion of the building. This room houses all the electrical equipment (e.g. programmable logic controller (PLC), motor control centers (MCCs), variable frequency drives (VFDs), etc.) for the equipment installed at this site. Work was being performed at the time of inspection to repair the damage caused by the electrical strike. The existing MCC is configured with a 400 amp (A), 3 phase, 3 wire, 480 Volt main bus and appears to be in good condition. The MCC feeds the following main components:

- Three 75 HP high service pump, each running on a VFD;
- One motor operated valve;
- One 5 HP recirculation pump (constant speed);
- The on-site lift station with two 30 HP submersible pumps; and
- Other miscellaneous loads (e.g. controls, sensors, metering pumps, lighting, etc.).

The existing Allen-Bradley SLC 5/05 PLC was not operational at the time of our site inspection on October 29, 2019. The County has hired a system integrator that is installing and configuring a new IDEC MicroSmart PLC and a 15-inch IDEC Enhanced High Performance touch screen to monitor and control the pump station to repair equipment damaged by the lightning strike. The new PLC will be connected to

a Cradlepoint router for remote wireless access for station monitoring and control. The three Yaskawa model IQPump1000 VFDs were installed approximately 3 months ago, to replace equipment damaged by the lightning strike. The PLC and VFDs are shown in Figures 1-9 and 1-10 respectively.



Figure 1-9: Existing PLC Control Panel



Figure 10: Variable Frequency Drives

The liquid ammonia (ammonia hydroxide (NH_4OH)) and chlorine (sodium hypochlorite (NaOCl)) equipment rooms are located along the southern side of the building for disinfection purposes. These two chemical rooms are isolated from one another and contain primarily storage tanks with liquid NaOCl and

NH₄OH. The tanks that are located within the chemical feed rooms are manually monitored and filled as needed. In each room, two metering pumps are installed (one primary/one standby). At the time of the inspection, the liquid NH₄OH feed room was offline. The liquid NaOCl and NH₄OH rooms are shown in Figures 1-11 and 1-12, respectively.



Figure 11: Liquid NaOCl Room



Figure 12: Liquid NH₄OH Room

The equipment associated with the Booster Pump Building that was operable during the site inspection appeared to be well maintained by the County staff and in good working condition.

1.3.3 Emergency Generator

The existing emergency generator is a 400-kilowatt (KW) generator manufactured by Caterpillar with a diesel tank capacity of 2,460 gallons. The Automatic Transfer Switch (ATS) is manufactured by Asco. The emergency generator is shown in Figure 1-13.



Figure 13: Emergency Generator

After reviewing the single line and running the generator sizing calculations provided by Cummins on their web site, it appears that the 400 KW generator is significantly oversized. Generator calculations were run to check the unit sizing requirements. The first set of calculations were run with only two of the 75 HP booster pump station pumps and one of the 30 HP pumps (lift station) running, and it indicates a 200 KW generator is all that is required. The second set of generator size calculations were run with all three 75 HP booster pump station pumps and the two 30 HP submersible lift station pumps running and would still only need a 275 KW generator.

Having an oversized generator is not necessarily a problem unless it is never exercised at near full load. If the generator is only ever exercised with the facility load, it will never reach even 50-percent output. This is not damaging to the electric generator inside, but it is damaging to the diesel motor which powers the generator. With a generator this oversized, it would be recommended that the Authority either rent or purchase a load bank to exercise the generator at 100 percent of the load at least once a year.

At the time of the inspection, the emergency generator and ATS are both in good operating condition.

1.3.4 Wastewater Lift Station

The existing wastewater lift station that is located on the site is 8-feet in diameter with two 30 HP submersible pumps and a valve vault. This lift station receives raw wastewater from the distribution

center and pumps it to the County's wastewater treatment plant via an 8-inch diameter force main. This lift station is also connected to the emergency generator, should a power outage occur. The wastewater lift station, valve vault and control panel were not inspected as part of this site inspection.

While the lift station is located on the Project Prairie site, it is recommended that since the Authority does not have any assets, other than small lift stations associated with their facilities, the wastewater lift station that is located on the Project Prairie site should remain in the ownership of the County. The submersible wastewater lift station is shown in Figure 1-14.



Figure 14: Wastewater Lift Station

1.3.5 Mobile Generator

DeSoto County provided an Asset Depreciation List that identified the remaining assets that are owned and operated by the County that listed a mobile generator. Since, a mobile generator is usually configured for the existing utility's needs that may not be compatible for the Authority's needs, the mobile generator was not inspected as part of this work. In addition, there is more than enough back-up power available using the stationary emergency generator. As a result, like the wastewater lift station, it is recommended that the mobile generator remain the property of the County.

