St. Johns County Utility Department's Implementation of

Integrated Water Resources Plan

One Water in Action: Exploring Benefits and Lessons Learned
Webinar 17 May 2018

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JONES EDMUNDS

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Agenda

- Background & Utility Overview
- IWRP Goals & Features
- IWRP Process
- Public Outreach
- Recommended Plan Highlights
- Plan Benefits
- Lessons Learned
- Implementation

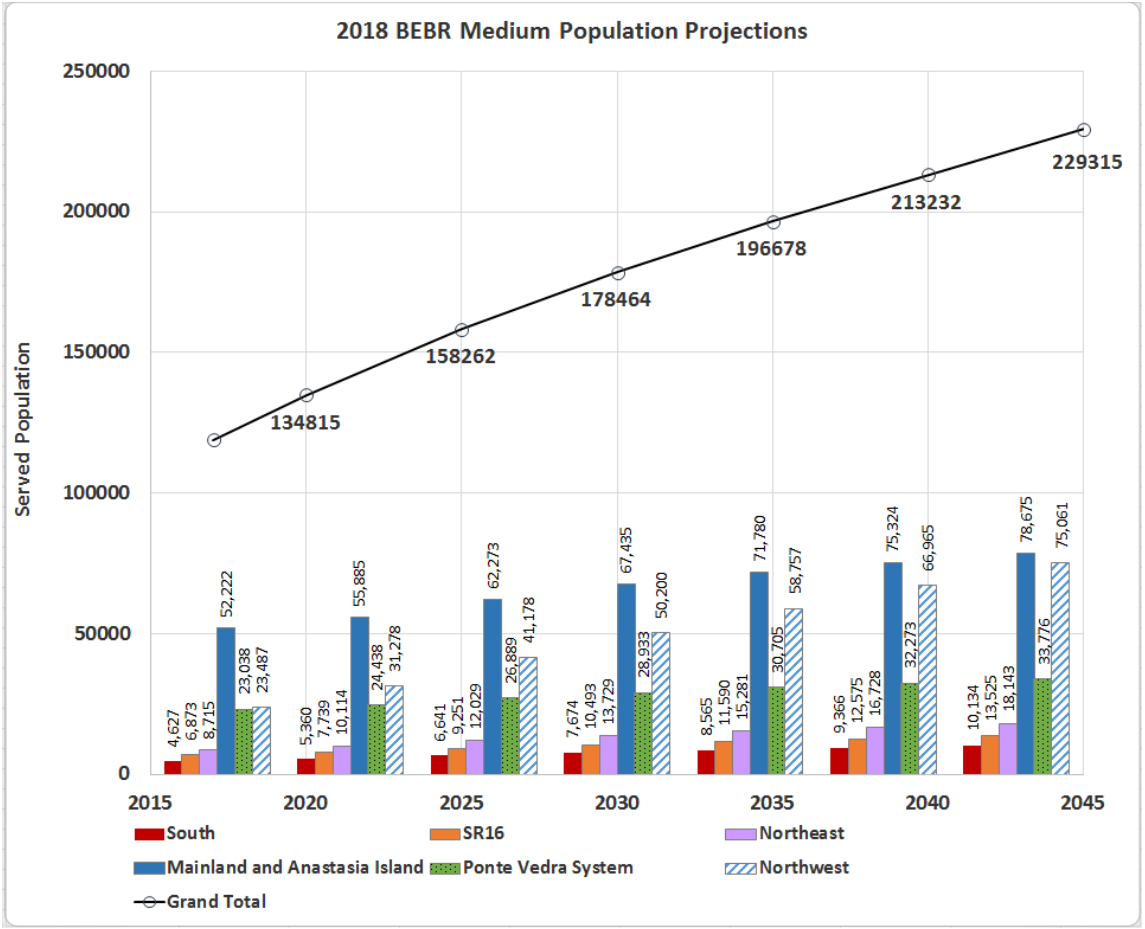
Background

- Water is essential to growing economy and quality of life.
- Must provide sustainable water supply while protecting the environment.
- Traditional groundwater supplies are limited.
- Need an integrated plan to meet current and future water demands.

