Central Florida Water Initiative

Water for Tomorrow

2025 CFWI

Regional Water Supply Plan Overview

October 13, 2023

www.cfwiwater.com

Central Florida Water Initiative Agenda

- Welcome and Overview – Kris Esterson, SFWMD
- Summary of 2020 CFWI RWSP – Joe Quinn, SWFWMD
- 2025 Process, Objectives, and Demand Projections – Tammy Bader, SJRWMD
- Duke Energy and Conservation – Tommy Oneal
- Next Steps – Stacey Payseno, SFWMD (public participation, future meetings, etc.)
- Adjourn

Overview of CFWI

Kris Esterson, SFWMD

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20-year Regional Water Supply Plan

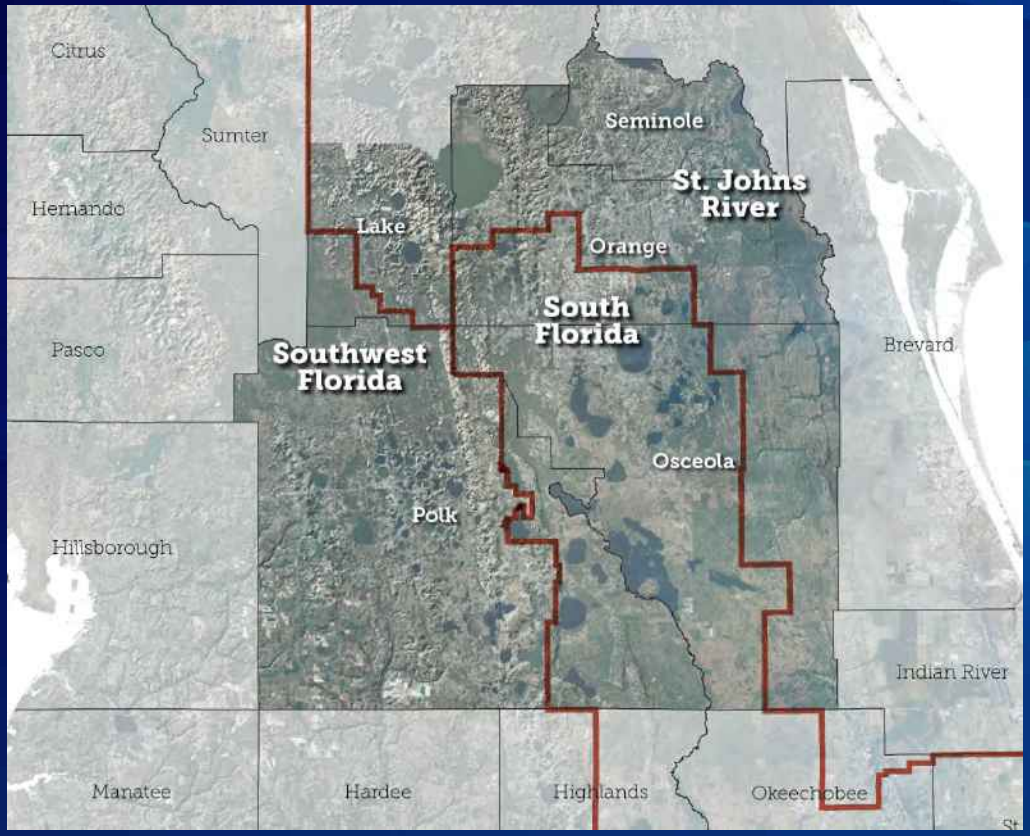
Statutory Goal for Water Supply Plans

To identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial use during 1-in-10-year drought conditions through 2045 while sustaining water resources and related natural systems.

Regional Water Supply Plan Requirements

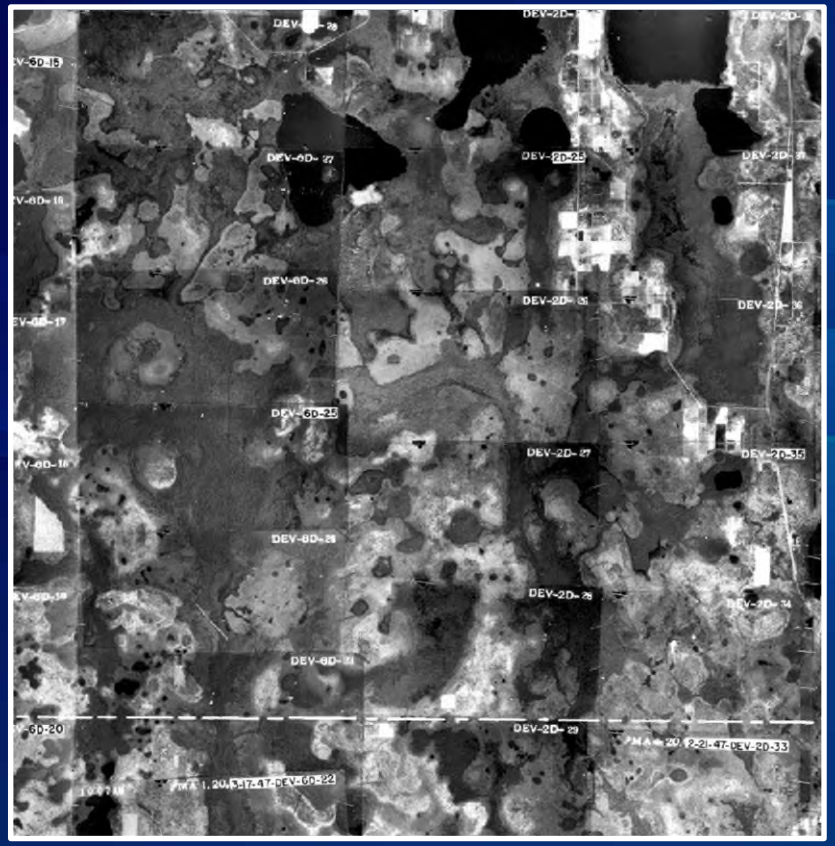
- 20-year planning period
- Demand estimates and projections
- Resource analyses
- Issue identification
- Evaluation of water source options
- Water Resource Development
  - Responsibility of water management districts
- Water Supply Development
  - Responsibility of water utilities/users
- Funding options
- Update every 5 years

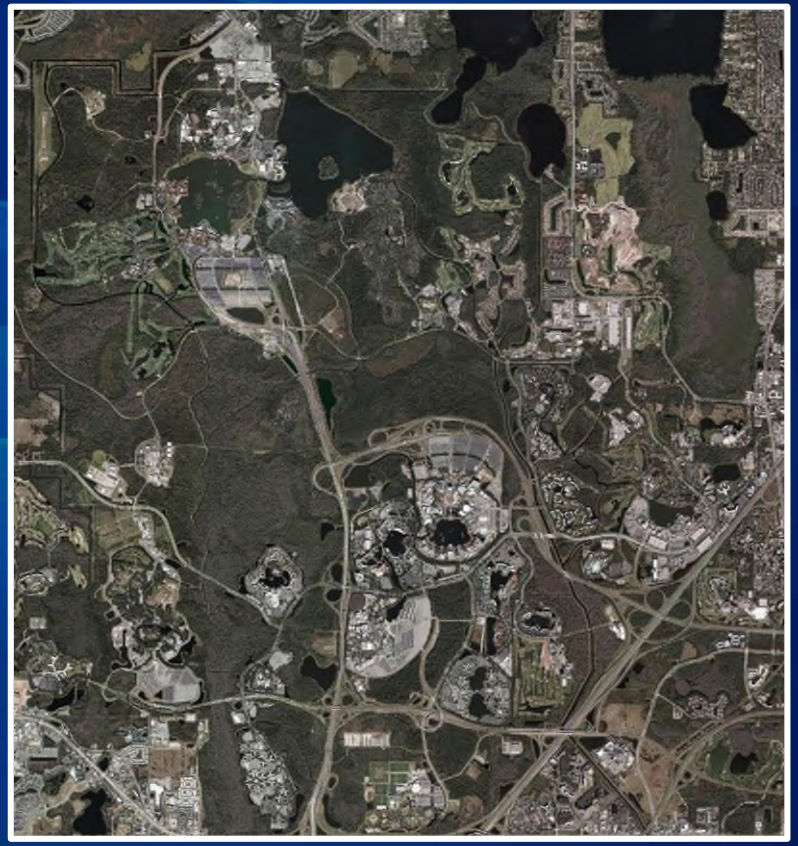
Central Florida Water Initiative Planning Area



- A collaborative water supply planning effort to protect, manage, conserve, and restore Central Florida's water resources
- A comprehensive plan for Orange, Osceola, Polk, Seminole, and southern Lake counties

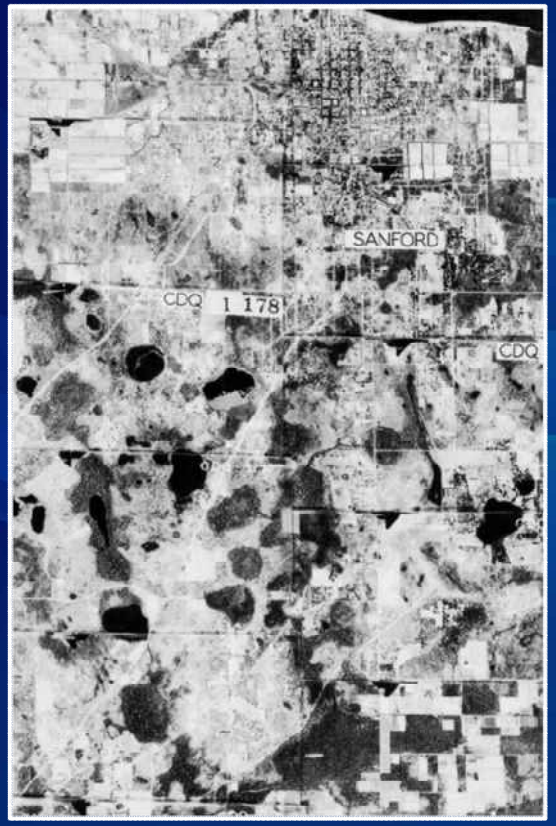
Central Florida Tourism Oversight District
1947 versus 2022



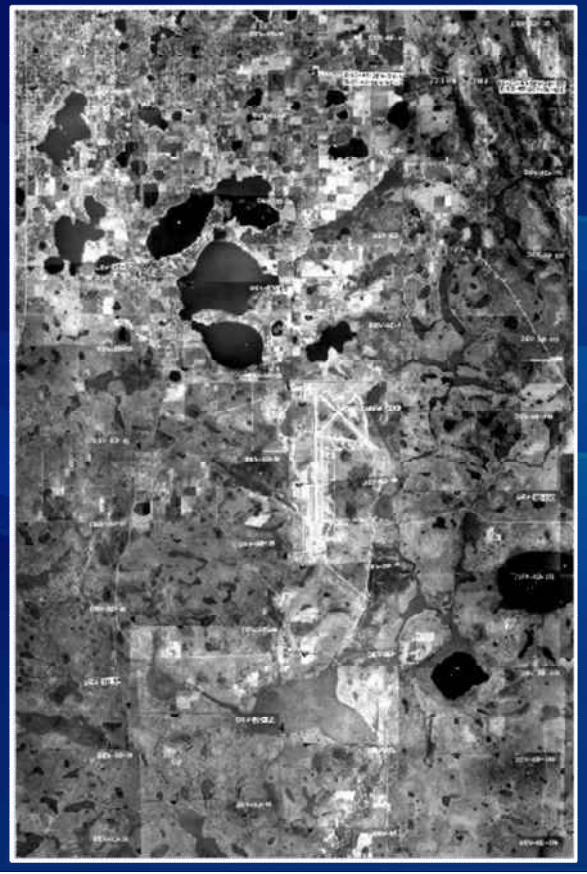


Lakeland
1953 versus 2020

Lake Mary and Sanford
1940 versus 2021



Orlando
1947 versus 2022



Fun Facts for CFWI

- Central Florida is ranked one of the fastest-growing regions in the U.S.
- More than half of the residents moving to Florida in the last 2 years have settled along the I-4 corridor.
- Orlando has some of the top tourist attractions in the U.S.
- Agricultural products produced in CFWI have a market value over $850 million.

