Utilities Department

BCC Work Session

Septic Tank Workgroup
Subgroup B – Septic-to-Sewer Connections

June 21, 2022

Presentation Outline

- Background
- Subgroup B Details
- Septic-to-Sewer Options
- Nutrient Reduction Goals & Costs
- Requirements to Connect and Retrofit Policy
- Funding Sources/Policy Development
- Septic-to-Sewer Implementation
- Next Steps

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Background

- Septic tanks can provide safe, cost-effective wastewater treatment
  - Used in rural areas or where centralized sewer systems are not available
  - Should be located a safe distance from water bodies and groundwater
- The Septic Tank Workgroup was created to address appropriate use of septic tanks
  - Subgroup A is evaluating new development connections to central sewer
  - Subgroup B is evaluating existing septic-to-sewer connections
  - Subgroup C is evaluating existing septic tank upgrades
  - Subgroup D is evaluating new septic tank standards and permitting

Background

- Stakeholders
  - Policymakers (Orange County BCC)
  - State agencies (FDEP, FDOH, SJRWMD, SFWMD)
  - Municipalities
  - Septic tank industry (equipment vendors, installers, maintenance entities)
  - Environmental groups
  - Orange County residents, homeowners, and visitors

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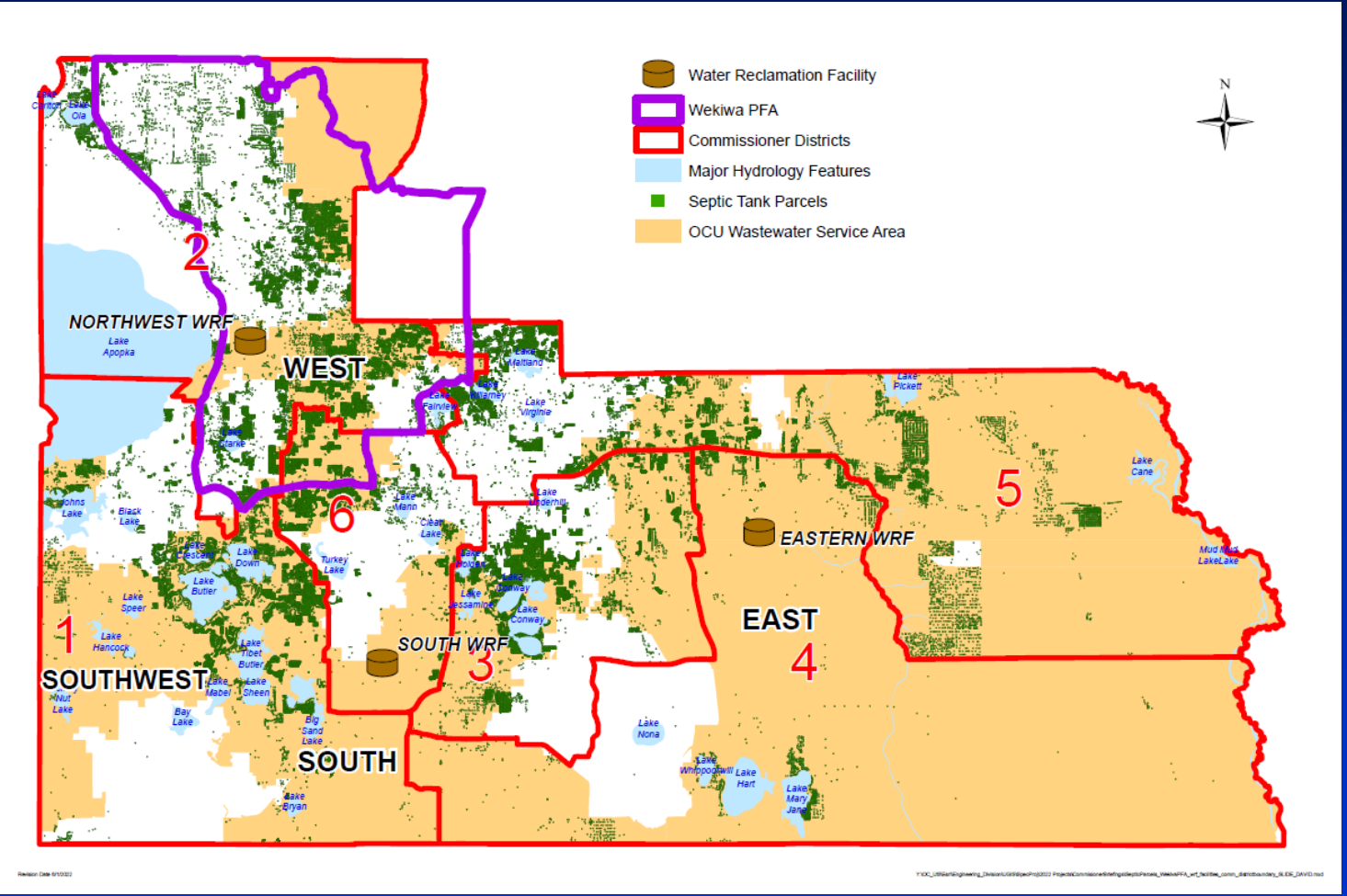
Subgroup B Details