1.3.6 Facility Documentation

A review of the Record Drawings provided by the County indicated that they do not accurately document the facilities installed at the Project Prairie Potable Water Storage and Booster Pump Station site. For example, both chemical rooms show gas systems installed, while liquid storage and metering pumps were installed. The same can be said regarding the electrical Record Drawings were incomplete (i.e. missing drawings) and improper power requirements (i.e. booster Pump HP, emergency generator KW, etc.) were noted. It is assumed that the buried infrastructure was accurately depicted on the Record Drawings; however, it is recommended that some potholing be performed to document portions of the underground piping installed.

The Operation and Maintenance (O&M) manuals for the equipment installed at the facility were not available during the site inspection. While it is understood that the County will remain the operator of the facilities, it is assumed that the Authority will be responsible for the maintenance of the equipment installed.

It is recommended that the Record Drawings be updated to accurately depict the facilities installed. This work can be performed by either Authority or County staff using photographs and redlining a set of drawings to accurately depict the facilities installed. Copies of the O&M manuals should be provided to the Authority to insert the missing equipment, and to document the assets installed and incorporate the maintenance requirements of the equipment in their asset management system.

1.3.7 Land

The Project Prairie Potable Water Storage and Booster Pump Station site consist of approximately 1.83 acres. The County currently owns the land and the Authority retains an easement over the site. Whether the County retains ownership of the land or the Authority takes the land, easements would need to be provided to separate the potable water and wastewater facilities.

Since the potable water facilities take up most of the land, it is recommended that the land be conveyed to the Authority at no cost. An easement should be provided to the County to operate and maintain the wastewater lift station and make repairs to the wastewater forcemain if be necessary. This would provide the Authority with a clean slate to make improvements to any aboveground and/or buried infrastructure associated with the potable water system.

With regards to the legal breakpoint of asset ownership between the Authority and the County, a few options exist that are noted below:

- Option 1: The Authority assumes ownership at the inlet side of the flowmeter that feeds the storage tank off the Authority's 20-inch diameter to the flowmeter and the discharge side of the meter for the potable water that leaves the Project Prairie site. However, this option would require the Authority to grant the County proper easements to access and maintain the buried infrastructure before and after the meter.
- Option 2: The Authority assumes ownership of all yard piping associated with the water system within the property boundary of the Project Prairie site. The County would be responsible for all piping outside the property boundary.
- Option 3: The Authority assumes ownership of all piping off the Authority's 20-inch diameter transmission main that feeds the 0.5 MG ground storage tank, and all discharge piping within the property boundaries.

Of the three options above, Option 2 provides the best break for separation of ownership of the assets associated with the Project Prairie facilities.

1.4 RECOMMENDED SYSTEM IMPROVEMENTS

As noted earlier, the remaining County assets associated with the water system that were inspected on October 29, 2019 have been well maintained and in good operating condition. However, there several items associated with these facilities that the Authority should consider implementing that would improve the asset life and operation of the facilities, and to bring the facility up to the Authority's standards and standardization of materials/equipment. These items will be addressed under the specific areas of the primary assets. All work necessary to make the recommended improvements at the Project Prairie Water Storage and Booster Pump Station facilities, and for the purpose of this cost analysis it is assumed that all work, with the exception of the coating and patching of the 0.5 MG ground storage tank, will be performed using the Authority's staff.

1.4.1 0.5 MG Ground Storage Tank

The June 2017 WEC Report identified several recommendations:

- Cleaning of the tank floor to reduce deterioration and/or compromise the coating material.
- Patch all minor exterior and interior surface cracks and recoat.
- Clean interior piping, fittings and supports to remove corrosion and recoat exposed areas.

This work on the exterior of the tank should be scheduled based on the Authority's capital programming schedule. The work associated with the interior of the tank should only be performed once a reliable supply to the customers for potable water supply and fire flow protection can be provided. The probable opinion of capital cost for the coating and patching of the 0.5 MG ground storage tank was determined to be approximately \$53,000.

The two pressure transducers face the sun, and as a result, the LCD display is foggy and not easy to read the tank level locally and should be replaced and relocated to a more suitable location. The probable opinion of capital cost for relocating and replacing the two pressure transducers in a solar protective container was determined to be approximately \$6,500.

The two flowmeters that were recently installed are not standard equipment that the Authority currently uses. It is recommended to replace these two flowmeters with the standard equipment. Two new magnetic flowmeters will be installed at the same location. The probable opinion of capital cost for the two new magnetic flowmeters was determined to be approximately \$21,500.

