Dewberry®

Options for Addressing Septic Tanks

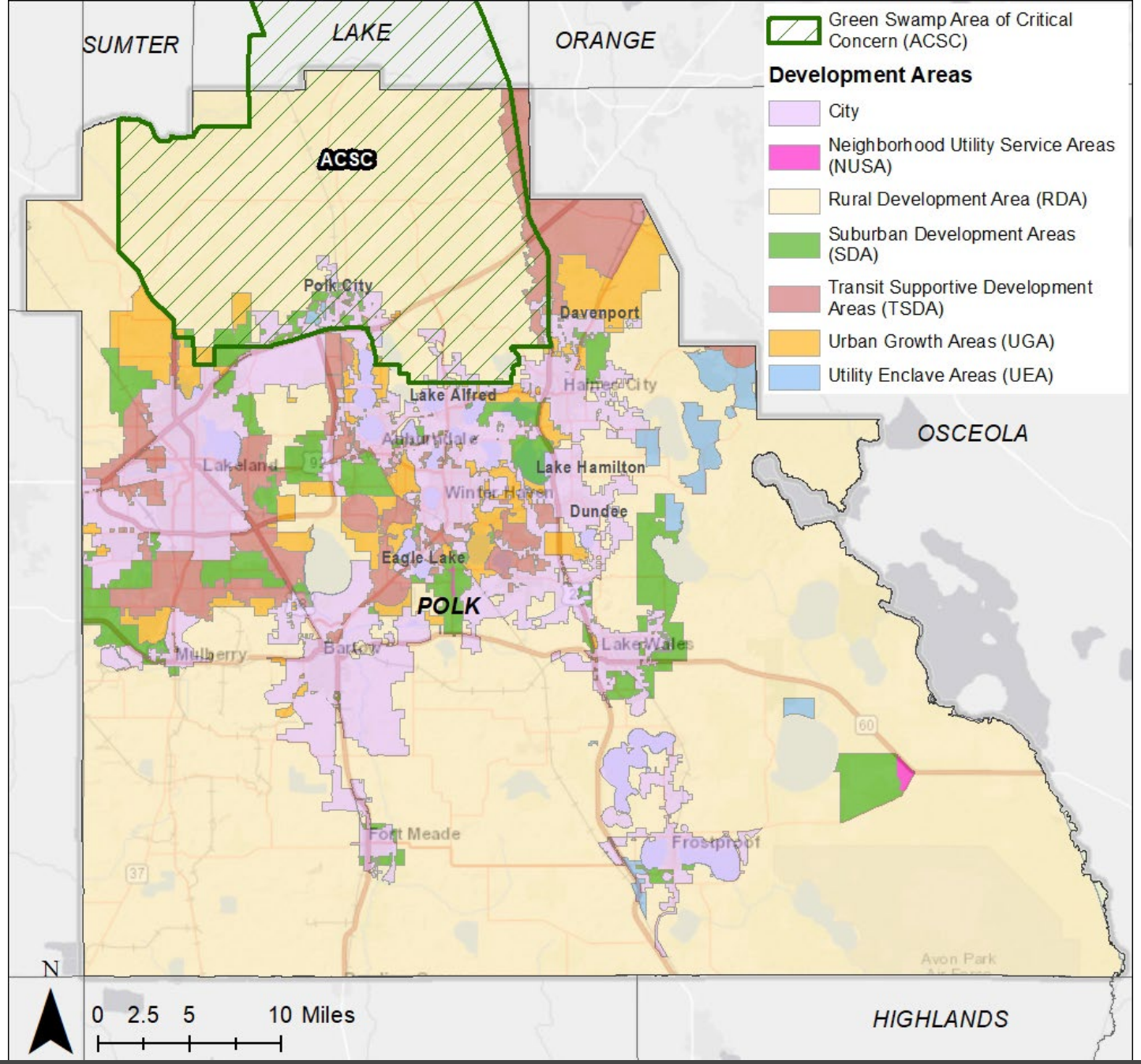
August 31, 2023

Presentation Outline

- Existing Polk County Regulations/Policies on Septic Tanks
- Applicable State Regulations
- Approaches for Special Protection by Other Counties
- Proposed Pilot Areas
- Potential Funding Sources

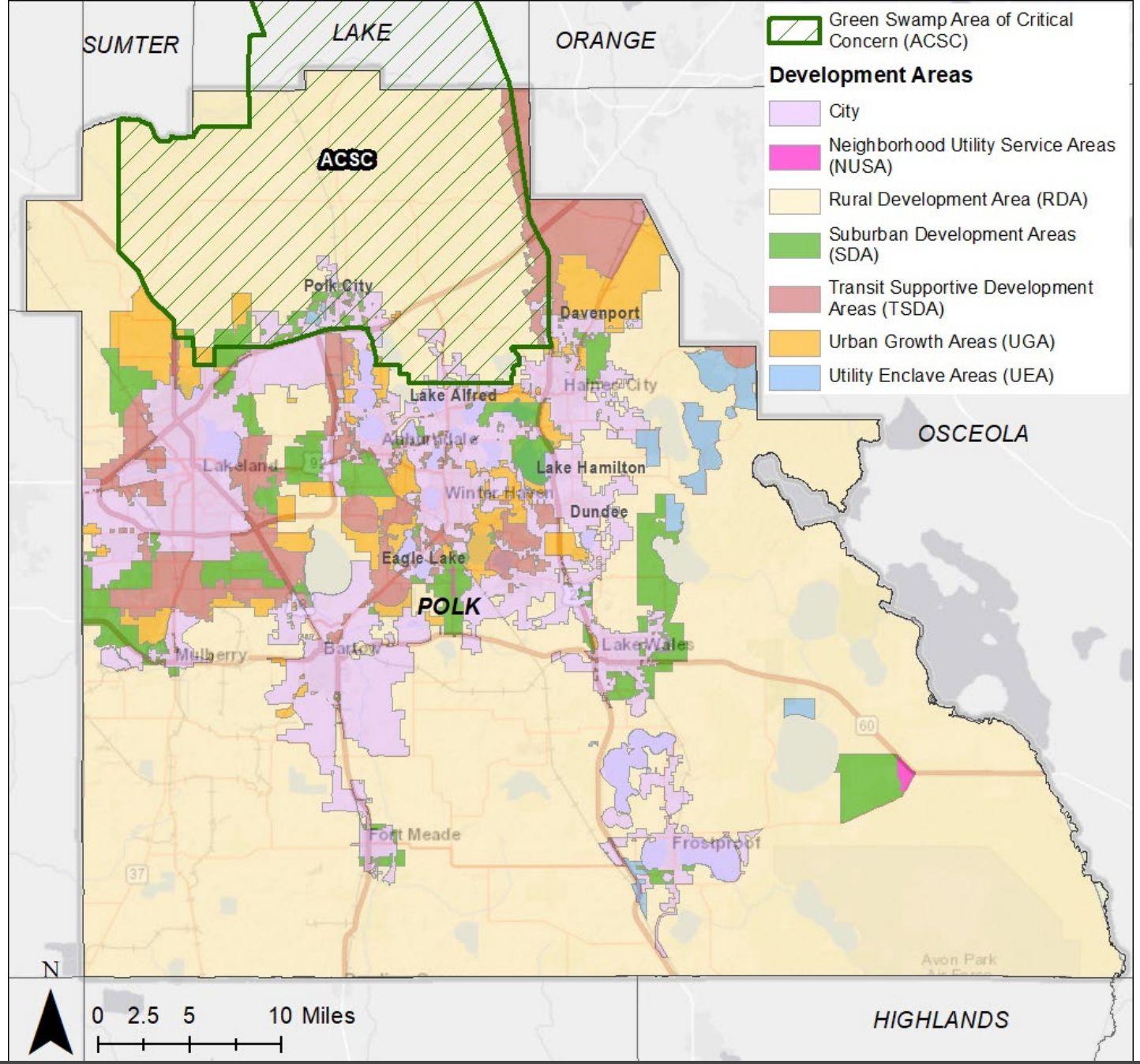
Existing Polk County Regulations

- Polk already has septic tank ordinances for specific areas
  - **Urban Growth Area** – all new residential development must connect if sewer available, septic tanks only permitted if net density is one dwelling unit (DU) per 40,000 square feet or less, and cannot exceed one DU per 5 acres
  - **Suburban Development Area** – shall not extend sewers unless BoCC deems necessary



Existing Polk County Regulations
(continued)

- **Transit Supportive Development Area** – Residential development required to connect ASAP
- **Utility Enclave Area** – New development must connect to existing sewer