- Septic Tank Parcels in Orange County



District	Orange County	OCU & Wekiwa PFA	OCU outside PFA
1	13,973	0	12,890
2	29,784	14,000	**585**
3	15,623	0	11,426
4	2,419	0	2,412
5	19,404	22	8,541
6	11,088	3,740	6,025
Total	**92,211**	**17,762**	**41,879**

Subgroup B Details

- Objectives/Scope
  - Connect septic tanks to sewer in environmentally vulnerable areas
  - Identify funding sources and pursue funding assistance
  - Evaluate feasibility to connect
  - Identify areas to extend sewer infrastructure for future connections
  - Educate the community
- Policy Considerations
  - Funding
  - Schedule
  - Connection requirements

Subgroup B Details

- **Funding Challenges**
  - Funding for current projects within the Wekiwa Springs PFA
    - Multiple projects totaling over $92M (1,608 septic tanks)
    - Up to 25% funding from the County
    - Up to 12.5% funding from homeowners
    - More than 62.5% funding from federal/state agencies
  - Over 40,000 septic tanks in OCU service area outside the Wekiwa PFA
    - Approximately $2.4 billion to connect to gravity sewer ($60,000 per home)
    - State funding is limited and no specific BMAP requirement to connect to sewer
    - How soon and how many we connect could be affected by funding
    - A countywide feasibility study for vulnerable areas will be needed

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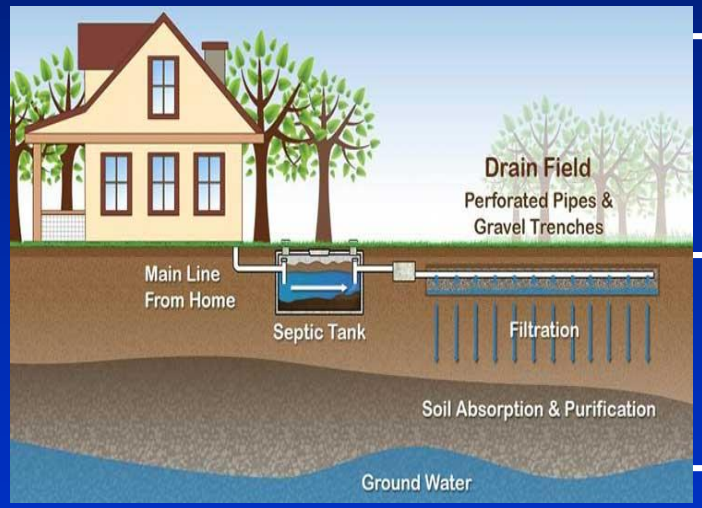
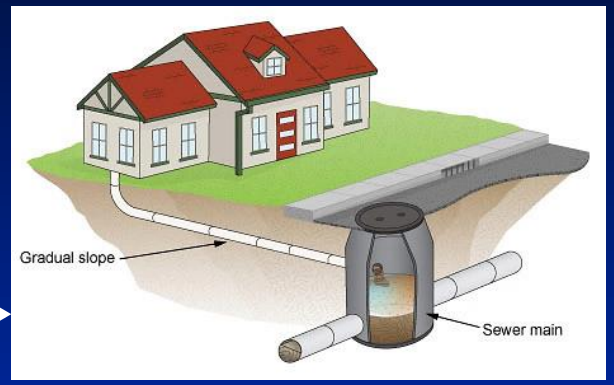
Septic-to-Sewer Options

Connection Options:

