



WITHLACOOCHEE  
REGIONAL  
WATER  
SUPPLY  
AUTHORITY



# Withlacoochee Regional Water Supply Authority

## Regional Water Supply Plan Update - Status Report 3

January 16, 2019

# Water Supply Plan Overview

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- Key elements of the Water Supply Plan
  - Water Demand Projections
  - Water Source Evaluation
  - Water Supply Project Options
  - Facility Integration Plan
  - Governance

# Water Supply Plan Overview

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- Key elements of the Water Supply Plan
  - **Water Demand Projections**
  - Water Source Evaluation
  - Water Supply Project Options
  - Facility Integration Plan
  - Governance

# Water Supply Plan Overview

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- Water Demand Projections
  - Estimating increase in demand from 2020 through 2040
    - **Public Supply**
    - Industrial/Commercial/Institutional
    - Mining
    - Recreation
    - Agriculture

# Population & Demand Projections (Public Supply, Dom. Self Supply) Four-County Overview

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County	2015 Population	2040 Population	Population Increase
Citrus	154,717	182,185	27,468
Hernando	182,854	244,274	61,420
Marion (SWFWMD)	112,040	159,115	47,075
Marion (SJRWMD)	216,408	256,286	39,878
Sumter	125,529	258,670	133,141
<b>Total</b>	<b>791,548</b>	<b>1,100,530</b>	<b>308,982</b>

2020 Water Demand (mgd)	2040 Water Demand (mgd)	Demand Increase (mgd)
20.6	23.2	2.6
23.1	28.3	5.2
16.6	21.2	4.6
29.7	33.3	3.6
33.0	47.1	14.1
<b>123.0</b>	<b>153.1</b>	<b>30.1</b>

# Water Supply Plan Overview

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- Water Source Evaluation
  - Water Conservation
  - Reclaimed Water
  - Groundwater
  - Surface Water (Rivers)
  - Seawater Desalination

# Water Supply Plan Overview

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- Water Source Evaluation
  - **Water Conservation**
  - Reclaimed Water
  - Groundwater
  - **Surface Water (Rivers)**
  - **Seawater Desalination**

# Water Supply Plan Overview

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- Water Source Evaluation
  - **Water Conservation**



# Alliance for Water Efficiency

## Water Conservation Tracking Tool

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- To assess the potential for water conservation to reduce public supply demand, we are using the Alliance for Water Efficiency's Water Conservation Tracking Tool.
  - The tool is a model that evaluates water savings, costs, and benefits of conservation programs for a water utility.
  - It provides:
    - Standardized methodology for water savings
    - Benefit cost accounting
    - A library of conservation activities from which utilities can build conservation programs

# Alliance for Water Efficiency

## Water Conservation Tracking Tool

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- Twelve utilities that make up 90 percent of the water use in the four-county region were invited to participate in the modeling.

### **Citrus County**

Citrus County Utilities  
Inverness

### **Hernando County**

Hernando County Utilities  
Brooksville

### **Marion County (SWFWMD)**

Marion County Utilities  
Bay Laurel  
Dunnellon  
Spruce Creek

### **Marion County (SJRWMD)**

Ocala

### **Sumter County**

Bushnell  
Wildwood  
The Villages

# Alliance for Water Efficiency

## Water Conservation Tracking Tool

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- Of the 12 invited utilities, eight have committed to participating so far. These utilities represent 74 percent of permitted public supply water use within the WRWSA.

