Groundwater Availability Team
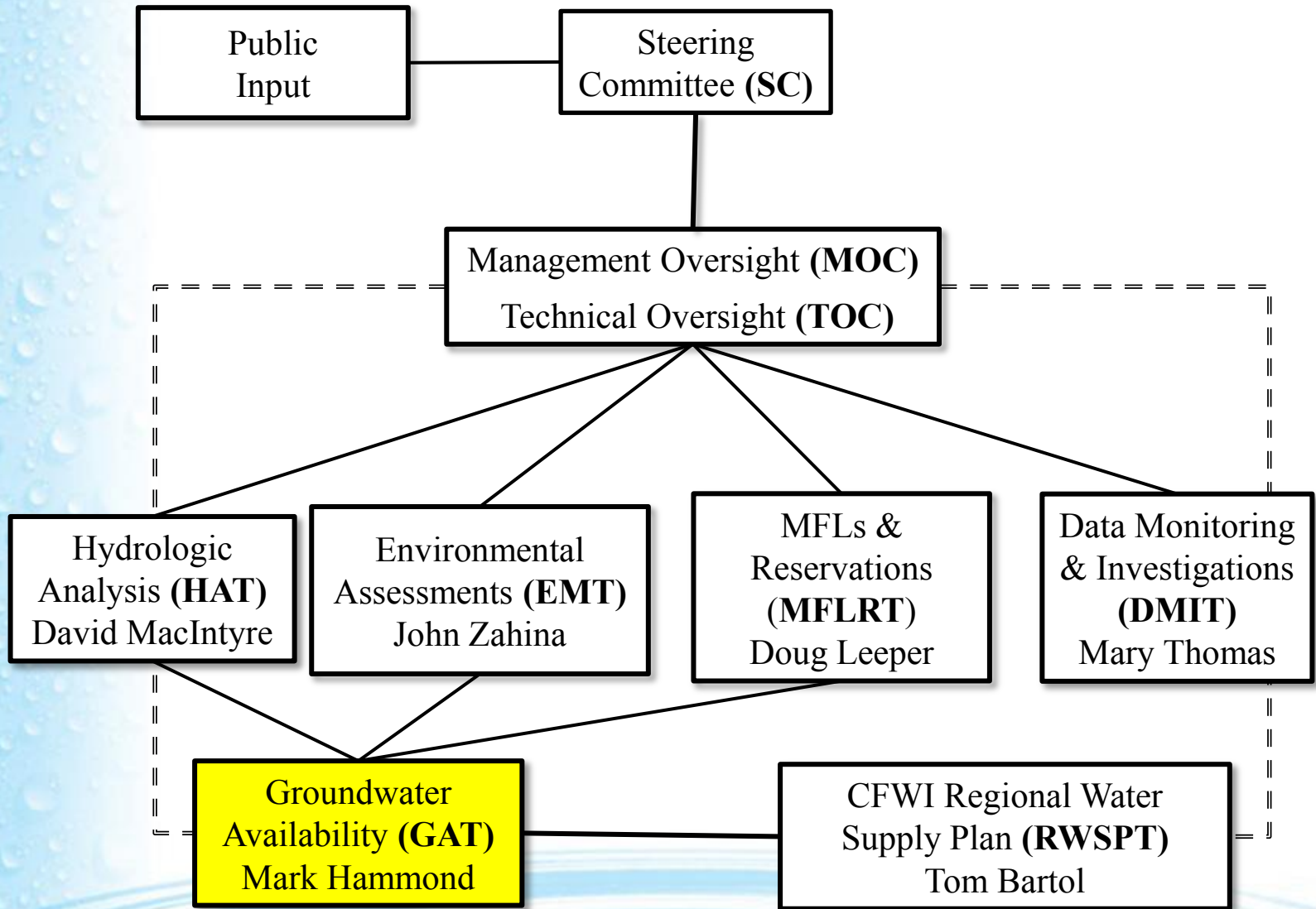
Steering Committee Meeting
June 28, 2013

www.cfwiwater.com

Central Florida Water Initiative

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┌──────────────┐        ┌──────────────────┐
│   Public     │────────│   Steering       │
│   Input      │        │  Committee (SC)   │
└──────────────┘        └──────────────────┘
                                 │
                        ┌────────────────────────────┐
                        │ Management Oversight (MOC)  │
                        │ Technical Oversight (TOC)   │
                        └────────────────────────────┘
```

| Hydrologic Analysis **(HAT)** David MacIntyre | Environmental Assessments **(EMT)** John Zahina | MFLs & Reservations (**MFLRT**) Doug Leeper | Data Monitoring & Investigations **(DMIT)** Mary Thomas |