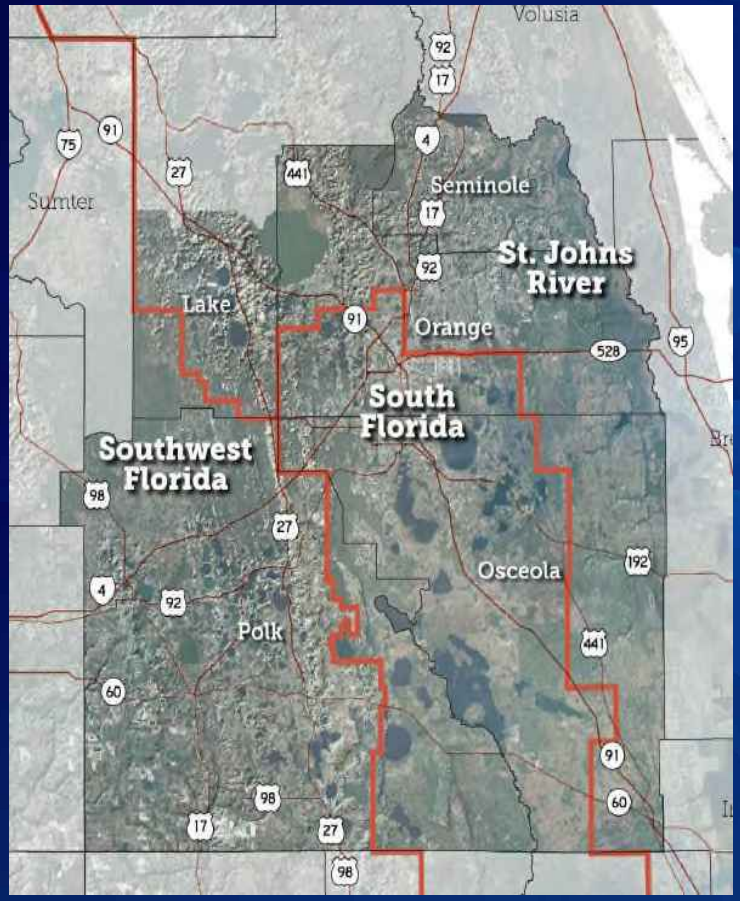
2020 CFWI RWSP Recap

Joseph Quinn, AICP, SWFWMD

www.cfwiwater.com

- The 2020 CFWI RWSP documents are available on the CFWI website (cfwiwater.com) under the Regional Water Supply Plan page link.

CFWI Planning Area



Planning Horizon 2015-2040

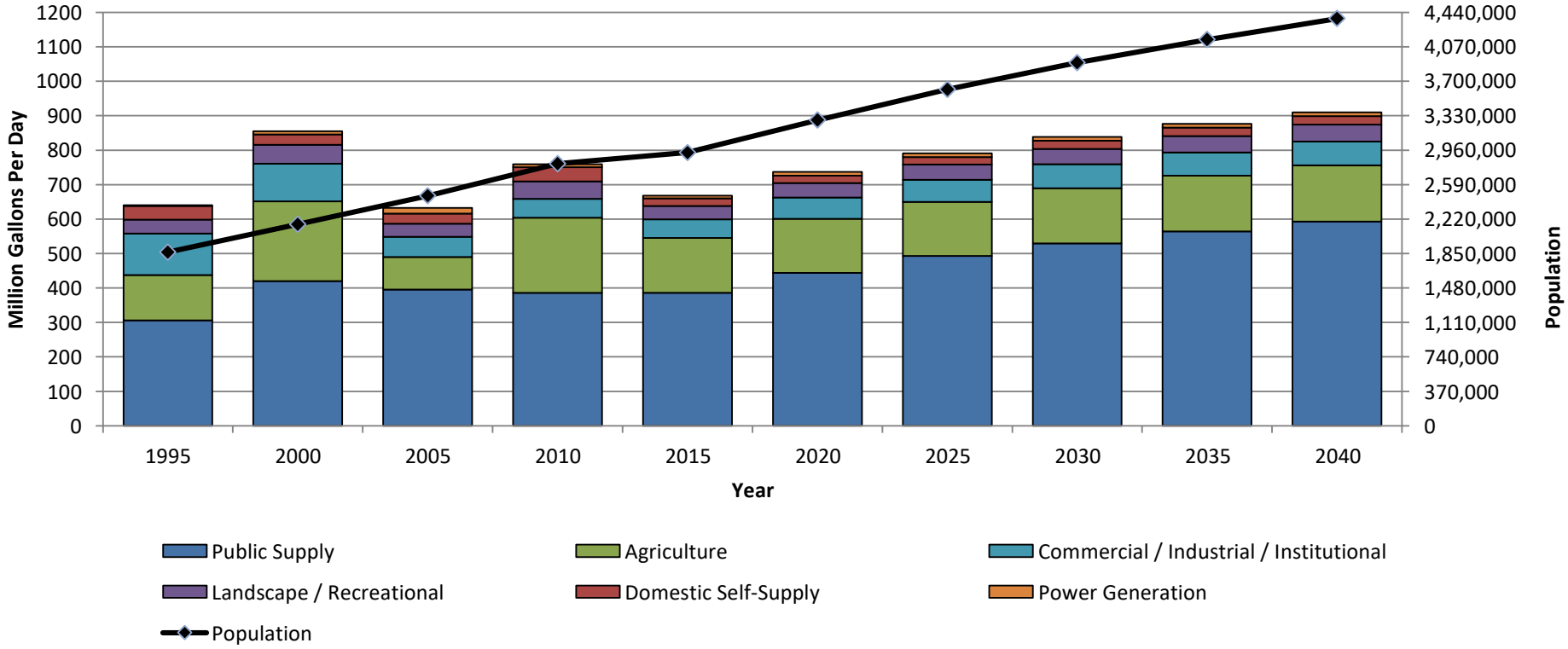
- Population:
  - 2015 2,933,915
  - 2040 4,373,309

  49% increase
- Irrigated agricultural acreage:
  - 2015 135,700 acres
  - 2040 134,300 acres

  1% decrease
- Gross water demands:
  - 2015 669 mgd
  - 2040 910 mgd

  36% increase

Historic Water Use and Projected Water Demand versus Historic Population and Projected Population



1995-2015 is historic data / 2020-2040 is projected data

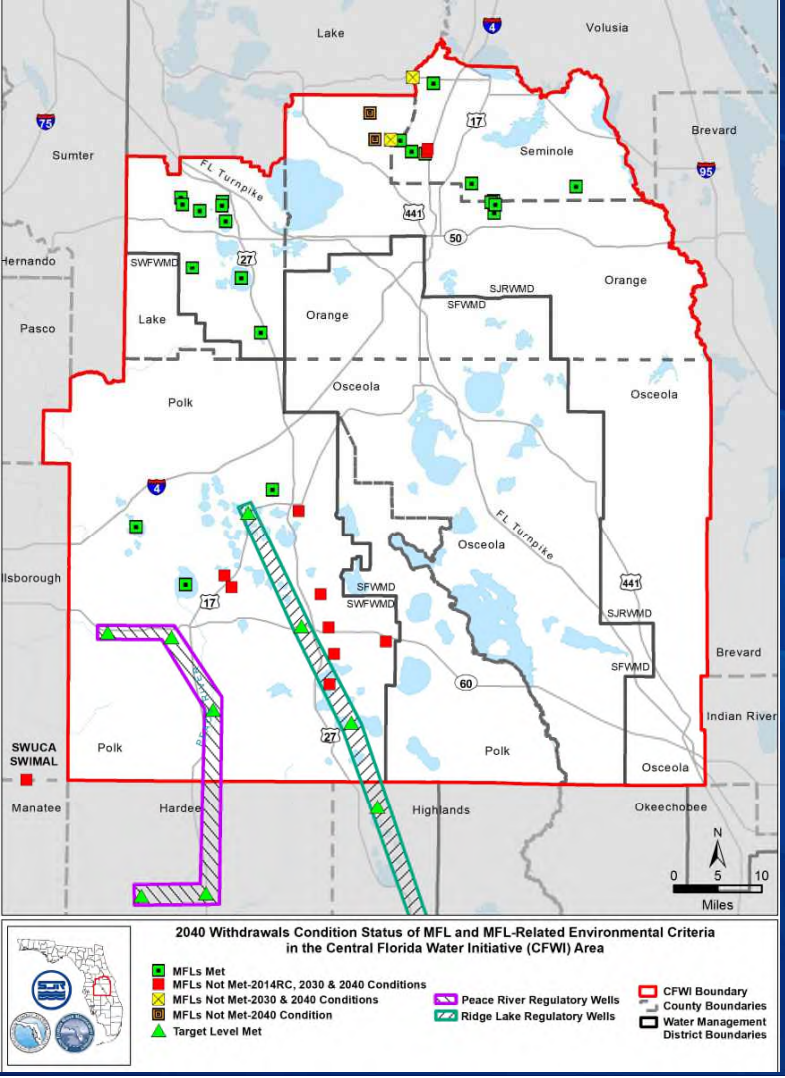
2020 CFWI RWSP

Components of the RWSP

- Population and Water Demand Projections
- Evaluation of Environmental Measures
- Identification of Areas of Groundwater Susceptibility
- Planning-Level Assessment of Groundwater Availability
- Projections of Water Conservation Savings
- Identification of Water Supply and Water Resource Development Projects
- Conclusions and Recommendations

Environmental Measures

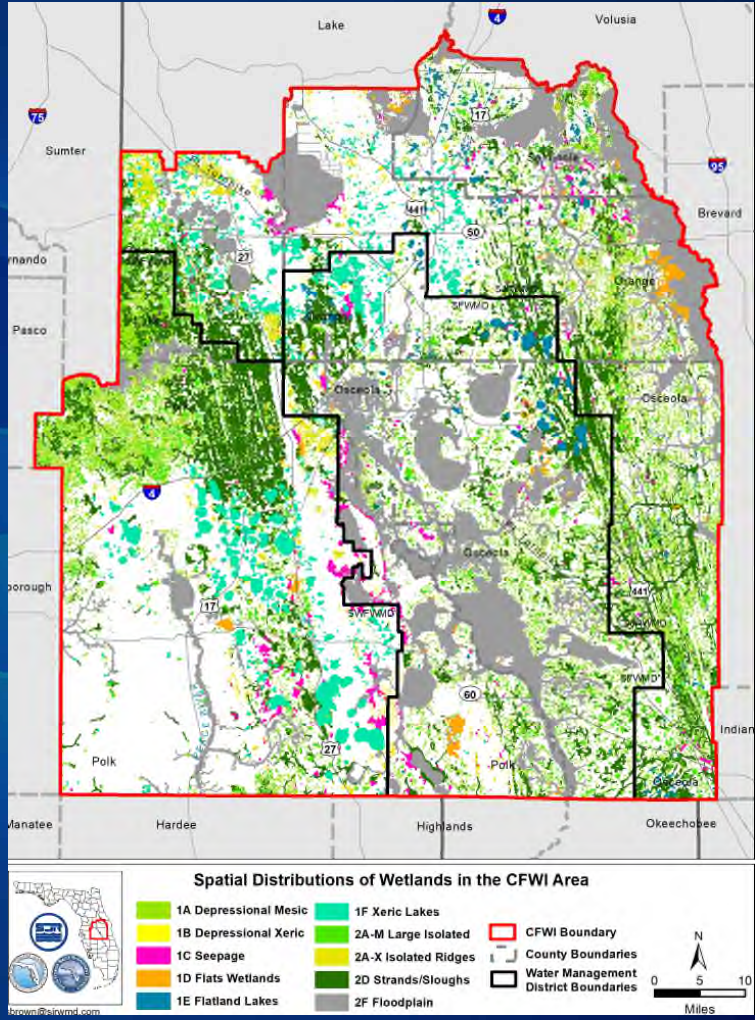
- Adopted minimum flow and minimum water levels (MFLs) in CFWI:
  - 29 lakes/wetlands
  - 6 springs
  - 1 river segment
- Adopted southern water use caution area (SWUCA) saltwater intrusion minimum aquifer level (SWIMAL)
- Upper Peace River target wells for SWUCA recovery
- Ridge Lakes target wells for SWUCA recovery