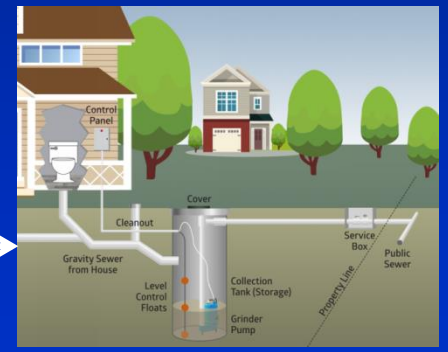


Typical Septic System



Conventional Gravity Sewer

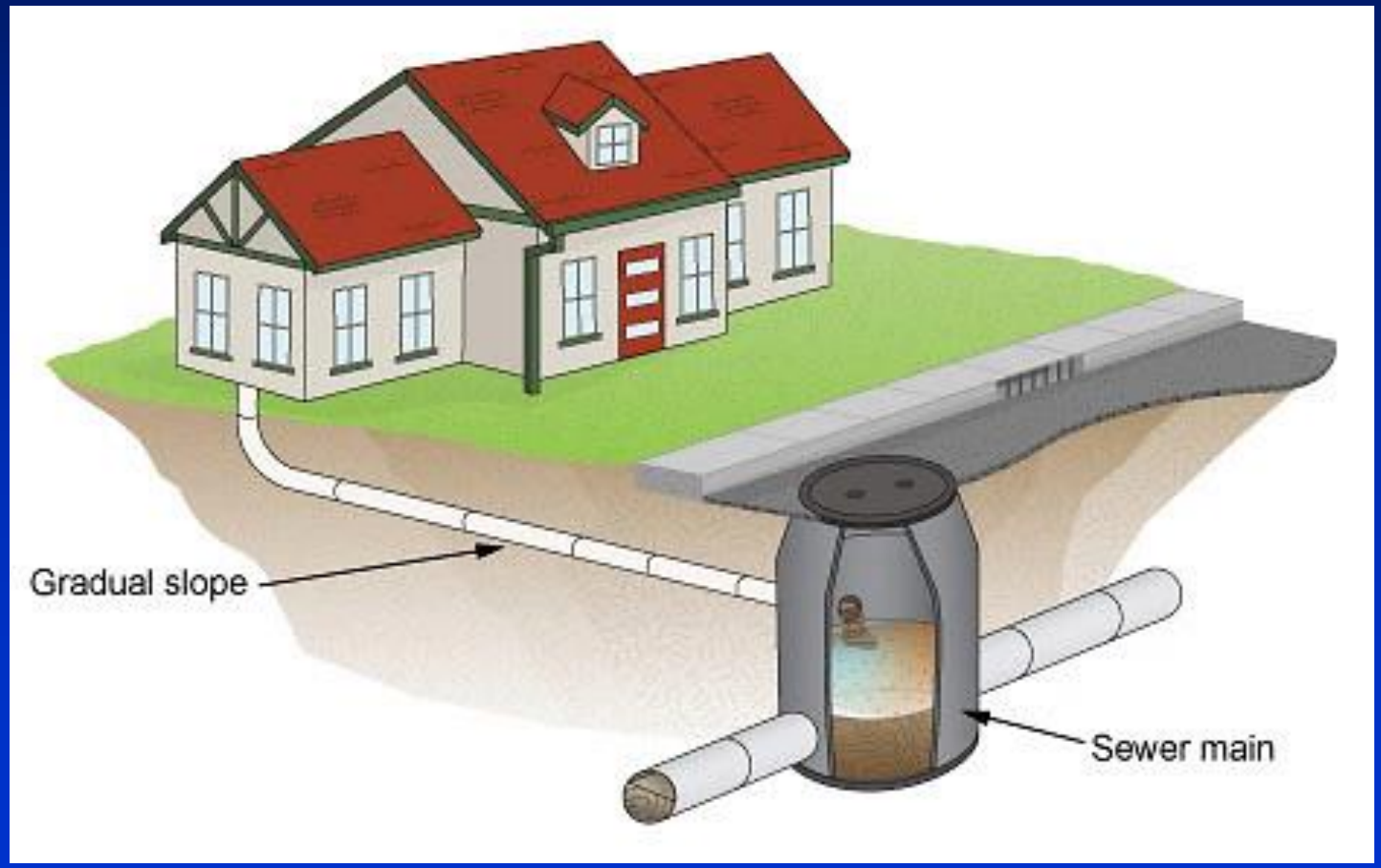
STEP System



Grinder Systems

Septic-to-Sewer Options

Conventional Gravity



Components

- Service laterals
- Cleanouts
- Gravity mains
- Manholes
- Pump stations

Septic-to-Sewer Options

Conventional Gravity

Benefits

- County operators are already familiar with and using this type of system
- System works passively (except for pump stations)
- Lowest O&M costs
- Highest long-term reliability
- Homeowner easements are not needed

Concerns

- High capital costs for retrofit of existing neighborhoods
- Requires deep excavation or frequent pump stations in areas of flat topography
- High community disruptions to streets, sidewalks, etc.
- Potential for infiltration

Septic-to-Sewer Options

Septic Tank Effluent Pump (STEP)

Components

- Gravity sewer piping
- Cleanout
- Holding tank
- Effluent pumping unit
- Service lines
- Pressure mains
- Check valve
- Electric junction box/control panel
- Drain field (optional for overflow)

Septic-to-Sewer Options

Septic Tank Effluent Pump (STEP)

