Environmental Protection Division

Work Session

Septic Tank Workgroup
Subgroup C - Existing Septic Tank Upgrades

August 30, 2022

Presentation Outline

- Purpose
- Background
- Subgroup C Details
- Septic Upgrade Options
- Policy Development/Funding Options
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Subgroup C – Purpose

- 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
- Demonstrate how upgrading existing septic tanks can help reduce nutrient loading in vulnerable areas
- 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

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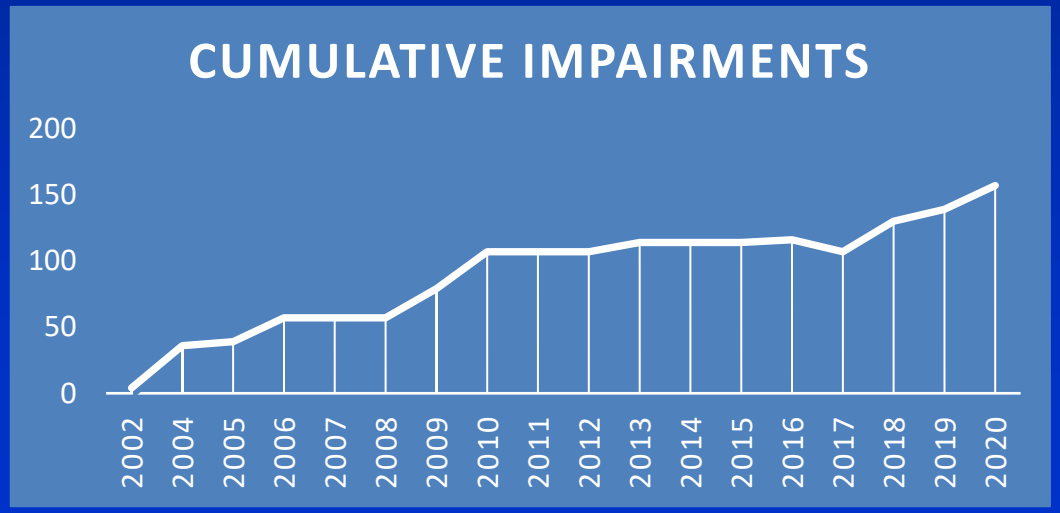
Background

- **Orange County's Water Resources**
  - Over 600 named lakes
  - 12 major drainage basins (9 river systems)
  - Wekiwa & Rock Springs (Outstanding Florida Springs)
  - Wekiva River (1 of 2 Wild & Scenic Rivers in Florida)
  - Econlockhatchee River (OFW)
  - Headwaters of Everglades
    - Butler Chain of Lakes (OFW)
    - Hart Branch and Shingle, Boggy, Cypress, Reedy Creeks