### **Citrus County**

**Citrus County Utilities**  
**Inverness**

### **Hernando County**

**Hernando County Utilities**  
**Brooksville**

### **Marion County (SWFWMD)**

**Marion County Utilities**  
**Bay Laurel**  
Dunnellon  
Spruce Creek

### **Marion County (SJRWMD)**

**Ocala**

### **Sumter County**

Bushnell  
Wildwood  
**The Villages**

# Alliance for Water Efficiency

## Water Conservation Tracking Tool

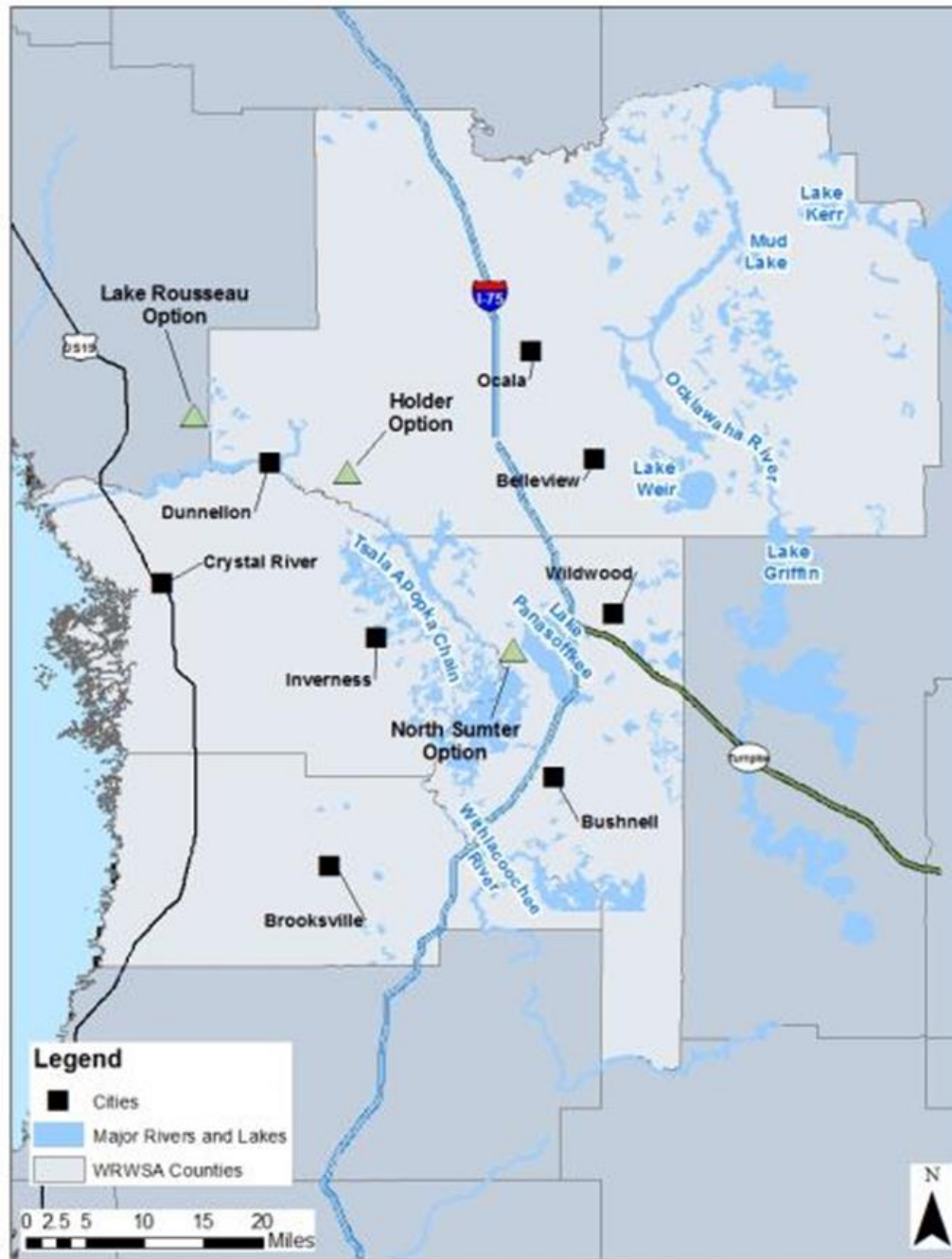
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- Model inputs will be completed for the eight utilities by the end January.
- Utility Cooperation
  - Have received a great deal of cooperation from the participating utilities.
  - Debra Burden (Citrus County Utilities) and Alys Brockway, (Hernando County Utilities) have worked closely with us from when evaluations of the AWE tool began in the summer of 2018.

# Water Supply Plan Overview

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- > Water Source Evaluation
  - **Surface Water (Rivers)**



# Water Supply Plan Overview

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## ➤ Water Source Evaluation