St. Johns County Utility Overview

- Provides water, wastewater, and reclaimed water services to over 100,000 people
- 9 Water Treatment Plants
  - 12 MGD currently produced
- 10 Wastewater Treatment Plants
  - 7 MGD currently treated
  - Over 40 % reclaimed water utilization

Population Projections Update



Integrated Water Resources Plan Goals

- Provide a road map for short-term and long-term solutions.
- Ensure reliability with cost-effective and diversified sources of supply.
- Protect receiving water quality.
- Operate facilities in an optimal manner.
- Protect the natural environment.
- Inform and collaborate with stakeholders.
- Maintain consistency with regional water supply plans.

Features of IWRP

- Strategic document for Utility
- Breaks down silos
- Illustrates interrelationships
- Shows trade-offs between alternatives
- Considers risk and Uncertainty
- Adaptive to change

IWRP Terms

Objectives	Major goals of plan (e.g., provide dependable supply)
Performance Measures	Metrics use to assess how well an objective is being achieved (e.g., frequency of shortage)
Options	Individual projects or management measures/activities
Alternatives	Combinations of options that best meet the objectives, and will be evaluated against metrics

IWRP Objectives

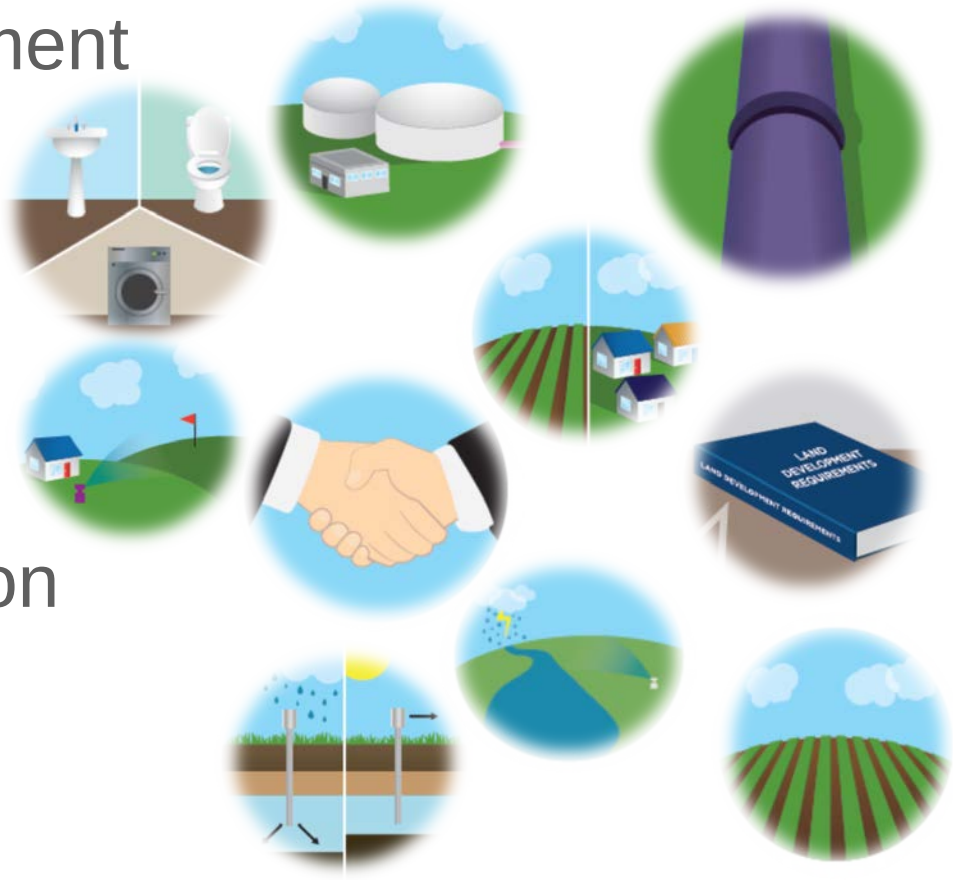
Reliability	Provide dependable water supply
Cost	Develop cost-effective solutions with rate payers in mind
Implementation	Maximize alternatives that are permittable, easy to maintain, and acceptable to customers
Environmental	Maximize water reuse and minimize ecological impacts
Water Quality	Reduce nutrients to receiving waters and protects groundwater quality

Performance Metrics

Objective	Weight	Performance Metric	Sub-Weight
Reliability	20	Frequency of shortage	8
		Volume of shortage	12
Cost	20	Life cycle cost	20
Implementation	20	Operational complexity	8
		Permittability	8
		Customer acceptance	4
Environmental	20	Groundwater offsets	8
		Reuse and aquifer replenishment	6
		Impact on ecosystems	6
Water Quality	20	Salinity in North wells	5
		Salinity in South wells	5
		Reduction in phosphorus load	5
		Reduction in nitrogen load	5