| Groundwater Availability **(GAT)** Mark Hammond | CFWI Regional Water Supply Plan **(RWSPT)** Tom Bartol |

Guiding Principle #1

Identify the sustainable quantities of traditional groundwater sources available for water supply that can be used without causing unacceptable harm to the water resources and associated natural systems.

Critical Path

HAT

•Preliminary HAT model output **(January**)

•Regional planning level detail
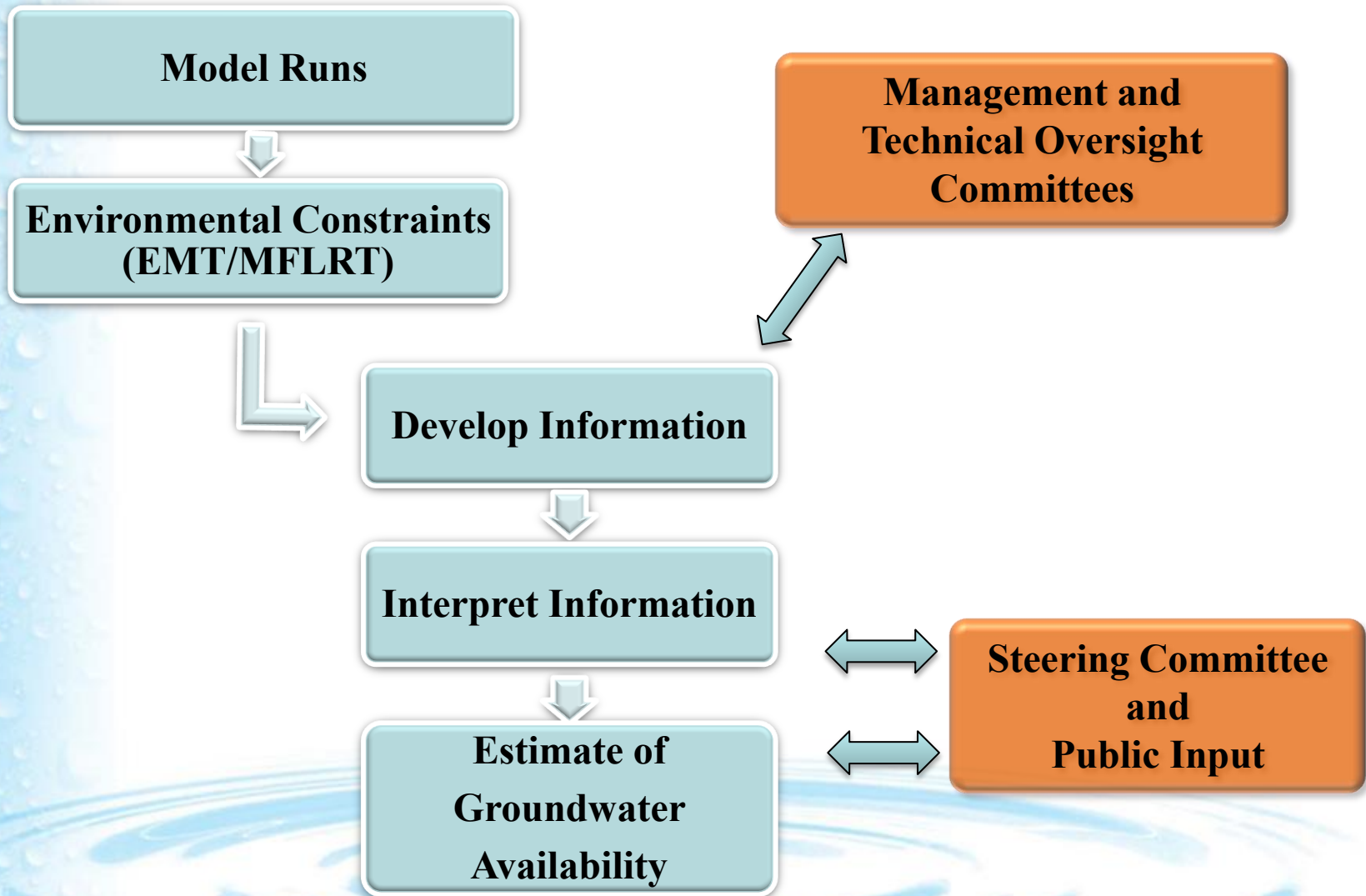
EMT

• Evaluation measures **(April)**

MFLRT

• Evaluation measures (**April**)

GAT (Coordination with MOC/SC)
• Preliminary groundwater assessment (**March)**
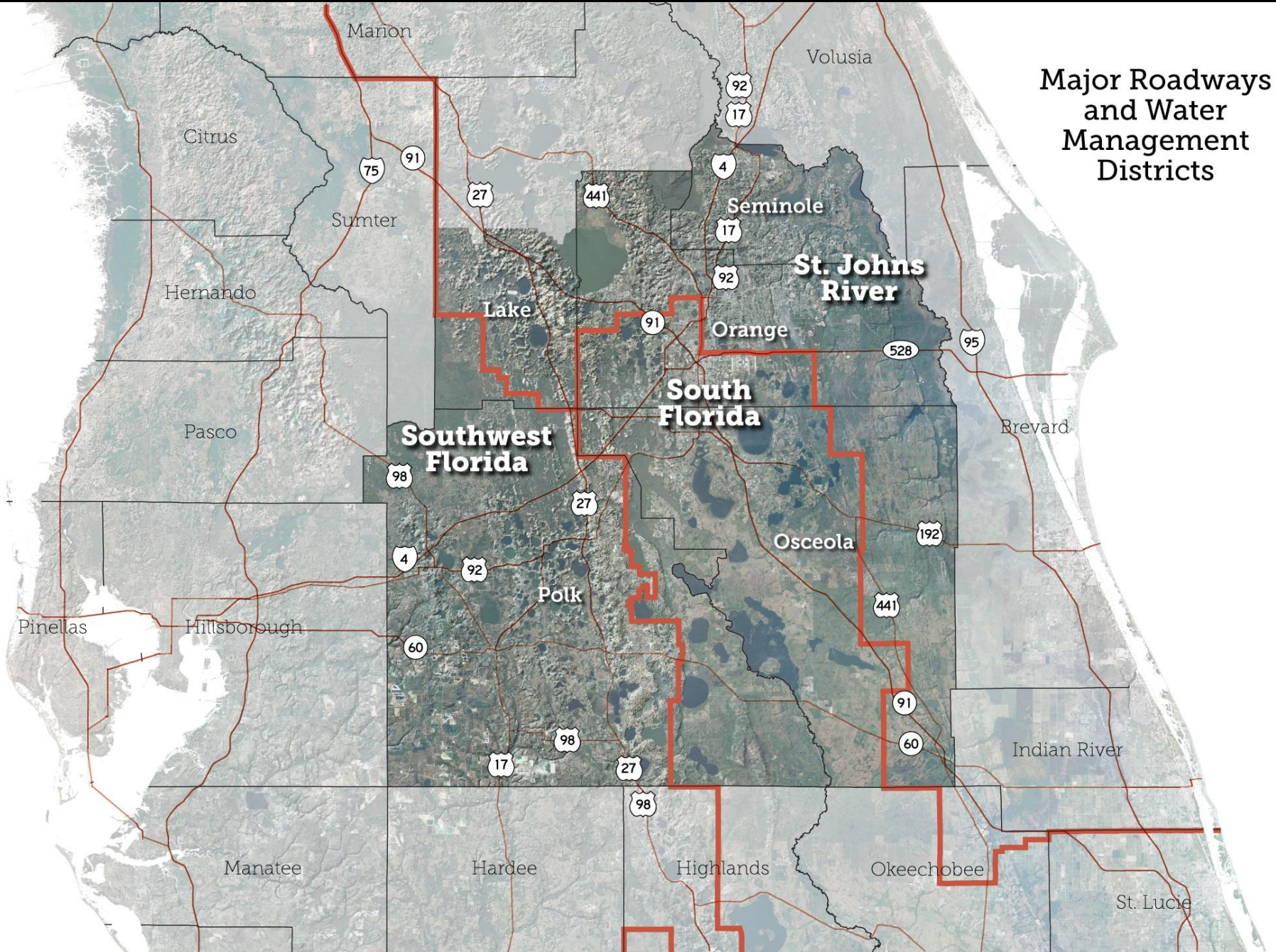• Groundwater availability results (**June**)

RWSP
• Final Draft RWSP (October **2013**)

Critical Path

HAT

•Preliminary HAT model output **(January**)

•Regional planning level detail

EMT

• Evaluation measures (**April)**

MFLRT

• Evaluation measures (**April**)