Benefits

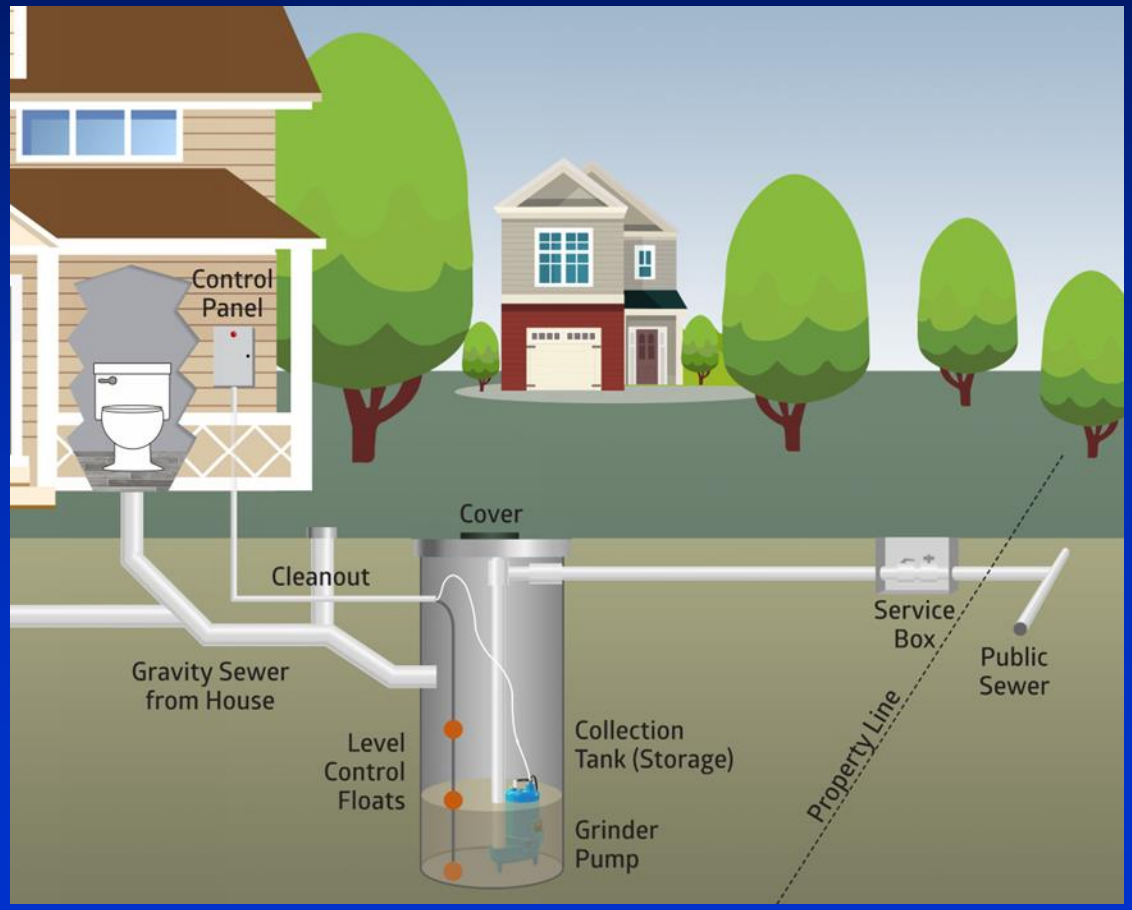
- Lower capital costs
- Smaller excavation depths
- Simpler construction (directional drilling)
- Smaller/less impactful equipment
- Independent of topography
- No pump stations or manholes needed
- Reduced potential infiltration
- Less road disruption

Concerns

- Less storage than in gravity systems
- Requires solids to be pumped out
- Installed on private property
- Electricity is paid for by the owner
- Individual service lost in a power outage
- Higher O&M and lifecycle costs
- Requires timely operator response to alarms

Septic-to-Sewer Options

Grinder Pump



Components

- Gravity sewer piping
- Cleanout
- Grinder pump station/collection tank
- Service line
- Pressure mains
- Check valve
- Electric junction box/control panel

Septic-to-Sewer Options

Grinder Pump

Benefits

- Lower capital costs
- Smaller excavation depths
- Simpler construction (directional drilling)
- Smaller/less impactful equipment
- Independent of topography
- No pump stations or manholes
- Reduced potential infiltration
- Less road disruption
- Entire waste stream is conveyed from property

Concerns

- Less storage than in gravity systems
- Installed on private property
- Electricity is paid for by the owner
- Individual service lost in a power outage
- Higher O&M and lifecycle costs
- Requires timely operator response to alarms

Septic-to-Sewer Options

Estimated Costs for Septic-to-Sewer Technologies Under Consideration

Centralized Sewer Option	Capital Costs/ERU	Annual O&M Costs	Net Present Cost (40 years)
Gravity sewer	$51,900	$176	$55,300
Septic tank effluent pump (STEP) pressure sewer	$35,500	$461	$45,700
Grinder pump pressure sewer	$39,000	$786	$56,600

- **These technologies are adopted as suitable septic-to-sewer options in vulnerable areas. Their application will affect options, policy, regulatory considerations, and funding decisions.**