1.4.2 Booster Pump Station

Most of the damage from the electrical storm has been or is currently being repaired. The remaining work that has not been completed includes the replacement of the PLC and touchscreen. However, as noted above the PLC is not standard equipment used by the Authority and should be replaced. The cost to replace the PLC and program the system is approximately \$15,000.

It is also recommended that communication to the Authority's Peace River WTP be provided. This would enable the Authority to monitor the operation of the Project Prairie Water Storage and Booster Pump Station facility. The probable opinion of capital cost for providing and installing an antenna, wiring and testing determined to be approximately \$4,400.

The chemical storage and metering equipment for the NaOCl and NH₄OH do not depict what is shown on the Record Drawings for the Project Prairie Water Storage and Booster Pump Station. It is recommended that a permanent off-loading/fill station, metering pumps and chemical piping and appurtenances be installed. The probable opinion of capital cost for providing and installing new chemical storage and pumping equipment was determined to be approximately \$27,500.

1.4.3 Emergency Generator

As noted, an oversized generator is not necessarily a problem unless it is never exercised at near full load. If the generator is only ever exercised with the facility load, it will never reach even 50-percent output. This is not damaging to the electric generator inside, but it is damaging to the diesel motor which powers the generator. With a generator this oversized, it would be recommended that the Authority purchase a mobile load bank to exercise the generator at 100 percent of the load at least once a year. The probable opinion of capital cost for the mobile load bank approximately \$30,000.

1.4.4 Summary

A summary of the recommended improvements totaling \$157,900 is presented in Table 1-1. These projects, while important can be incorporated into the Authority's capital program, as necessary.

Table 1-1: Project Prairie Water Storage and Booster Pump Station Recommended Improvements¹

Description	Total Amount
Coating and patching of the 0.5 MG ground storage tank	\$53,000.00
Relocation and replacement of the pressure transducers	\$6,500.00
New flowmeters (tank inlet and booster station discharge)	\$21,500.00
PLC and reprogramming	\$15,000.00
SCADA upgrades for remote monitoring at the Peace River WTP	\$4,400.00
Chemical delivery, storage and feed upgrades	\$27,500.00
Mobile load bank	\$30,000.00
TOTAL	\$157,900.00

Notes:

1. Project capital costs include installation, a 20% contingency for unknown conditions and options, bonds and insurance and a 0 to 15% estimate for engineering and construction services depending upon the work necessary.

1.5 OPERATION COSTS

The County provided the last 12-months of operational data for the period that began in January 2018 and ended in December 2019 for the chemical and power costs associated with the Project Prairie Water Storage and Booster Pump Station. The annual cost for chemicals and power were \$8,387.25 and \$32,444.11, respectively. This is like the chemical and power costs at the Authority's Booster Pump Station A.

The cost for chemicals during this period ranged from \$187.50 to \$1,806.25 per month and averaged nearly \$700.00 per month. The County does a chlorine free burn twice per year to help cleanse the water transmission/distribution system, reduce the possible occurrence of nitrification and biofilm in the system, and improve the overall water quality. The Authority should anticipate that this system maintenance will continue. The higher monthly chemical costs represent the two times that the County performed a free burn. The monthly power costs at the Project Prairie Water Storage and Booster Pump Station ranged from \$2,382.70 to \$3,316.39 and averaged approximately \$2,703.68 per month. Presented in Table 1-2 are the monthly chemical and power costs for this facility.

Table 1-2: Project Prairie Water Storage and Booster Pump Station Chemical and Power Costs¹

Month/Year	Chemical Costs	Power Costs
January 2019	\$816.25	\$2,475.90
February 2019	\$842.50	\$2,598.64
March 2019	\$243.75	\$2,771.97
April 2019	\$1,806.25	\$2,888.33
May 2019	\$331.25	\$2,382.70
June 2019	\$575.00	\$2,382.70
July 2019	\$751.50	\$3,316.39
August 2019	\$618.25	\$2,467.88
September 2019	\$187.50	\$2,593.45
October 2019	\$318.75	\$3,086.05
November 2019	\$1,437.50	\$2,849.18
December 2019	\$468.75	\$2,630.92
TOTAL	\$8,387.25	\$32,444.11
MONTHLY AVERAGE	\$699.77	\$2,703.68

Notes:

1. Data provided from DeSoto County beginning on January 2, 2019 and ending on December 10, 2019.

2. VALUATION

The County has owned and operated the facilities associated with the Project Prairie Potable Water Storage and Booster Pump Station since it was put into operation in September 2005. Most of the equipment installed, other than pump motors, VFDs, and instrumentation and control equipment are from approximately 2005. One pump motor was replaced in 2016, and the other two were replaced in the summer of 2019, as a result of the lightning strike. This same lightning strike damaged the two flowmeters, PLC, and VFDs.