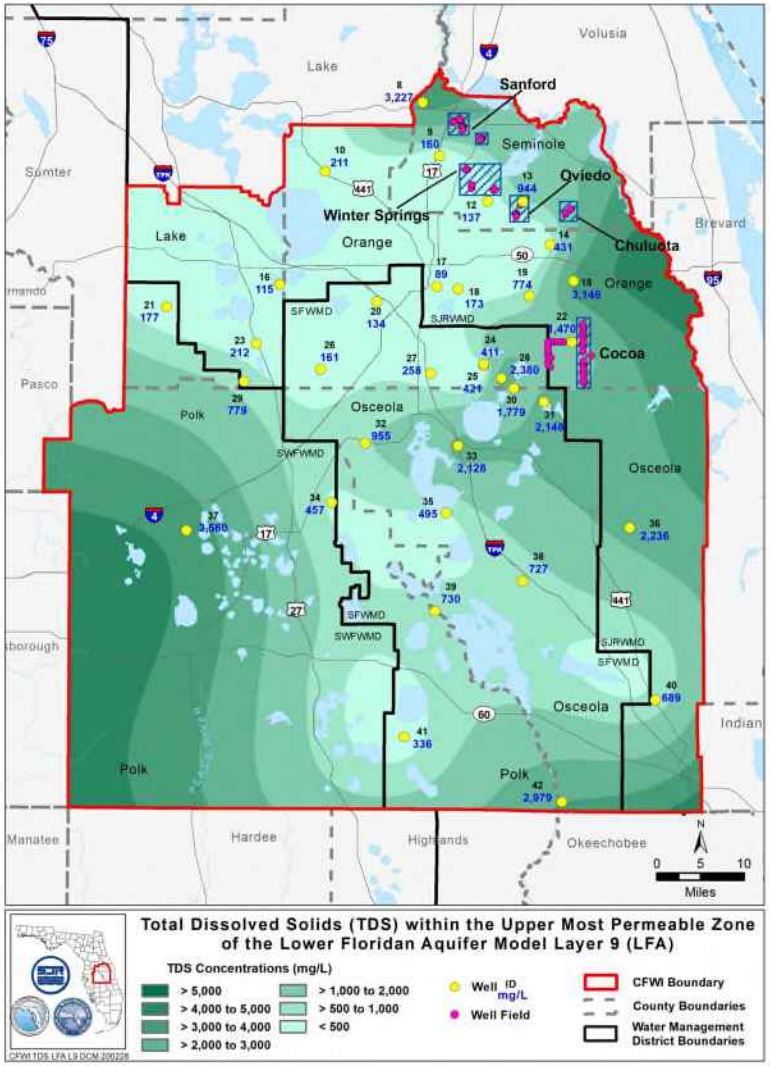
Environmental Measures

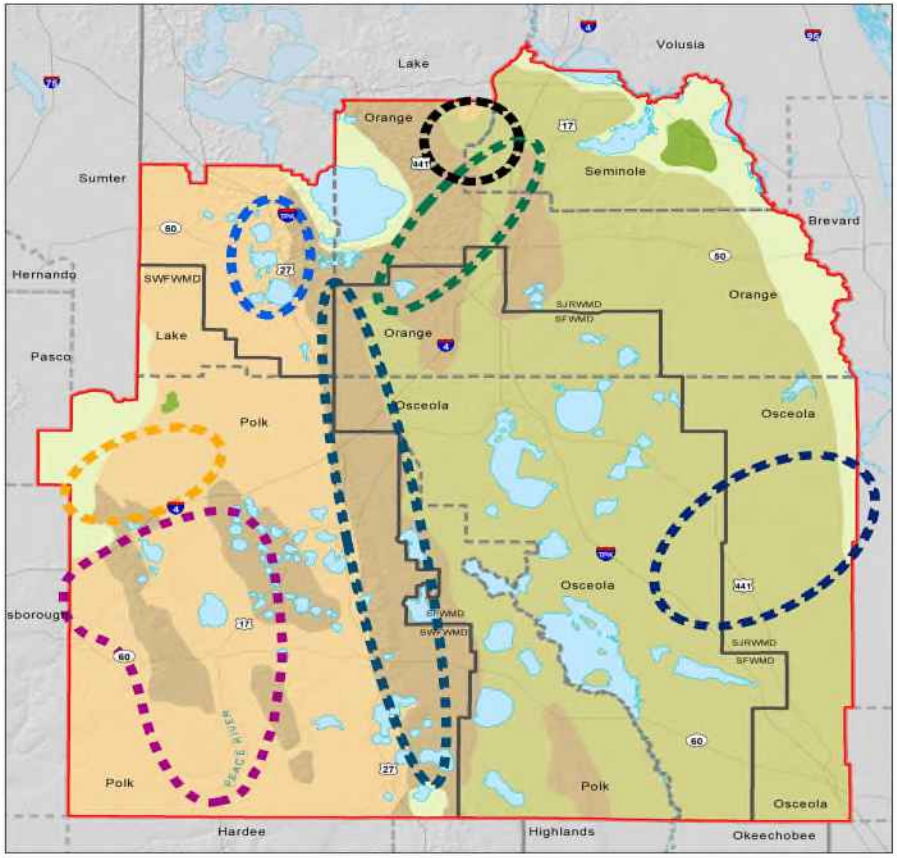
Wetlands

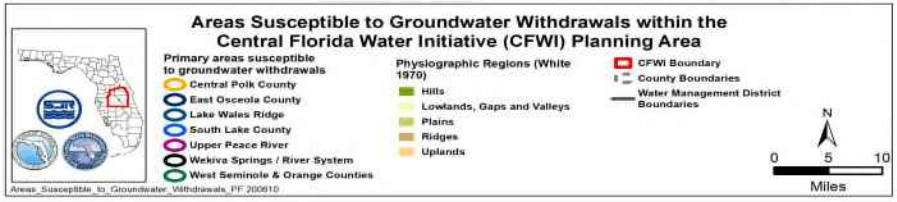
- >1 million acres in CFWI
- Focus on groundwater-dominated wetlands
- 189,000 acres of wetlands assessed (~19% of total)



Total Dissolved Solids in the Lower Floridan Aquifer





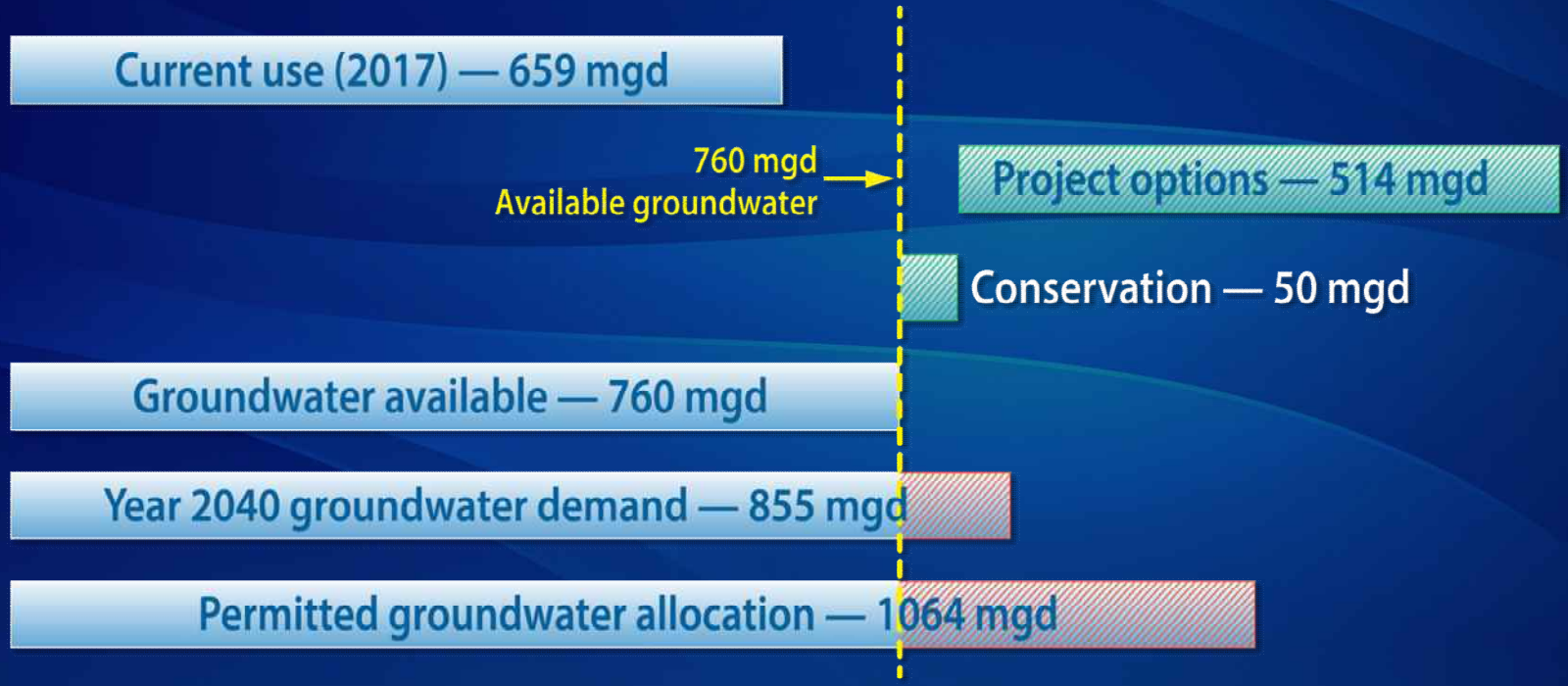


Primary Areas Susceptible to Groundwater Withdrawals

CFWI Planning-Level Groundwater Availability Assessment

Model Scenarios	Environmental Measures		
	MFLs and MFL-related (39 criteria)	Plains Wetlands (139,000 acres)	Ridge Wetlands (50,000 acres)
2014 (~620 mgd)	11 Not Met	16,700 ac	18,700 ac
2025 (~760 mgd)	11 Not Met	17,400 ac	19,200 – 21,400 ac
2030 (~800 mgd)	13 Not Met	17,700 ac	19,400 – 22,200 ac
2040 (~860 mgd)	15 Not Met	18,100 ac	19,700 – 23,400 ac

2020 CFWI RWSP
Planning-Level Groundwater Availability



Projected Water Conservation Savings

Category	Projected 2040 Water Demand (mgd)	Projected 2040 Water Conservation Savings (mgd)
Public Supply	592.28	41.50 – 44.16
Domestic and Small Public Supply	24.59	0.86
Agriculture	163.49	4.19
Landscape/Recreational	46.96	2.22
Commercial/Industrial/Institutional	69.00	1.55 – 4.40
Power Generation	11.27	
Total	**907.59**	**50.32 – 55.83**

Water Supply and Water Resource Development Options

County	Brackish/ Nontraditional Groundwater	Management Strategies	Reclaimed Water	Surface Water	Stormwater	Total
Lake	13.70	0.00	3.80	5.00	0.00	**22.50**
Orange	24.00	5.00	31.97	71.00	0.00	**131.97**
Osceola	30.00	0.00	0.00	120.00[a]	5.90	**160.90**
Polk	45.00	6.00	11.35	46.10	0.00	**108.45**
Seminole	1.00	0.00	7.03	82.20	0.00	**90.23**
Total	**113.70**	**11.00**	**59.15**	**324.30**	**5.90**	**514.05**

Project options are shown in million gallons per day.

[a] Includes the Grove Land Reservoir Project located in Okeechobee and Indian River counties.