GAT (Coordination with MOC/SC)
• Preliminary groundwater assessment (**March)**
• Groundwater availability results (**August**)

RWSP

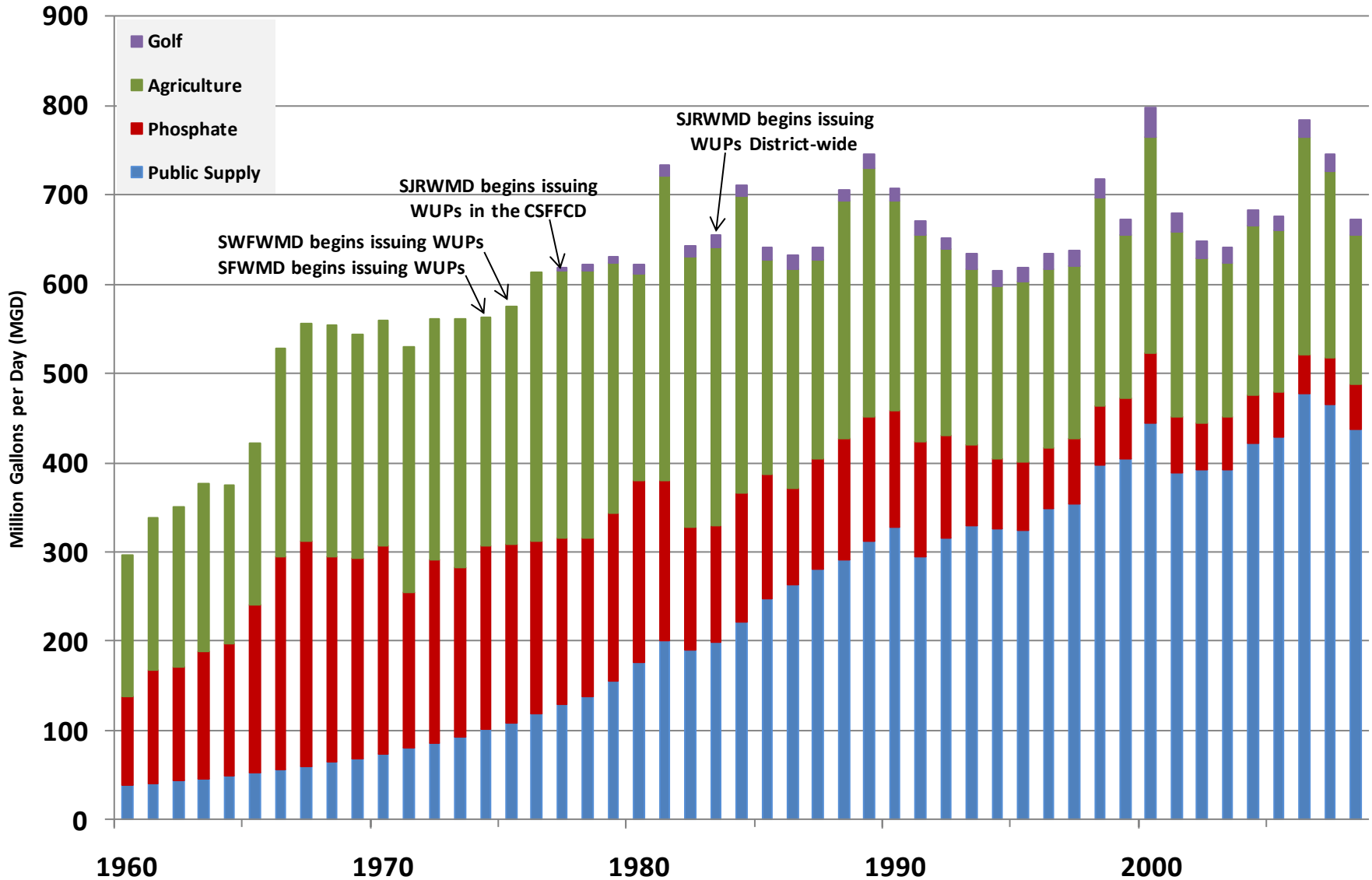• Final Draft RWSP (**November 2013**)

GAT Process Flow Chart

Model Runs

↓

Environmental Constraints
(EMT/MFLRT)

Develop Information

↓

Interpret Information

↓

Estimate of
Groundwater
Availability

Management and
Technical Oversight
Committees

Steering Committee
and
Public Input

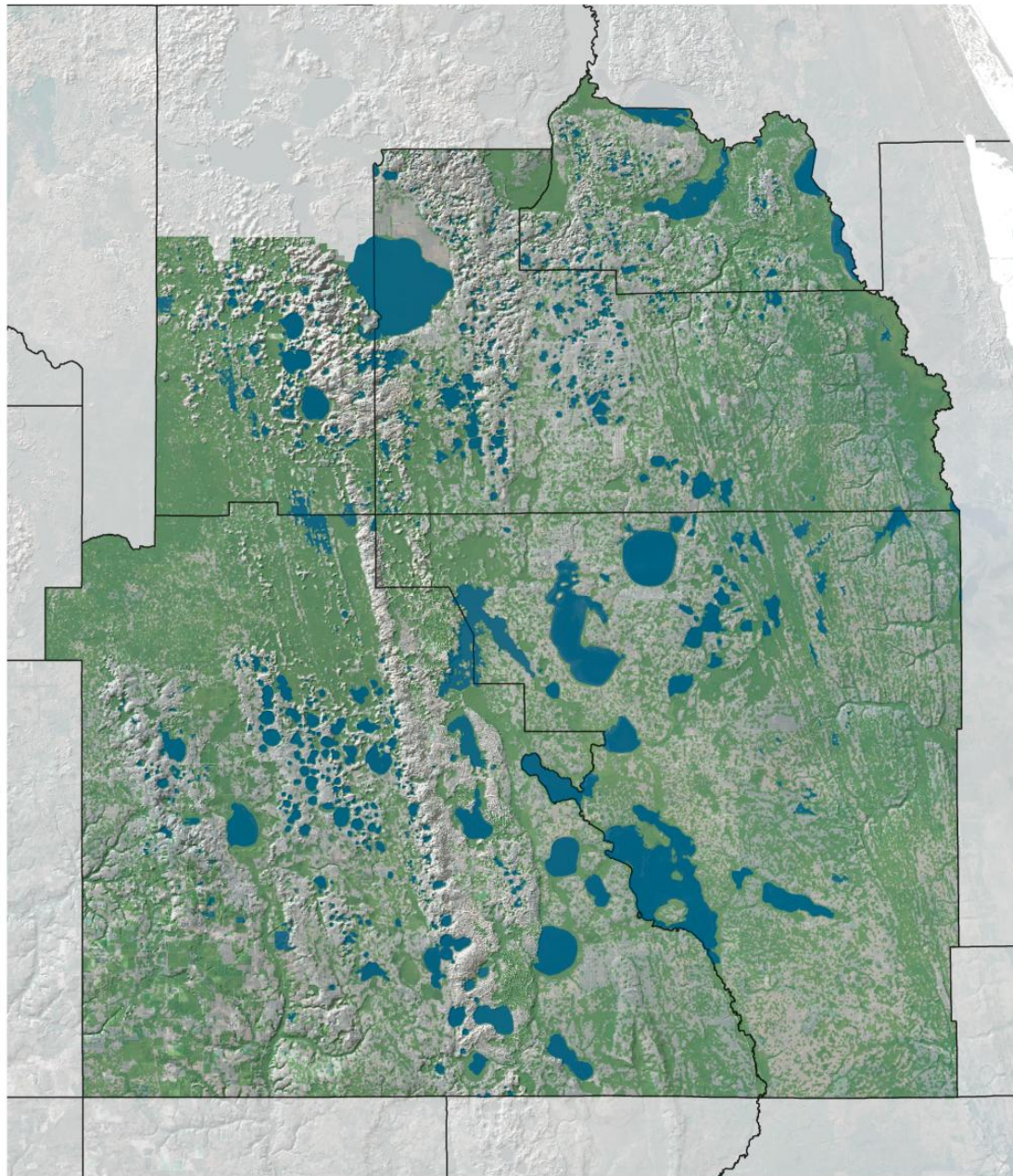Major Roadways and Water Management Districts

Estimated Groundwater Use in Central Florida Area
(Includes area adjacent to the CFWI area)

Lakes and Wetlands
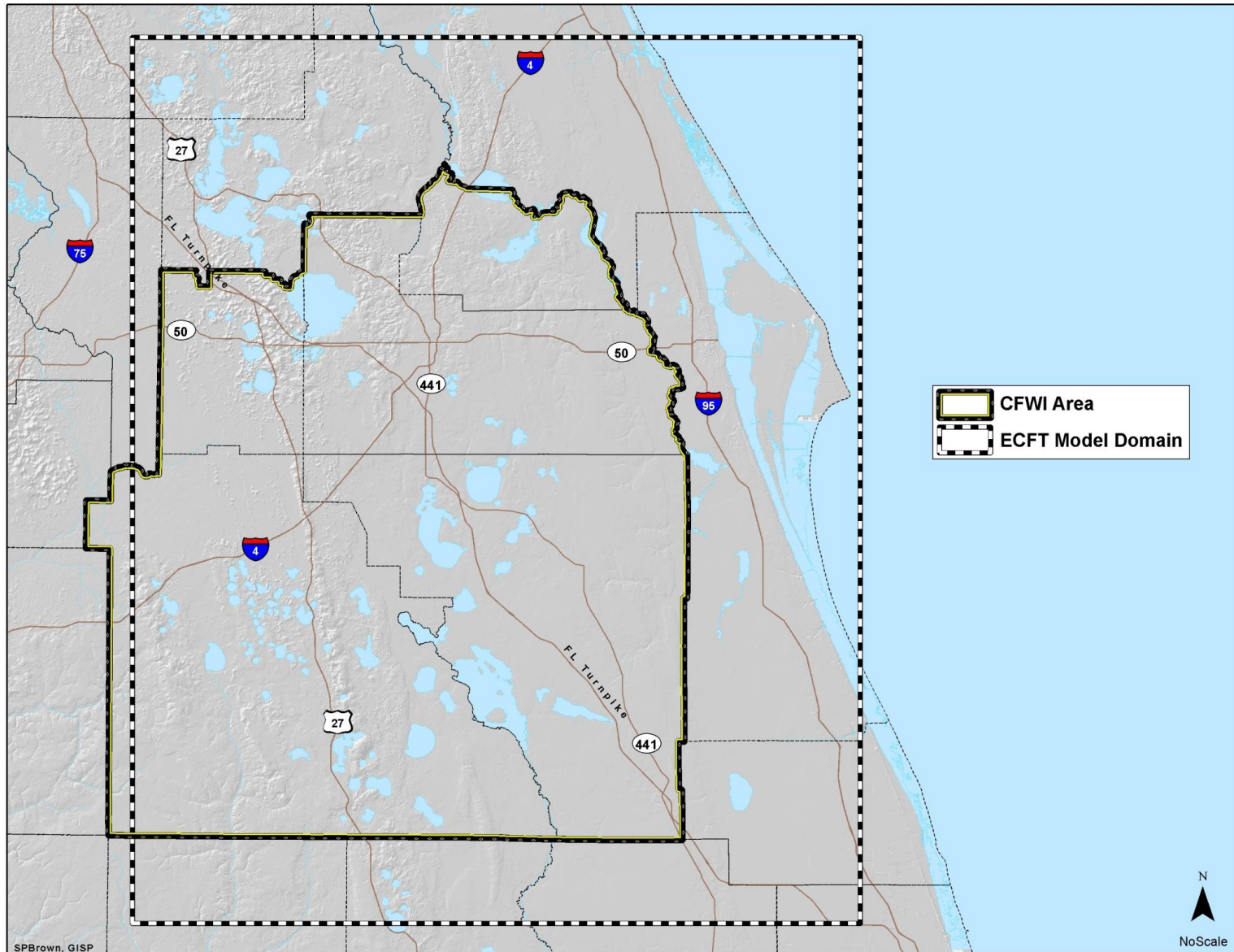
- lakes
- wetlands

Assessing Groundwater Availability

- Multiple factors influence changes in surface water conditions
    - Hydrogeologic setting and rainfall
    - Drainage changes