Project Types and Options

- Wells and Water Treatment
- Interconnects
- Reclaimed Water
- Conservation
- Stormwater Harvesting
- Recovery and Prevention Projects
- Desalination
- St. Johns River



Public Outreach

- 1st stakeholder workshop: Feb. 13, 2014
- 2nd stakeholder workshop: July 12, 2014
- Published Draft Plan: April 15, 2015
- Public Comments Period: Apr. - July, 2015
- Final Public Workshop: Oct. 8, 2015
- Final Plan to BOCC: November 3, 2015

Base Plan Highlights

- Conservation
  - Implement Cost Effective Programs (Soil Moisture Sensors, Irrigation Best Management Practices)
- Reuse and Stormwater Harvesting
  - Focus on areas of new development
- Traditional Supply (Expand Infrastructure)
- Operational Efficiencies
  - System Interconnects
- Regional Partnerships

Current Water Conservation Programs

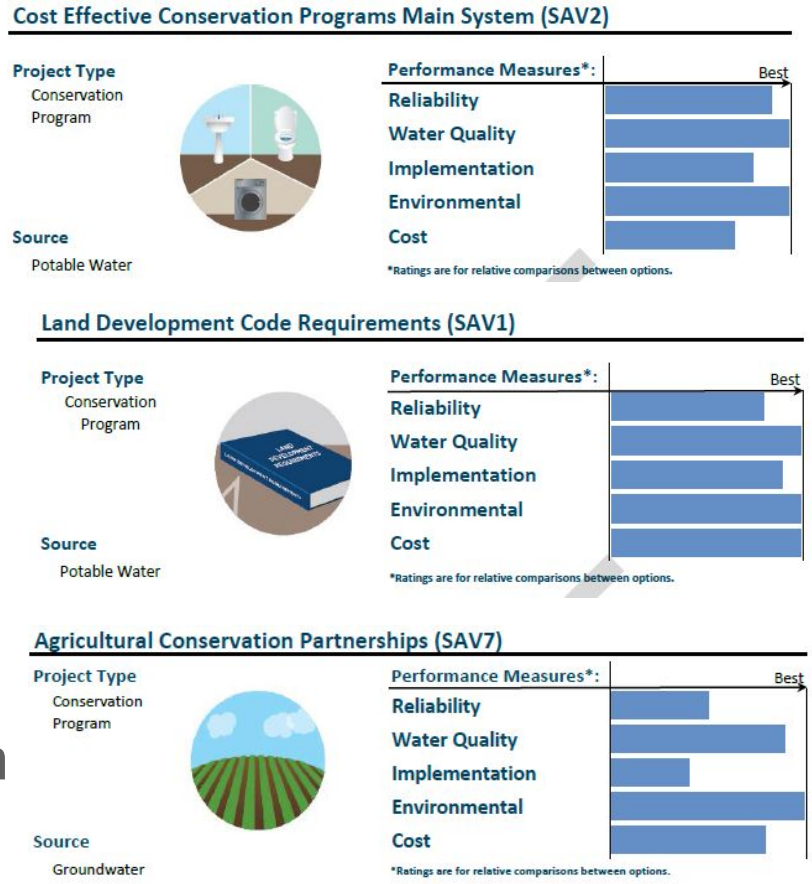
- Customer Education and Outreach
- Tiered Rate Structure (started 2001)
- Automated Meter Read (AMR) Technology
- Aggressive Meter Monitoring, Tracking, Leak Detection
- Expanding Reclaimed Water Program
- Land Development Code (LDC) limits high-volume irrigation
- Irrigation ordinance

Implemented Water Conservation Projects

- Demand Management
  - Demand Monitoring via AMR and Improved Meter Technology
  - Capability to monitor usage every 15 minutes
  - SJCUD proactively notifies customers of abnormal or excessive usage
  - Recently replaced 10,000 manual meters with AMR meters in Ponte Vedra

Proposed Water Conservation Programs

- SAV 2 & SAV 4
  - By 2020: Soil Moisture Sensor Programs in Mainland & PV Systems
- SAV 1
  - Ongoing: Revisit High Volume Irrigation Requirements
- SAV 7
  - By 2030 - Develop Conservation Partnerships w/ Ag



