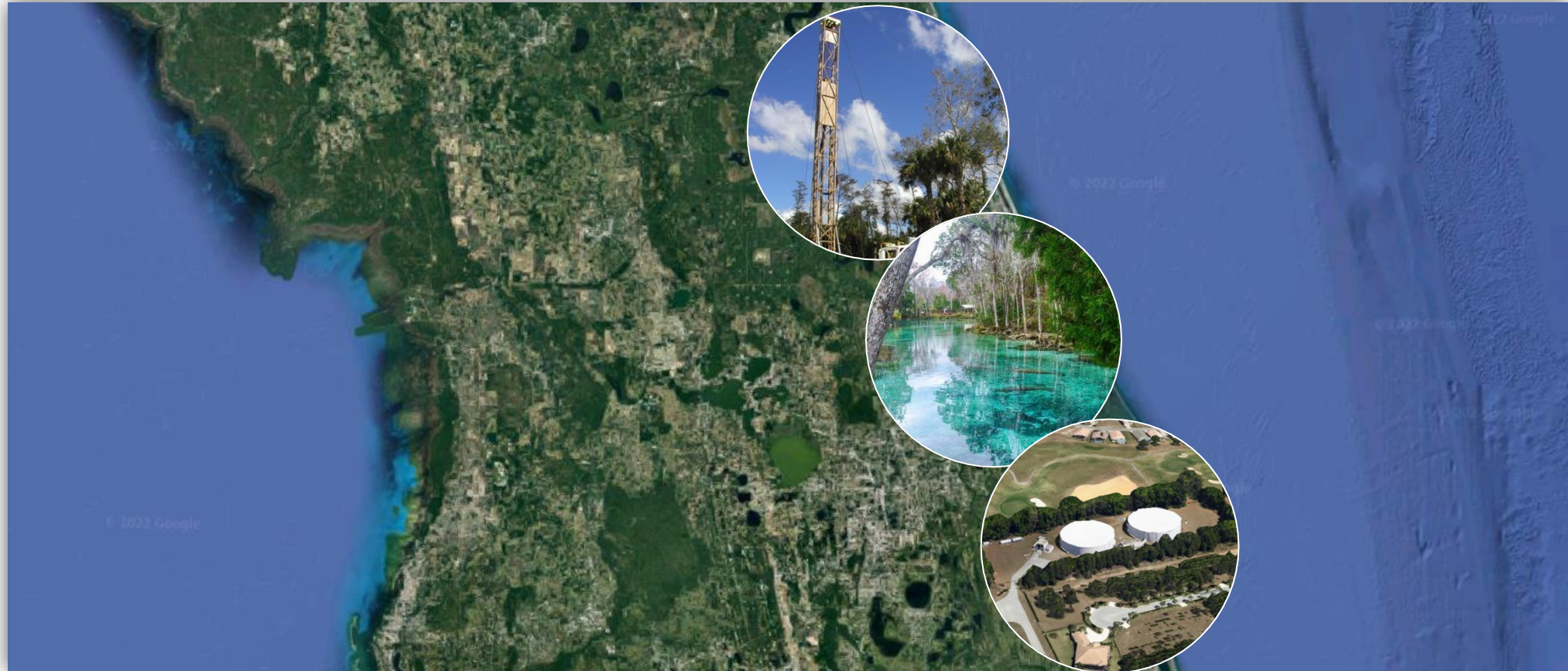




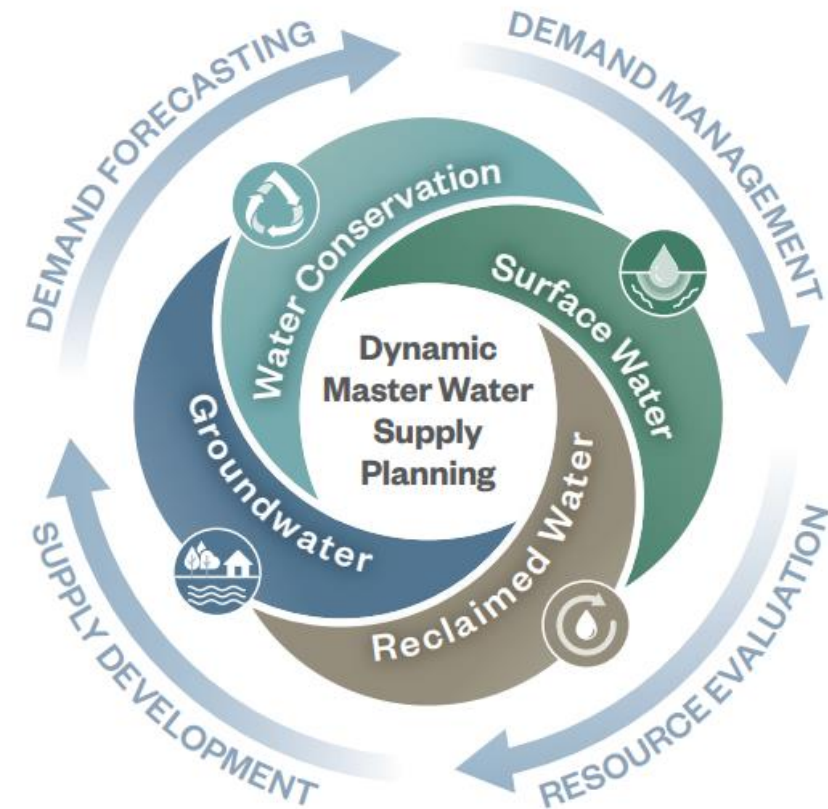
WITHLACOOCHEE
REGIONAL
WATER
SUPPLY
AUTHORITY

2024 Regional Water Supply Plan Update Summary of Gap Analysis and Opportunities

July 9, 2025

Project Goals and Objectives

- Goal
 - Assist public utilities by identifying regional water supply opportunities across four counties
- Objectives
 - Quantify public water supply demand
 - Assess water conservation and reuse potential
 - Identify water resource availability to meet demand
 - Evaluate economic constraints
- Plan cooperatively funded by SWFWMD
 - In support of 2025 RWSP for Northern Region