The flowmeters and VFDs have been replaced and are operational. The County has hired a system integrator, who is installing and configuring a new IDEC MicroSmart PLC and an IDEC Enhanced High Performance touch screen to monitor and control the pump station. This work is currently underway, and it has not been completed or certified by the County staff. The County had indicated that the total cost for the work that is currently underway and/or has been completed as a result of the lightning strike was approximately \$40,000.

Most water utilities maintain their accounts and records in accordance with the National Association of Regulatory Utility Commissioners (NARUC) 1996 Uniform System of Accounts. The total cost paid by the County for the remaining assets for the Project Prairie Water Storage and Booster Pump Station, excluding the land was slightly greater than \$1,057,000 (which include \$42,000 for a mobile generator). The County provided information relative to the total costs incurred for the remaining assets, which along with the depreciated values for Fiscal Year 2017, are presented in Table 2-1.

Table 2-1: Depreciation of Project Prairie Water Storage and Booster Pump Station Remaining Assets (FY 2017)¹

Item	Original Cost	Anticipated Service Life	Annual Depreciation	Ending Accumulated Depreciation	Ending Depreciated Value
Booster Pump Building	\$618,508.20	15	\$41,233.88	\$494,806.56	\$123,701.64
Emergency Generator	\$148,301.00	15	\$9,886.73	\$118,640.80	\$29,660.20
Storage Tank	\$231,128.00	15	\$15,408.53	\$184,920.40	\$46,225.60
Fence	\$17,178.00	20	\$858.90	\$10,306.80	\$6,871.20
TOTAL	\$1,015,115.20			\$808,656.56	\$206,458.64

Notes:

1. DeSoto County BOCC Water Utility Infrastructure Depreciation (September 30, 2017).

If this is extended to this fiscal year, all the facilities will be fully depreciated at the end of FY 2020, except for the fence that surrounds the property. This is most likely because of the method used by the County to depreciate their assets.

Three items stand out regarding the County's method of depreciating the facilities at the Project Prairie Water Storage and Booster Pump Station site. The first is the anticipated service life of the assets. The second is that many of the assets are grouped under specific categories (i.e., Booster Pump Station).

Storage Tank, etc.). The third item is that the work being performed now due to the electrical storm is not accounted for.

The average service life is the period of service that can be reasonably expected of the equipment in service. All the anticipated service lives are well below what is provided in Paragraph 2(a) Water System Guideline Average Service Lives of the 1996 NARUC Uniform System of Accounts. For example, the Booster Pump Station has a building (40 years), pumping equipment (20 years), and ductile iron piping (40 years), and so forth; however, a grouped value of 15 years is provided. If the minimum remaining service life of 20 years for the equipment within the building is used, the facility would have 2 years left to be depreciated. The more glaring issue is the storage tank, the County indicated an anticipated service life of 15 years. However, NARUC provides for 40 years of useful life. Therefore, if the NARUC values are used, most of the assets have a service life remaining.

While the grouping of assets under once category is an acceptable approach to determining asset value, it does not keep track of the accumulated provision for depreciation applicable to the individual assets that make up the system. This approach recognizes that some assets within the group may live longer or shorter than the average service life of the group; however, the group is expected to live the average service life noted. With this approach every item in the group is assumed to be fully depreciated at retirement.

Finally, the work that is currently underway should be accounted for, as it is currently not shown on the information provided by the County. This could be because the information provided by the County was for FY 2017, and work is being performed during FY 2019 and FY 2020. The cost provided by the County for this work of \$40,000 should be added back into the value of the system. No costs were provided for the flowmeters and/or the VFDs that were replaced. For the purpose of this analysis a value of \$120,000 was assigned for this work. However, it is recommended that this value be trued up with the actual value of the work performed based on actual work orders or receipts for the work.

The remaining County owned facilities associated with the Project Prairie Water Storage and Booster Pump Station, excluding the mobile generator were well maintained and operated by DeSoto County. In addition, the land that the facility is situated on should be conveyed to the Authority at no cost, and the Authority will provide the necessary easements to access the wastewater lift station and forcemain for maintenance purposes. The remaining facilities were adjusted from October 2005 to November 2019 values using the Engineering News Record Construction Cost Index (ENR CCI). Based on the October 29, 2019 site inspection of the Project Prairie Water Storage and Booster Pump Station facilities, and deducting the work that should be incorporated into the system a value of the facilities associated with the Project Prairie Water Storage and Booster Pumping System is estimated to be \$748,731.53. Presented in Table 2-2 are the adjusted cost basis for the Project Prairie Water Storage and Booster Pump Station facilities.