2020 CFWI RWSP
Conclusions and Recommendations

- Although groundwater sources are limited, the 2020 CFWI RWSP concluded that current and future water demands could be met through 2040, while sustaining water resources and related natural systems.
- The RWSP outlines an integrated approach that includes:
  - Increased water conservation
  - Development of alternative water supplies
  - Further hydrogeologic investigation
  - Optimization of groundwater withdrawals
  - Additional project evaluation and modeling
  - Pursuit of funding for water resource/water supply projects
  - Development of consistent rules/regulations

Questions

- If you are participating via Zoom, use the Raise Hand feature
- If you are participating via phone:
  - *9 Raises Hand
  - *6 Mutes/Unmutes

2025 Process, Objectives, and Demand Projections

Tammy Bader
Regional Water Supply Plan Team Lead

2025 Process and Objectives

- Update the population and water demand projections
- Update the groundwater modeling with the most recent water demand projections
- Update the strategies to meet water demands
- 2025 CFWI RWSP

2020 versus 2025 RWSP Methods

Plan	Methods			
	Base Year	Public, Domestic, and Small Public Supply Population Method	Per Capita	Agricultural Method
2020 RWSP	2015-2040	BEBR Parcels, Published Population 2017	2011-2015 Average	FSAID IV
2025 RWSP	2020-2045	BEBR Parcels, Published Population 2022	2016-2020 Average	FSAID IX

BEBR = Bureau of Economic and Business Research
FSAID = Florida Statewide Agricultural Irrigation Demand

Water Demands in the CFWI Planning Area

	Public Supply	Domestic and Small Public Supply	Agricultural Irrigation	Industrial/ Commercial/ Institutional	Landscape/ Recreational Irrigation	Power Generation	Total
2020	406.83	19.96	134.70	42.39	30.27	5.00	**639.15**
2045	642.19	14.80	131.02	66.19	38.72	9.58	**902.50**
Change	235.36	-5.16	-3.68	23.80	8.45	4.58	**263.35**
% Change	58%	-26%	-3%	56%	28%	92%	**41%**

Demands under average rainfall conditions, in million gallons per day.

Population

2020 3,383,425 residents

2045 4,741,314 residents

40% increase

Irrigated agricultural acres

2020 121,686 acres

2045 115,183 acres

5% decrease

Comparison Between 2020 & 2025 CFWI RWSPs

Plan Comparison	Public Supply	Domestic and Small Public Supply	Agricultural Irrigation	Industrial/ Commercial/ Institutional	Landscape/ Recreational Irrigation	Power Generation	Total
2040 from 2020 CFWI RWSP	592.28	24.59	163.49	69.00	46.96	11.27	**907.59**
2045 from 2025 CFWI RWSP	642.19	14.80	131.02	66.19	38.72	9.58	**902.50**
Change	49.91	-9.79	-32.47	-2.81	-8.24	-1.69	**-5.09**
% Change	8%	-40%	-20%	-4%	-18%	-15%	**-1%**

Demands under average rainfall conditions, in million gallons per day.

Population

2040 4,373,309 residents

2045 4,741,314 residents

368,005 residents or 8% increase

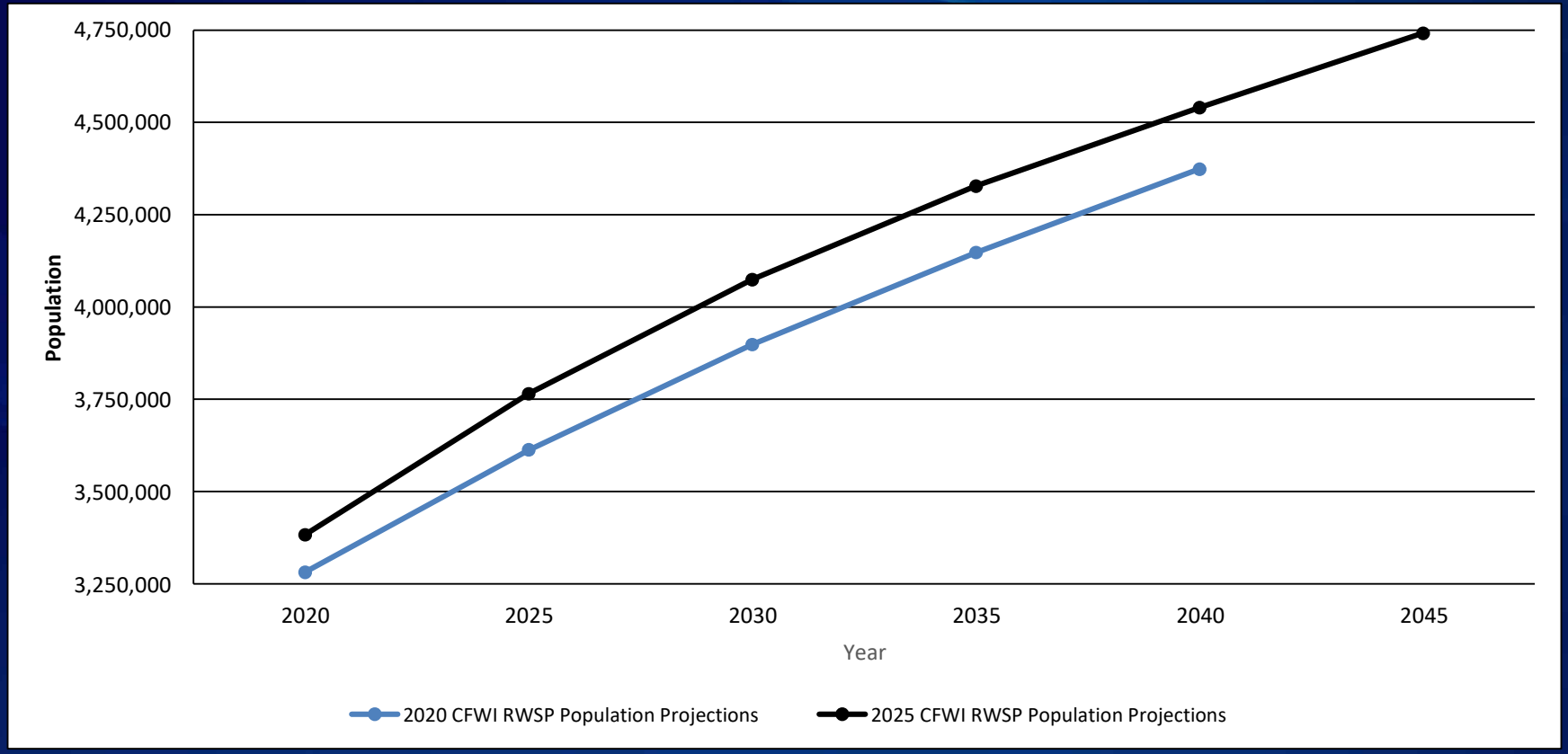
Irrigated agricultural acres

2040 134,300 acres

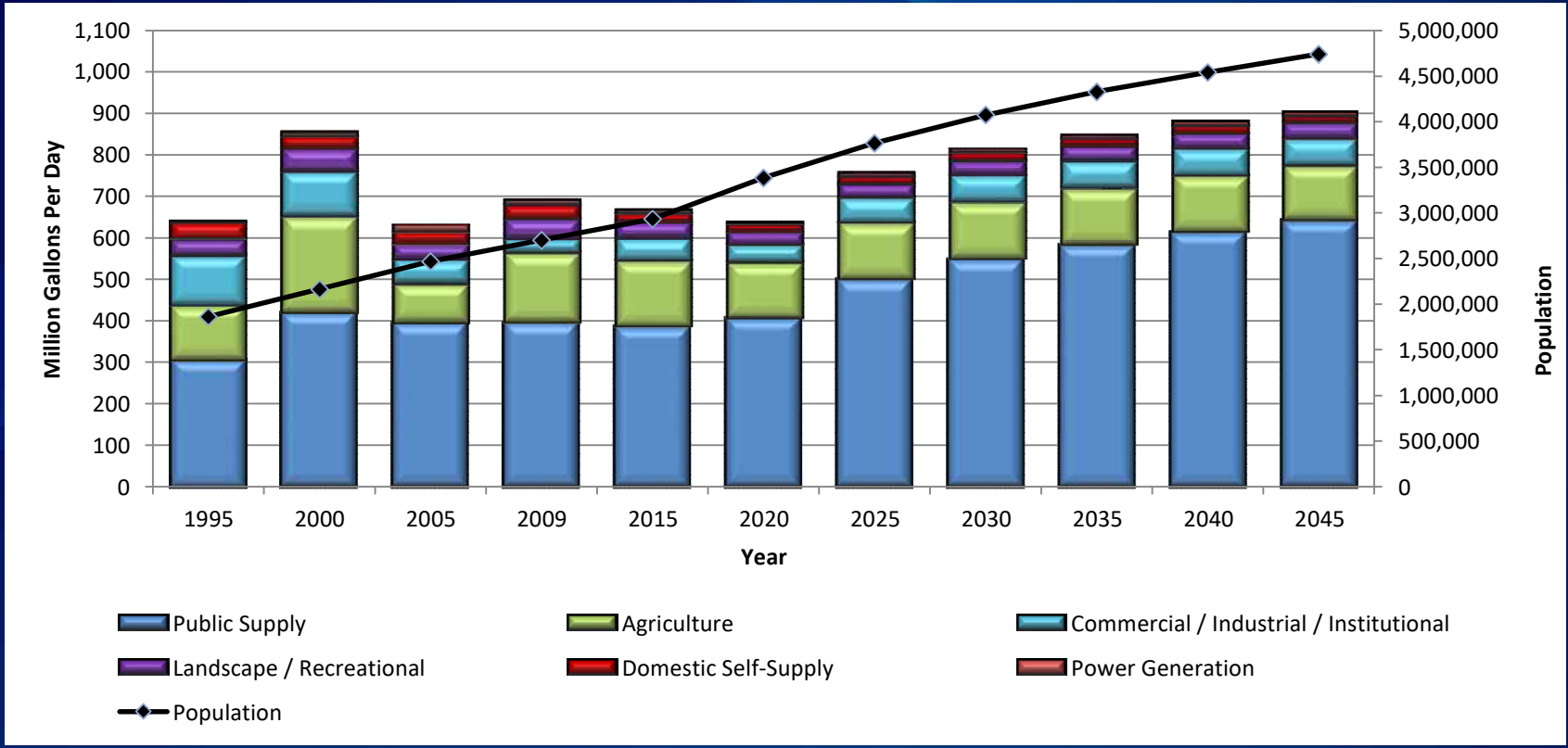
2045 115,183 acres

-14% decrease

BEBR Projected Population
2020 versus 2025 CFWI RWSPs



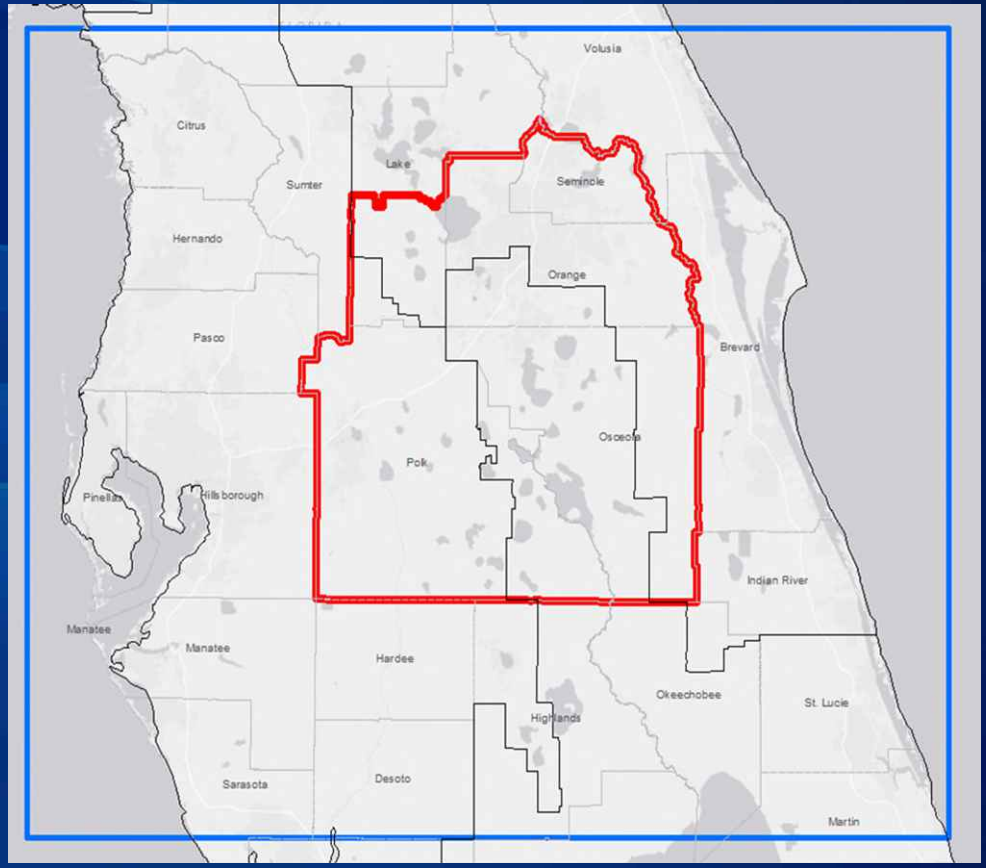
Historic Water Use and Projected Water Demand versus Historic Population and Projected Population



1995-2020 is historic data / 2025-2045 is projected data.