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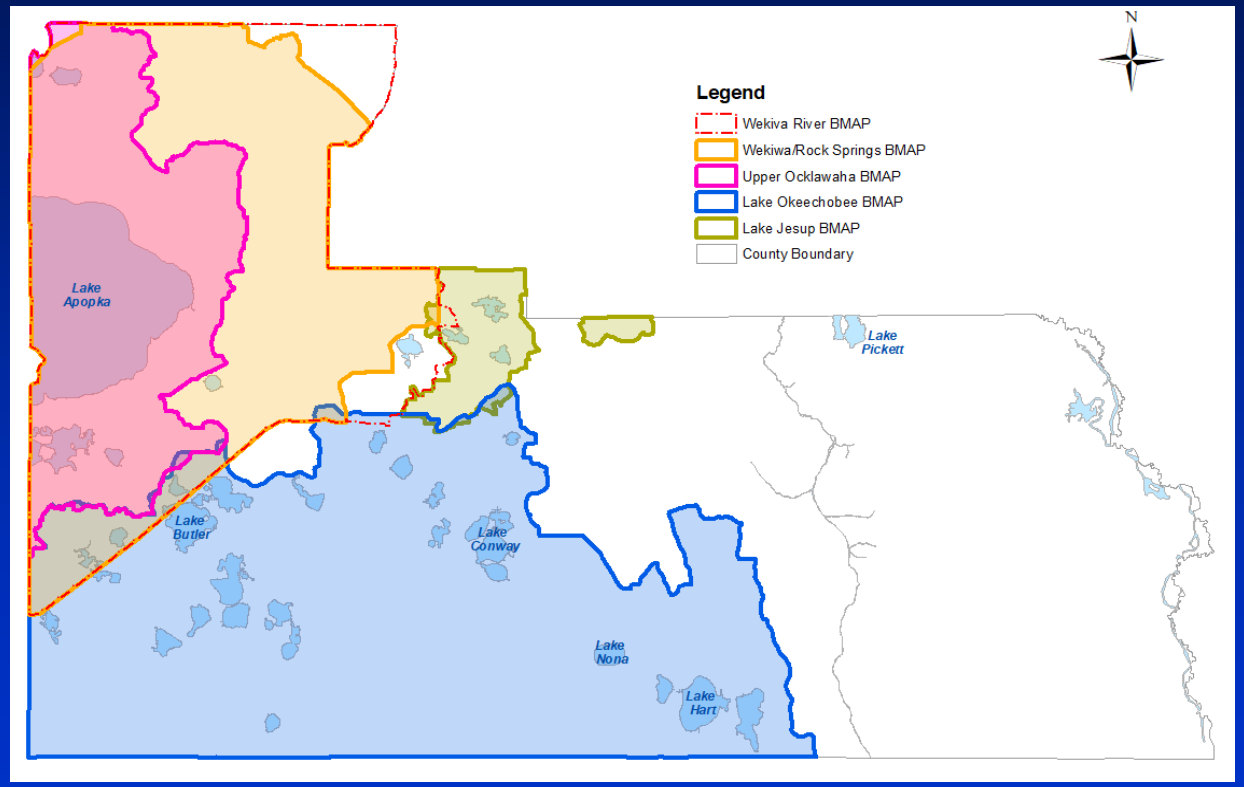
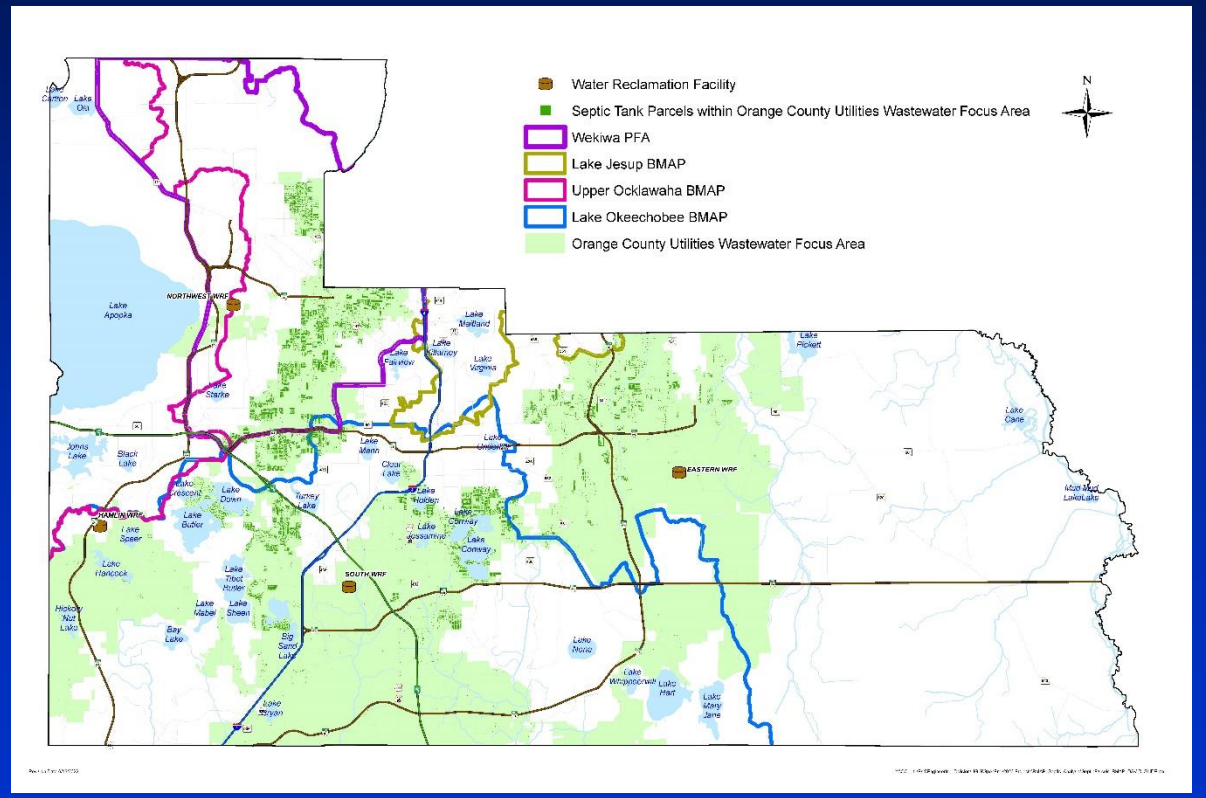
Nutrient Reduction Goals & Costs