    - Surrounding land use changes
    - Basin configuration changes
    - Withdrawals
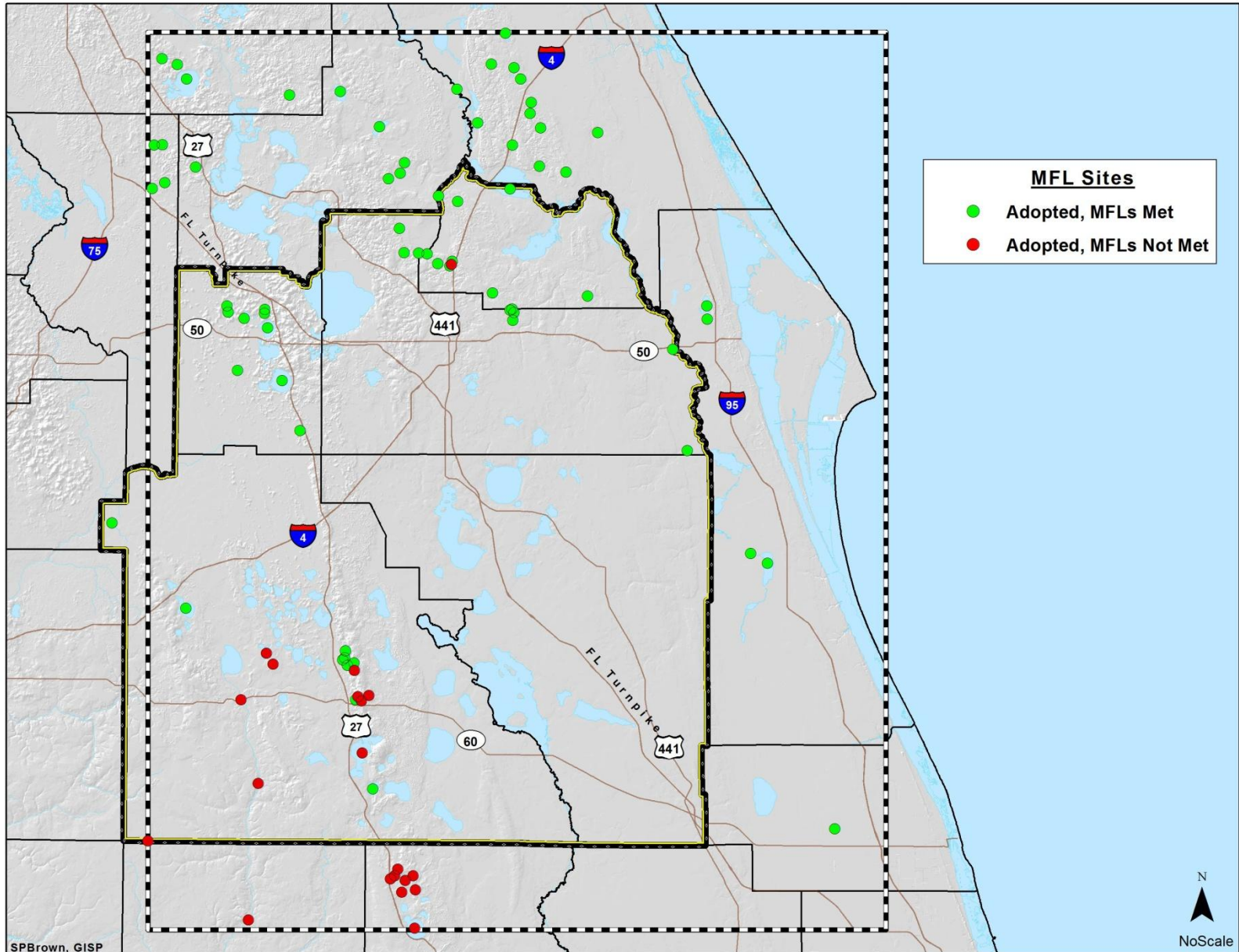- Our focus is on groundwater withdrawal based changes

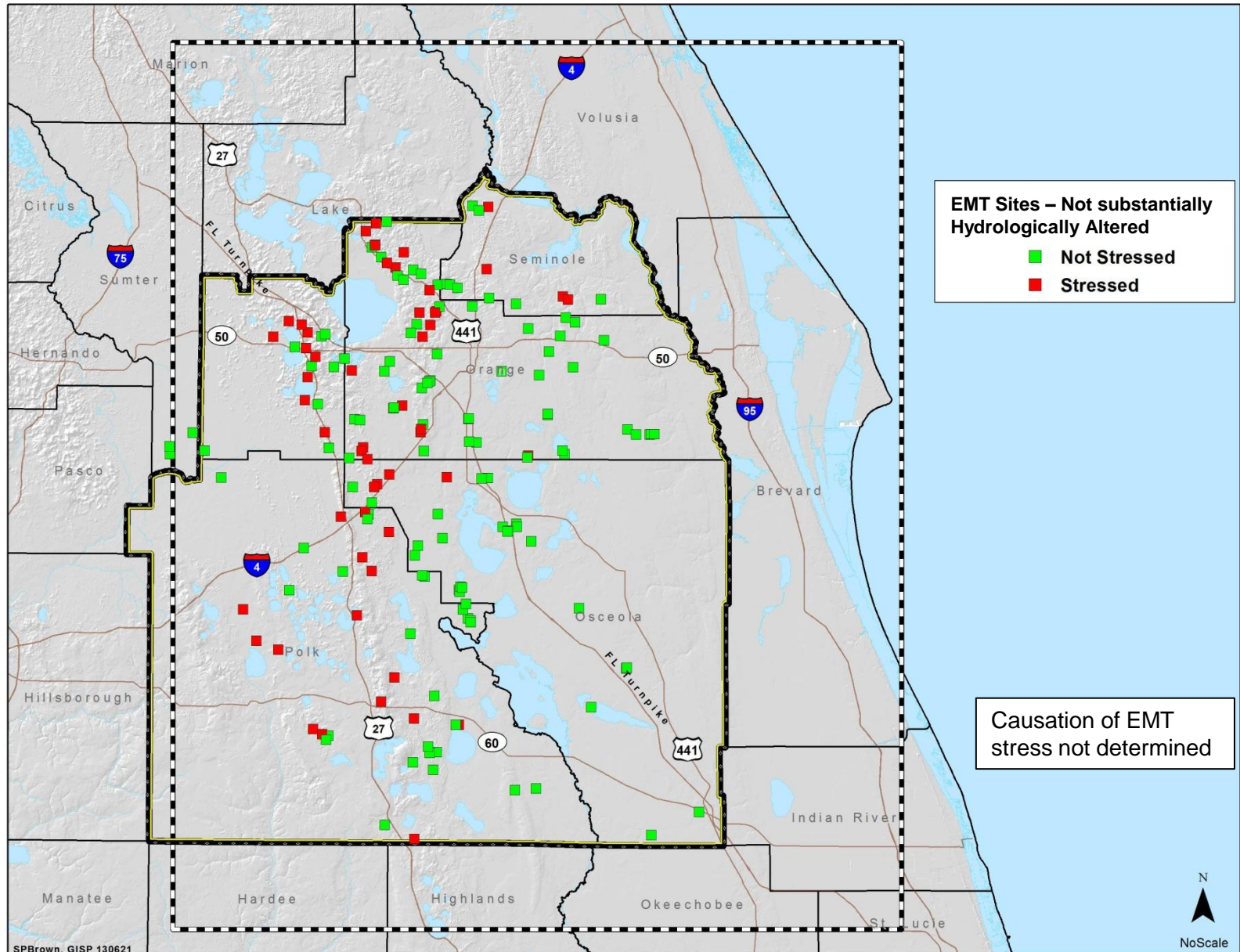# CFWI Area and ECFT Model Domain

Groundwater Availability Measuring Sticks

- MFLs within the CFWI
- EMT wetlands
- Re-evaluated and proposed MFLs within CFWI
- SWUCA SWIMAL
- Non-MFL waterbodies
- Current agency/regulatory constraints
- Rivers
- Aquifer water quality
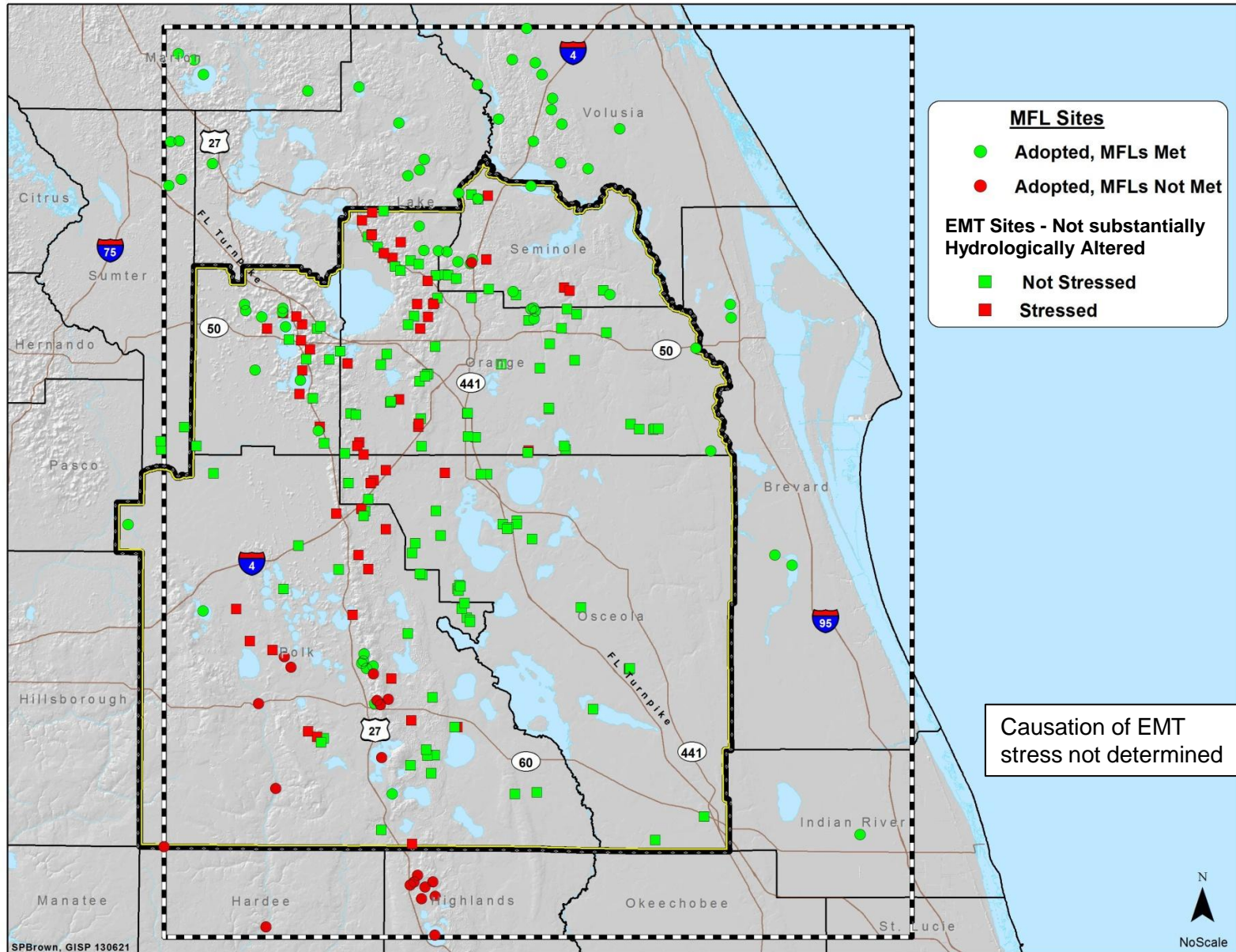- MFLs outside the CFWI

Recent Status of MFLs
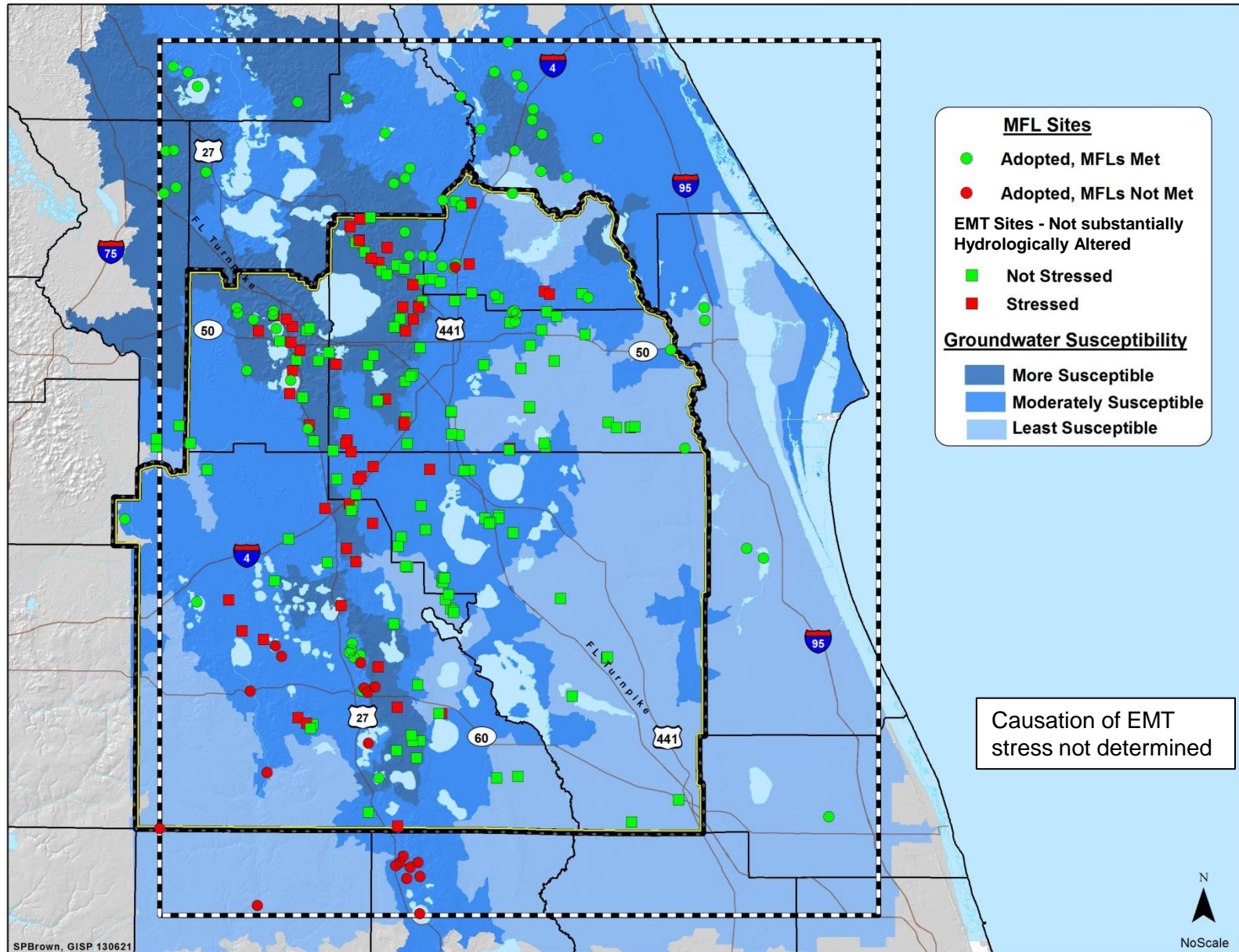
Recent Status of EMT Sites

EMT Sites – Not substantially Hydrologically Altered
- Not Stressed
- Stressed

Causation of EMT stress not determined

SPBrown, GISP 130621

Recent Status of MFLs and EMT Sites

Recent Status of MFLs and EMT Sites with Groundwater Susceptibility