East Central Florida Transient Model Expanded

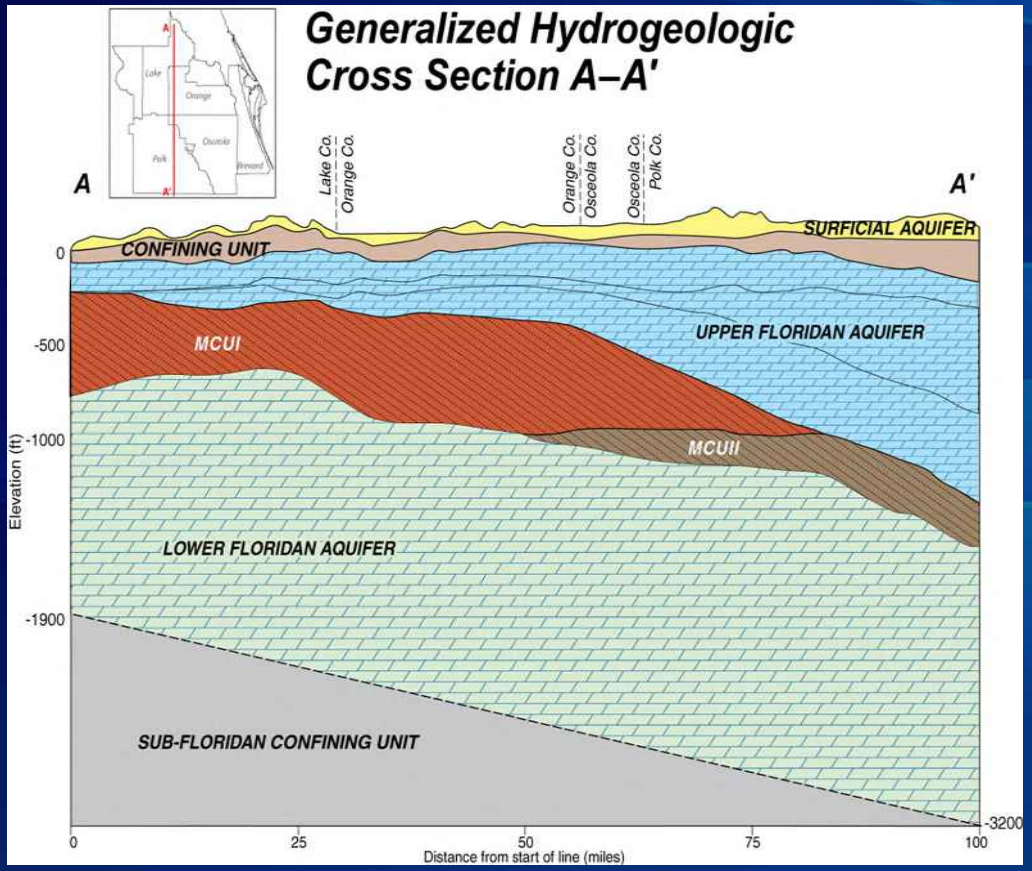
- Planning Level Tool
- 2020 RWSP and 2025 RWSP
  - ECFTX
    - 25,000 sq. mi

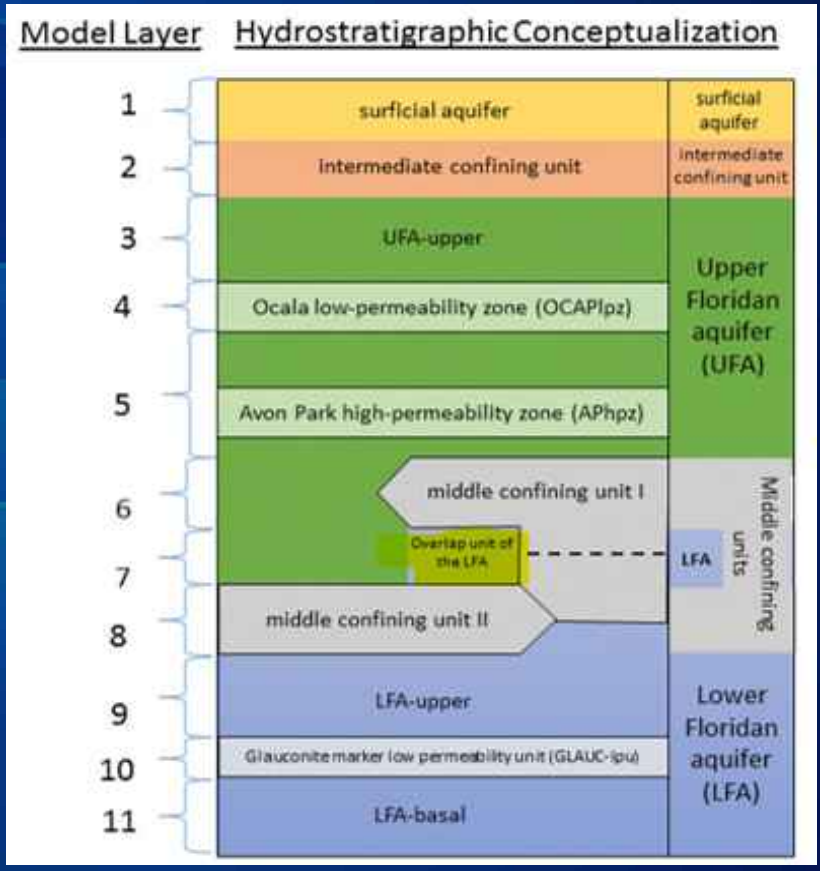


Red line = CFWI Planning Area boundary

Blue line = ECFTX model boundary

Hydrogeology





2025 CFWI RWSP Stations Reviewed

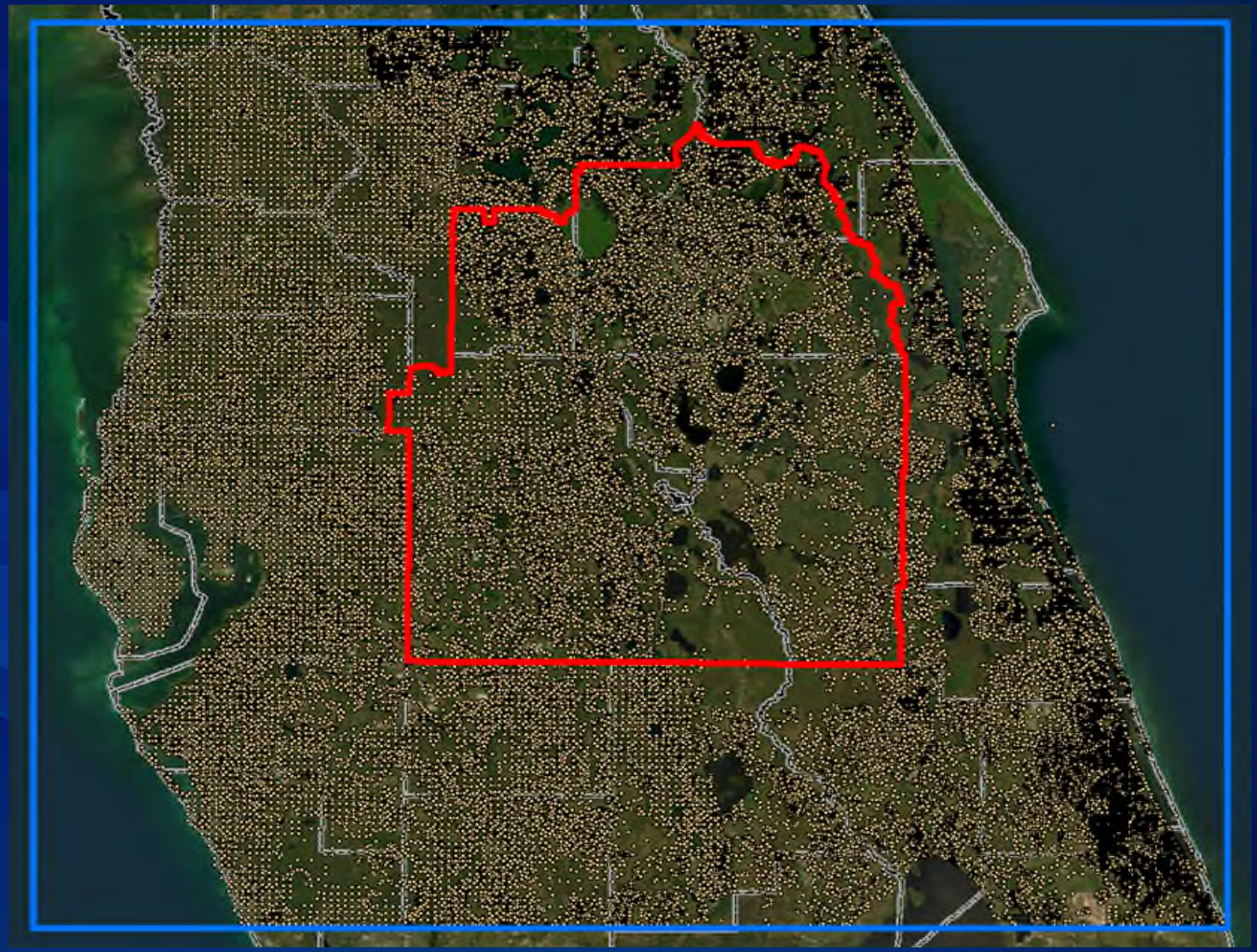
District	CFWI RWSP Area			ECFTX Boundary		
	Groundwater Stations	Surface Water Stations	Total Stations	Groundwater Stations	Surface Water Stations	Total Stations
SFWMD	3,685	2,092	5,777	16,093	4,796	20,889
SJRWMD	10,388	3,673	14,061	37,470	8,832	46,302
SWFWMD	7,291	434	7,725	30,967	2,619	33,586
Total	21,364	6,199	27,563	84,530	16,247	100,777

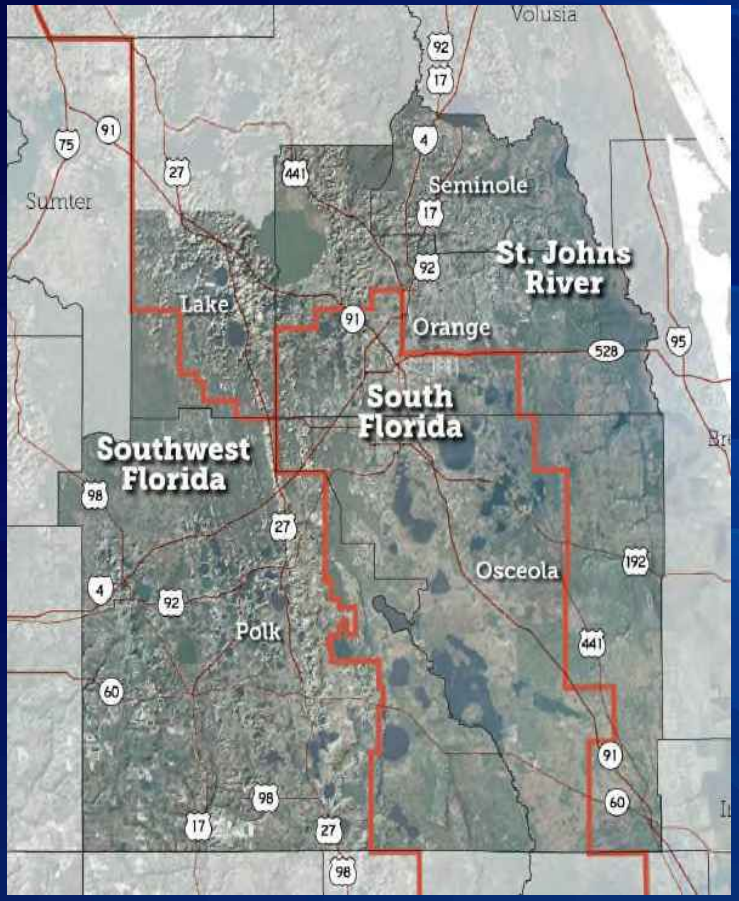
Stations

Red = CFWI Planning Area boundary

Blue = ECFTX model boundary

Orange dots = stations reviewed





CFWI Planning Area

Planning Horizon 2020 - 2045

- Population:
  - 2020 3,383,425
  - 2045 4,741,314

40% increase

- Irrigated agricultural acreage:
  - 2020 121,686 acres
  - 2045 115,183 acres

5% decrease

- Total water demands:
  - 2020 639 mgd
  - 2045 903 mgd

41% increase

Questions

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  - *9 Raises Hand
  - *6 Mutes/Unmutes