Table 2-2

**Valuation of the Remaining Assets at the Project Prairie Water Storage
and Booster Pump Station Site (2019)**

Description	Allocated Percentage ¹	Adjusted Original Cost (2019) ²	Adjusted Average Service Life (Years) ³	Average Straight Line Depreciation	2019 Cost
Booster Pump Building	40%	\$374,176.53	40	\$9,354.41	\$243,214.74
Pumps	25%	\$233,860.33	20	\$11,693.02	\$70,158.10
Piping/valves	10%	\$3,544.13	40	\$2,338.60	\$60,803.69
Electrical	15%	\$140,316.20	20	\$7,015.81	\$42,094.86
Chemical Rooms	10%	\$93,544.13	20	\$4,677.71	\$28,063.24
New Work (PLC/motors)	100%	\$40,000.00	20	\$2,000.00	\$40,000.00
Emergency Generator	100%	\$224,292.71	20	\$11,214.64	\$67,287.81
Storage Tank	100%	\$349,561.54	40	\$8,739.04	\$227,215.00
Fence	100%	\$25,980.27	20	\$1,299.01	\$7,794.08
SUBTOTAL		\$1,575,275.85			\$786,631.53
Adjusted cost for VFDs and flowmeters					\$120,000.00
Recommended System Improvements					-
TOTAL					\$748,731.53

Notes:

1. Allocated percentage of total Booster Pump Station cost allocated to components of assets installed within the building
2. ENR CCI multiplier: 1.512415391
3. 1996 NARUC Uniform System of Accounts average service life for specific components

3. RECOMMENDATIONS

3.1 INTRODUCTION

With the completion of the interconnect to the City of Punta Gorda's WTP, acquisition of the Project Prairie Storage and Booster Pump Station will permit the Authority to mitigate risk and benefit from integrated operation and planning on a regional basis.

The general primary facilities that are currently owned, operated and maintained by the County at the Project Prairie Water Storage and Booster Pump Station site include the following:

- 0.5 million gallon (MG) storage tank, level controls and recirculation pumps
- Booster pump station, inclusive of all booster pumps, operator room, electrical room (MCCs, PLC, VFDs, ATS, etc.), and liquid NaOCl and NH₄OH rooms (chemical storage tanks and metering pumps, piping and appurtenances)
- Emergency generator
- Wastewater lift station
- Yard piping, flow metering (tank feed and finished water leaving site) and chemical (NaOCl and NH₄OH) injection

Most of the facilities on-site are the original equipment that was installed and began operation in October 2005. Some of the equipment was damaged during an electrical storm earlier this year and is currently being replaced. As of the date of this document, the remaining items that still require replacement are the PLC and touchscreen. Once complete, start-up, training and final testing of the equipment that were replaced should be completed.

The current operation of the Project Prairie Water Storage and Booster Pump Station site system is that the finished water from the Authority's 20-inch regional transmission main along US Highway 17 fills the 0.5 MG ground storage tank via 16-inch diameter water main. Potable water from the ground storage tank is then pumped to the Wal-Mart Distribution Center for use and to boost the pressure to customers along the Authority's water transmission main and within the region. The system can also repump potable water back into the system to serve customers outside of Wal-Mart via a 16-inch water main connected to the Authority's 20-inch diameter transmission main. The yard piping is configured to recirculate the water in the ground storage tank to keep the water fresh. Additionally, liquid NaOCl and NH₄OH can be added to maintain finished water quality leaving the site.

3.2 RECOMMENDATIONS

The equipment and structures that are located on the Project Prairie Booster Pump Station site were inspected on October 29, 2019 and were considered to have been well maintained by the County and in good operating condition.

Summarized below are the findings from the October site inspection:

- 0.5 million gallon ground storage tank:
 - Patch and recoat the storage tank: \$53,000.
 - Relocate and replace the two tank Endress+Hauser pressure transducers and provide protection from sunlight: \$6,500.
 - Replace existing tank inlet and booster pump station discharge flowmeters: \$21,500.
- Booster Pump Station Building:
 - Obtain an electronic and hardcopy of the IDEC PLC being installed at the Pump Station with documentation and all PLC addresses. Replace and reprogram the PLC: \$15,000.
 - SCADA upgrades for remote monitoring at the Peace River WTP: \$4,400.
 - Replace chemical metering pumps, piping/valves and upgrade chemical loading system: \$27,500.
 - Record Drawings and O&M Manuals for other equipment installed that was damaged in the electrical storm.
 - Start-up/Testing and training for the County and Authority staff.
- Emergency Generator:
 - Purchase a mobile load bank to test emergency generator under full load: \$30,000.
- Wastewater Lift Station:
 - Remain in the ownership of DeSoto County.
- Land:
 - Authority should deed the land as part of this acquisition at no cost, and the Authority shall provide the necessary easement to the County for the access and maintenance of the wastewater lift stations and force main.
- Miscellaneous:
 - Update the Record Drawings for the equipment installed.
 - Provide the complete sets of O&M Manuals.