Key Project Tasks

Population and Demand Projections

- Update water demand projections through 2045

Water Conservation and Reuse Evaluation

- Estimate conservation potential, reclaimed availability, potential offsets

Source Water Assessments

- Evaluate and identify water resources availability to meet demand

Water Supply and Treatment Options

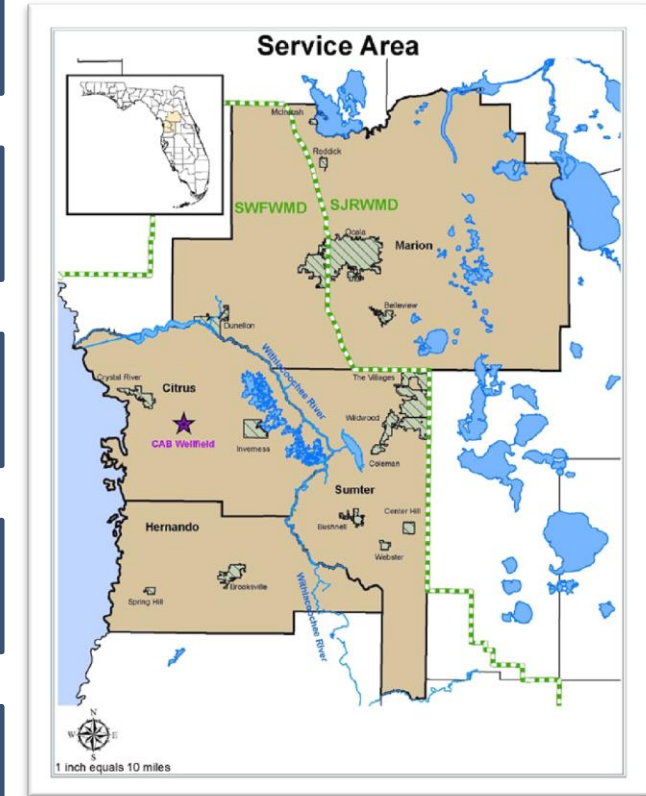
- Identify traditional/alternative **supply availability** and project options

Organization, Funding, & Governance Recommendations

- Recommend Regional Governance Framework for WRWSA

Regional Water Supply Plan

- Provides description of technical analyses and recommendations.



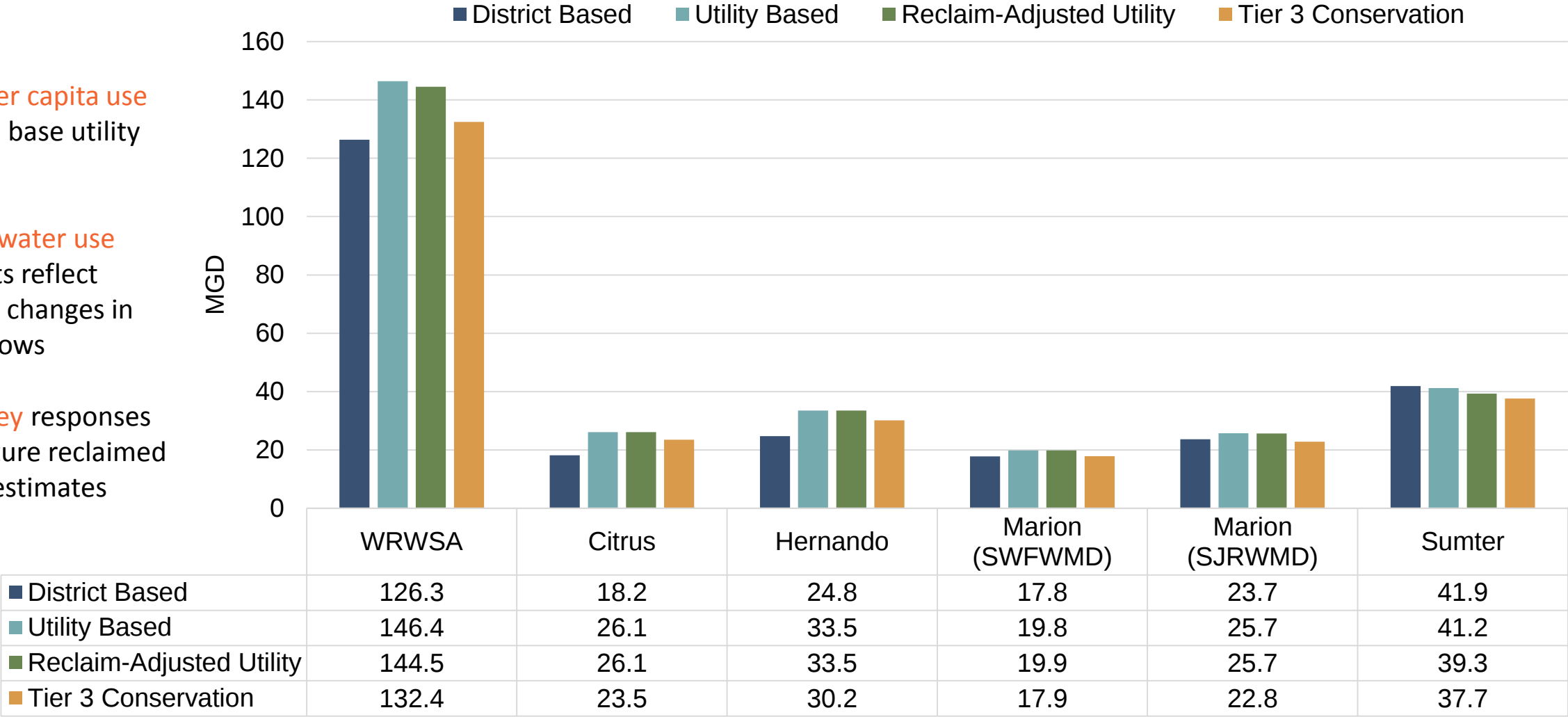
Gap Analysis

Reuse Adjusted Water Demand Projection Scenarios by County (2045)