Duke Energy

Water Balance

Hines Energy Complex

Tommy Oneal, Site Environmental Specialist and Site Land Manager

WE POWER MORE THAN 4 MILLION LIVES

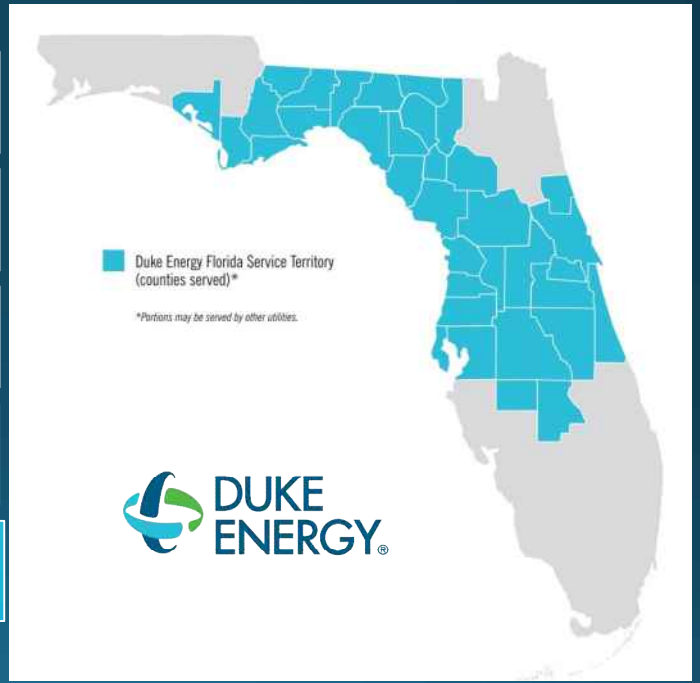
Serving Florida since 1899

1.9 million customers within 35 counties

13,000 square miles of service territory

30 power generation sites capable of producing ~11,000 megawatts of electricity

3,700 employees | 9,170 retirees



Power Plants and Battery Storage Sites

FILTER BY PLANT TYPE

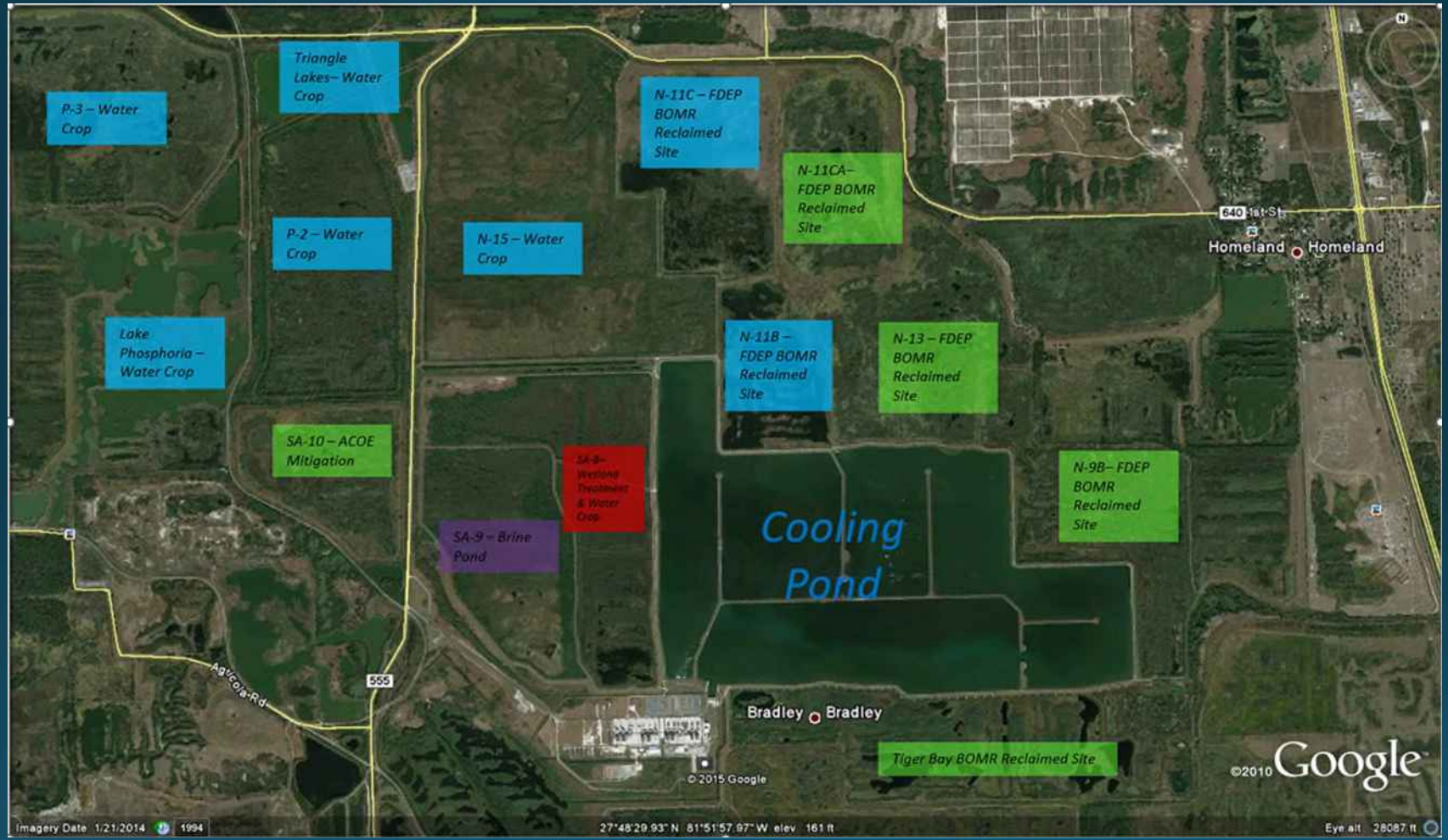
Florida

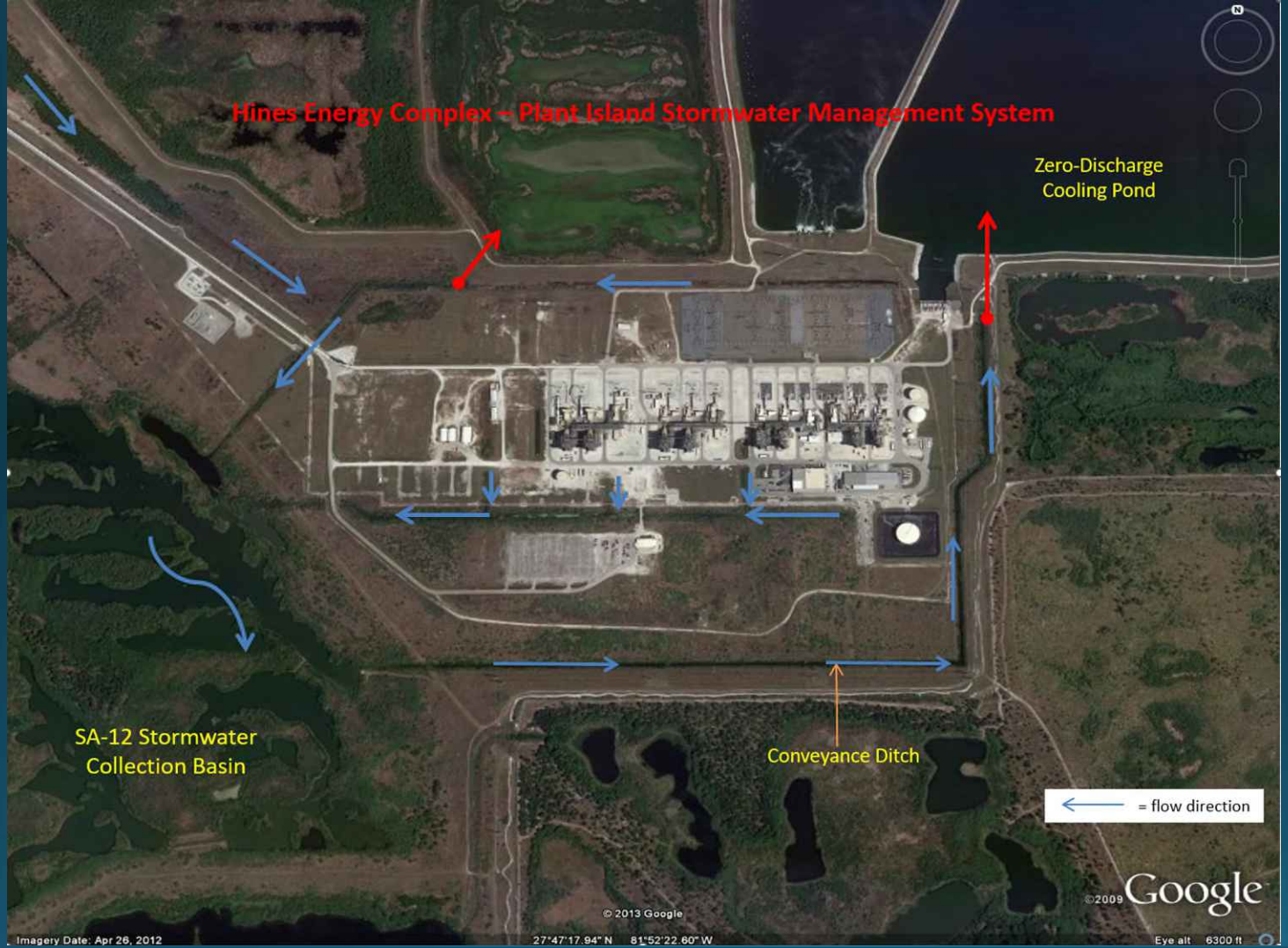
- Battery Storage (5)
- Solar (13)
- Coal Fired (1)
- Retired Plant Site (6)
- Gas Fired (9)
- Fuel Oil (1)