MFL Sites
- Adopted, MFLs Met
- Adopted, MFLs Not Met

EMT Sites - Not substantially Hydrologically Altered
- Not Stressed
- Stressed

Groundwater Susceptibility
- More Susceptible
- Moderately Susceptible
- Least Susceptible

Causation of EMT stress not determined

SPBrown, GISP 130621

NoScale

Summary of Recent Conditions

- Most MFLs are currently being met but several are not

- EMT sites are more likely to be stressed along ridge areas and less likely in non-ridge areas

- Ridge areas are more susceptible to groundwater withdrawals than non-ridge areas due to less confinement

Model Scenarios

- Purpose
 - ❑ To quantify effects of withdrawals

- Scenarios
  - ❑ Reference condition – provides reference for comparing relative change
    - • 2005 demands
  - ❑ Future withdrawals
    - • End of permit (EOP)
    - • Intermediate runs (2015 and 2025)
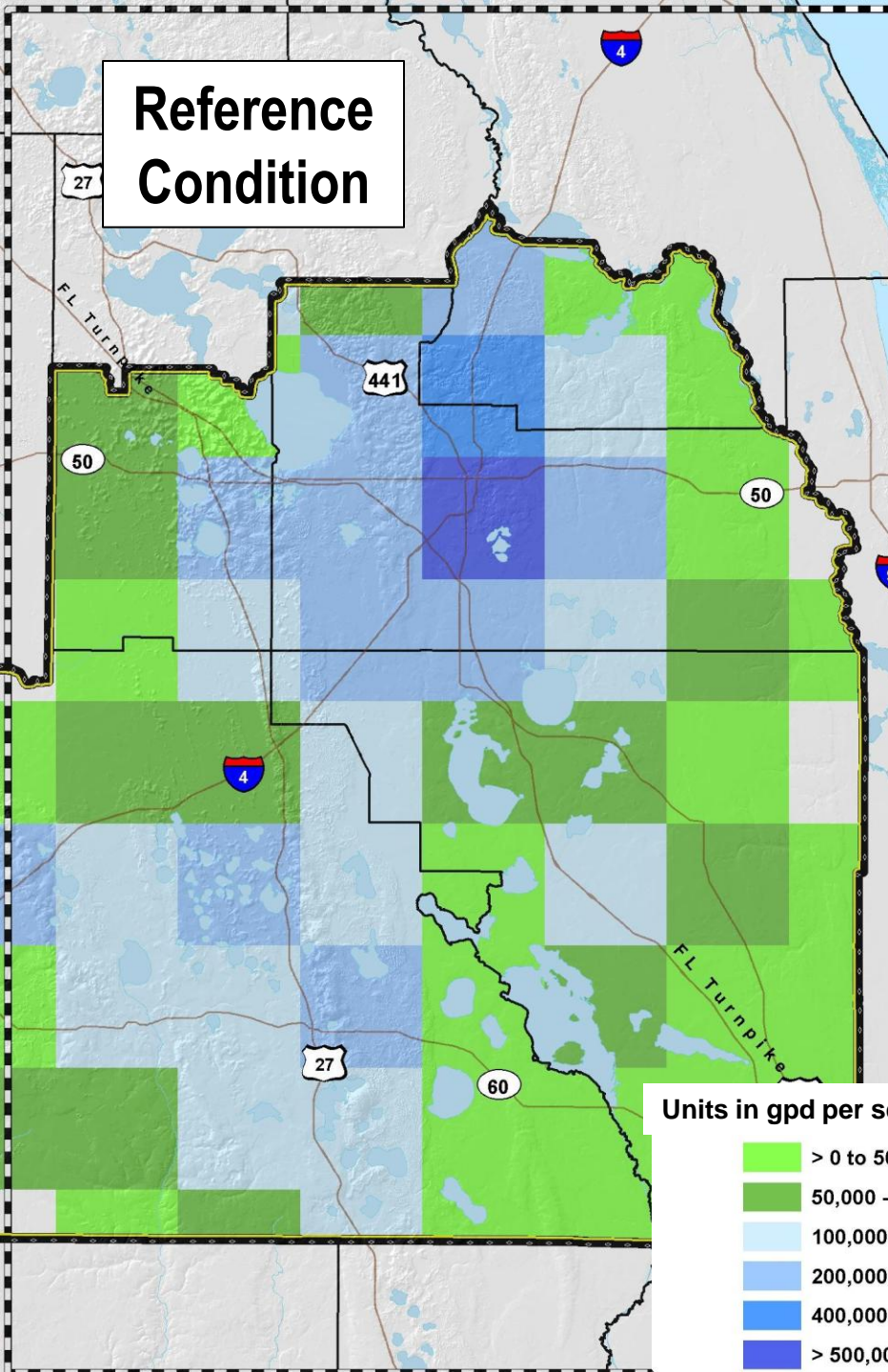   - • 2035