Constant per capita use assumed in base utility projections

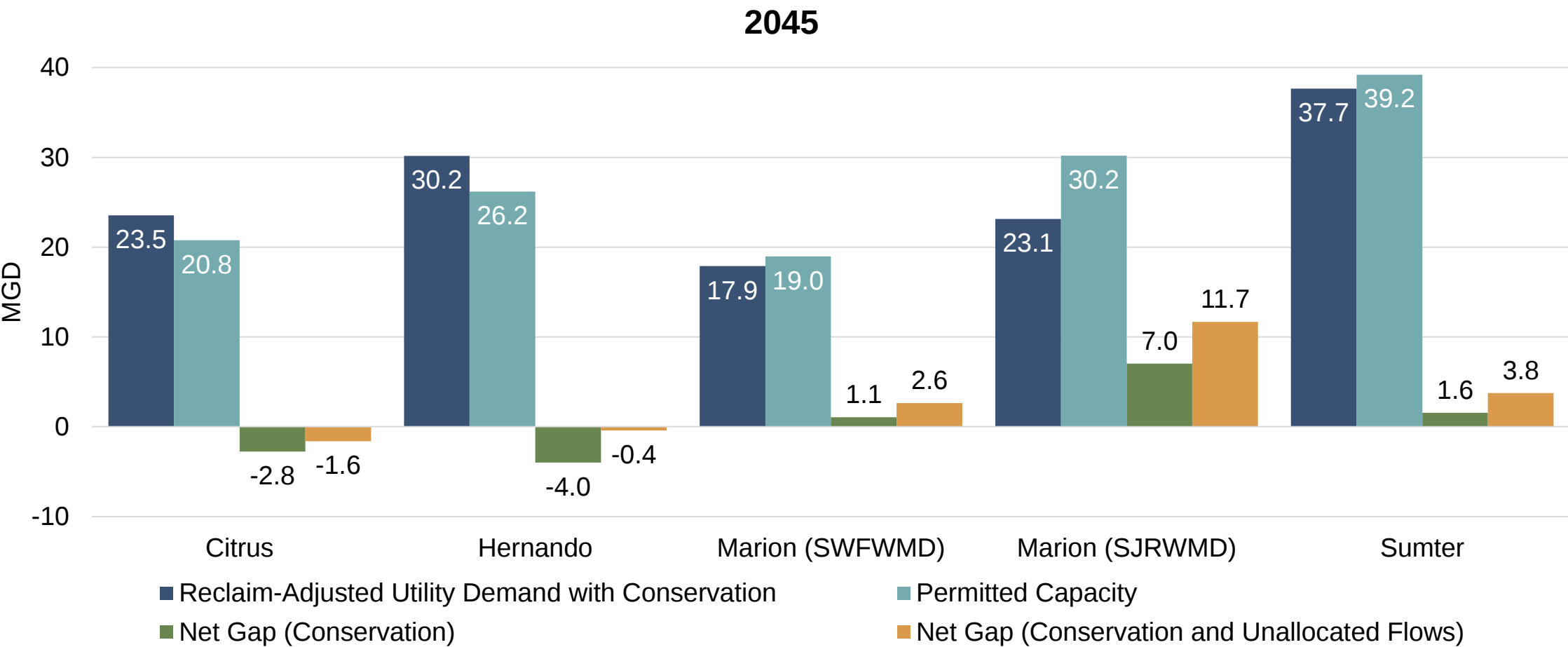
Reclaimed water use adjustments reflect anticipated changes in allocated flows

Utility survey responses support future reclaimed water use estimates



Supply-Demand Gap Analysis with Conservation and Unallocated Flows

Using Utility-Based Reuse Adjusted Demand Projections



Allocated and Unallocated Flows

- Citrus and Hernando may face constraints
 - Unallocated flow is declining, greater use of supply
- Sumter: Growth Leader

County	Allocated Flow (MGD)				Unallocated Flow (MGD)			
	2020	2045	Change	% Change	2020	2045	Change	% Change
Citrus	2.10	2.81	0.72	34%	1.39	1.16	-0.23	-16%
Hernando	2.33	5.78	3.45	148%	3.22	3.58	0.36	11%
Marion West (SWFWMD)	3.34	5.44	2.10	63%	0.80	1.57	0.77	97%
Marion East (SJRWMD)	2.28	2.66	0.38	17%	4.02	4.63	0.61	15%
Sumter	7.96	20.77	12.80	161%	0.66	2.20	1.54	235%
WRWSA	18.01	37.46	19.45	108%	10.09	13.15	3.06	30%

Timing of Supply Need by County

- Unallocated wastewater flows represent potential source to meet future need

County	Permitted Capacity	Change in 2020 - 2045 Unallocated Reuse	Future Need Current Projects (Permitted Capacity – Reclaim-Adjusted Demand)					Future Need w/ Conservation ² (Permitted Capacity – Reclaim-Adjusted Demand w/Conservation)				
			2025	2030	2035	2040	2045	2025	2030	2035	2040	2045
Citrus	20.77	-0.23	-2.41	-3.26	-4.02	-4.72	-5.36	-1.75	-1.78	-1.94	-2.36	-2.77
Hernando	26.19	0.36	3.91	0.44	-2.43	-4.99	-7.30	4.55	2.02	-0.02	-2.11	-3.99
Marion (SWFWMD)	18.96	0.77	3.62	2.67	1.83	0.40	-0.90	4.06	3.68	3.27	2.12	1.07
Marion (SJRWMD)	30.18	0.61	6.81	6.21	5.61	5.05	4.50	7.48	7.68	7.68	7.38	7.04
Sumter	39.22	1.54	13.17	7.55	4.11	1.64	-0.12	13.38	8.34	5.39	3.13	1.55
WRWSA	135.32	3.06	25.10	13.61	5.10	-2.60	-9.18	27.72	19.93	14.37	8.16	2.91

¹ Some small utilities are missing permitted capacities; assumed zero surplus/deficit

² Positive value is surplus permit capacity, negative value is deficit permit capacity (i.e., supply need)