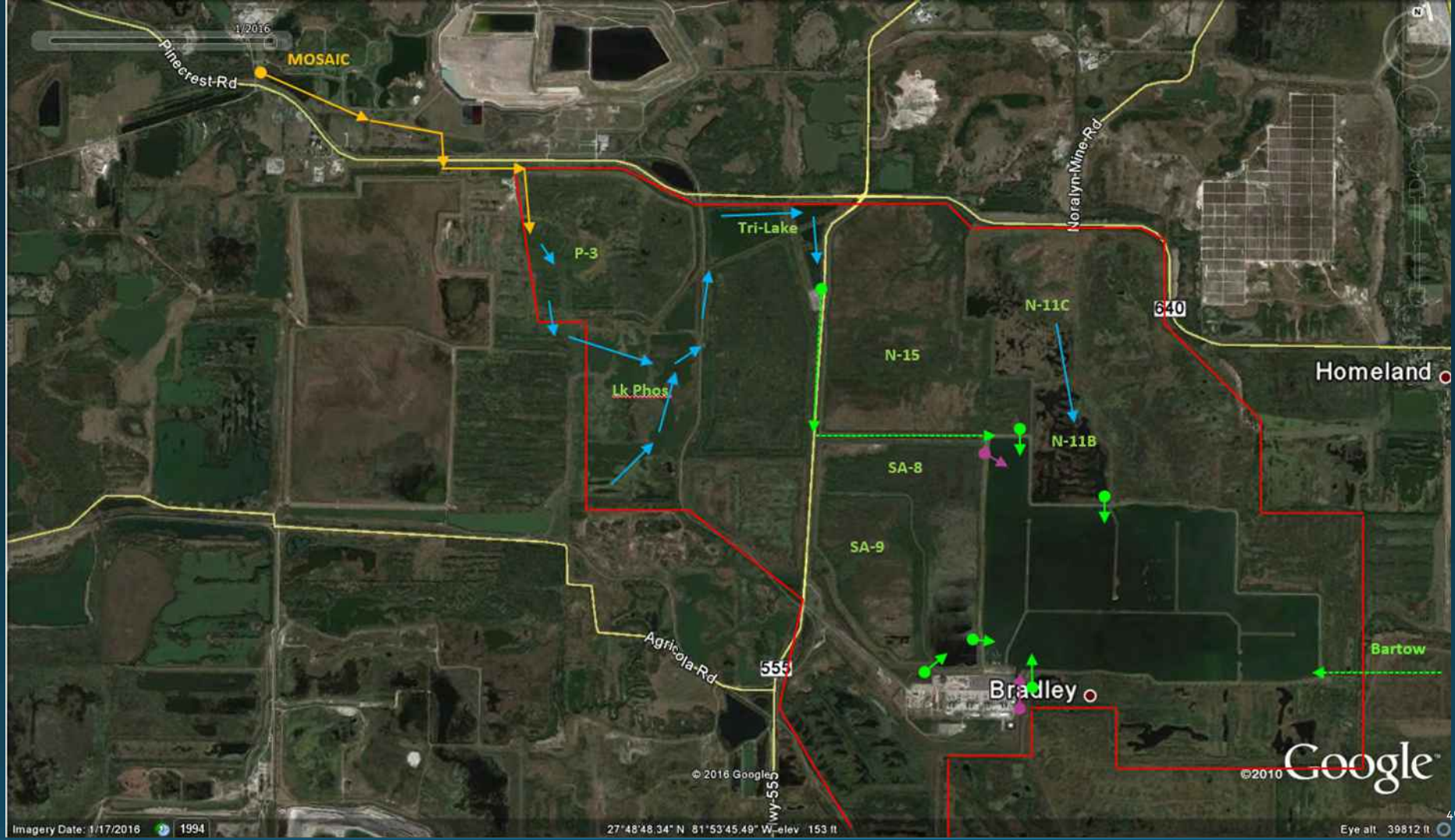
Midwest

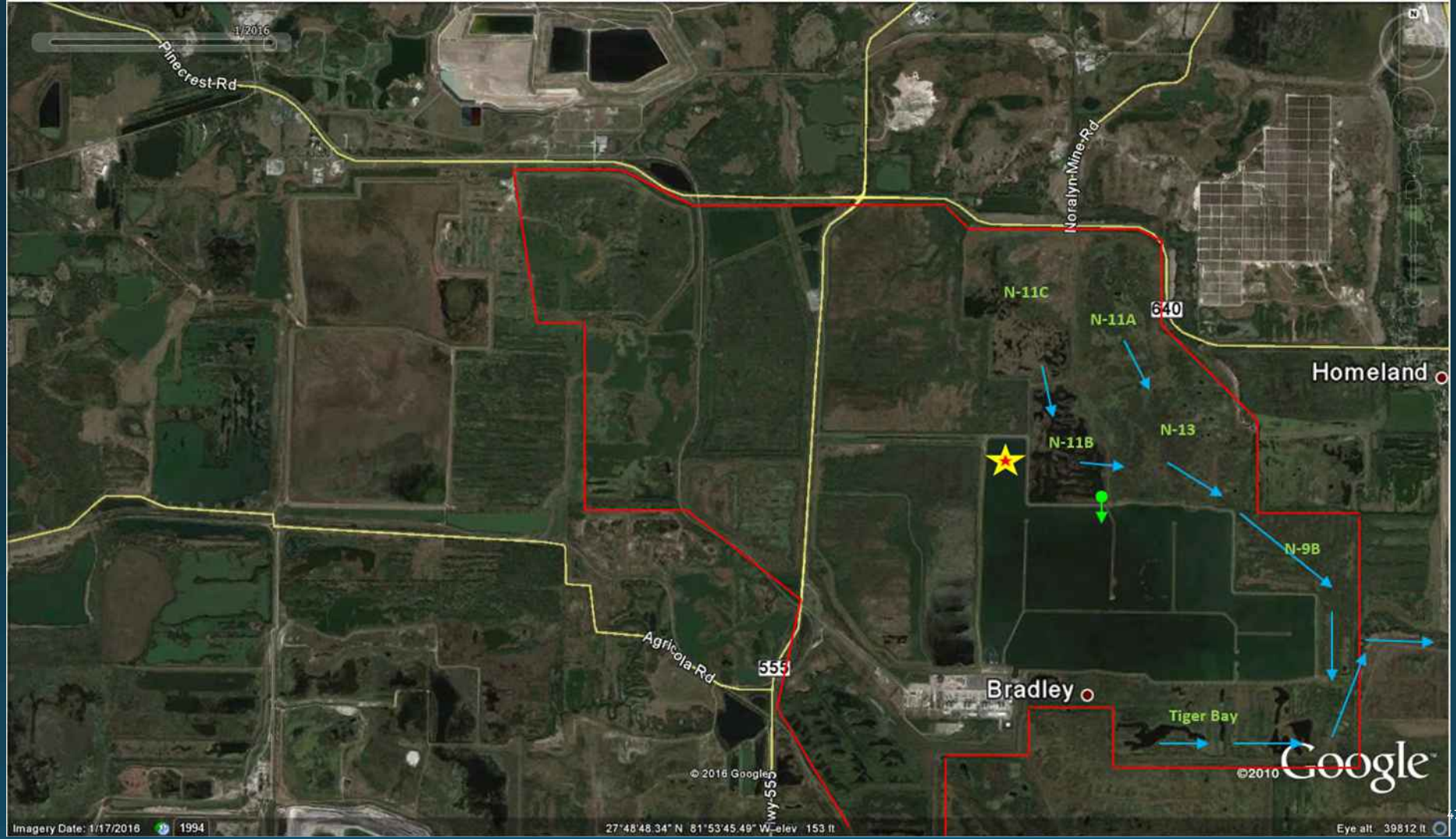
- Hydroelectric (1)
- Coal Fired (4)
- Retired Plant Site (1)
- Gas Fired (6)
- Solar (4)
- Battery Storage (2)

Hines Energy Complex Impoundments




Hines Energy Complex – Plant Island Stormwater Management System
Zero-Discharge Cooling Pond
SA-12 Stormwater Collection Basin
Conveyance Ditch
= flow direction
© 2013 Google
©2009 Google
Imagery Date: Apr 26, 2012
27°47'17.94" N 81°52'22.60" W
Eye alt 6300 ft


MOSAIC
Pinecrest Rd
P-3
Tri-Lake
Lk Phos
Noralyn Mine Rd
N-11C
640
N-15
Homeland
N-11B
SA-8
SA-9
Agricola Rd
555
Bradley
Bartow
© 2016 Google
©2010 Google
Imagery Date: 1/17/2016
1994
27°48'48.34" N 81°53'45.49" W elev 153 ft
Eye alt 39812 ft


Pinecrest Rd
Noralyn Mine Rd
N-11C
N-11A
640
Homeland
N-11B
N-13
N-9B
Agricola Rd
555
Bradley
Tiger Bay
© 2016 Google
©2010 Google
Imagery Date: 1/17/2016
1994
27°48'48.34" N 81°53'45.49" W elev 153 ft
Eye alt 39812 ft


SA-8
Wetland
Treatment
Distribution
Header Pipe
Intake
Pump
Outlet Pump
Co Rd 555
N
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2011 Google
2922 ft
17 R 413752.79 m E 3075602.01 m N
elev 172 ft
Dec 3, 2010
Eye alt 10273 ft
Google

Acreage Usage

8,200 Acres Total

- 2,000 (Buffer Areas, SA-10, SA-12)
- 300 (SA-9 Brine Pond)
- 850 (N-15 Reclamation)
- 1,200 (Cooling Pond)

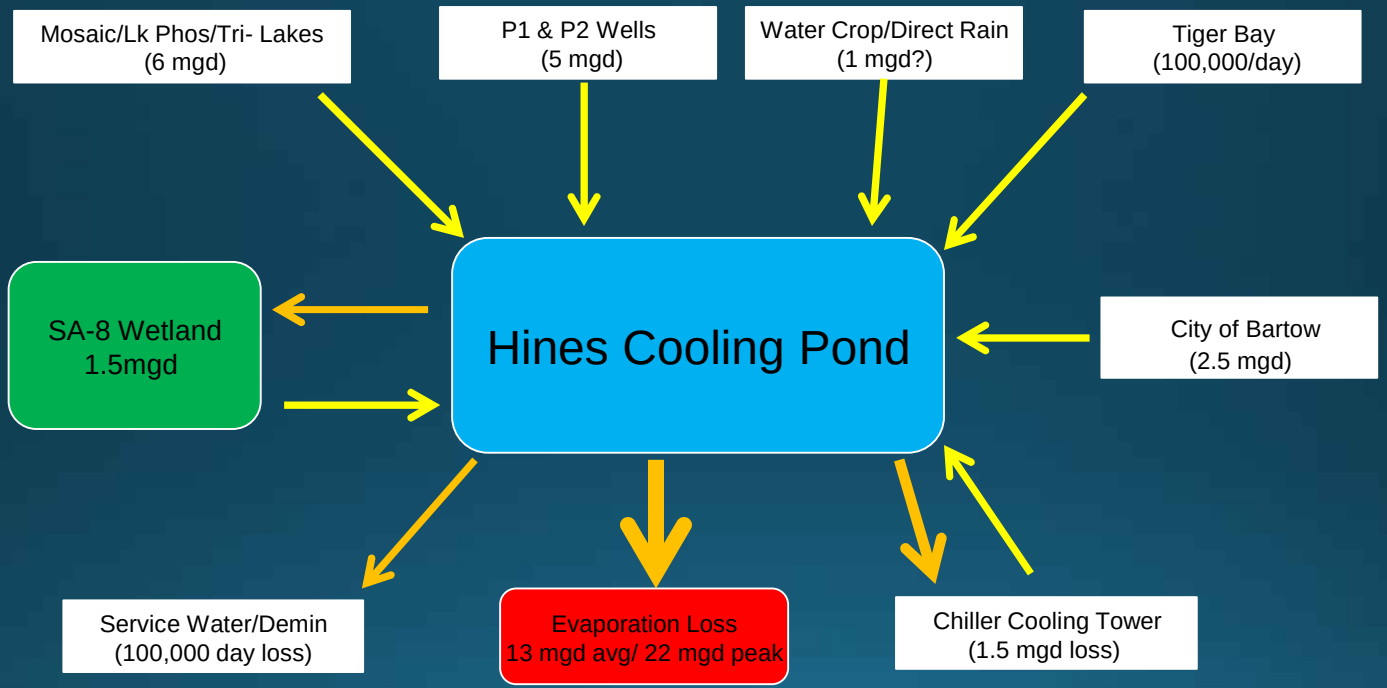
3,400 Acres for Water Cropping (46%)

Water Usage

Hines est. 1997

- Permit Limit 5 mgd (groundwater)
  - History Water Usage = 1.35 mgd

- 1" rainstorm = 32 million gallons
- 2017 Hurricane Irma
  - 8" rain in 5 hours = 1.78 billion gallons


Mosaic/Lk Phos/Tri- Lakes
(6 mgd)
P1 & P2 Wells
(5 mgd)
Water Crop/Direct Rain
(1 mgd?)
Tiger Bay
(100,000/day)
SA-8 Wetland
1.5mgd
Hines Cooling Pond
City of Bartow
(2.5 mgd)
Service Water/Demin
(100,000 day loss)
Evaporation Loss
13 mgd avg/ 22 mgd peak
Chiller Cooling Tower
(1.5 mgd loss)