Summary of CFWI Groundwater Withdrawals

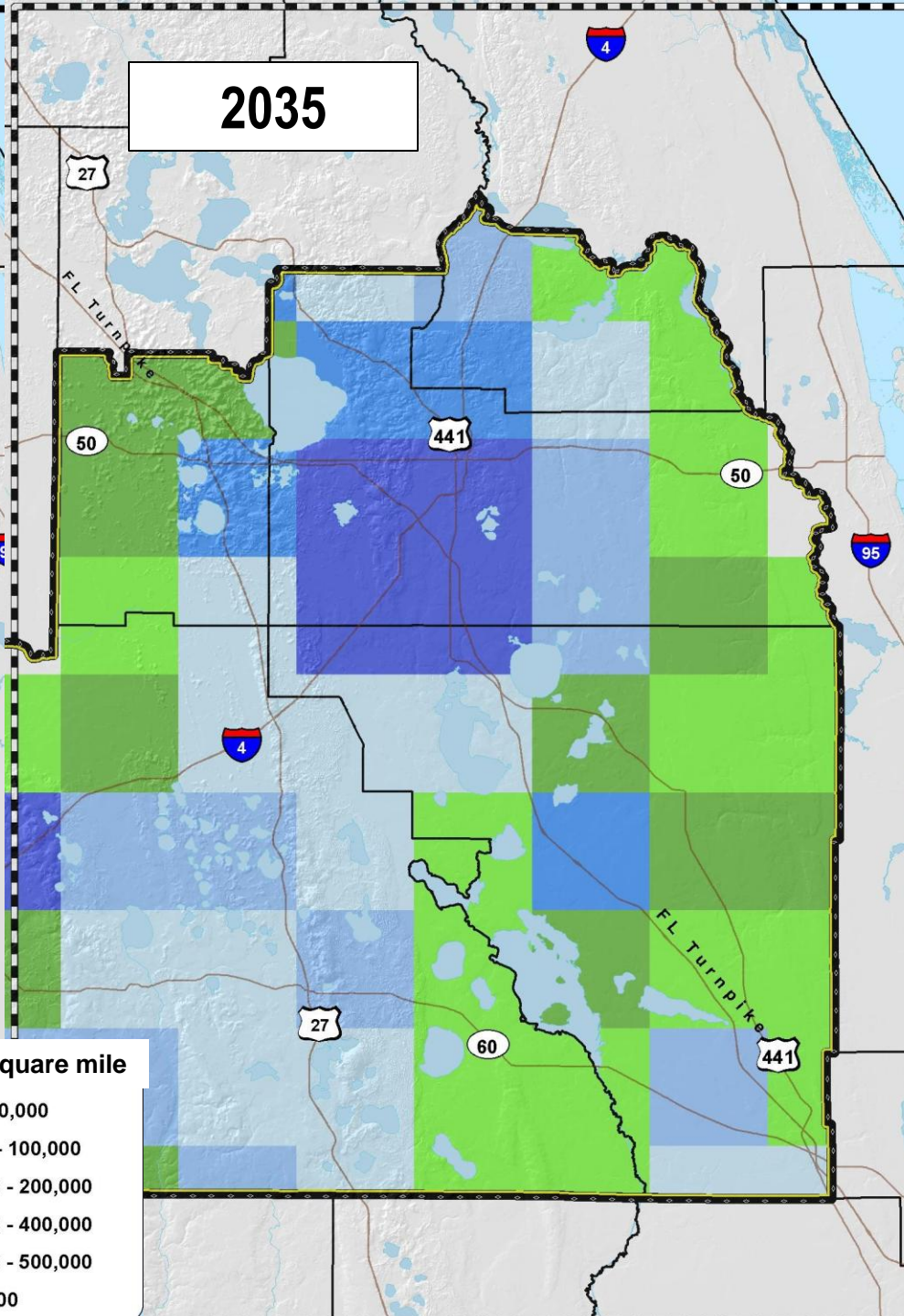|	PWS	Agricultural	C/I	DSS	Golf & Other	Total
Reference Condition	409	179	55	22	1.4	667
EOP	610	253	98	28	3.7	992
Projected 2035	650	226	95	30	3.7	1,004

Reference Condition – All Withdrawals
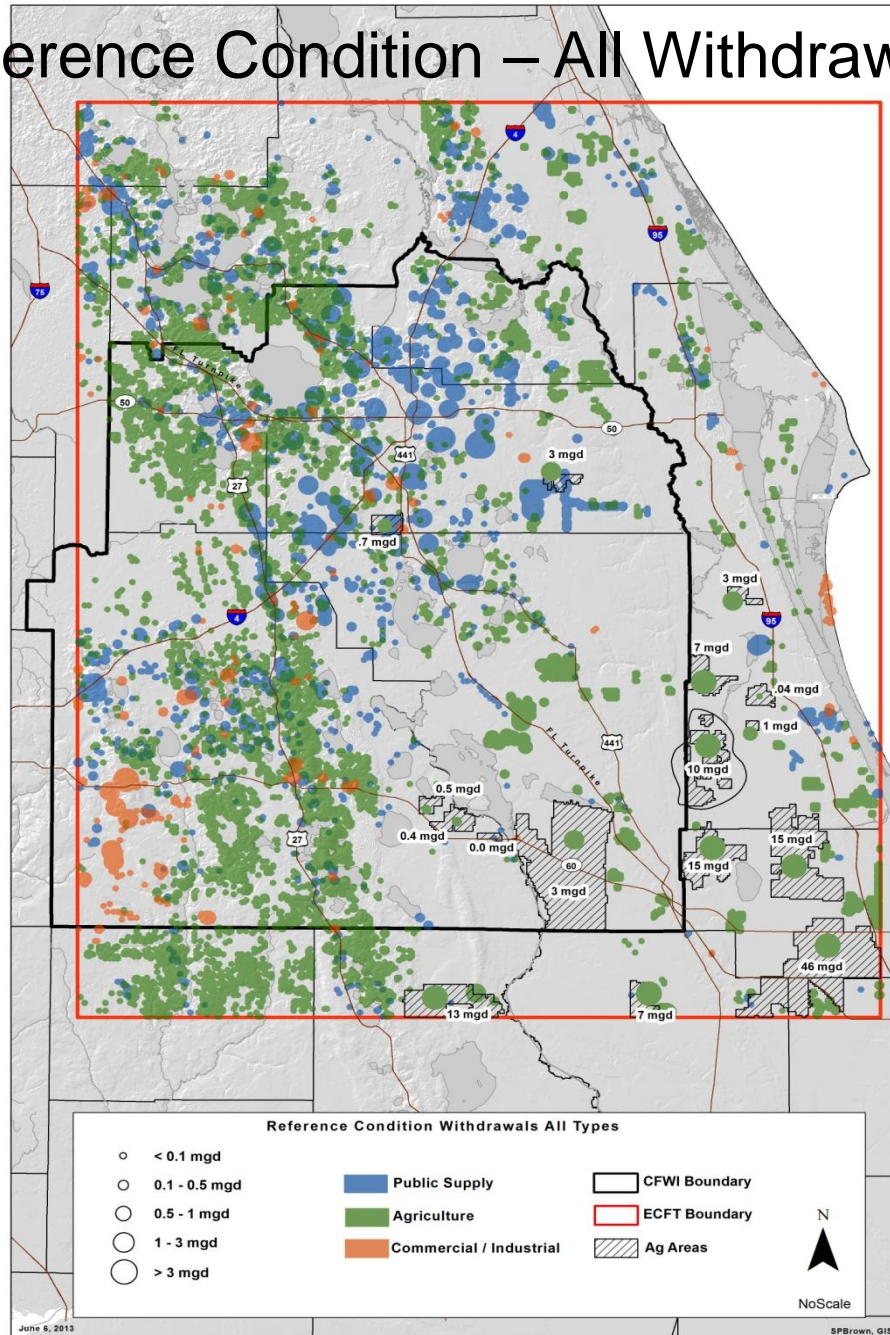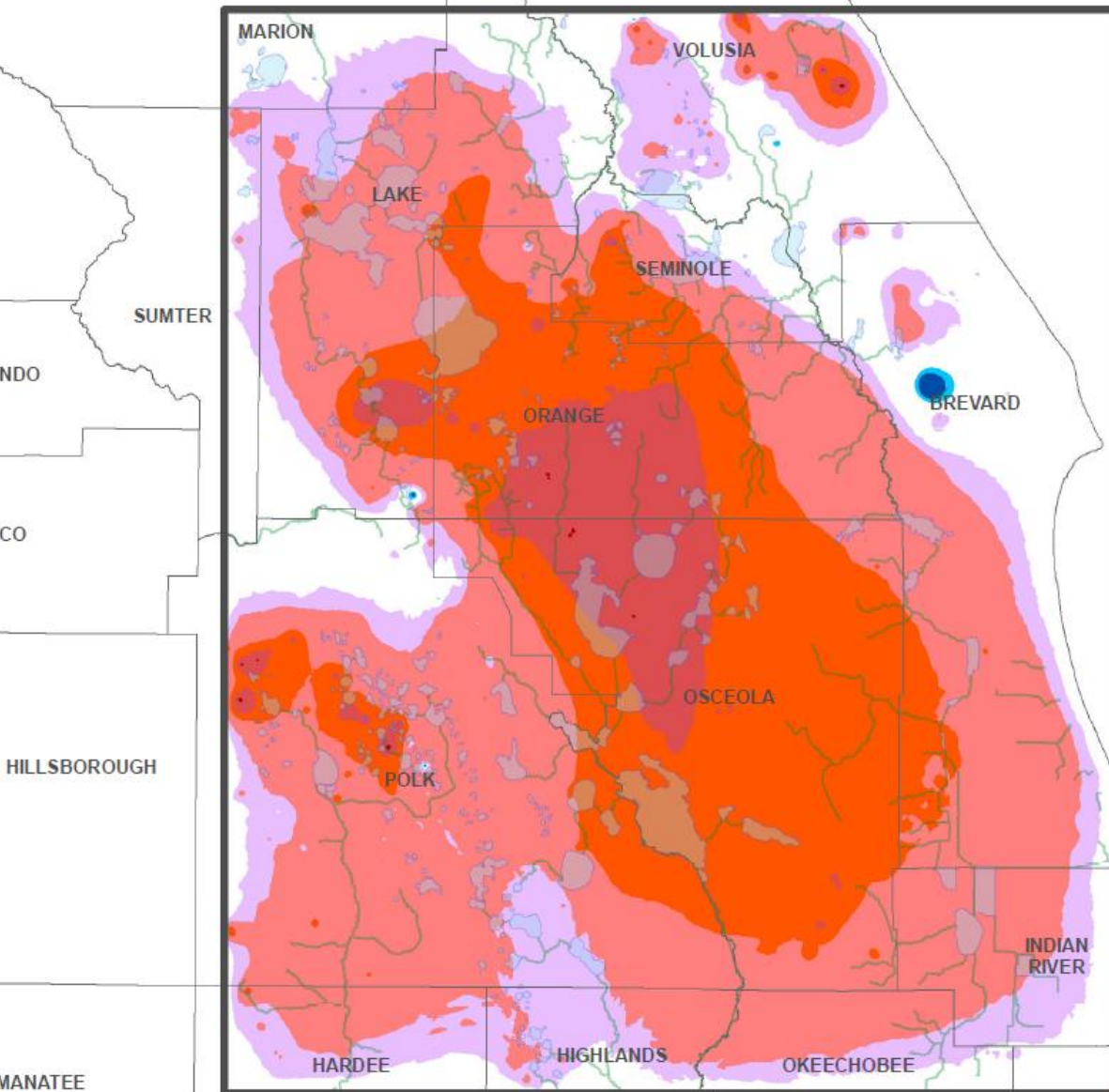
Reference Condition

2035

Units in gpd per square mile

- > 0 to 50,000
- 50,000 - 100,000
- 100,000 - 200,000
- 200,000 - 400,000
- 400,000 - 500,000
- > 500,000

ECFT V1.2 Changes in Median Heads
in the Upper Floridan Aquifer
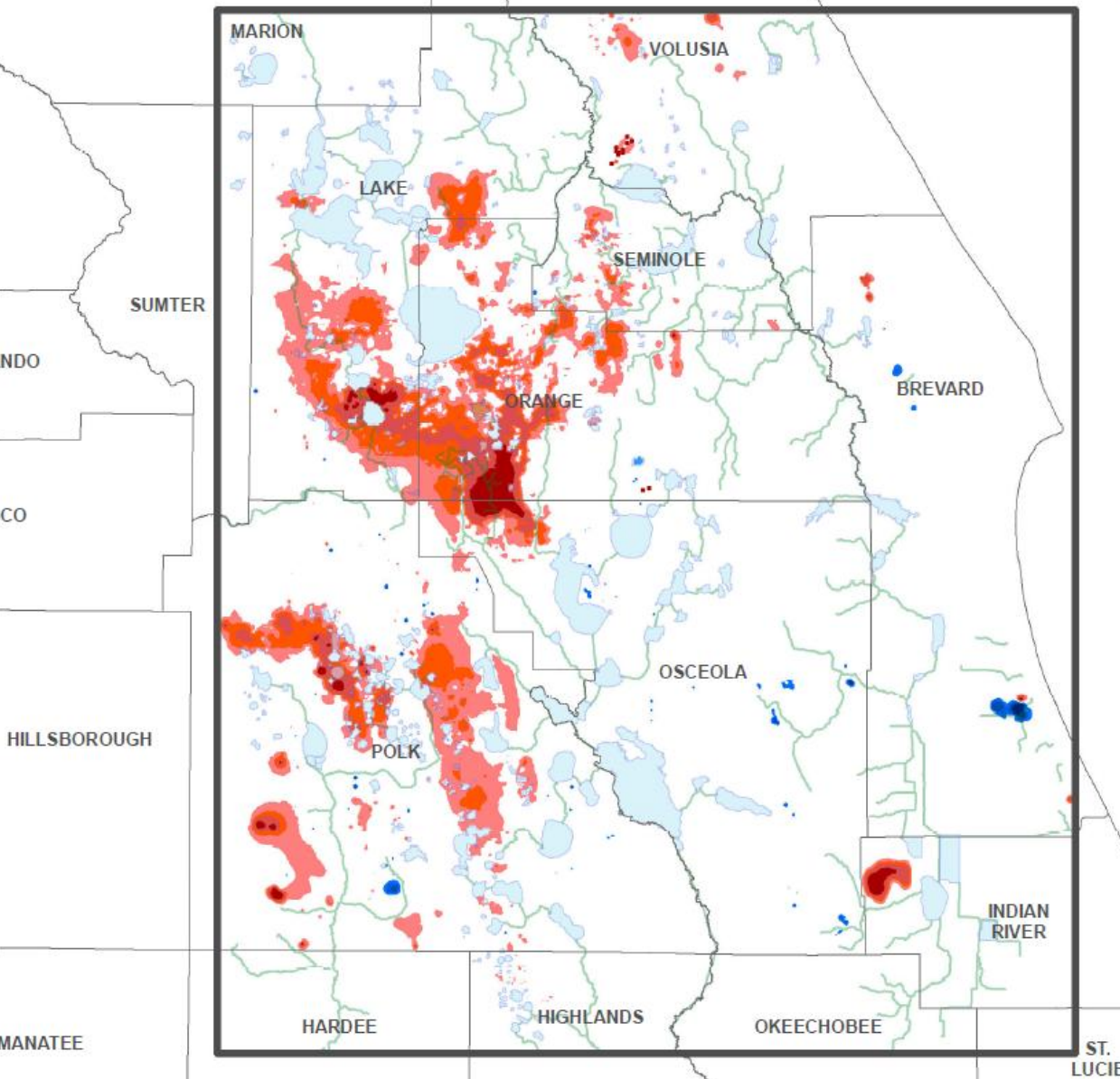Between 2005 to 2035 Scenarios
June 05, 2013

Legend

UF Change (ft) (2005 - 2035) (6-05)
<VALUE>

< - 1ft
-0.5 to -1 ft
No Change
0.5 to 1 ft
1 to 3 ft
3 to ft 5 ft
5 to 10 ft
> 10 ft

ECFT V1.2 Changes in Median Heads
in the Surficial Aquifer
Between 2005 to 2035 Scenarios