Supply Analysis

Potential Project Opportunity Matrix

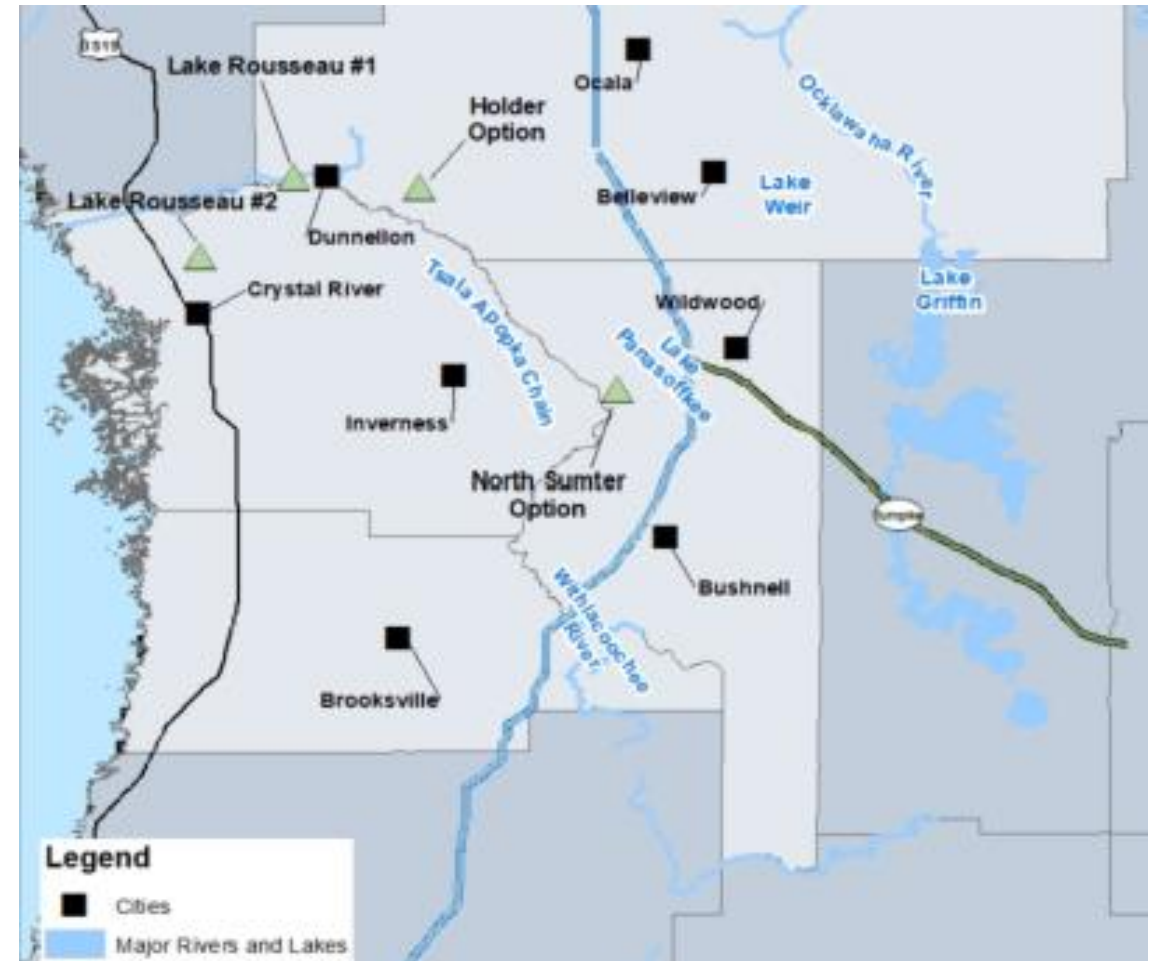
Example Criteria for Project Prioritization

ID	Alternative	Demand Proximity	Reuse Credit Potential	Infrastructure Feasibility	Cost-Sharing Potential	Water Quality Improvement	Regional Benefit
1A	Surface Water Facility (Holder)						
1B	Surface Water Facility (North Sumter)						
1C	Surface Water (Lake Rousseau)						
2A	Lower Floridan Wellfield (Gum Slough)						
2B	Lower Floridan Wellfield (Lake Wier/Silver Springs)						
3A	Aquifer Storage and Recovery (Withlacoochee)						
4A	Aquifer Recharge (Citrus/Hernando)						
5A	Desalination (Brackish Wells)						
5B	Desal (Ocean Outfall)						

Surface Water Treatment Facility

Projects 1A, 1B, 1C (SWFWMD RWSP Project Placeholder)

- Concept
 - Treat and distribute Withlacoochee River surface water for regional use.
 - Designed to offset groundwater withdrawals and protect springs.
- Approaches
 - Proposed locations: Lake Rousseau, Holder, North Sumter
 - River intake, raw pump, storage, treatment, transmission
- Potential Benefits
 - Reduces stress on Upper Floridan Aquifer
 - Supports spring protection
 - Drought-resilient regional supply
- Key Considerations
 - River flow variability and seasonal limits
 - Environmental flow protection (MFL)
 - Treatment complexity (e.g., sediment, organics)
 - Land acquisition for intake and reservoir sites
 - Interagency coordination for delivery and governance