Power Plants and Battery Storage Sites

FILTER BY PLANT TYPE

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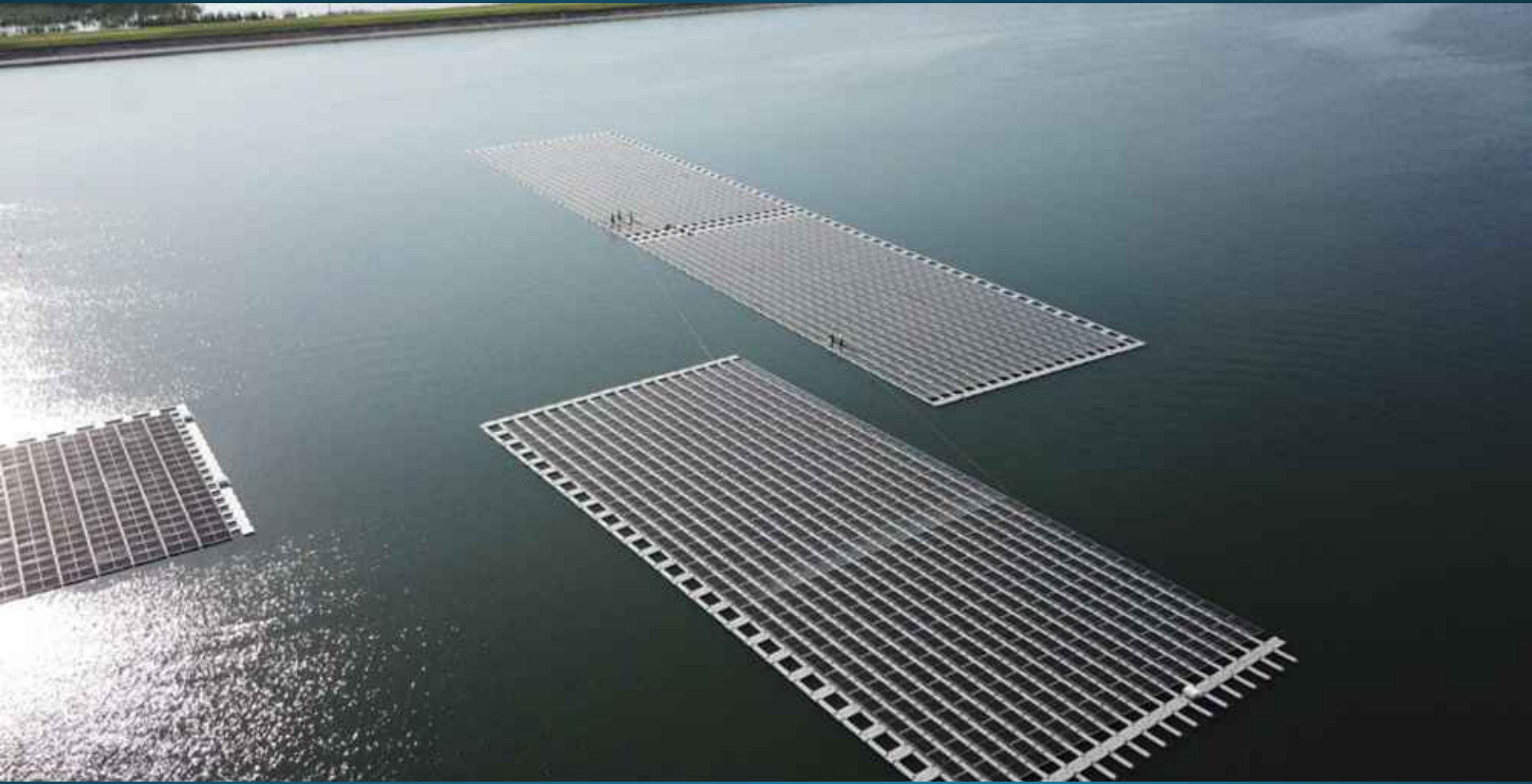

Questions?

Tommy.Oneal@Duke-Energy.com

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- If you are participating via phone:
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  - *6 Mutes/Unmutes

2025 CFWI RWSP Next Steps

Stacey Payseno, PMP
Technical Writing Team Lead

Public Involvement and Collaboration

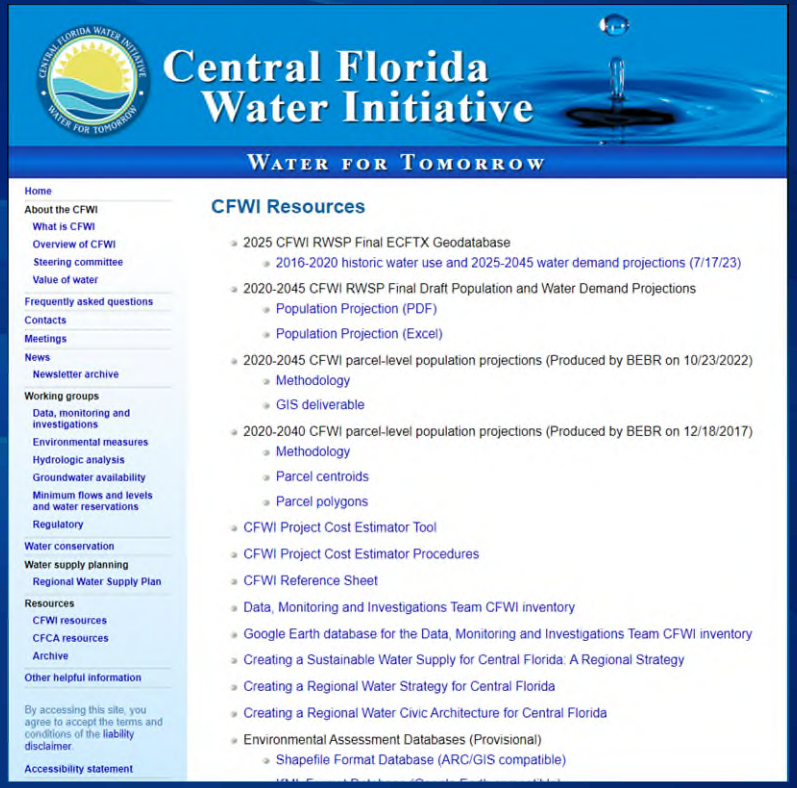
SWFWMD
SFWMD
FDEP
Public Supply Utilities
SJRWMD
FDACS
Agriculture
Industrial
Mining
Environmental
Local Governments
Power Generation
Landscape / Recreation
General Public
Commercial

Progress to Date

- Technical Writing Team began the 2025 plan process in January 2021
- BEBR under contract in 2022
- Working meetings began January 2022

Resources

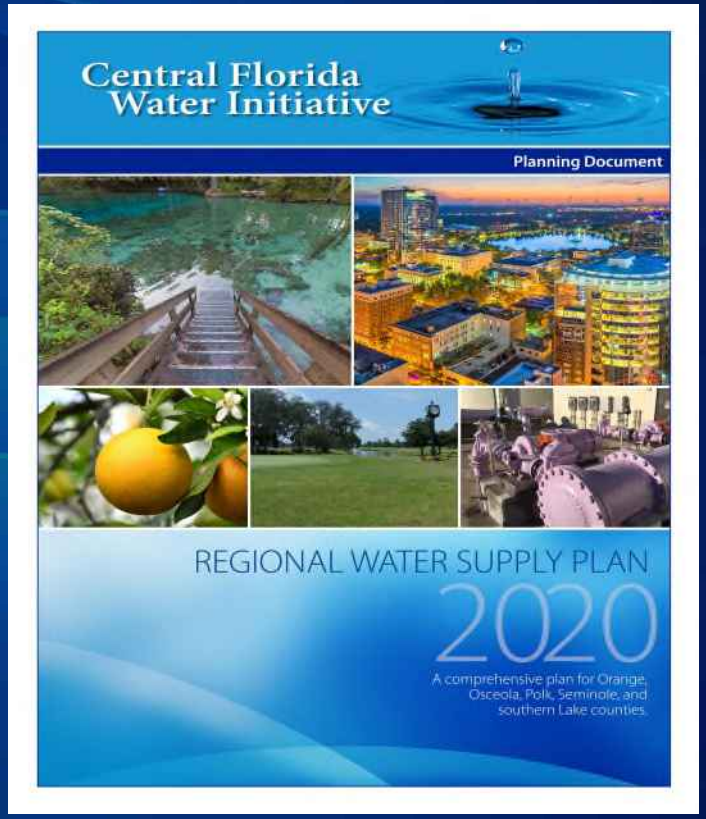
cfwiwater.com/CFWIresources.html



2025 CFWI Regional Water Supply Plan

RWSP chapters

1. Introduction
2. Progress since 2020 CFWI RWSP
3. Population and Water Demands
4. Water Resource Assessment
5. Water Conservation
6. Water Source Options
7. Water Supply & Water Resource Development Options
8. Funding Options
9. Conclusions and Recommendations

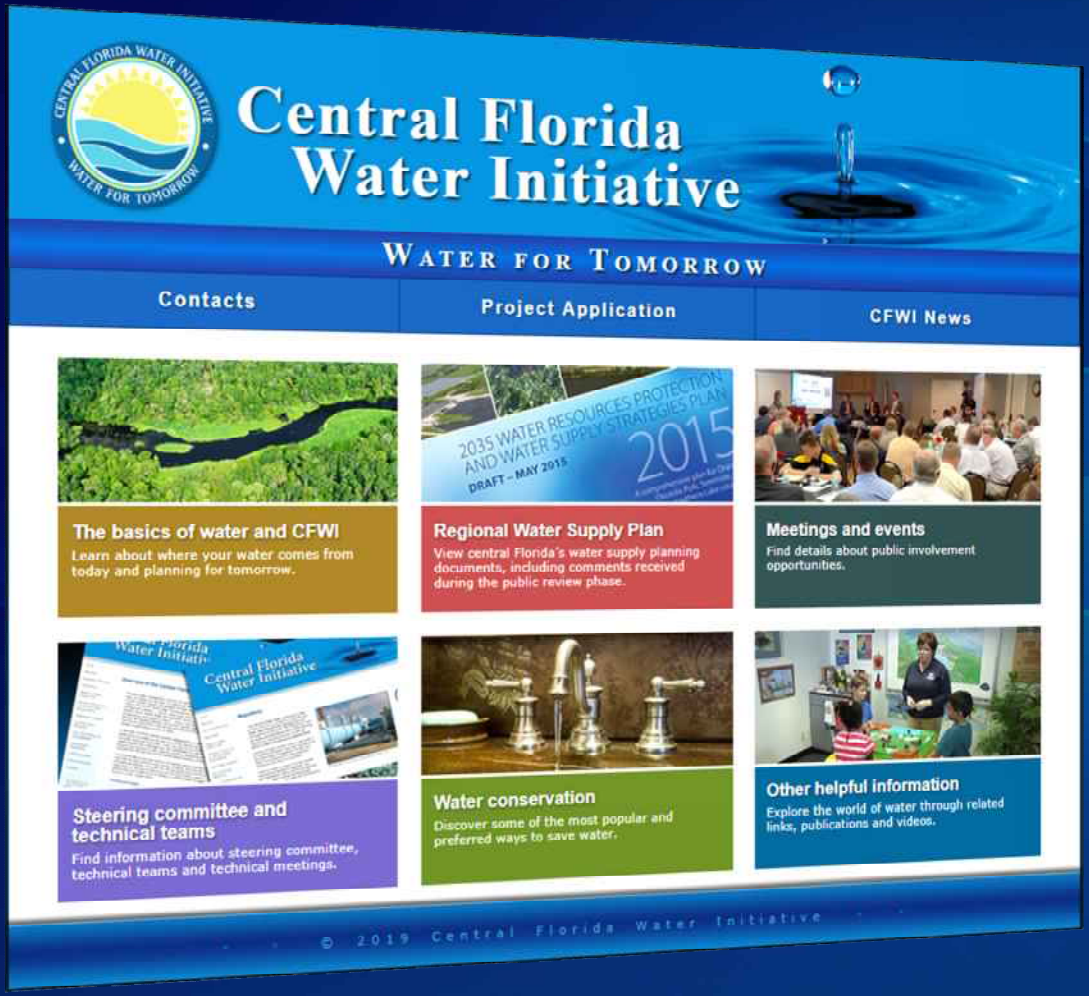


Preliminary Schedule

• Technical Methods Workshop	April 2024
• Steering Committee/Public Workshop (with results)	October 2024
• Governing Board overview of Draft 2025 CFWI RWSP	February/March 2025
• Draft 2025 CFWI RWSP for public comment	March 2025
• Steering Committee/Public Workshop	April 2025
• Public Comment Ends	May 2025
• Steering Committee/Public Workshop on Draft Final RWSP	October 2025
• Governing Board Approval of the 2025 CFWI RWSP	November 2025
• Final 2025 CFWI RWSP posted to cfwiwater.com	December 2025

Questions

- If you are participating via Zoom, use the Raise Hand feature
- If you are participating via phone:
  - *9 Raises Hand
  - *6 Mutes/Unmutes



Additional information can be found at:

cfwiwater.com