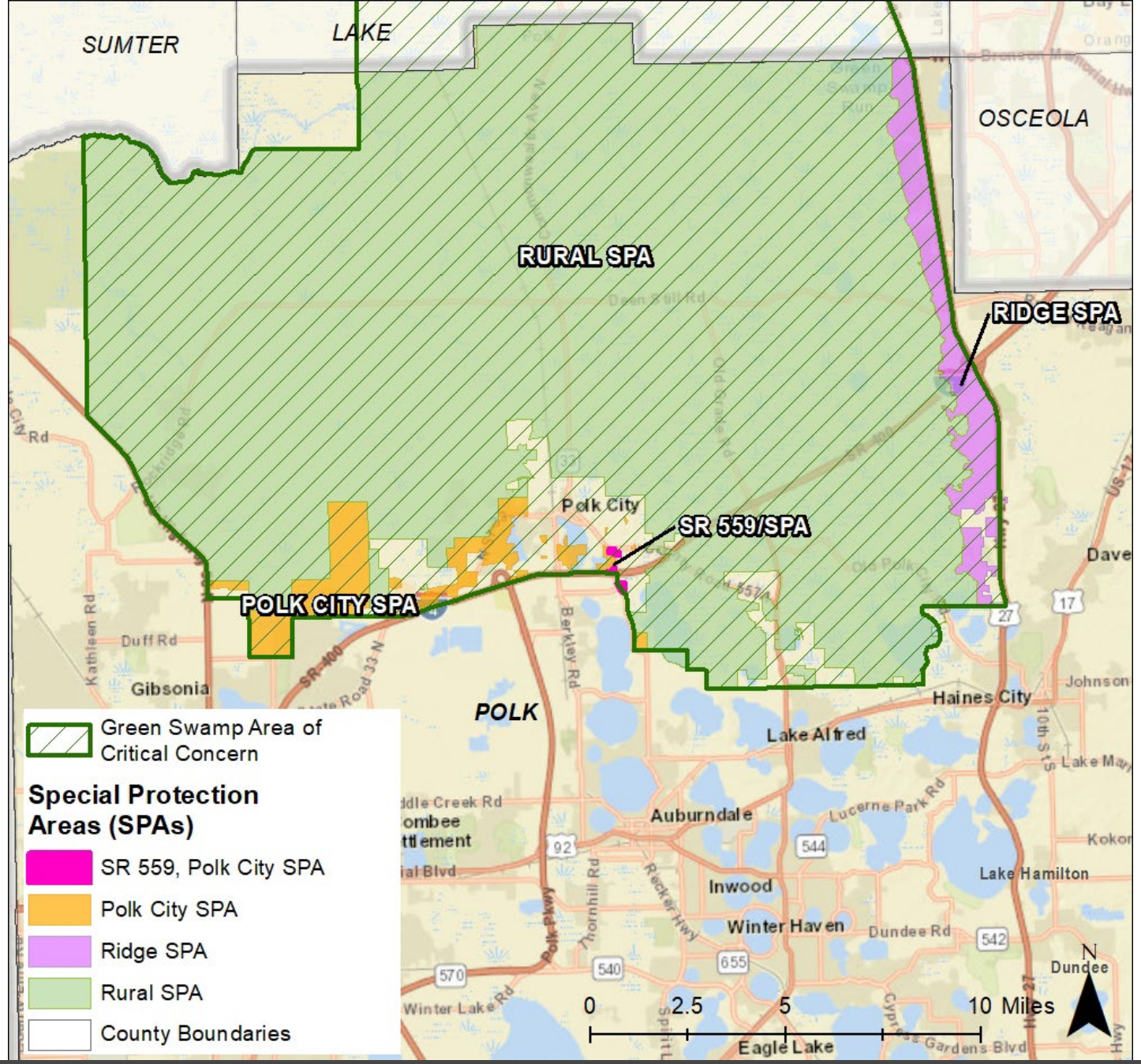
Existing Polk County Regulations

- “Available” sewer means area not under DEP moratorium, system has adequate hydraulic capacity, AND
  - For single-family residences with flow of 1,000 gpd or less, sewer line abuts the property and gravity flow can be maintained from home to sewer line
  - For residential subdivisions, if gravity line, force main, or lift station is within 1/2 mile of property, or within ¾ mile if will server 10 or more Equivalent Residential Units, or 1 mile if will serve 20 or more

Septic tank ordinances for specific areas

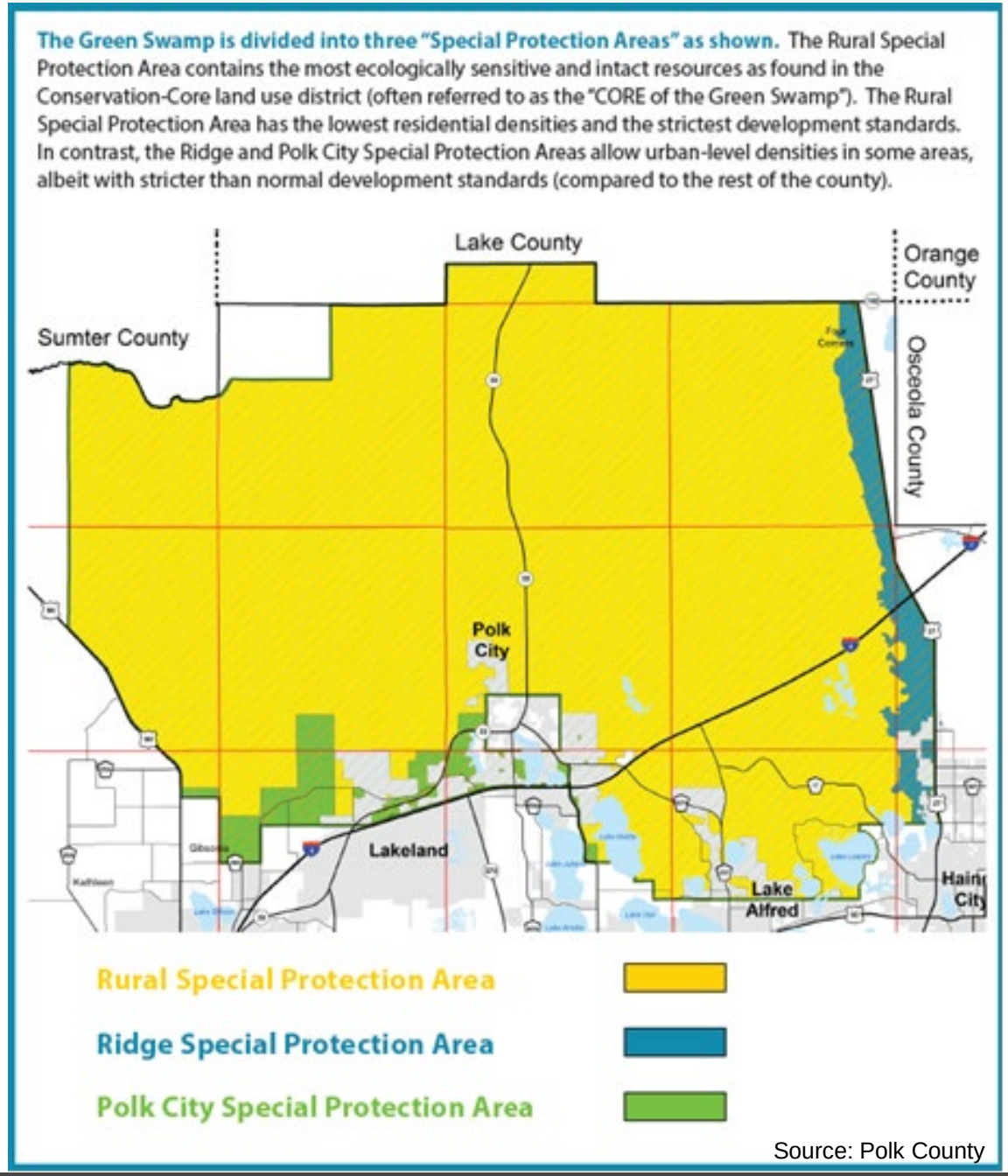
(continued)

- **Rural Special Protection Area** –all new developments must connect if sewer available, net density of one dwelling unit (DU) per 40,000 square feet, cannot exceed gross density of one dwelling per 10 acres
- **State Road 559 Selected Area** – septic tanks not allowed for new development



Existing Polk County Regulations
(continued)

- **Green Swamp Area of Critical State Concern (ACSC)**
  - Three Special Protection Areas (Rural, Ridge and Polk City)
  - New development in Transit Supportive Development Area, UGA, and Suburban Development Area of Green Swamp must connect to public sewer if available
  - Septic tanks only allowed within RDA and SDA, and require minimum lot size of 40,000 ft2
  - Mandatory inspection by registered OSTDS inspector and cleaning (if needed) every 5 years, with documentation provided to Health Unit
  - Septic tanks and drainfields must be set back at least 75 feet from wetlands



Source: Polk County

Existing Polk County Regulations
(continued)

- **And ordinances for types of resources**
  - Surface waters – setback distances ranging from 75 to 200 feet depending on soil type
  - Wetlands – 75-foot setback from furthest upland extent of any wetland

Questions/Discussion

State Septic Tank Regulations

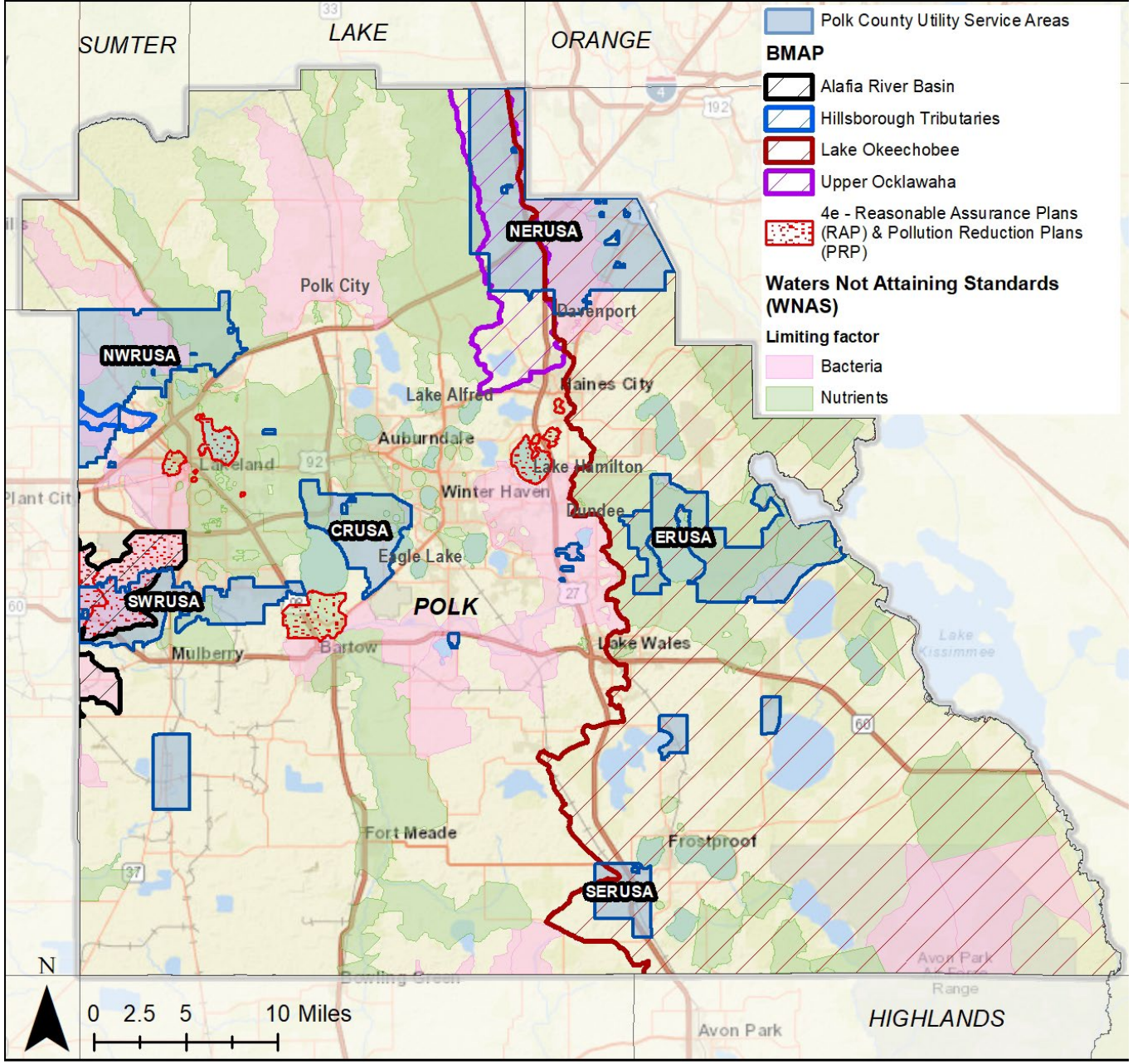
- **Requirements for Connection to Central Sewers**
  - Pursuant to Section 381.00655, Florida Statutes, owners of properly functioning septic tanks are required to connect to available[1] sewers within one year after written notification that system is available
    - Owner of sewer system must notify the owner of the anticipated availability at least one year before it becomes available, and that homeowner will have to connect within 1 year of actual availability
    - Addresses payment options (can prepay the amortized values over 2 years)
    - Local governments can waive requirement to connect if not in the public interest or if the septic tank is a performance-based system permitted by DEP
  - For failing septic tanks, must connect within 90 days after written notification from DEP, unless extension granted for financial hardship

[1] *No definition provided for "available."*

State Septic Tank Regulations
(continued)

HB 1379 (signed by the Gov. and became effective on July 1, 2023)

- Prohibits new septic tanks within Basin Management Action Plan (BMAP), Reasonable Assurance Plan (RAP), and Pollution Reduction Plan (PRP) areas where sewer is available
  - County areas with BMAPs include Hillsborough Bay Watershed (Tampa Bay RAP), Alafia River Basin, Lake Okeechobee Watershed, and Upper Ocklawaha Basin
- If sewer not available, new septic tanks on lots one acre or less must be “enhanced” system that achieves 50% nutrient reduction compared to standard septic tanks



Reasonable Assurance Plans (RAP) and Pollution Reduction Plans (PRP) Areas fall into the category of 4b and 4e in the FDEP attributes table column titled “IR_ASSESSM”. Polk County has no 4b plans, only 4e plans.