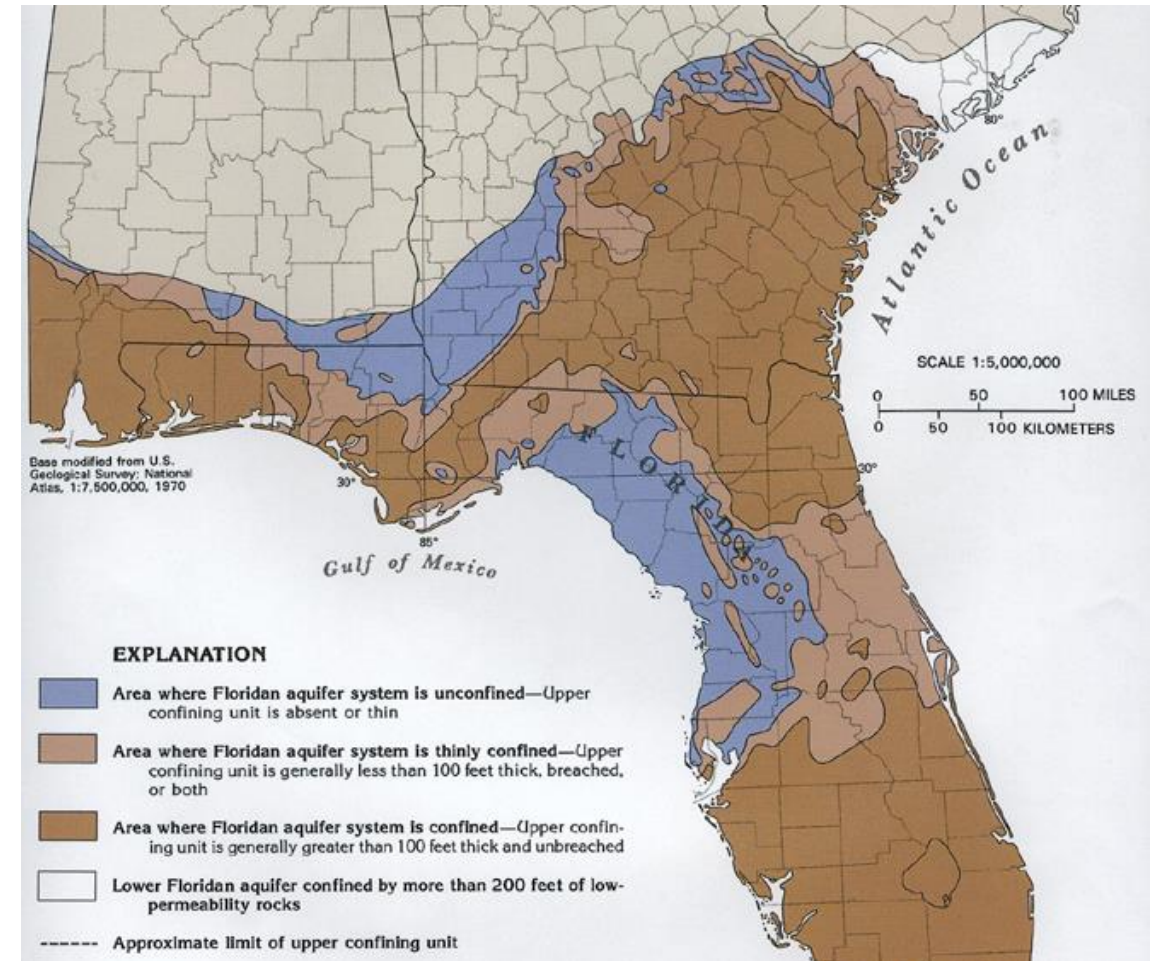


Preliminary Cost Estimate: ~\$650,000,000 (2024\$)

Lower Floridan Aquifer Wellfield

Projects 2A and 2B (SWFWMD RWSP Project Placeholder)

- Concept
 - Use Lower Floridan to reduce demand on Upper Floridan.
 - Treat with nanofiltration; distribute via interconnects.
- Approaches
 - Target areas with strong confining layers.
 - Connect to regional systems.
 - Minimize vertical leakage risk.
- Potential Benefits
 - Protects springs (e.g., Silver Springs, Lake Weir).
 - Adds supply diversity.
 - Leverages existing infrastructure.
- Key Considerations
 - Leaky confining units in karst areas.
 - Risk of upward draw from Upper Floridan.
 - Modeling needed to guide siting and monitor impacts.



Preliminary Cost Estimate: \$250,000,000 (2024\$)

Aquifer Recharge

Project 4A

- **Concept**

- Recharge Upper Floridan with reuse or Withlacoochee River water.
- Pump from existing municipal wellfields.

- **Approaches**

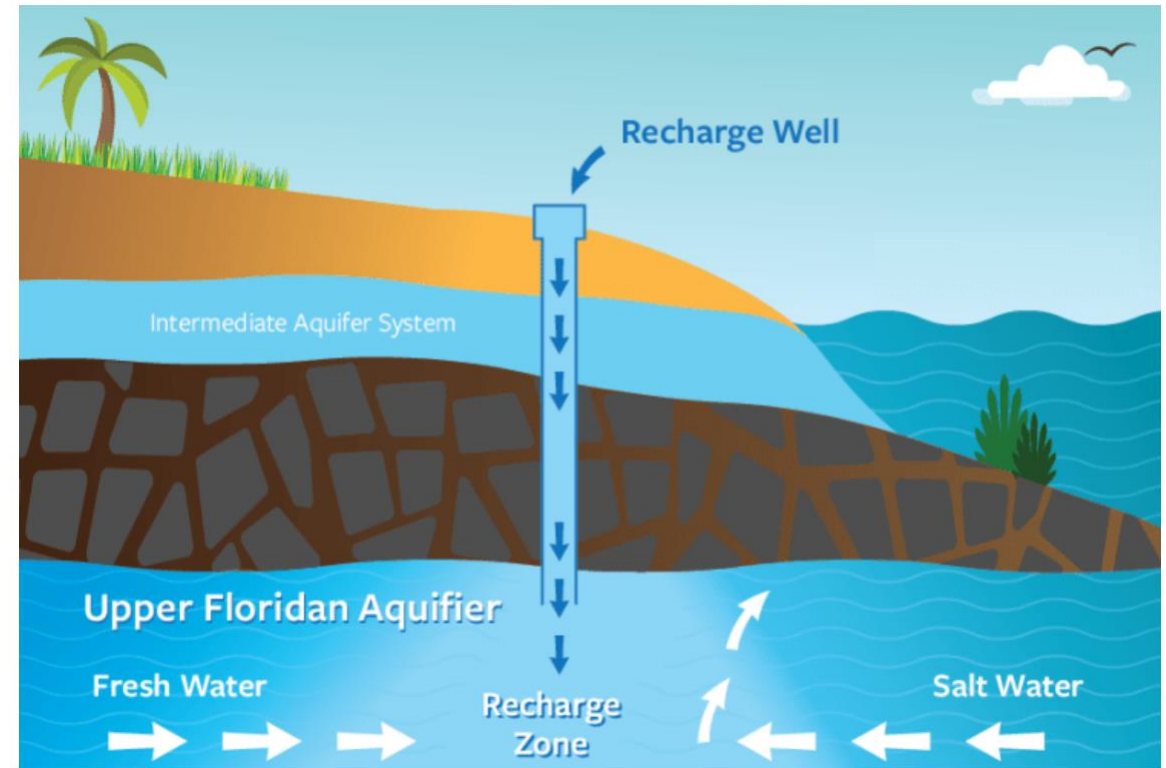
- Coastal recharge wells (less effective if confining layer is leaky).
- Inland recharge for broader regional benefit (Citrus, Hernando, Sumter).

- **Potential Benefits**

- Supports indirect potable reuse.
- May reduce saltwater intrusion (effects declines with distance)
- Improves regional aquifer pressure if hydrogeology supports it.

- **Key Considerations**

- Hydrogeology and confining layer integrity.
- Source water availability (reuse or river).
- Upper Floridan water quality.
- Site selection critical for effectiveness.



Seawater Desalination

Project 5A, 5B

- Concept

- Produce potable water from seawater at Crystal River.
- Site considered due to existing infrastructure but no longer has cooling water outflow.