- Combine resources from OCU, EPD and FDOH to determine areas within Orange County Utilities service area that are vulnerable to nutrient loads
- There are four nutrient BMAPs within Orange County
  - Wekiwa, Lake Jessup, Upper Ocklawaha, Lake Okeechobee
  - FDEP now requires a septic tank remediation plan for BMAPs by 2025
  - Quantify septic tank nutrient load reductions and remediation costs
  - EPD Vulnerability Study
  - FDOH nuisance sanitary issues related to septic tanks
  - Develop target areas for septic-to-sewer retrofit projects
  - Initiate feasibility studies for each target area

Nutrient Reduction Goals & Costs

- BMAPS and Septic Tanks in Focus Areas of Utilities Service Area





Nutrient Reduction Goals & Costs

- Septic Tanks in Focus Areas of Utilities Service Area by BMAP

District	Orange County	Septic Tanks in Focus Area of Utilities Service Area By BMAP				
		BMAPs	Wekiwa PFA	Lake Okeechobee BMAP	Upper Ocklawaha BMAP	Lake Jessup BMAP
1	13,973	6,182	0	6,182	0	0
2	29,784	13,389	13,018	1	3	367
3	15,623	7,994	0	7,994	0	0
4	2,419	105	0	105	0	0
5	19,404	156	22	0	0	134
6	11,088	6,327	3,730	2,597	0	0
Total	**92,211**	**34,153**	**16,770**	**16,879**	**3**	**501**

- Over 17,000 septic tanks in OCU Focus Area outside the Wekiwa PFA
  - Approximately $1 billion to connect to gravity sewer ($60,000 per home)

Nutrient Reduction Goals & Costs

- FDEP has not provided a remediation guidance document
- The Wekiwa BMAP requires nitrogen remediation
  - Septic tanks contribute 29% of nitrogen impact
  - Approximately 1,470 septic tank remediations required
  - 1,608 septic tanks partially funded by FDEP grant
- The other BMAPs require phosphorous remediation
  - Assuming 20% contribution from septic tanks
  - Approximately 900 septic tank remediations required
- Remediating 2,508 septic tanks could cost $151 million or more

Nutrient Reduction Goals & Costs

- Investments should focus on environmentally vulnerable areas
- The next Subgroup B Work Session will focus on nutrient reduction goals. It will be scheduled after the EPD Groundwater Vulnerability Assessment is presented to BCC.

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Requirements to Connect and Retrofit Policy

- **Orange County Utilities Retrofit Policy Summary**
  - Outlines financial responsibilities based on resident income
    - Replace existing septic tanks with central sewer
  - Establishes County financial participation limits
  - Low-income homesteaded properties may be eligible for CDBG funding
  - 67% of property owners must vote to connect to the County system

Requirements to Connect and Retrofit Policy

Cost Components and Cost Allocation[1]				
Income Category	**Transmission System**	**Distribution/ Collection System**	**Property Components and Fees**	**MSBU Eligible**
Low	OCU	CDBG/OCU	CDBG/Owner	Yes
Medium	OCU	50% OCU and 50% Owner	Owner	Yes
High	Owner	Owner	Owner	Yes

[1] Orange County may contribute up to 25% of the project costs for projects that will receive 75% from grant funding or other sources

Requirements to Connect and Retrofit Policy

- Existing connection requirements for single family homes
  - One year to connect to existing gravity sewer main
    - Section 381.00655(1)(a), Florida Statutes
    - Orange County Code, Chapter 37-4(a)(2)(b)
- Potential policy requirements in highly vulnerable areas
  - Option 1: Connect to central sewer
    - CIP Project per Retrofit Policy – connect with project/MSBU
    - CIP Force Main Project – connect when septic tank or drain field fails/no repairs
  - Option 2: Upgrade to advanced treatment system