HB 1379 Requirements
(continued)

- **Local governments are required to**
  a) Develop a plan to provide sewer service for developments of > 50 residential lots that have > one septic tank per acre within a 10-year planning horizon,
  b) Update their Comp Plans to include a sanitary sewer planning element by July 1, 2024, and
  c) Provide DEP with an annual update on the status of the construction of sanitary sewers to serve areas that are subject to a BMAP or located within the basin of waters not meeting applicable nutrient-related water quality standards

Clean Waterways Act

- Clean Waterways Act (SB 712) signed into law on June 30, 2020
  - Goal to protect Florida's water resources by minimizing nutrient loads from septic tanks, stormwater, and wastewater by strengthening regulatory requirements

- Under recent (June 12, 2023) Final Order from DEP, all local governments within a BMAP area must develop a wastewater treatment plan and an onsite sewage treatment and disposal system remediation plan

- Draft plan must be submitted to DEP by Feb 1, 2024, and complete plan addressing DEP comments must be submitted by Aug 1, 2024
  - Information will be used by DEP to update BMAPs, so projects mentioned in plans could end up as a requirement

Clean Waterways Act
(continued)

- **Septic Tank Remediation Plans must include:**
  - Inventory of septic tanks
  - Estimate of future growth of septic tanks over next 20 years
  - Inventory of septic tanks expected to be eliminated over next 20 years via connection to central sewer
  - Identification of deadlines/milestones for planning/design/construction of new central sewers and connection of septic tanks to the new/extended lines
  - Estimated costs of the above
  - Estimate of number of septic tanks that require upgrading to enhanced systems, and costs of upgrading
  - Any other cost-effective and financially feasible projects necessary to achieve nutrient load reductions to meet BMAP water quality objectives, with details

Clean Waterways Act
(continued)

- **Wastewater Plans must include the following info for <u>each facility</u>:**

  1) Permitted capacity in average annual gallons per day
  2) Permitted TN and TP effluent limits for the facility
  3) The annual TN and TP loads discharged from the facility over the past five years (can be estimated if necessary)
  4) A <u>capacity analysis</u>, considering future growth over next 20 years

Clean Waterways Act
(continued)

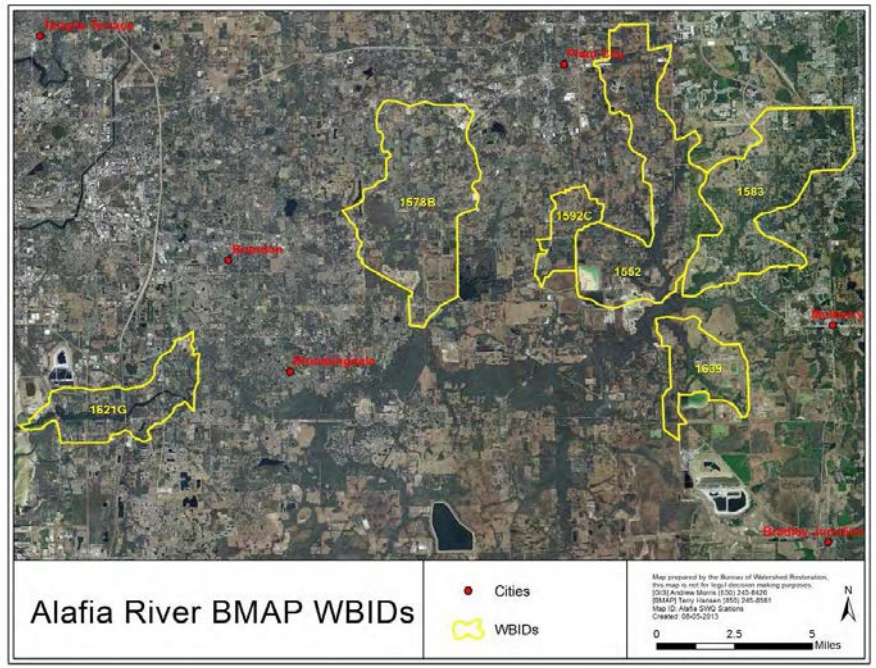
5) A list and ranking of facility construction, expansion, or upgrades necessary to meet applicable nutrient water quality requirements, and the estimated costs of these facility improvements, and

   - "Requirements" - To meet nutrient effluent limits in BMAPs and TMDLs, section 403.064(17), F.S., requirements, or any other statutory or regulatory requirements

6) A projected timeline of the dates by which the construction of any facility improvements, including new/extended sewer lines, will begin and be completed and the date by which operations of the improved facility will begin

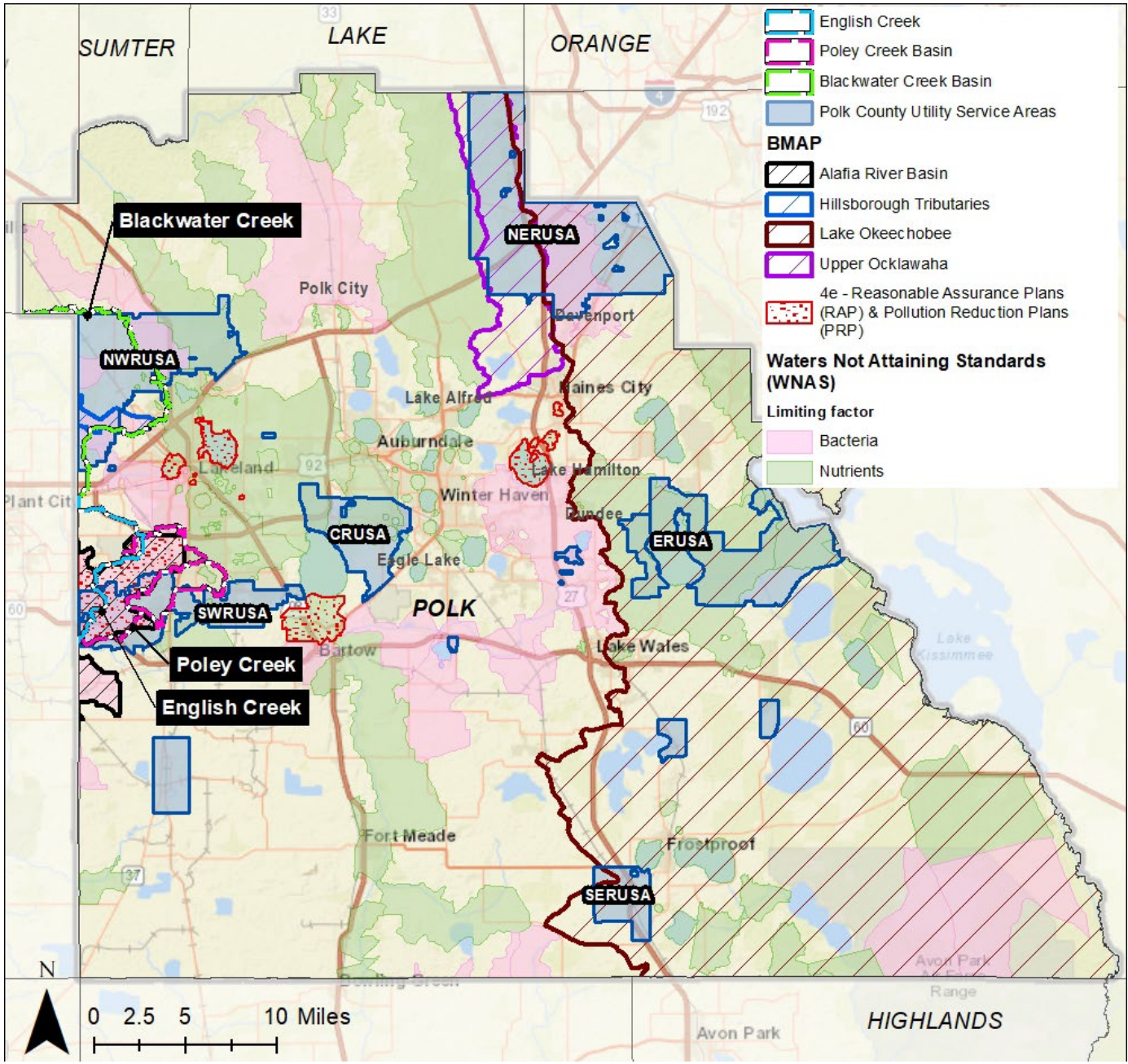
TMDL and BMAP Requirements

- **Alafia River Basin TMDL and BMAP**
  - Largely relies on Tampa Bay Reasonable Assurance Plan (TB RAP) for existing discharges, with no additional reductions for NPDES wastewater facilities
    - TB RAP includes WLAs for Lakeland and Mulberry, but only allocation to Polk County is for its MS4 (67.5 tons/year of TN)
  - Alafia River TMDL holds the line on wastewater (WLA of 14.3 lbs/day), but requires 54% reduction of NPDES stormwater and nonpoint sources



TMDL and BMAP Requirements

- **Fecal Coliform TMDL and BMAP for Hillsborough River Tribs**
  - Addresses Mustang Ranch Creek, Turkey Creek, English Creek, and Poley Creek watersheds
  - Polk County (along with co-permittees) is addressed via their MS4 permit (FLS000015)
    - Required percent reductions of 40% for English Creek and 67% for Poley Creek
- **Fecal Coliform TMDL and BMAP for Hillsborough River**
  - Addresses Blackwater Creek, New River, Spartman Branch, Baker Creek, Flint Creek, and Lower Hillsborough River
  - TMDL for Blackwater Creek requires 71.6% reduction for NDPES Stormwater (MS4)