IWRP Recommended Base Plan
Water Supply and Transmission Options

Northwest and South Water System Interconnect (IW4)

20" Water Main along SR 16

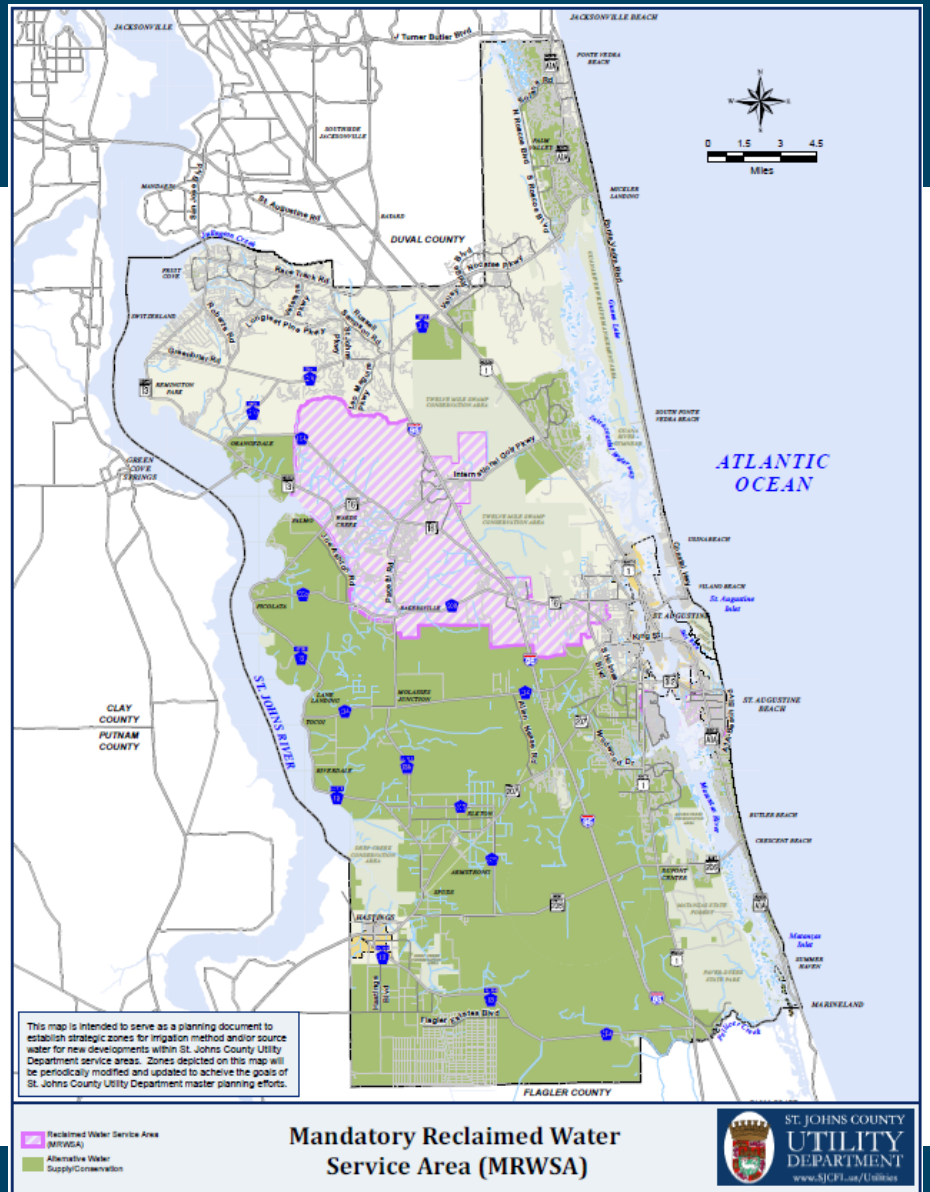
NW WTP

NW WTP is currently in preliminary design to expand from 6 MGD to 9 MGD. (GW3)

IWRP Recommended Base Plan

Reclaimed Water Supply Options

- Overview
  - Focus on areas of new development
  - Plan to implement Mandatory Reclaimed Water Service Zones
  - Service Areas:
    - NW/SR16 (RW2)
    - AI/Mainland (RW1)
    - South (RW3)



Mandatory Reclaimed Water Service Area (MRWSA)