- Approaches

- New seawater intake required
- High-pressure RO treatment
- Brine disposal via deep injection or ocean outfall
- Transmission to users

- Potential Benefits

- Drought-resistant supply
- Reduces aquifer reliance
- Potential long-term regional source

- Key Considerations

- High capital and energy costs
- Brine disposal is complex and regulated
- Loss of cooling water increases project complexity
- Requires major permitting and infrastructure investment

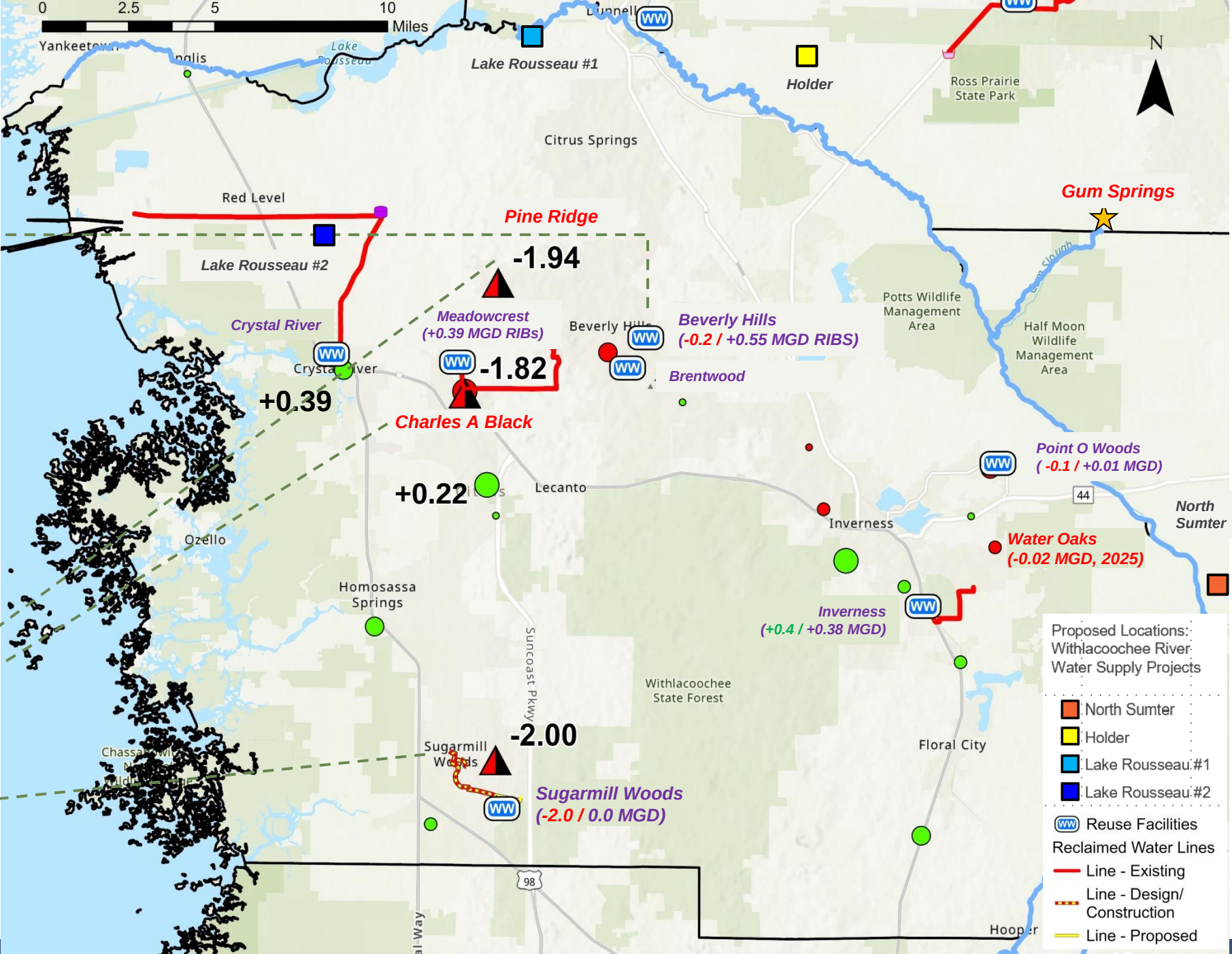


Citrus County

Supply Alternatives

ID	Alternative
1A	Surface Water Facility (Holder)
1B	Surface Water Facility (North Sumter)
1C	Surface Water (Lake Rousseau)
2A	Lower Floridan Wellfield (Gum Slough)
3A	Aquifer Storage & Recovery (Withlacoochee)
4A	Aquifer Recharge (Citrus/Hernando)
5A	Desalination (Brackish Wells)
5B	Desal (Ocean Outfall)

- Beverly Hills:
WWRF: -0.20 MGD
+0.55 MGD
- Citrus County Utilities: -6.96 MGD
- Pine Ridge: -1.94 MGD
Charles A. Black: -1.82 MGD
Meadowcrest WWRF +0.39 MGD
Brentwood Regional WWRF +0.00 MGD
- Sugarmill Woods: -2.00 MGD
WWRF (2025-2045): +0.81 to 0.0 MGD
- 2025 SWFWMD RWSP
 - Beverly Hills Rolling Oaks, Brentwood, Meadowcrest RIB flows as beneficial reuse.