TMDL and BMAP Requirements

- **Lake Okeechobee TMDL and BMAP**
  - TMDL document (2001) states there are 121 domestic wastewater facilities in the LO watershed, but TMDL was not allocated to point sources
  - BMAP follows same approach and does not assign wasteload allocations, however BMAP requires all individually permitted domestic wastewater facilities (and associated rapid rate land application and reuse activities) to meet the following effluent limits

Permitted Avg Flow	Direct Surface Discharge		Rapid Rate Land Application		All other Disposal/Reuse	
	TP (mg/L)	TN (mg/L)	TP (mg/L)	TN (mg/L)	TP (mg/L)	TN (mg/L)
$\geq$ 0.5	1	3	1	3	6	10
< 0.5 and $\geq$ to 0.1	1	3	3	6	6	10
< 0.1	6	10	6	10	6	10

4e Plan Requirements

- **Many waters in County have approved Pollution Reduction Plans (PRP or 4e plans), including**
  - English and Poley Creek (bacteria)
  - Lake Bonnet, Crystal Lake, Little Lake Hamilton, Lake Eva, Lake Parker, Middle Lake Hamilton, Lake Morton, Lake Mirror, Saddle Creek below Lake Hancock, and Lake Hamilton (nutrients)

Questions/Discussion

Other Approaches for Special Protection

- **Dewberry reviewed local ordinances of four FL local governments**
    - Wakulla County, Pasco County, Marion County, and City of Jacksonville

- **All have provisions implementing statutory provisions that apply statewide, other than new HB 1379**
    - Provisions mandating new septic tanks be connected if sewer available, and requiring existing septic tanks be connected within 1 year of sewer becoming available

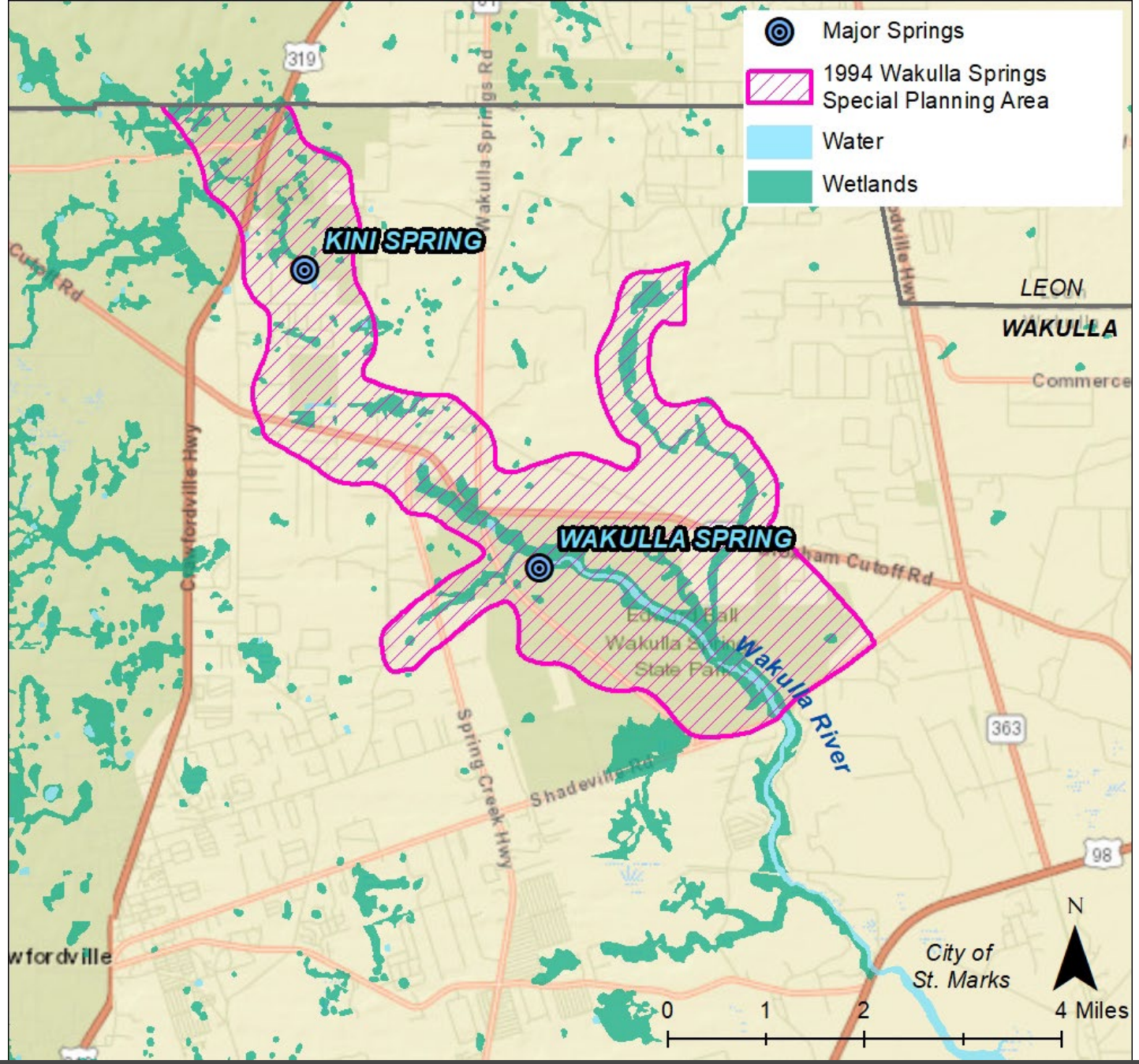
Other Approaches for Special Protection

(continued)

- **Two main types of provisions designed to protect specific environmental concerns**
  - General provisions to protect surface waters or groundwater
  - Resource-specific provisions designed to protect an environmental resource of significance either through requirements for enhanced systems or increased set-backs
- **None had provision specific to septic tanks in BMAP areas nor near impaired waters, but will need to be added given HB 1379**

Wakulla County

- Adopted local ordinances to protect Wakulla Springs, which has been impacted by excessive nitrogen from septic tanks and other sources
  - Established Wakulla Springs Special Planning Area
- Acknowledged they could not simply prohibit new septic tanks given limited sewer availability, and instead require performance-based systems for septic tanks in new developments



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Wakulla County
(continued)

- **Performance-based systems required in new developments if:**
  1) Lots are less than 5 acres and in Wakulla Springs Special Planning Area,
  2) The septic tank is within 150 feet of the high-water level of any surface water, wet sink, swallet, or other karst feature providing direct connection to groundwater, or within 300 feet of a 1st or 2nd magnitude spring, or
  3) On a lot less than 0.229 acres for lots outside of planning area
- **Can exempt homeowner if funding is available to extend the sewer such that the sewer will be available within five years**

Wakulla County
(continued)

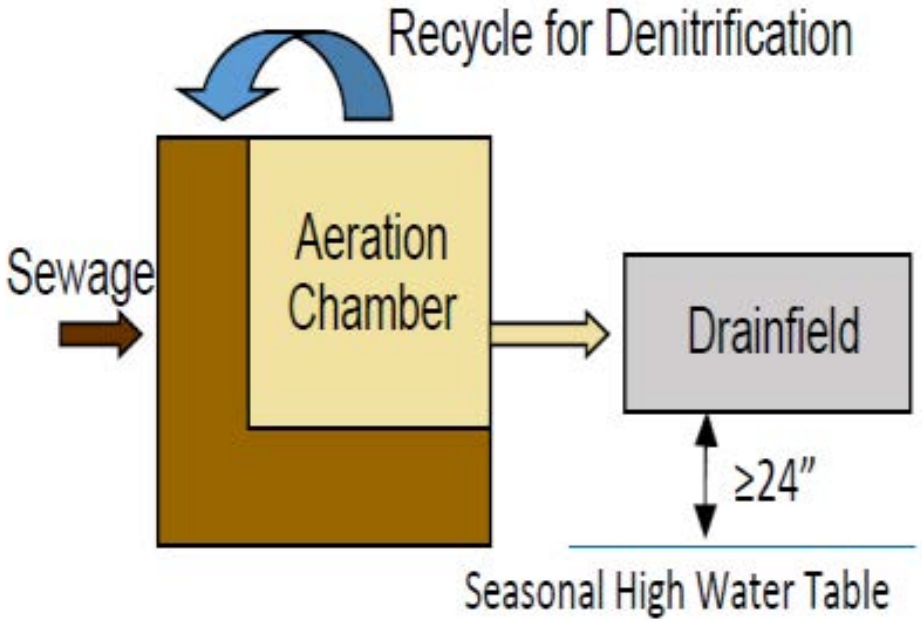
- **County created a <u>Septic Tank Upgrade and Sewer Connection Incentive Program</u> to help homeowners with costs**
  - Started with $577,500.00 but now have $2,799,722.22 in grant funds for septic Upgrade Program and $385,000 for Sewer Connection Program
  - Program provides up to $9,000 for the installation of enhanced nitrogen-reducing features to existing targeted areas within the County
    - Must use certified septic system installers and licensed plumbers
  - Any costs over $9,000 must be paid for by the homeowner

Performance-Based or “Enhanced” Nitrogen-Treatment Septic Systems

- Three main types of nitrogen-reducing septic systems used in Fl:
    - Aerobic Treatment Units (ATU),
    - Performance-Based Treatment Systems (PBTS), and
    - In-ground Nitrogen Reducing Biofilter Systems (INRBs)
- All have higher initial costs and some have long-term maintenance costs