The total cost for the County to upgrade the facilities at the Project Prairie Water Storage and Booster Pump Station site is anticipated to be approximately \$157,900.

The total purchase price for the Authority to assume ownership of the remaining facilities, excluding the mobile generator and including the land is \$748,731.53.

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Additionally, the purpose of this document is to summarize Stantec’s analysis and findings related to this project, and it is not intended to address all aspects that may surround the subject area. Therefore, this document may have limitations, assumptions, or reliance on data that are not readily apparent on the face of it. Moreover, the reader should understand that Stantec was called on to provide judgments on a variety of critical factors which are incapable of precise measurement. As such, the use of this document and its findings by the Authority should only occur after consultation with Stantec, and any use of this document and findings by any other person is done so entirely at their own risk.

***PEACE RIVER MANASOTA REGIONAL WATER SUPPLY AUTHORITY
BOARD OF DIRECTORS WORKSHOP
January 31, 2020***

**WORKSHOP
ITEM 3**

Peace River Regional Reservoir No. 3 (PR³) – Mitigation Model



Reservoir 3 Wetland Impact Model

January 31, 2020
Wade Waltmyer and Amber Halstead

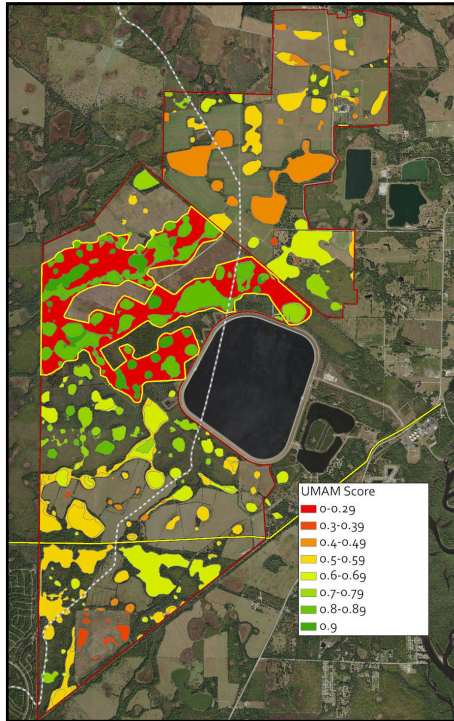
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Overview

- Scope of work
 - Estimated Wetland Boundaries
 - Scored Wetlands
 - Developed Impact Model
- Future applications
 - Quantify Wetland Impacts
 - Estimate Mitigation Costs



2

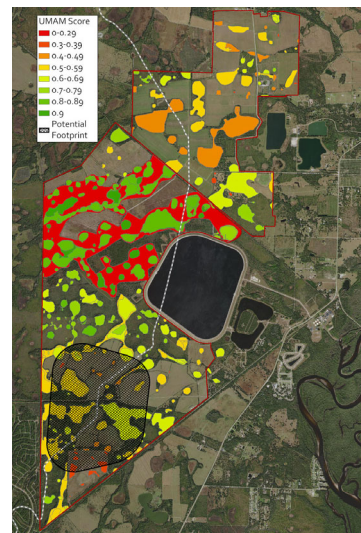
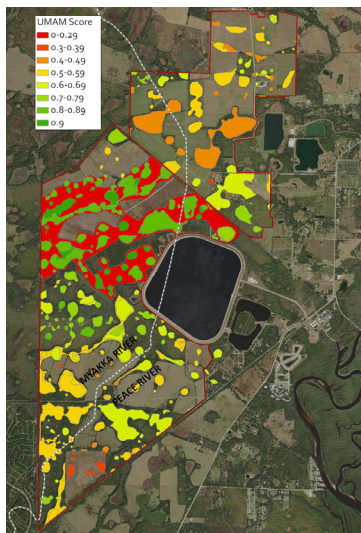
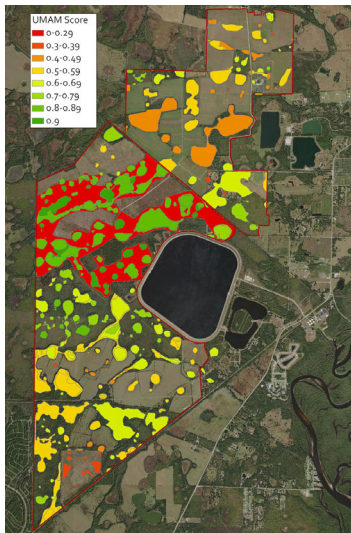