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Funding Sources/Policy Development

- **Funding Sources**
  - State and federal grants and cost share programs
    - 62.5% funding not likely in the future
    - 50% funding possible (if project is within areas identified by the State)
  - Orange County Utilities funds
    - 25% maximum, per ordinance
  - Residents
    - Connecting residents (10% minimum contribution – MSBU)
  - Other
    - ≥ 15% funding gap possible

Funding Sources/Policy Development

- Policy Development
  - Gravity sewer projects
    - Capital intensive and disruptive
    - Septic tanks removed with project
  - Force main projects (STEP or Grinder Pump)
    - Less capital intensive
    - Connections could be done with CIP project
    - Residents could connect when septic tank fails
      - Least capital intensive
      - Policy change to require residential connection to force main
      - Residents' septic tank repair funds could be redirected to connect to sewer
- Our next BCC Work Session will discuss funding options and potential policies for septic-to-sewer projects in vulnerable areas

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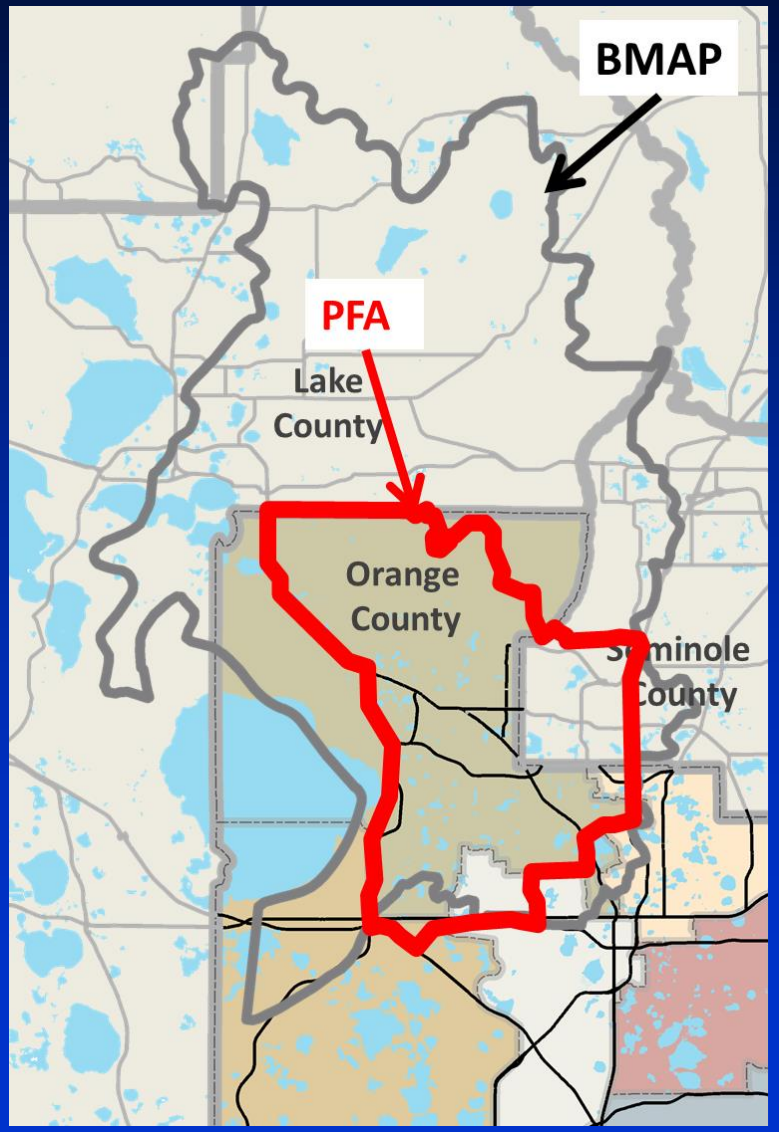
Septic-to-Sewer Implementation

- Wekiwa PFA
  - Septic-to-Sewer Feasibility Study
    - Received $500,000 grant from FDEP
    - More than 16,000 septic tanks in OCU service area that are less than one acre
    - Potential to connect ±4,600 parcels in 20 years
    - ±8,000 parcels were not feasible to connect over next 40 years (funding and proximity to existing/proposed infrastructure)
    - OCU to hold community meetings in 2022
    - Draft report to be submitted by April 2023