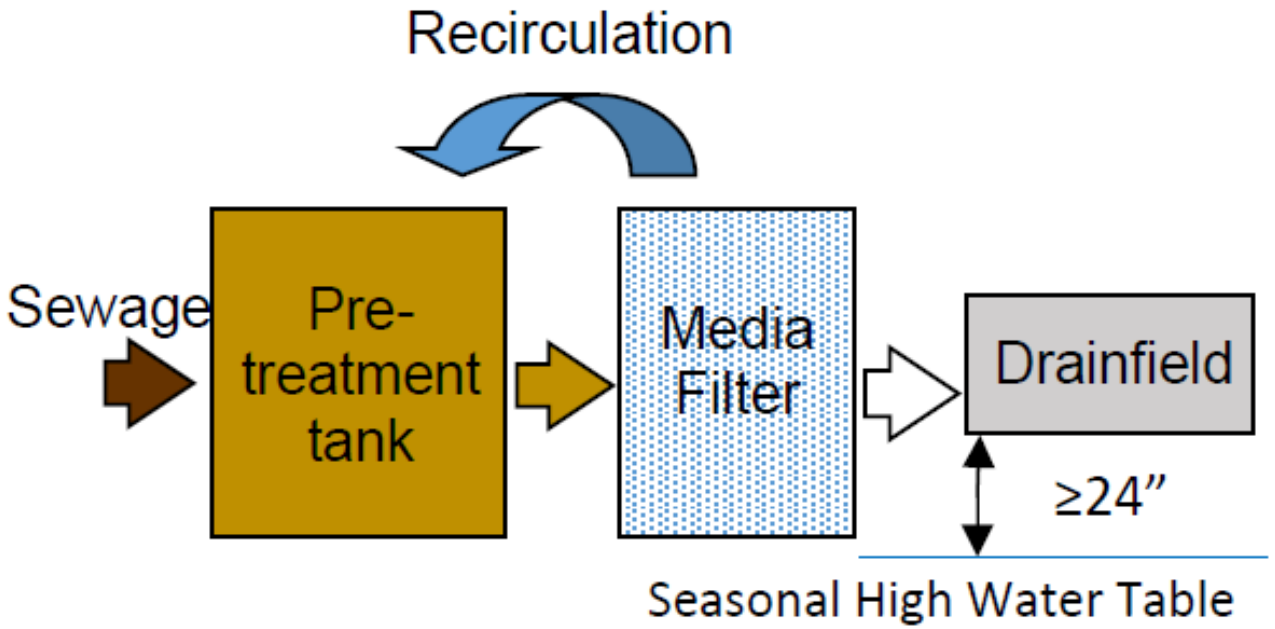
Aerobic Treatment Units (ATU)

- Requires maintenance contract and operating permit
- Certified to NSF-245 to provide at least 50% nitrogen reduction before water discharged to drainfield
- Can be used to meet 65% overall nitrogen reduction standard
- Link to list of DEP-approved NSF 245 Certified Aerobic Treatment Units



Performance-Based Treatment Systems (PBTS)

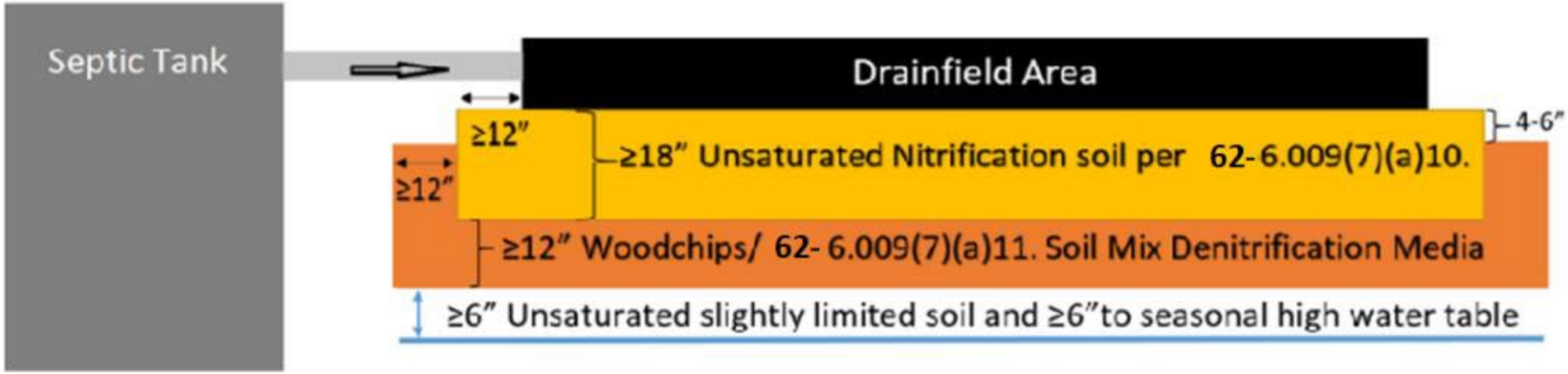
- Designs vary widely, but may include a nitrogen-reducing aerobic treatment unit
- Must be designed by engineer and require maintenance contract and operating permit
- If 24” separation between bottom of drainfield and wet season water table, can meet 65% nitrogen removal



- Link to list of DEP-approved, nitrogen reducing Performance-Based Treatment Systems Testing Performance listings

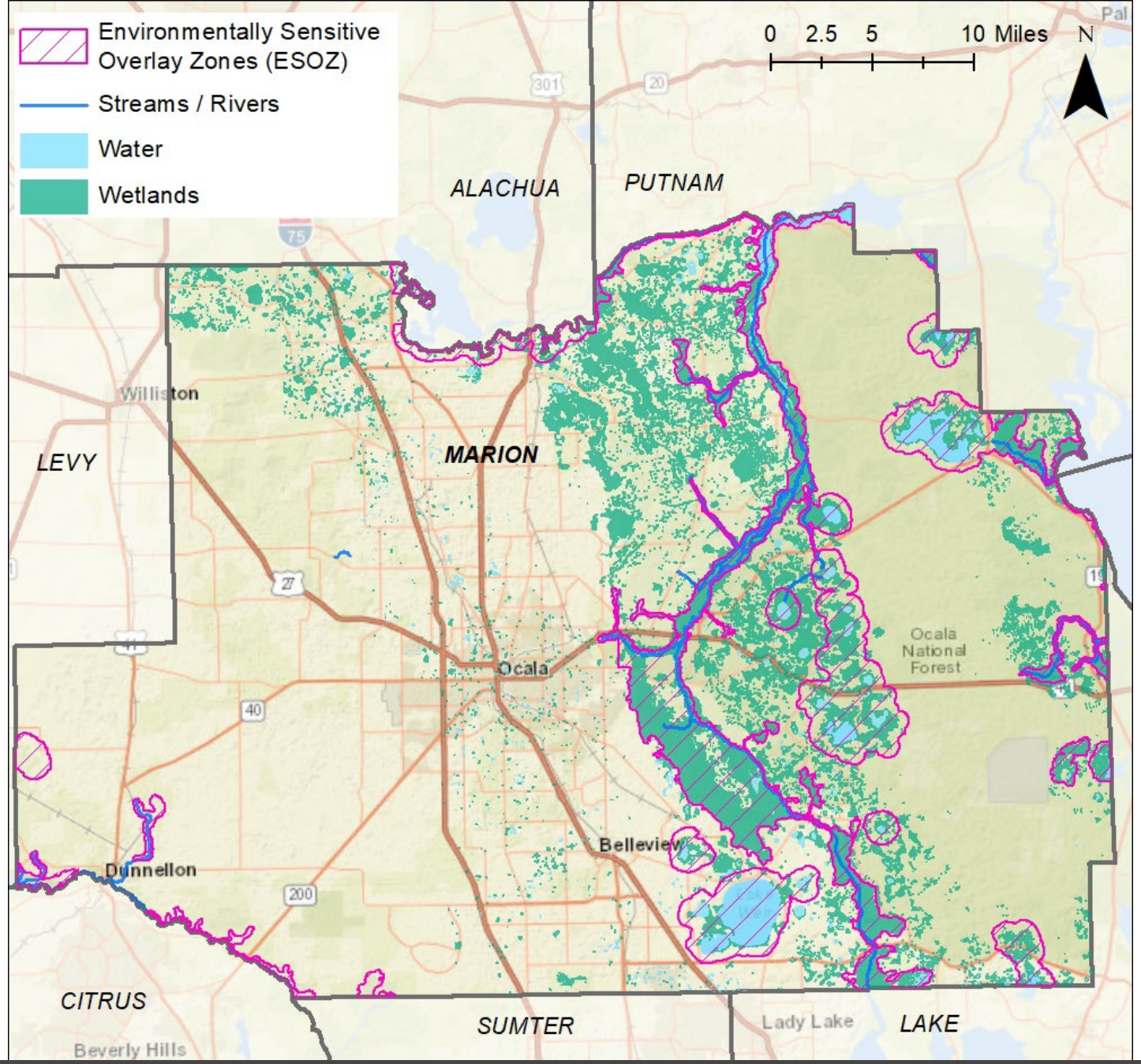
In-ground Nitrogen Reducing Biofilter Systems (INRBs)

- Nitrate-reducing filter layer below drainfield
- Reduces nitrogen by ~ 65 %
- Do not require maintenance contract nor operation permit
- Rule 62-6.009(7), Florida Administrative Code (F.A.C.), provides standards for inground nitrogen-reducing biofilters



Marion County

- Marion County has provisions that provide added protection from effects of development on selected lakes, rivers, shorelands, wetlands and other environmentally sensitive areas
  - Similar to Polk County's provisions for Green Swamp ACSC, but broader number of sensitive areas
  - Designated as Environmentally Sensitive Overlay Zones (ESOZ), which include 11 rivers/spring runs, 5 springs, and 23 lakes



Marion County

(continued)

- **Added protection includes the following requirements/prohibitions for septic tanks within an ESOZ:**

1) Neither septic tanks nor drainfields are allowed between the structure and water boundary setback line

2) For areas contiguous to a waterbody, must be less than or equal to one dwelling per acre for standard septic tanks or two dwellings per acre for performance-based treatment systems

3) For BMAPs for Outstanding Florida Springs, prohibits new septic tanks on lots less than 1 acre in priority focus areas, unless an enhanced system or sewer will be available within five years

4) Permits must include notification of mandatory connection requirements

5) If septic tank needs to be repaired, must be a minimum of 24-inch separation between bottom of drainfield and wettest season water table