UMAM Scoring

- Location and Landscape Support
- Water Environment
- Community Structure
- $UMAM\ Score \times Acres\ Impacted = Debits$

3

Model Inputs



Wetlands

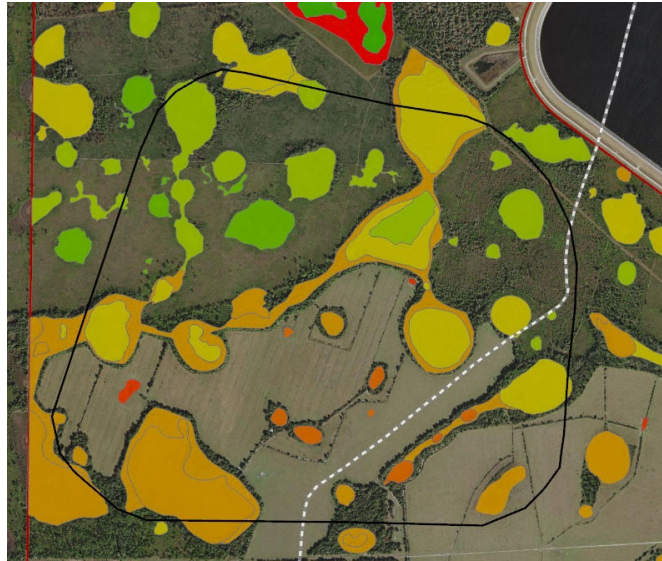
Basin

Reservoir
Footprint

4

Wetland Impact Model

- **Footprint Buffer**
- Primary Impact Area
- Secondary Impact Area
- Calculate Total Impact Areas
- Debit Summary by Basin and Wetland Type



5

Wetland Impact Model

- Footprint Buffer
- **Primary Impact Area**
- Secondary Impact Area
- Calculate Total Impact Areas
- Debit Summary by Basin and Wetland Type



6

Wetland Impact Model

- Footprint Buffer
- Primary Impact Area
- **Secondary Impact Area**
- **Calculate Total Impact Areas**
- Debit Summary by Basin and Wetland Type

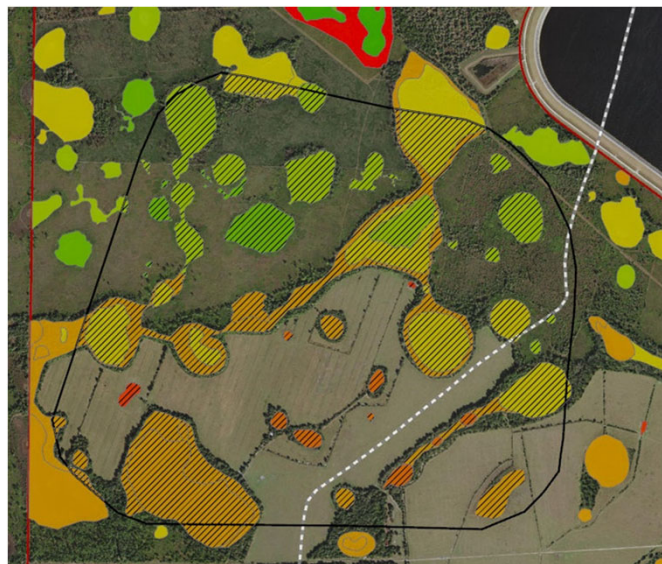


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Wetland Impact Model

- Footprint Buffer
- Primary Impact Area
- Secondary Impact Area
- Calculate Total Impact Areas
- **Debit Summary by Basin and Wetland Type**