June 5, 2013

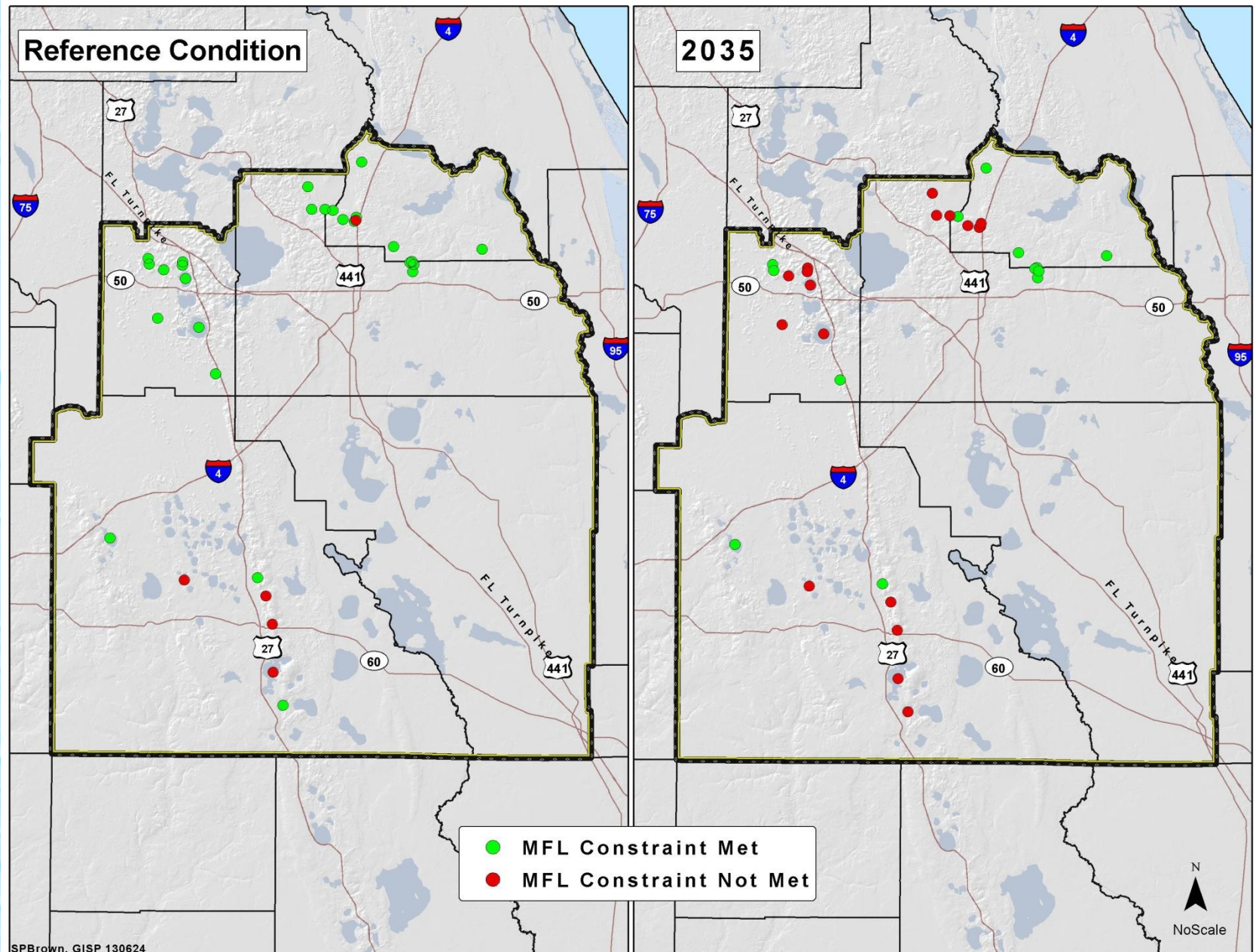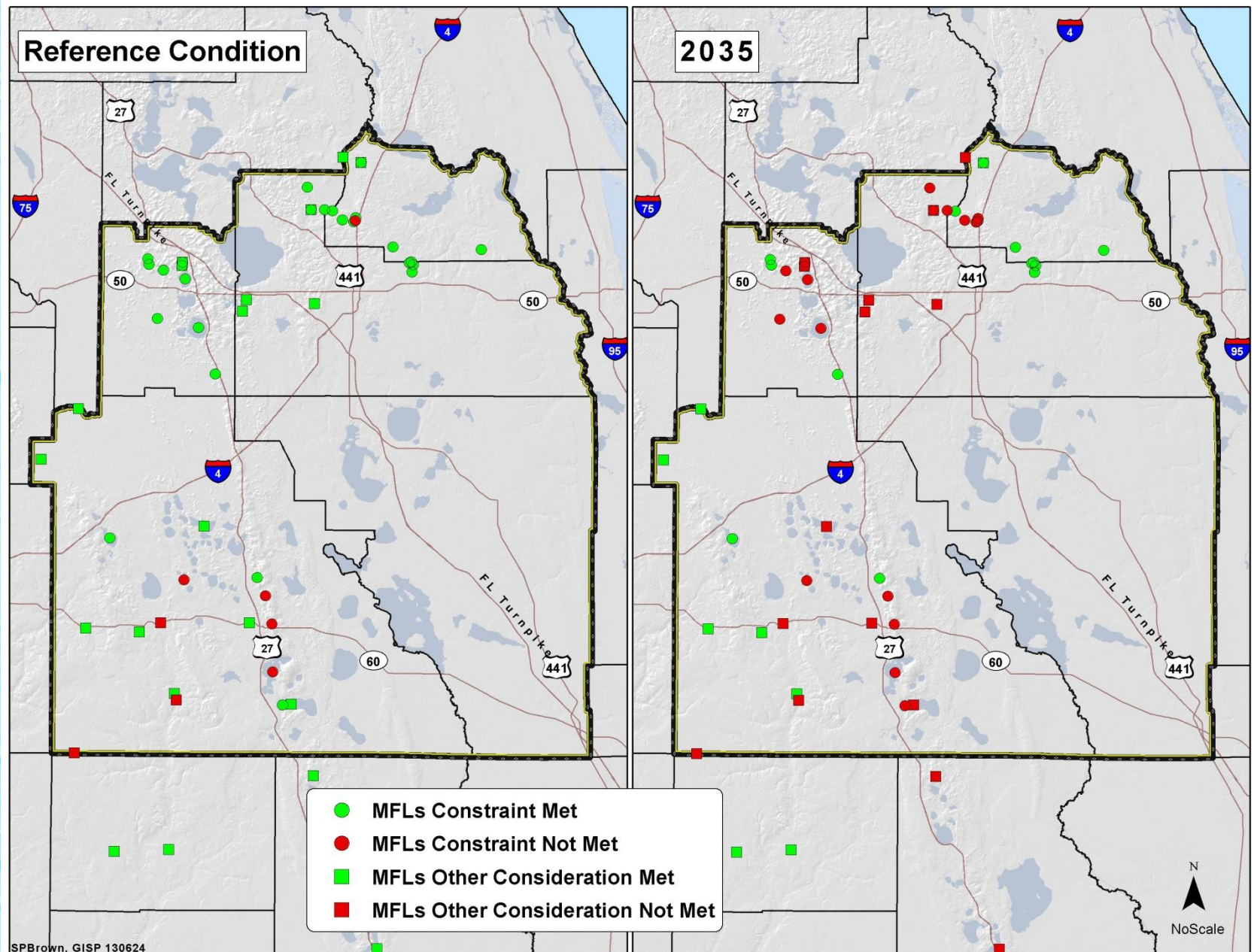Legend

SAS Change (ft) (2005 - 2035)
<VALUE>

	-69.945
	Increase < -5 ft
	Increase -3 to -5 ft
	Increase -2 to -3 ft
	Increase -1 to -2 ft
	Increase -.5 to -1 ft
	-0.5 - -0.25
	-0.25 - 0.25
	Decrease .25 to .5 ft
	Decrease .5 to 1 ft
	Decrease 1 to 2 ft
	Decrease 2 to 3 ft
	Decrease 3 to 5 ft
	Decrease > 5 ft

RC and 2035 MFLs Constraints

RC and 2035 MFLs Constraints and Other Considerations

MFLs Constraints/Considerations Summary for RC, EOP and 2035 Scenarios

Scenario and Constraint/Consideration	Number Met	Number Not Met
Reference Condition (RC)		
Constraints	26	5
Other Considerations	12	2
End of Permit (EOP)		
Constraints	19	12
Other Considerations	8	6
2035		
Constraints	13	18
Other Considerations	4	10

Preliminary Findings

- Traditional groundwater sources can meet some, but not all projected needs in the CFWI.

Preliminary Findings

- Additional sources and options will need to be considered, including:
  - Demand Management (conservation)
  - Surface Water
  - Reclaimed Water
  - Distribute pumpage

Preliminary Findings

- Primary areas that limit groundwater availability
  - Southern Water Use Caution Area (SWUCA)
  - Wekiva Springs System
  - US 27 Corridor (Ridge areas)

Next Steps

- Next Steering Committee meeting
  - Finalize GAT findings (Jul/Aug)
  - Develop planning level estimates of the range of quantities available from traditional groundwater
  - Identification of areas where impacts limit availability

Next Steps

- Regional Water Supply Plan (Nov)

- Solutions Team (through 2014)

  - Guiding Principle #2 - Develop strategies to meet demands in excess of traditional groundwater sources.

- Guiding Principle #3

  - Consistent regulations

Questions?