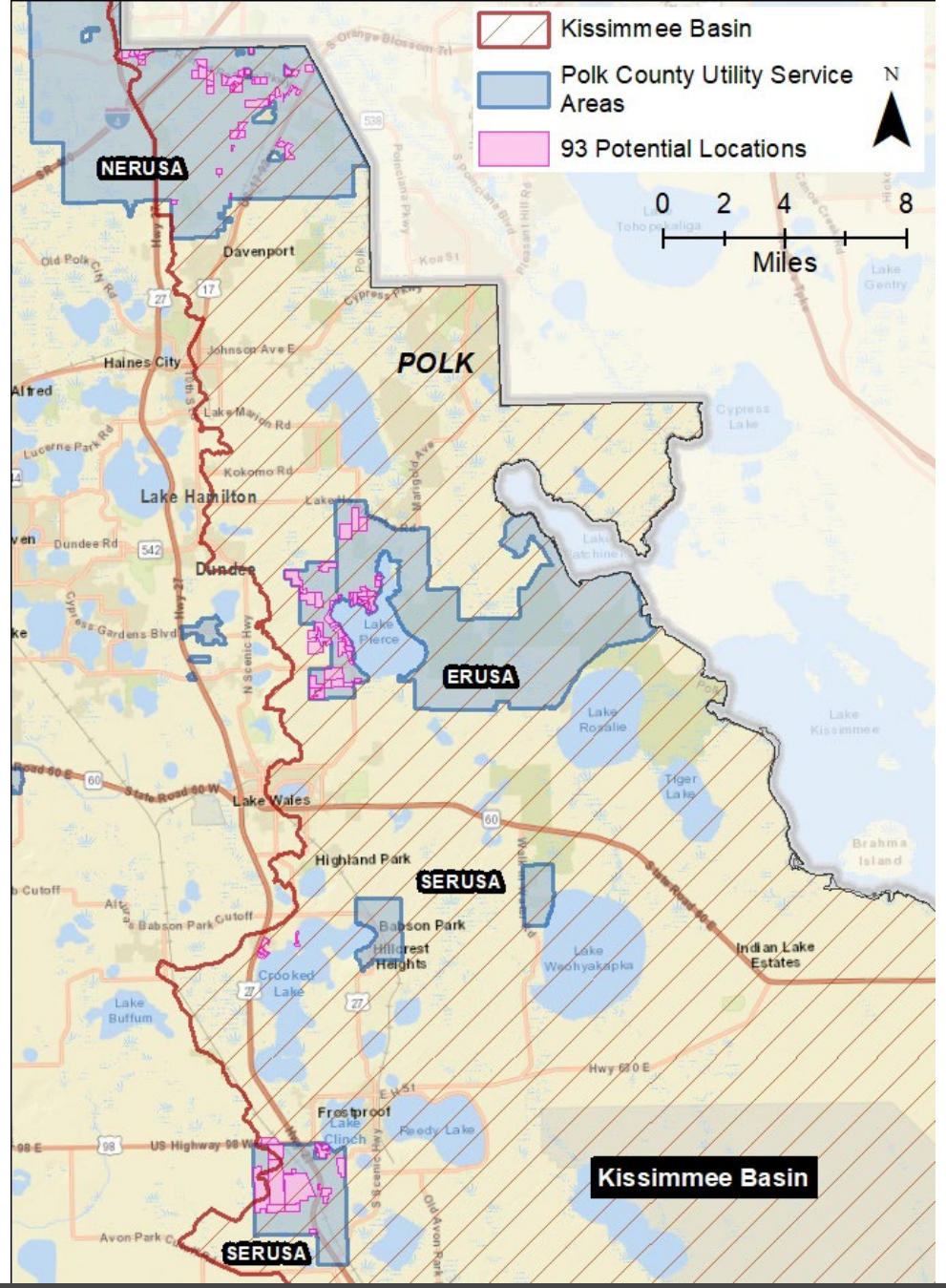
What Does This Mean to Polk County

- County will need to add ordinances consistent with HB 1379 prohibiting new septic tanks in BMAP/RAP/PRP areas where sewer available and requiring enhanced systems where sewer not available
    - Will need to define what qualifies as enhanced system
- County needs to prepare both Wastewater and OSTDS Reports
    - And annual update on sewer line expansions under HB 1379
- Recommend County explore funding for additional sewer line extension AND funding to assist homeowners with connection/upgrade costs and establish funding program
    - DEP website says no current funding, but should be new funding coming in and Dewberry has Grant Specialist, Gabby Vega-Molnar, to help
- County could use combination of enhanced systems and enhanced setback distances, which could vary by resource or special areas
- Septic to Sewer conversions in the Kissimmee River Basin

Questions/Discussion

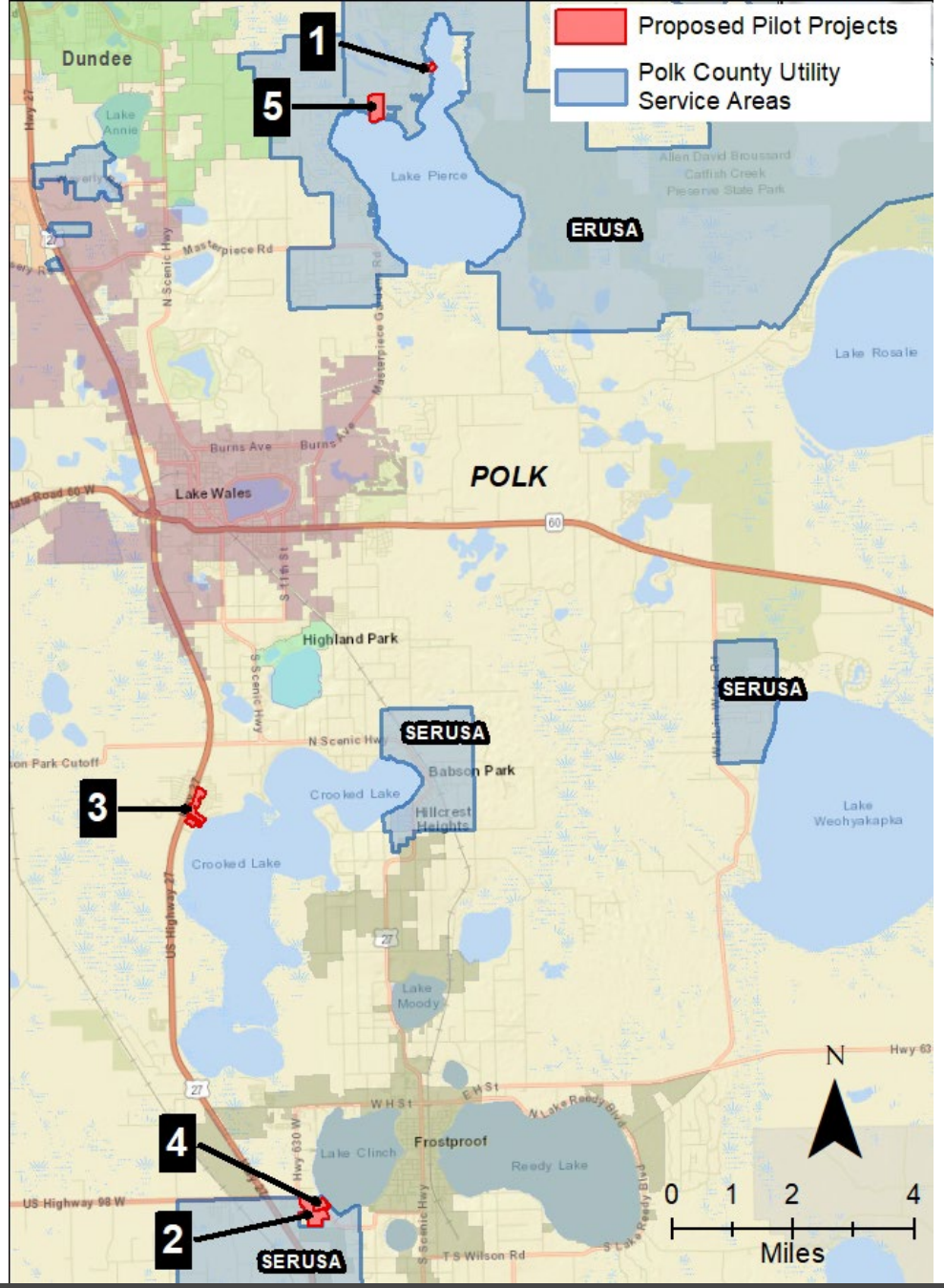
GIS Evaluation Overview

- Considered Septic to Sewer and Package Plant Conversion
- Initial Project List: 93 Potential Locations
- NERUSA (37) / ERUSA (38) / Crooked Lake (3) and SERUSA/Sun Ray (15)
- Ranking Criteria
  - Proximity to and Impaired Lake
  - Density/Lot Size
  - Age of Septic System
  - Hydrologic Soil Group (Area Weighted)
  - Number of Potential Units
- TOP 5 Selected for Conceptual Analysis



Conceptual Pilot Areas

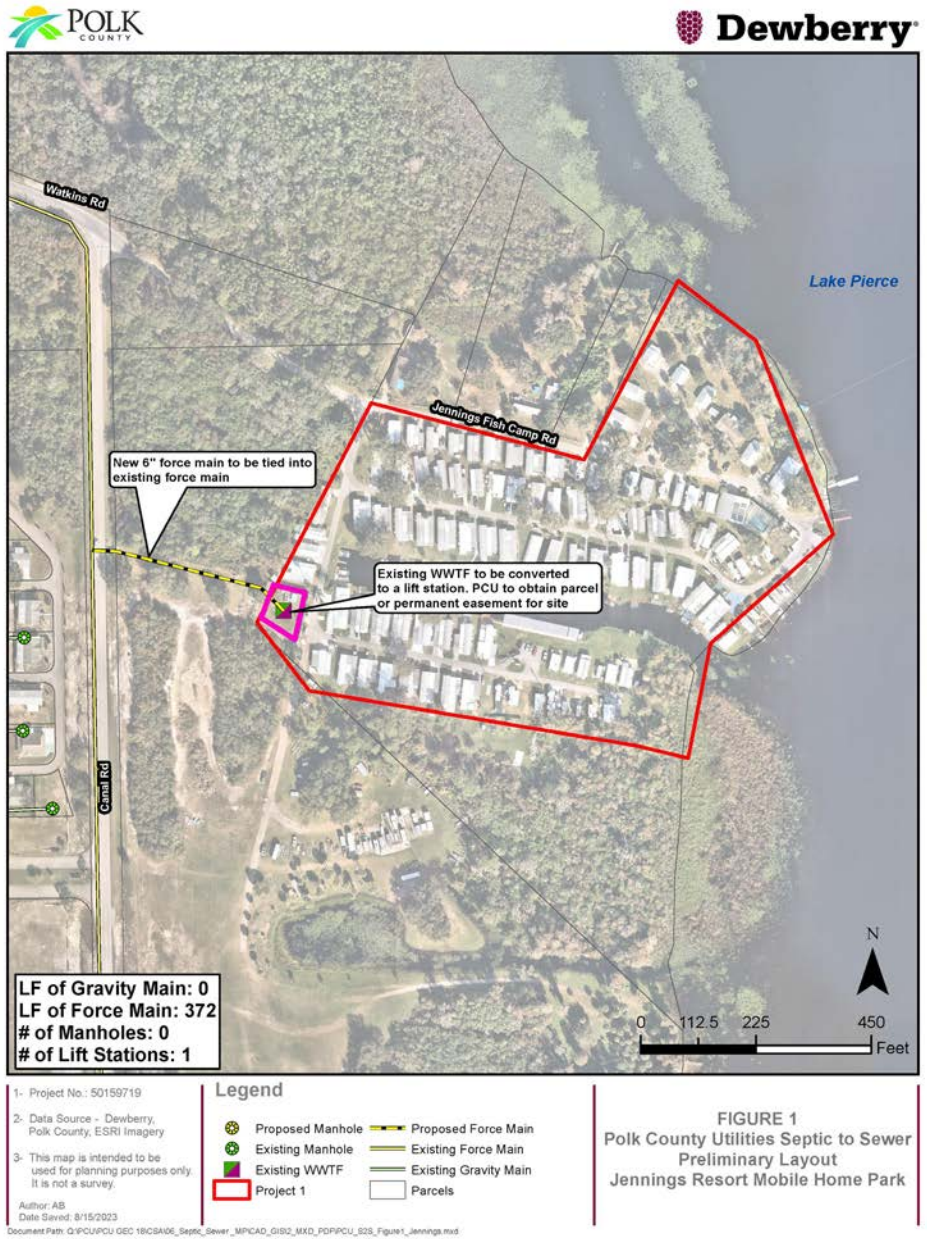
- Dewberry has identified proposed pilot areas based on GIS analyses and ranking criterion
- Top five ranked projects for Conceptual Analysis:
    1. Jennings Resort Fish Camp
    2. Whispering Pines MHP, Lakemont Ridge Home and RV Park, and Lakefront Trailer Park
    3. Crooked Lake Park Tracts 1 & 2
    4. Bay View Park Subdivision
    5. Timber Shores, Cypress Knee Cove MHP, Burlington and Hartmans Subdivision