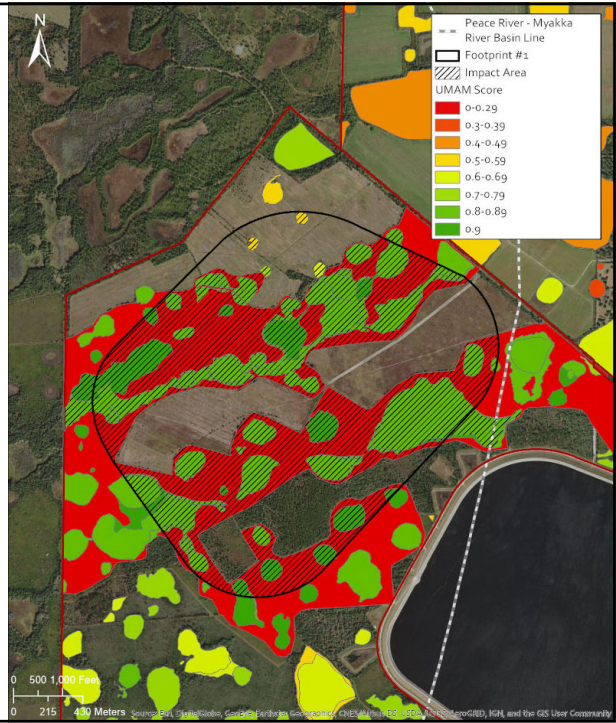
Basin	Wetland Type	Impacted Area (ac.)	Debits
Myakka River	Forested	68.56	39.84
	Herbaceous	142.16	92.63
Peace River	Forested	3.14	1.57
	Herbaceous	20.27	12.01



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Potential Footprint #1

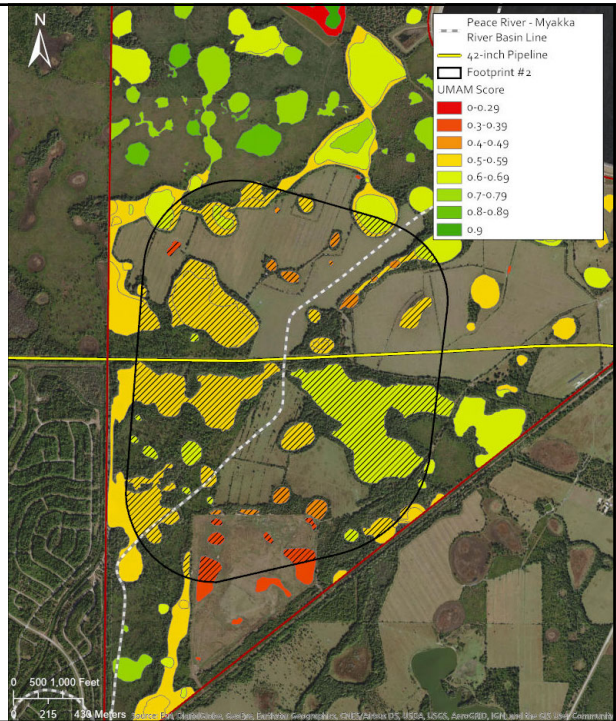
Basin	Wetland Type	Impacted Area (ac.)	Debits
Myakka River	Forested	51	43
	Herbaceous	259	221
Peace River	Forested	0	0
	Herbaceous	0	0
***	Mitigation Uplands	343	36



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Potential Footprint #2

Basin	Wetland Type	Impacted Area (ac.)	Debits
Myakka River	Forested	27	15
	Herbaceous	128	69
Peace River	Forested	87	52
	Herbaceous	43	21
***	Mitigation Uplands	0	0



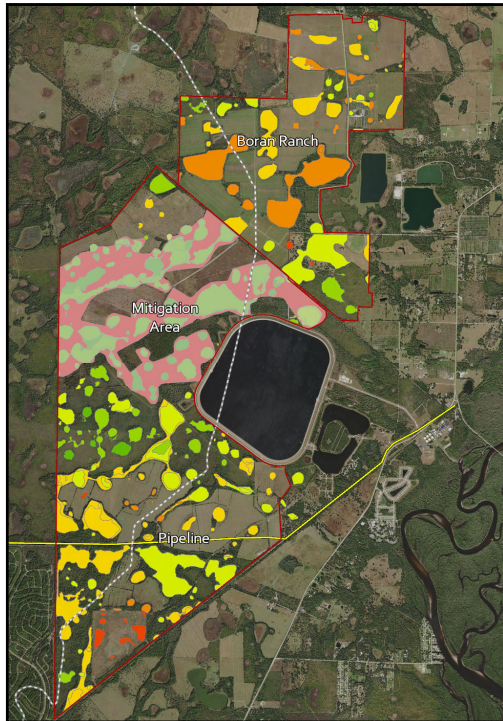
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Potential Footprint #3

Basin	Wetland Type	Impacted Area (ac.)	Debits
Myakka River	Forested	93	54
	Herbaceous	158	104
Peace River	Forested	7	4
	Herbaceous	35	20
***	Mitigation Uplands	0	0



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Summary

- Physical Constraints
 - Reservoirs
 - 42- Inch Pipeline
 - Property Boundaries
 - Land Acquisition Costs (Boran Ranch)
- Cost Drivers
 - Wetland Quality
 - Impact Basin
 - Mitigation Area

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