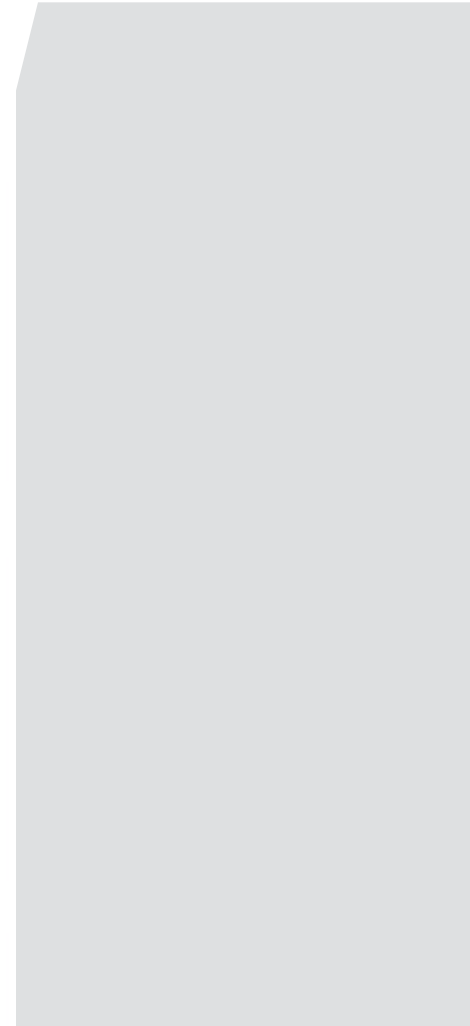
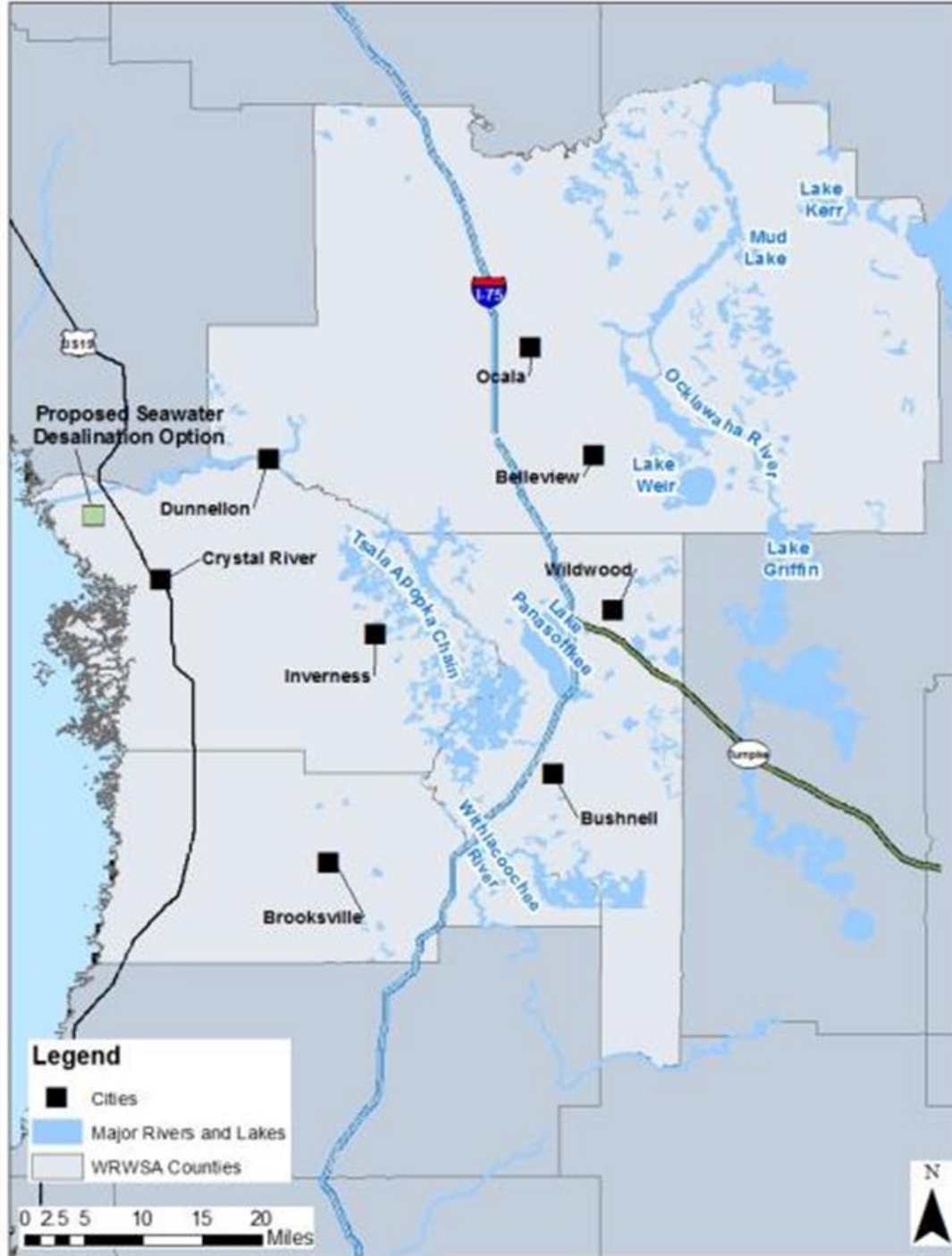
- Withlacoochee River – Available flow based on SWFWMD’s proposed minimum flows:
  - Croom            27 mgd
  - Wysong         39 mgd
  - Holder          44 mgd
  - Rousseau      Much Greater
- During severe droughts, there could be lengthy periods of time when no water would be available at Croom, Wysong, and Holder.
  - To overcome this limitation, storage reservoirs could be built or the facilities could be operated conjunctively with wellfields.

# Water Supply Plan Overview

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- Water Source Evaluation
  - **Seawater Desalination**









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# Water Supply Plan Overview

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## ➤ Water Source Evaluation

- The seawater desalination process produces large volumes of concentrated brine that must be disposed of.
- Three Disposal methods:
  - Dilution with power plant cooling water
  - Deep well injection
  - Zero liquid discharge



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# Water Supply Plan Overview

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## ➤ Water Source Evaluation

### ■ Seawater Desalination

- The two coal fired units and nuclear unit used 1.89 billion gallons per day of water from the Gulf of Mexico for cooling.
- The new natural gas facility and two remaining coal fired units use a total of 87.8 million gallons per day; a ten-fold reduction in cooling water flow.
- Dilution with power plant cooling water is no longer an option.

# Water Supply Plan Overview

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## > Seawater Desalination Facility Costs (15 mgd Capacity)

Brine Concentrate Disposal Method	Total Cost	Unit Cost
Deep Well Injection	\$259 million	\$6.22/1000 gal
<b>Ocean Outfall</b>	<b>\$355 million</b>	<b>\$7.08/1000 gal</b>
ZLD	\$393 million	\$12.60/1000 gal