Hernando County

Supply Alternatives

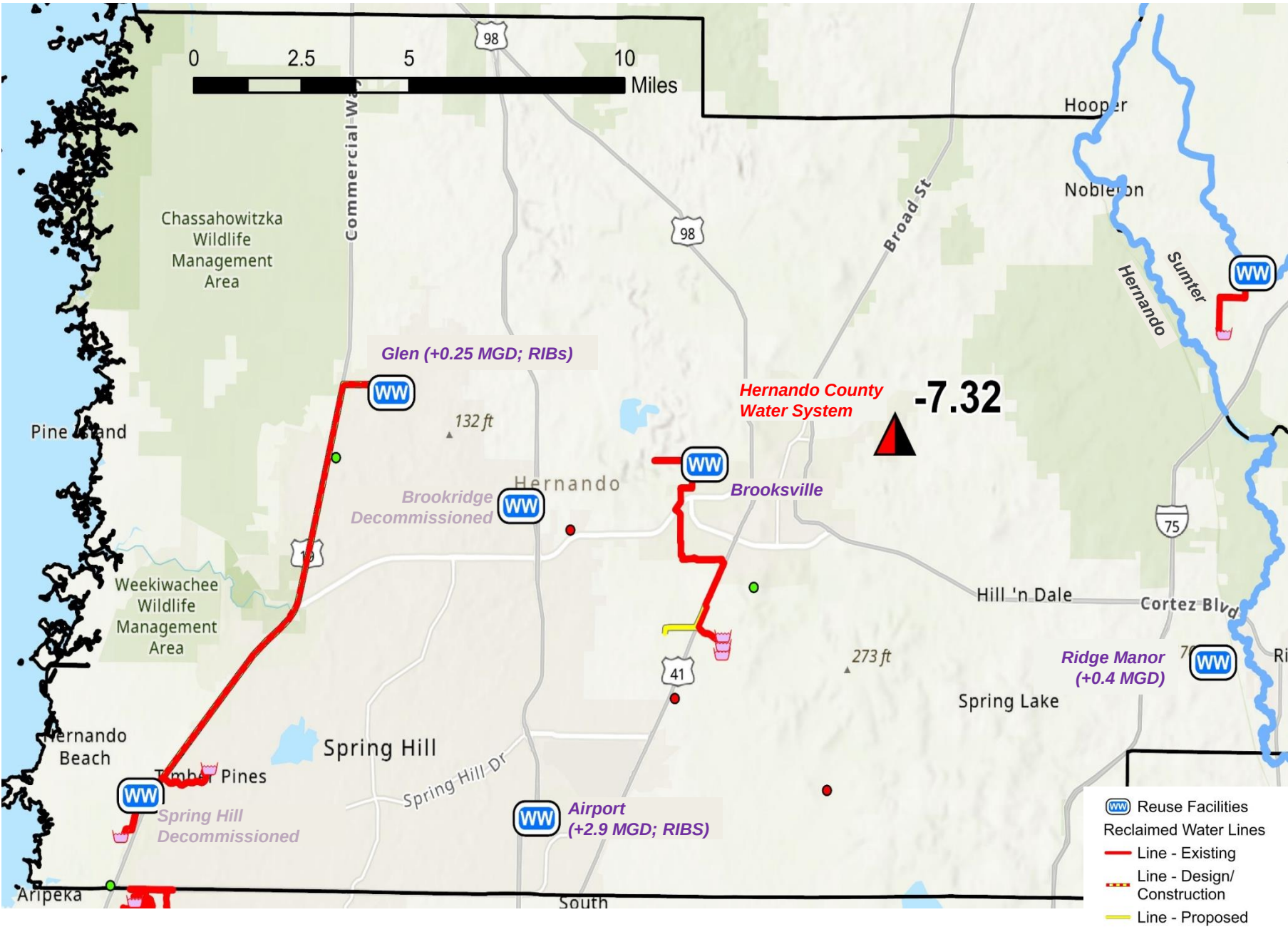
ID	Alternative
1 B	Surface Water Facility (North Sumter)
3 A	Aquifer Storage and Recovery (Withlacoochee)
4 A	Aquifer Recharge (Citrus/Hernando)
5 A	Desalination (Brackish Wells)
5 B	Desal (Ocean Outfall)

Hernando County: **-7.32 MGD**

- Airport WWRF **+2.90 MGD**
- Glen WWRF **+0.00 MGD**
- 2035 deficit **-2.58 MGD**
- Permit increase in progress: **31.5 mgd**

Brooksville: **+0.18 MGD**

- William S. Smith WWRF **+0.00 MGD**
(expansion ~5 years)



Marion County

Supply Alternatives

ID	Potential Alternatives
1A	Surface Water Facility (Holder)
1C	Surface Water (Lake Rousseau)
2A	Lower Floridan Wellfield (Gum Slough)
2B	Lower Floridan Wellfield (Lake Wier/Silver Springs)

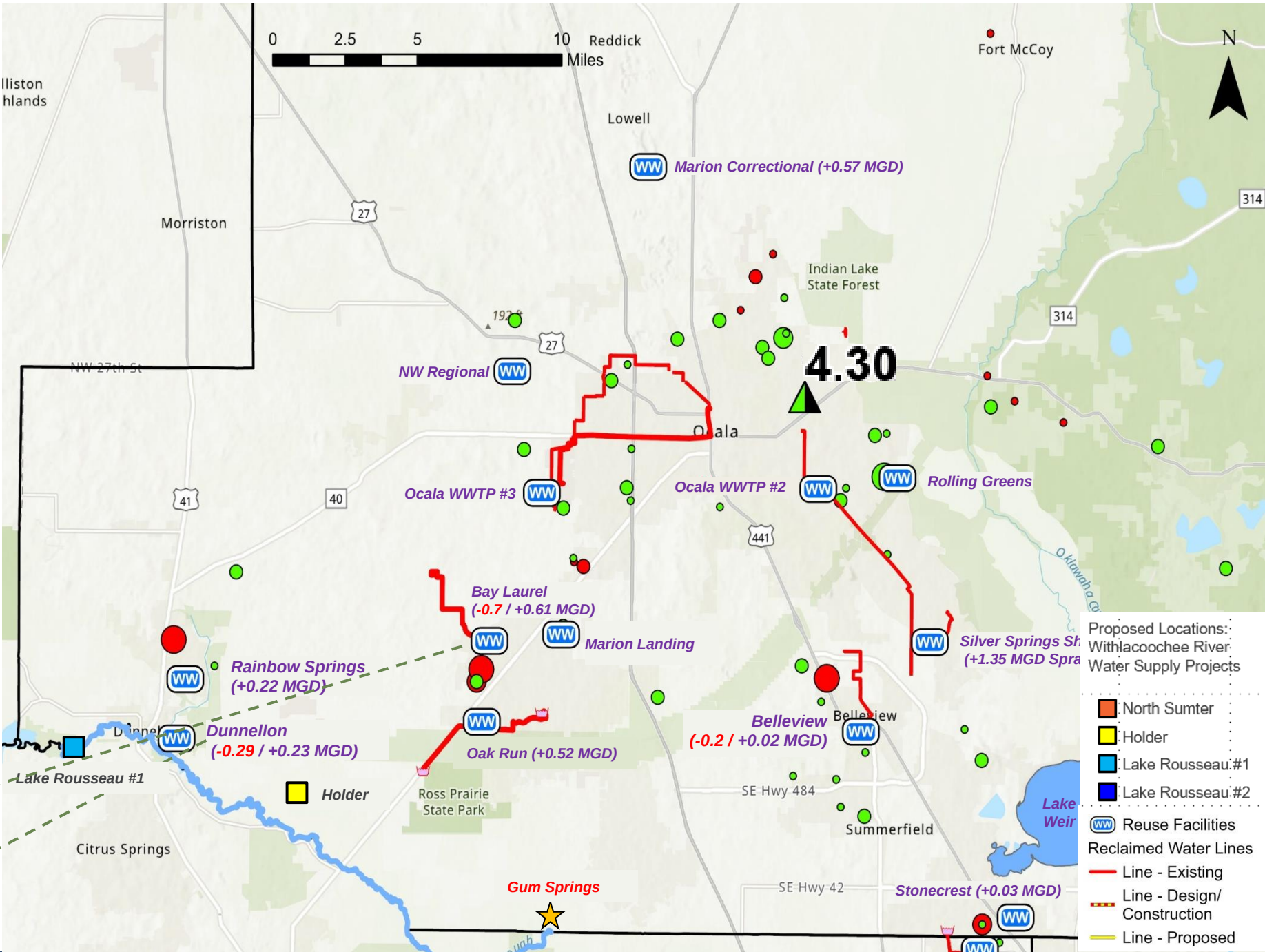
Ocala: +4.30 MGD
• WWTP #2/#3 +0.0 MGD

Marion County SWFWMD: -0.10 MGD
• NW Regional WWRF +0.0 MGD
• Oak Run WWRF +0.52 MGD