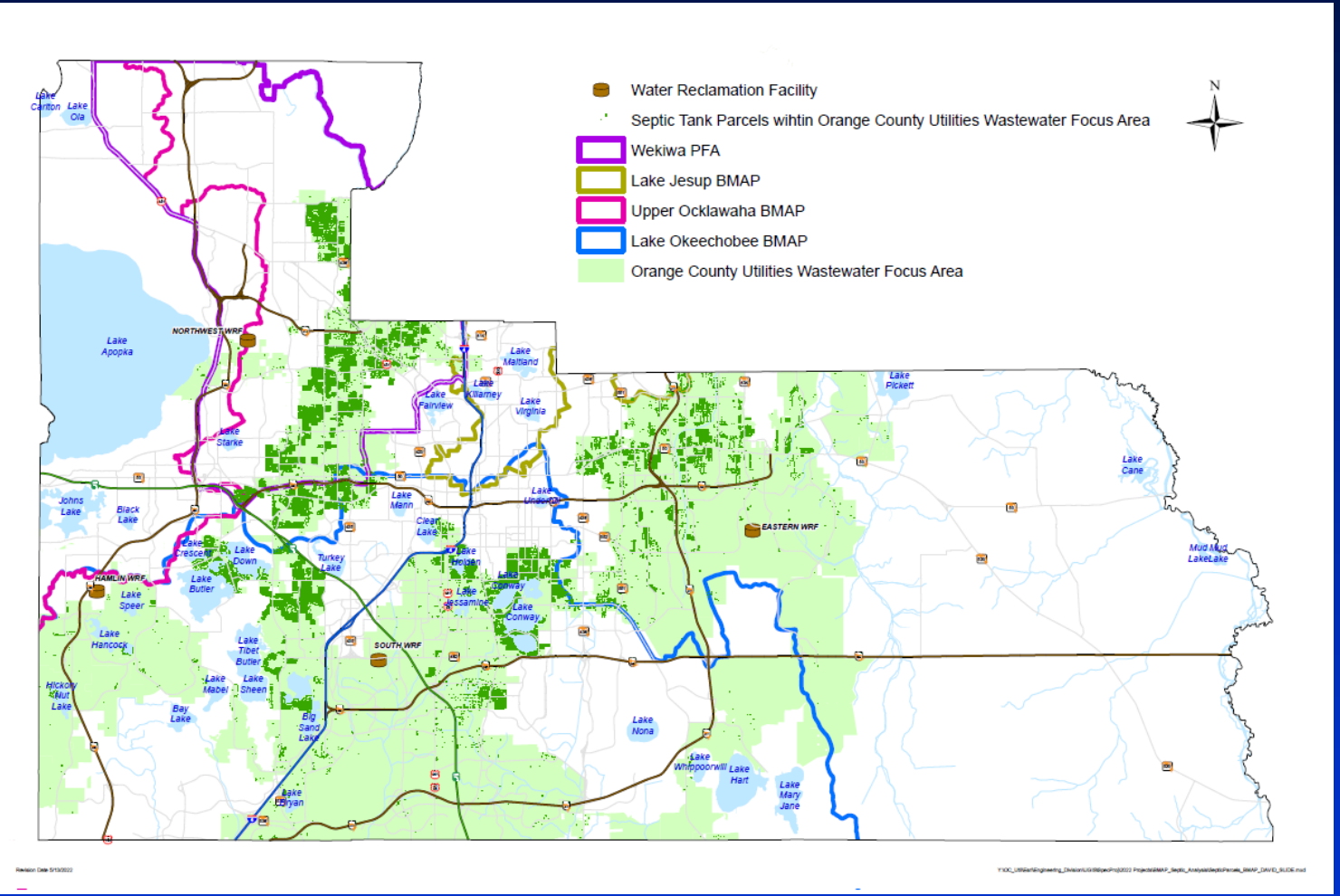


Septic-to-Sewer Implementation

- **Wekiwa PFA**
  - Current Utilities projects
    - Received $52.4M in funding assistance from FDEP & SJRWMD
    - Wekiwa Springs Retrofit Program ($83.82M, 1,453 septic tanks)
      - Complete by 12/31/2026
    - Pine Hills Septic-to-Sewer Project ($8.58M, 155 septic tanks)
      - Complete by 12/31/2026

Septic-to-Sewer Implementation

- **Outside Wekiwa PFA**
  - Use the Groundwater Vulnerability Study findings
  - Identify new potential funding sources
  - Schedule a Funding/Policy BCC Work Session



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Next Steps

- Continue Wekiwa Springs Septic-to-Sewer Program and other projects in PFA
- In conjunction with EPD and FDOH, identify other vulnerable areas outside the Wekiwa PFA
- Initiate feasibility studies for the vulnerable areas
- Pursue funding opportunities with multiple agencies
- Develop an education program and community outreach
- Coordinate with other Septic Tank Subgroups

Next Steps

- **Upcoming BCC Work Sessions for remaining subgroups**
  - July 12: Subgroup A – New Development Connections to Central Sewer
  - July 26: Subgroup C – Existing Septic Tank Upgrades
  - August 30: Subgroup D – New Septic Tank Standards and Permitting
- **Future BCC Work Session for Subgroup B**
  - Discuss nutrient reduction goals
  - Discuss potential funding options and policies for septic-to-sewer projects in vulnerable areas

Utilities Department

BCC Work Session

Septic Tank Workgroup
Subgroup B – Septic-to-Sewer Connections

June 21, 2022