Project 1: Jennings Resort Fish Camp

- Existing Package WWTF

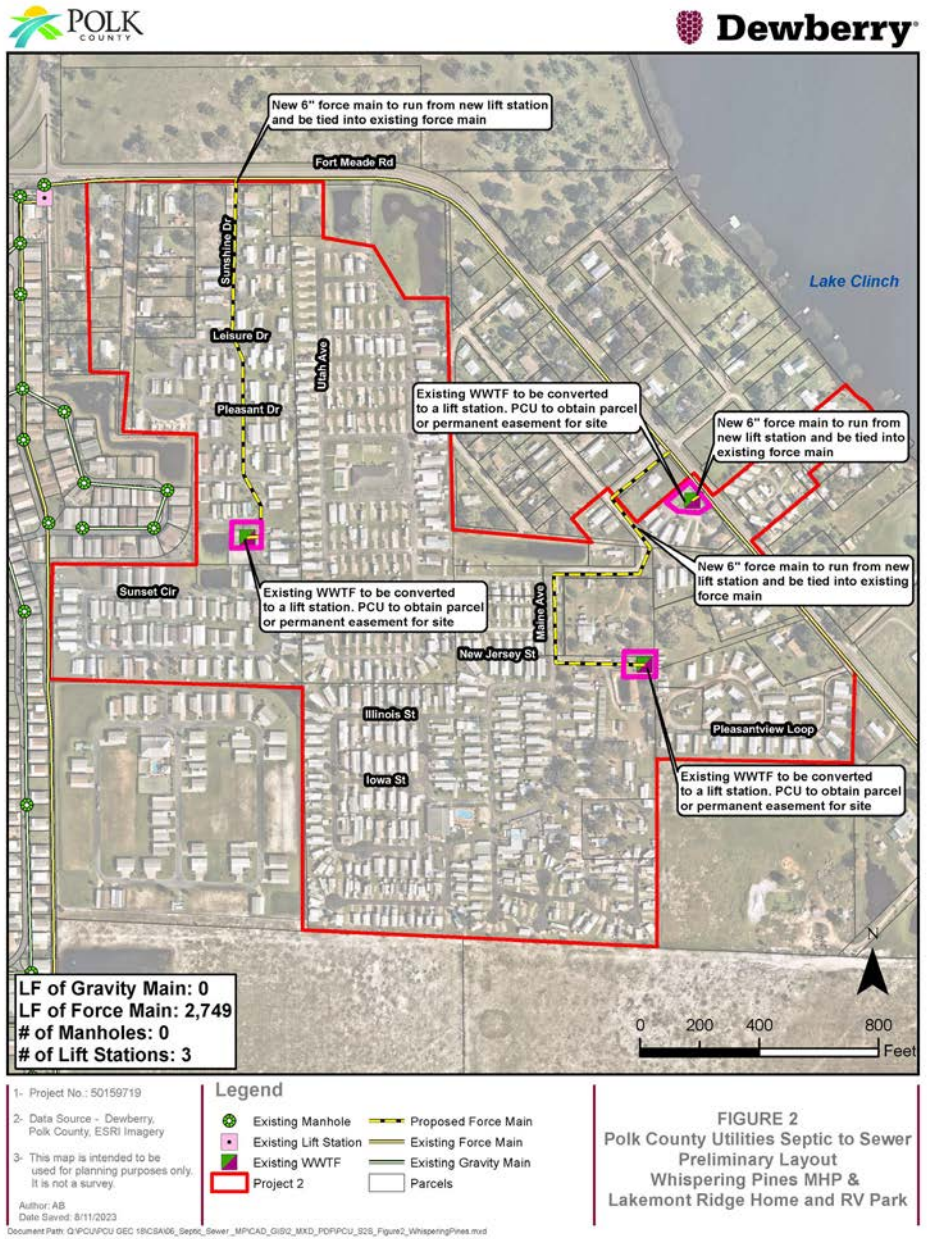
	Project 1
Initial Rank GIS Analysis	1
Approximate Number of Homes	75
Total Estimated Cost	$ 1,609,600
TN Reduction (LBS/YR)	174
Cost per Pound TN Removed ($/LB-YR)	$ 9,250
Cost per Pound TN Removed [Excluding Septic Abandonment Cost] ($/LB-YR)	$ 9,250
Final Rank	5



Project 2: Whispering Pines MHP, Lakemont Ridge Home and RV Park, and Lakefront Trailer Park

- Three Existing Package WWTFs

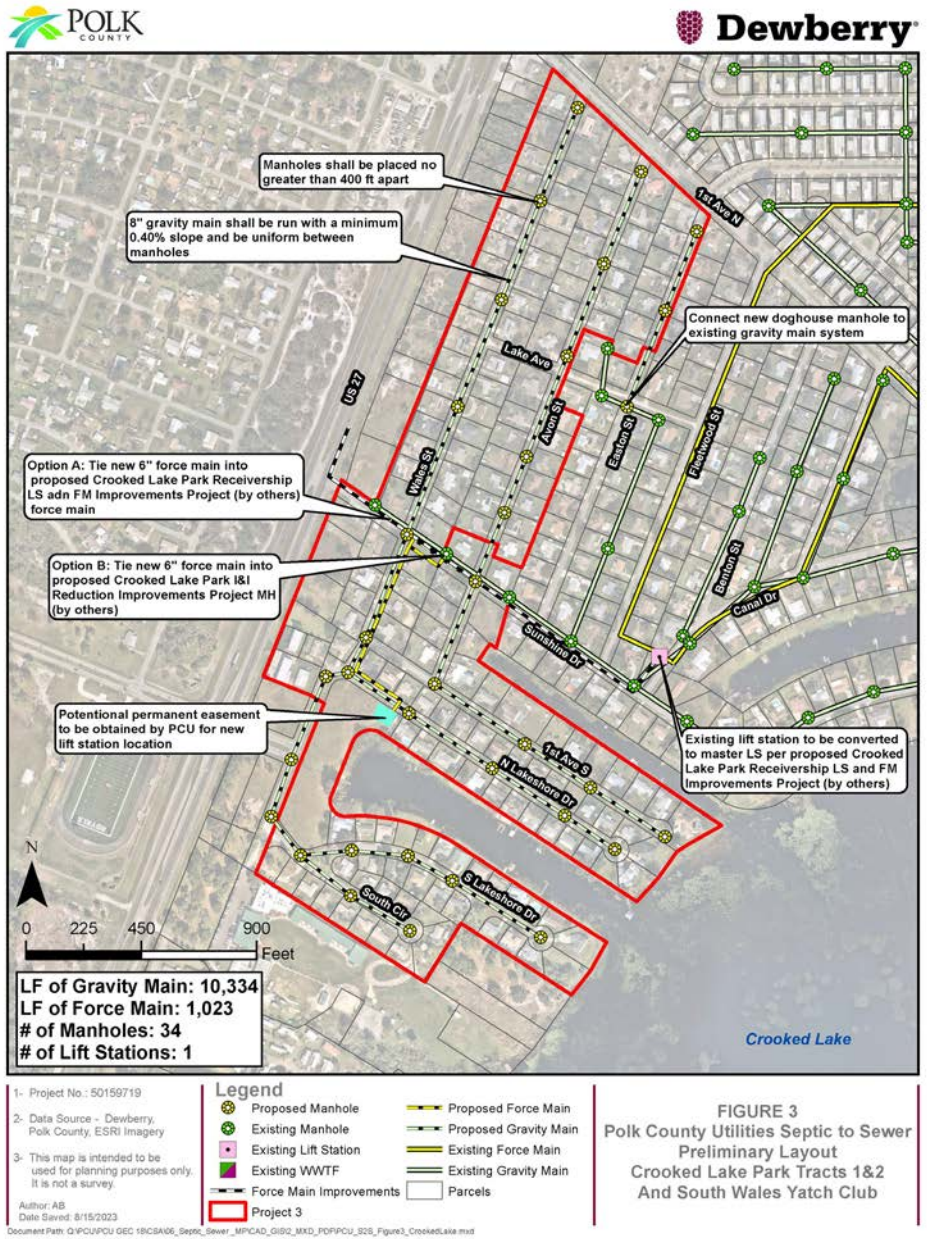
	Project 2
Initial Rank GIS Analysis	2
Approximate Number of Homes	433
Total Estimated Cost	$ 4,430,200
TN Reduction (LBS/YR)	1,149
Cost per Pound TN Removed ($/LB-YR)	$ 6,500
Cost per Pound TN Removed [Excluding Septic Abandonment Cost] ($/LB-YR)	$ 6,500
Final Rank	3a



Project 3: Crooked Lake Park Tracts 1 & 2

- Existing Septic System Treatment

	Project 3
Initial Rank GIS Analysis	3
Approximate Number of Homes	156
Total Estimated Cost	$ 9,051,700
TN Reduction (LBS/YR)	1,341
Cost per Pound TN Removed ($/LB-YR)	$ 6,750
Cost per Pound TN Removed [Excluding Septic Abandonment Cost] ($/LB-YR)	$ 5,280
Final Rank	2