Marion County SJRWMD: -0.16 MGD
• Marion Correctional WWRF +0.0 MGD
• Silver Springs WWRF +1.35 MGD
• Stonecrest WWRF +0.03 MGD

Bay Laurel: -0.74 MGD
• Bay Laurel WRF +0.61 MGD

Dunnellon: -0.29 MGD
• Dunnellon WRF +0.23 MGD
• Rainbow Springs WRF +0.22 MGD
• 2025 deficit -0.05 MGD



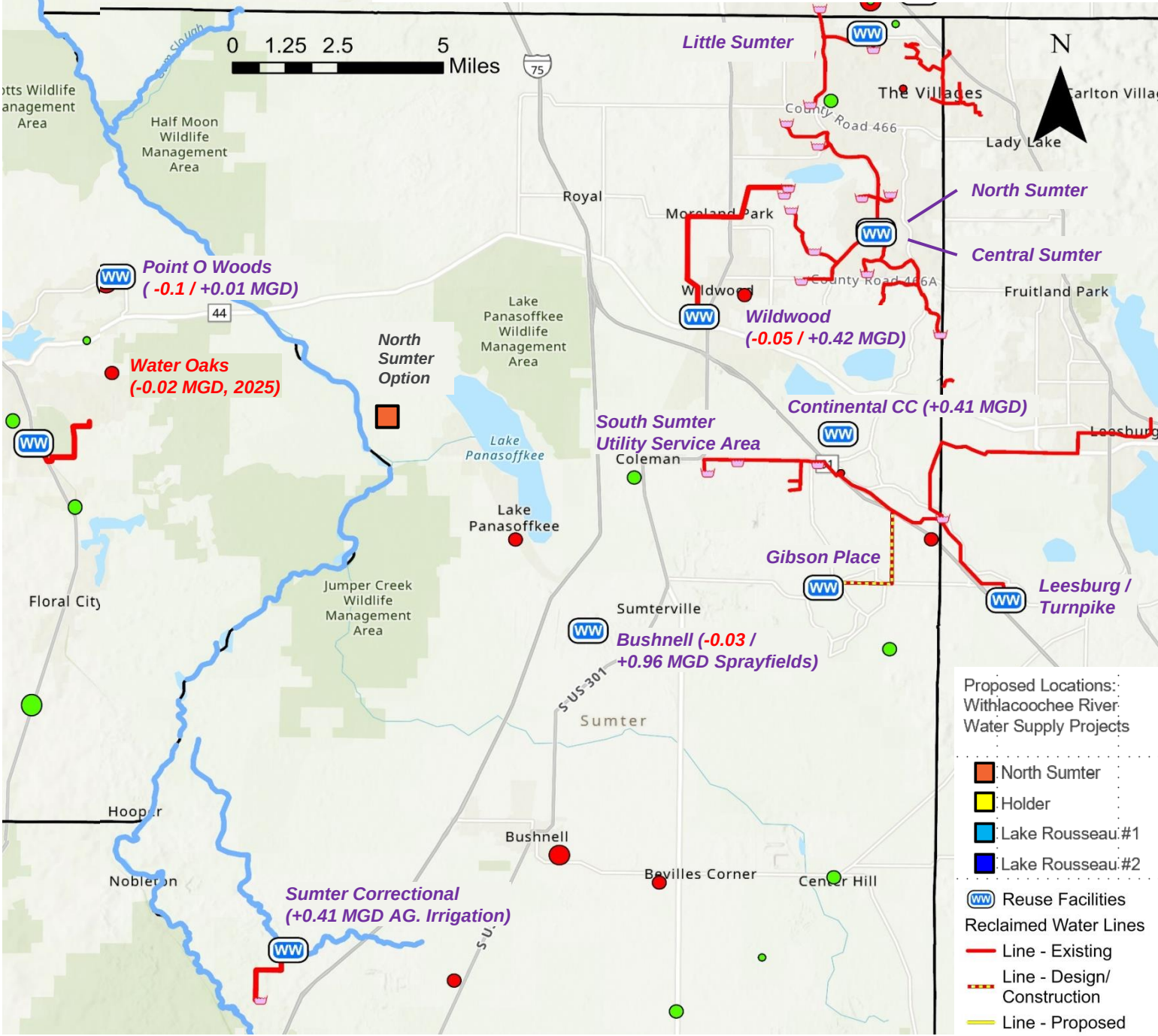
Sumter County

Supply Alternatives

ID	Potential Alternatives
1B	Surface Water Facility (North Sumter)
2A	Lower Floridan Wellfield (Gum Slough)
4A	Aquifer Recharge (Citrus/Hernando)

- Wildwood:**
- WWTF: -0.05 MGD
 - Planned WWTF Expansions: +0.42 MGD
 - 3.55 MGD by 2025
 - 5.50 MGD by 2030
 - 8.00 MGD by 2035
 - Wildwood to retain ~2.32 MGD
 - Surplus exported to North Sumter

- Villages:**
- Combined Flows (2025-2045): +0.00 MGD
 - North Sumter: +2.0 to 0.0 MGD
 - Central Sumter
 - Little Sumter
 - South Sumter
 - Villages Reclaimed Imports:
 - Leesburg Turnpike: +3.80 MGD
 - Wildwood: +1.15 MGD
 - Expected to increase to interconnect capacity after WWRF expansion.



Next Steps

- Continue screening of candidate regional project concepts
- Evaluate benefits to MFL of using alternative water supplies
 - Gum Slough
 - Withlacoochee
- Refine cost estimates for alternative projects
- Coordinate with District and partners (July - September)
- Review of District Draft Supply Plan – comments due September 1
- Final recommendations and draft report (September)

Questions & Discussion

We welcome your input on next steps and opportunities.