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IWRP Recommended Base Plan

NW/SR 16 Reclaimed Water Service Area (RW2)

- Fastest growing service area.
- Interconnected System
- 500 Residential Customers
- Golf Courses, Commercial
- SJCUD Capital Investments:
  - NW Water Reclamation Facility
  - 7 MG of Reclaimed Water Storage and related Transmission Mains

2.0 MG Reuse Storage Tank

IWRP Recommended Base Plan

Anastasia Island/Mainland Reclaimed Water Service Area (RW1)

- 1 MG Tank at Anastasia Island WWTP and 1 mile of pipe to facilitate expansion of reuse.
- Built-out service area is a challenge.
- Reduces nutrient discharge to Matanzas River.

IWRP Recommended Base Plan

Stormwater Harvesting Opportunities

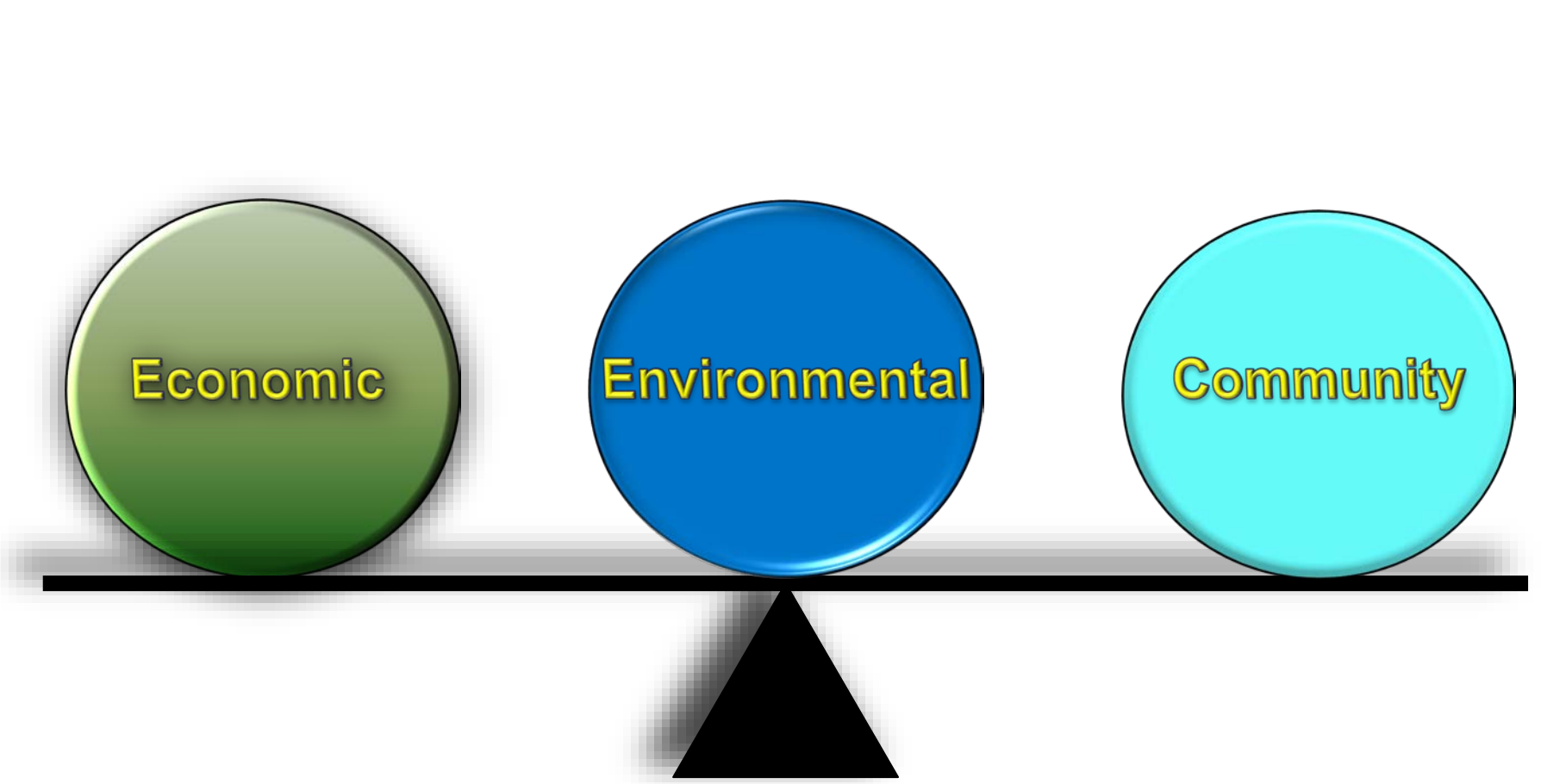
(2020-2025)