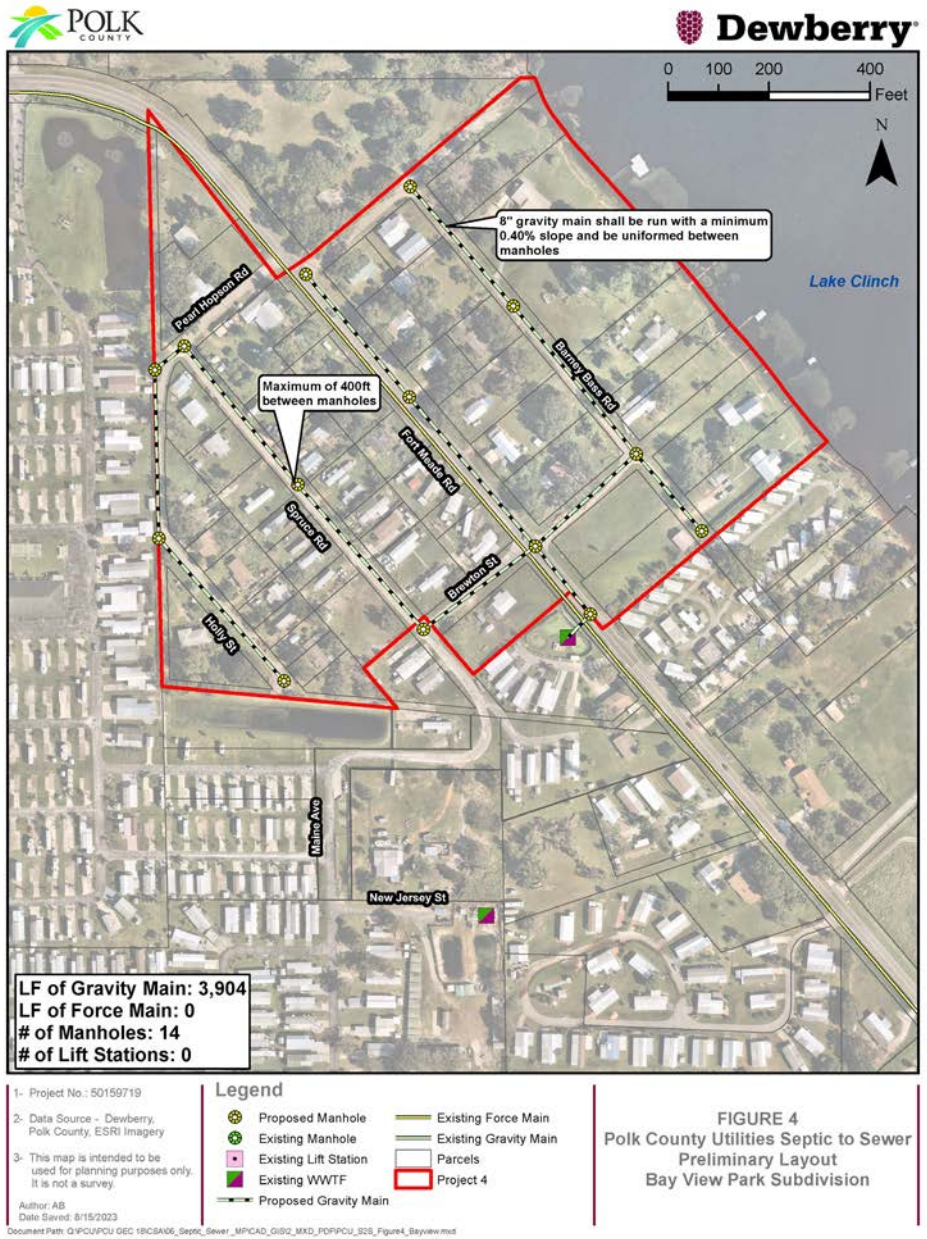


Project 4: Bay View Park Subdivision

- Existing Septic System Treatment

	Project 4
Initial Rank GIS Analysis	4
Approximate Number of Homes	50
Total Estimated Cost	$ 3,331,400
TN Reduction (LBS/YR)	2,197
Cost per Pound TN Removed ($/LB-YR)	$ 1,520
Cost per Pound TN Removed [Excluding Septic Abandonment Cost] ($/LB-YR)	$ 1,300
Final Rank	3b

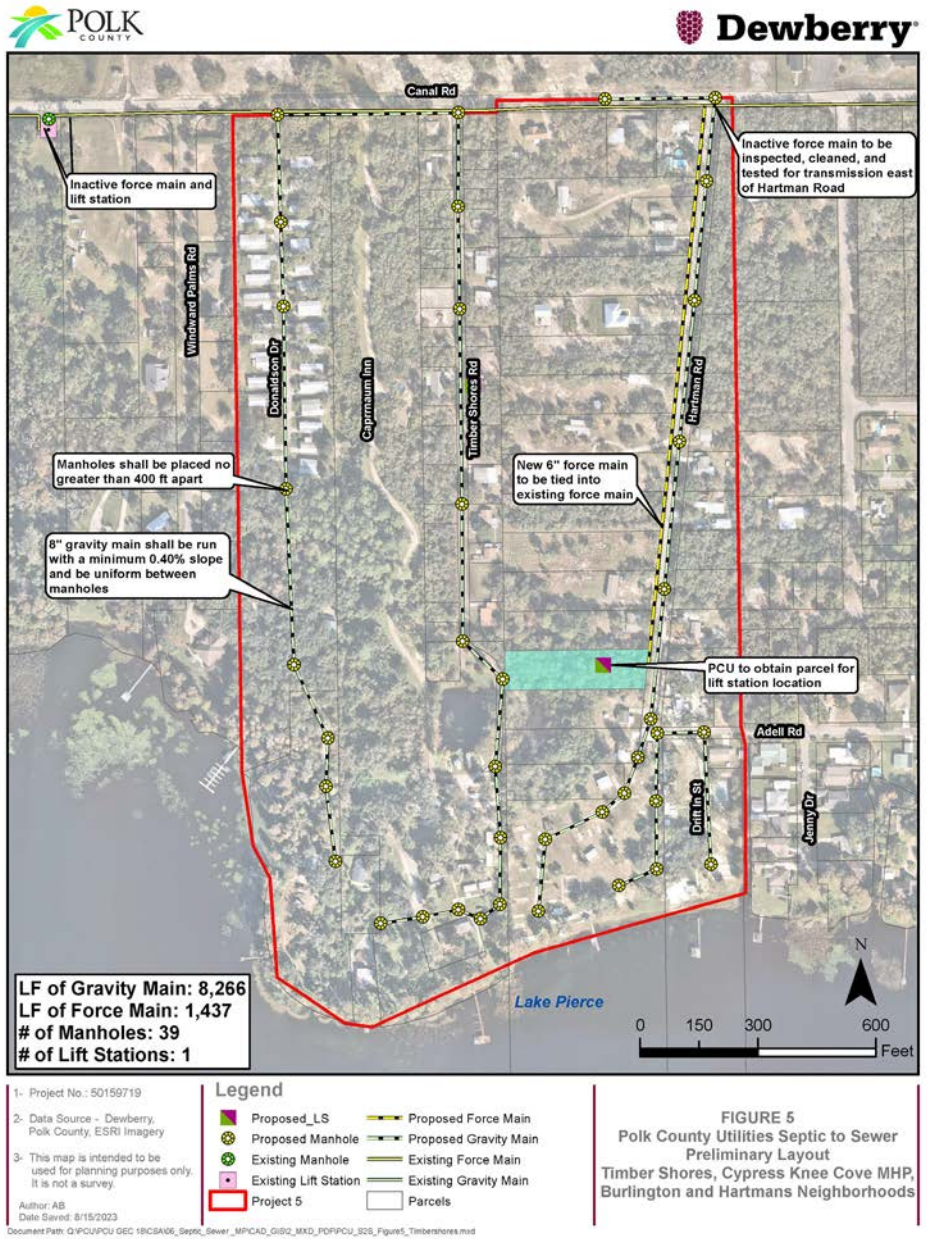
*Project area 4 cannot be done without the implementation of Project area 2. This effectively raises the cost per pound of nitrogen removed for project areas 2 and 4 to $8,020 per pound of nitrogen removed.



Project 5: Timber Shores, Cypress Knee Cove MHP, Burlington and Hartmans Subdivision

- Existing Septic System Treatment

	Project 5
Initial Rank GIS Analysis	5
Approximate Number of Homes	93
Total Estimated Cost	$ 8,547,000
TN Reduction (LBS/YR)	682
Cost per Pound TN Removed ($/LB-YR)	$ 5,900
Cost per Pound TN Removed [Excluding Septic Abandonment Cost] ($/LB-YR)	$ 4,730
Final Rank	1



Summary Cost per Project

	SUMMARY COST PER PROJECT				
FINAL RANK	PROJECT NAME	TOTAL ESTIMATED COST	TN REDUCTION (LBS/YR)	COST PER POUND TN REMOVED ($/LB-YR)	COST PER POUND TN REMOVED [EXCLUDNG SEPTIC ABANDONMENT COST] ($/LB-YR)
1	Area 5: Timber Shores, Cypress Knee Cove MHP, Burlington & Hartmans Subdivisions	$8,547,000	682	$5,900	$4,730
2	Area 3: Crooked Lake Park Tracts 1 & 2, and South Lake Wales Yacht Club [to Crooked Lakes Sewage WWTF]	$9,051,700	1,341	$6,750	$5,280
3a	Area 2: Whispering Pines MHP, Lakemont Ridge Home and RV Park, and Lakefront Trailer Park	$4,430,200	1,149	$6,500	$6,500
3b	Area 4: Bay View Park Subdivision*	$3,331,400	2,197	$1,520	$1,300
5	Area 1: Jennings Resort Fish Camp	$1,609,600	174	$9,250	$9,250

*Project Area 4 can not be constructed without Project Area 2

Next Steps

- Confirm grant amounts the County has
- Confirm that the funding allows for septic tank conversions that goes to homeowner
- Public engagement
- BOCC de-briefing
- Public engagement
- Begin survey and detailed design for projects selected to move forward

Questions/Discussion

Funding Opportunities

Water Quality Improvement Grant

Funding for:

- Projects addressing wastewater, stormwater, and agricultural sources of nutrient pollution
- Waterbodies that are not attaining nutrient standards, have a TMDL, or in an affected location (BMAP, REDI, RAO, etc.)

Project Examples:

- Upgrading Septic Tanks to enhanced systems
- Septic to sewer connections
- Retrofit OSTDS to nutrient-reducing systems

Prioritized Projects:

- Projects that subsidize the connection of OSTDS to wastewater treatment facilities

Funding Opportunities
(Continued)

Nonpoint Source Management Grant

Funding for:
- Water pollution control from nonpoint sources
- Projects that reduce nonpoint source pollution from land use activities

Project Examples:
- **Septic-to-sewer projects**
- Demonstration and evaluation of BMPs
- Groundwater protection from nonpoint sources
- Public education programs

Prioritized Projects:
- **Reduce nonpoint pollution, especially in priority watersheds and impaired waters**
- Green stormwater infrastructure or low impact development
- Combination projects that include multiple benefits described above

Funding Opportunities
(Continued)

Clean Water State Revolving Fund

Funding for:

- Low-interest loans to local governments to plan, design, and build or upgrade wastewater, stormwater, and nonpoint source pollution prevention projects
- Sewer and wastewater treatment plant projects, but **DEP staff have indicated septic to sewer projects are eligible**

Project Examples:

- Water infrastructure projects, including stormwater, watershed pilots, reuse, etc
- Decentralized wastewater treatment systems that treat municipal wastewater or domestic sewage

Prioritized Projects:

- **Control of nonpoint sources of pollution**
- Construction of municipal wastewater facilities

Questions/Discussion