- Florida Department of Transportation
  - I95 Expansion (RW8)
  - SR 313
- St Johns County Public Works
  - CR 2209
  - Fox Creek Regional Stormwater Facility (RW6)
  - Future Stormwater projects

Integrated Planning Benefits

- Serves as planning tool and road map for short and long term solutions.
- Promotes inter-agency coordination to meet shared goals.
- Streamlines individual project implementation due to project familiarity.
- Provides a reference for regional planning efforts and coordination.

Why Integrated Planning Works

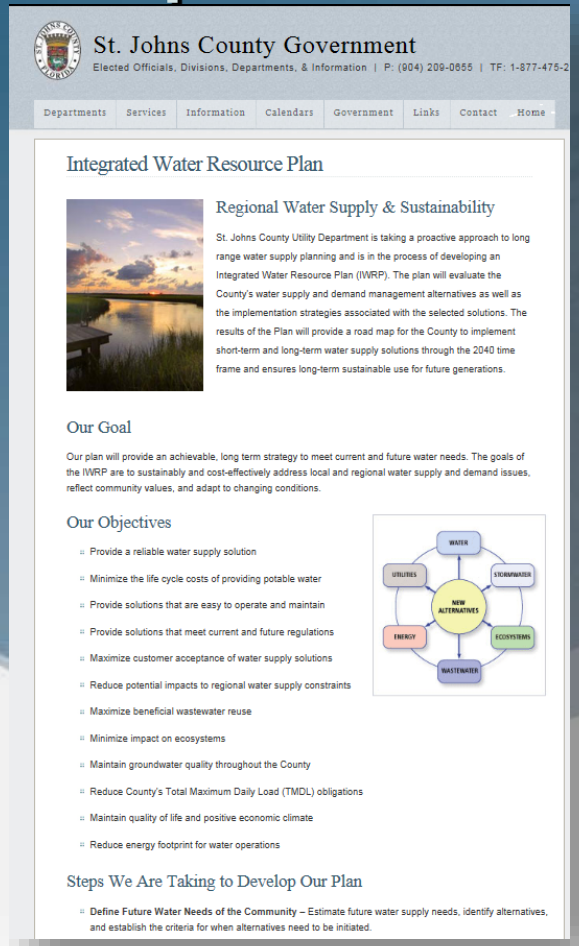


Lessons Learned

- “Outside of the box” thinking = Innovative solutions
- Transparency and stakeholder coordination = Success!!!
- Web Site = Effective Information Sharing
- Living document = Adaptable Plan

For Additional Information

http://www.co.st-johns.fl.us/Utilities/IWRP.aspx



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Integrated Water Resource Plan

Regional Water Supply & Sustainability

St. Johns County Utility Department is taking a proactive approach to long range water supply planning and is in the process of developing an Integrated Water Resource Plan (IWRP). The plan will evaluate the County's water supply and demand management alternatives as well as the implementation strategies associated with the selected solutions. The results of the Plan will provide a road map for the County to implement short-term and long-term water supply solutions through the 2040 time frame and ensures long-term sustainable use for future generations.

Our Goal

Our plan will provide an achievable, long term strategy to meet current and future water needs. The goals of the IWRP are to sustainably and cost-effectively address local and regional water supply and demand issues, reflect community values, and adapt to changing conditions.

Our Objectives

- Provide a reliable water supply solution
- Minimize the life cycle costs of providing potable water
- Provide solutions that are easy to operate and maintain
- Provide solutions that meet current and future regulations
- Maximize customer acceptance of water supply solutions
- Reduce potential impacts to regional water supply constraints
- Maximize beneficial wastewater reuse
- Minimize impact on ecosystems
- Maintain groundwater quality throughout the County
- Reduce County's Total Maximum Daily Load (TMDL) obligations
- Maintain quality of life and positive economic climate
- Reduce energy footprint for water operations

Steps We Are Taking to Develop Our Plan

- **Define Future Water Needs of the Community** – Estimate future water supply needs, identify alternatives, and establish the criteria for when alternatives need to be initiated.

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