Background

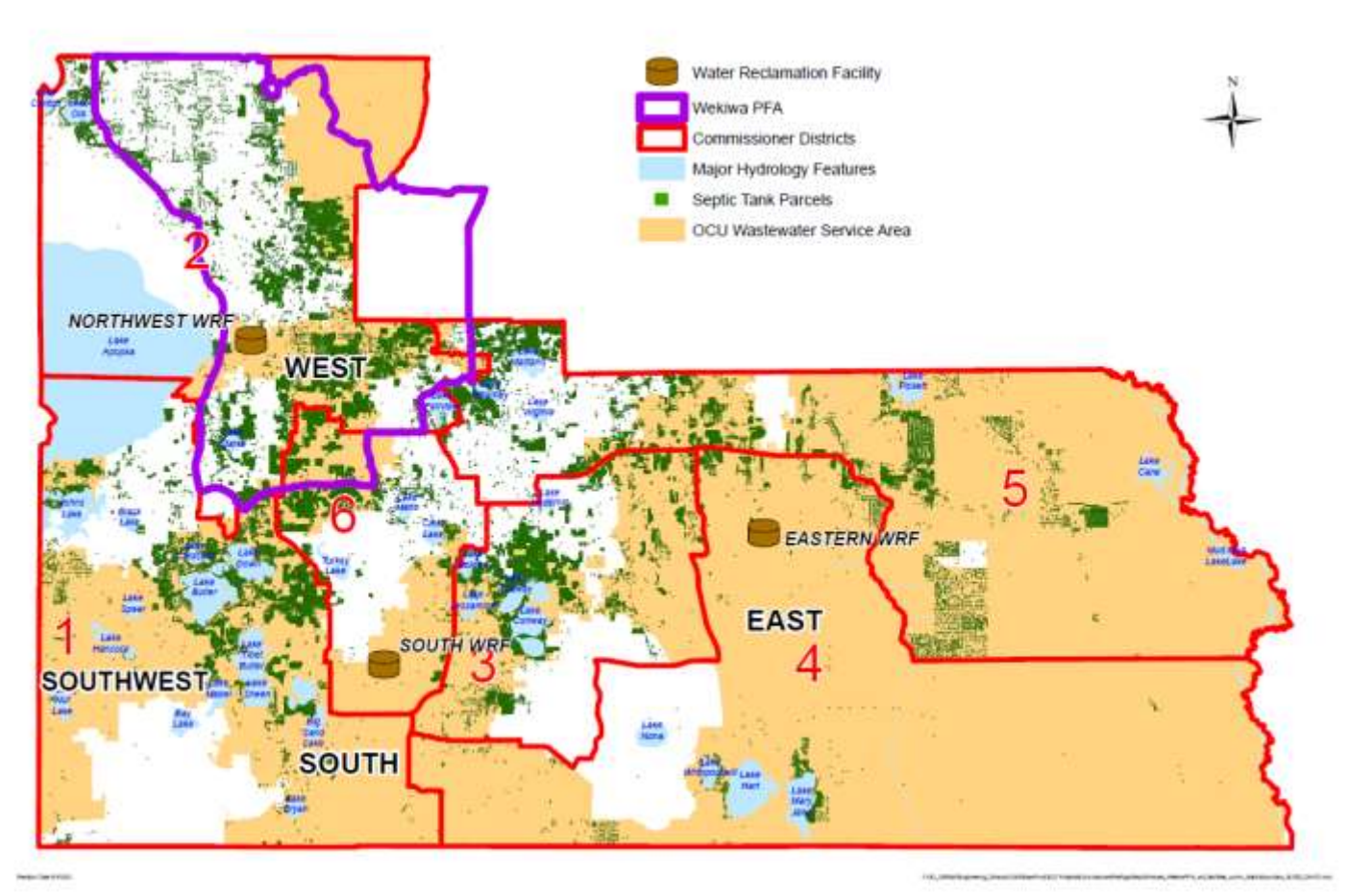
- Natural water quality throughout the region is impaired by nutrients
- Excess nutrients cause overabundance of algae
- Algae can adversely affect the environment



- Reduce nutrient loading
- Reduce number of surface waters impaired by nutrients
- Reduce future financial liabilities surface waters in accordance with TMDL/BMAP requirements

Background

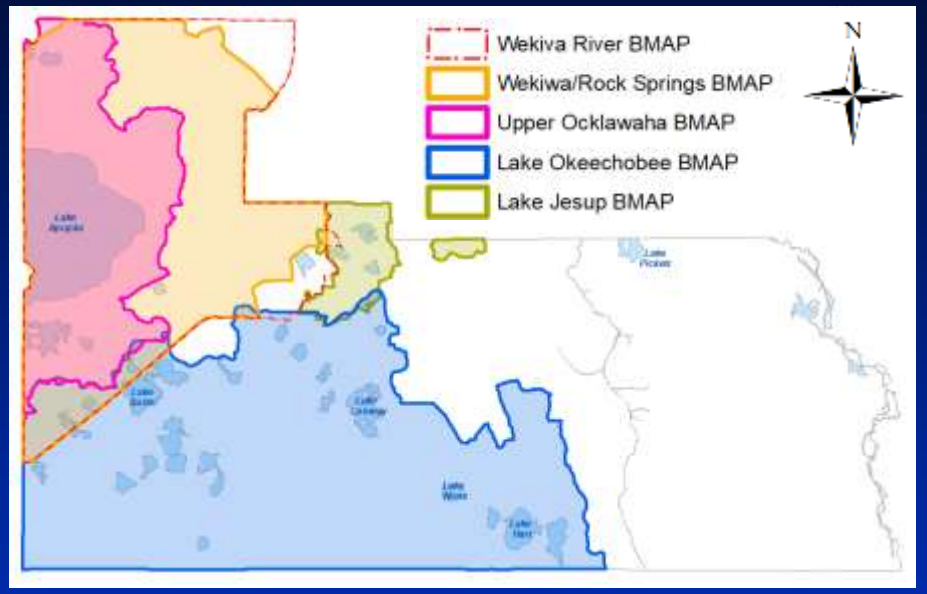
- Septic Tank Parcels in Orange County



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

Background

- **BMAPs**
  - Septic Upgrades as Potential Strategy for BMAPs
  - Wekiwa requires upgrades/sewer within PFA
    - Highest sources of nitrogen from septic and fertilizer



- **Clean Waterways Act (SB 712, 2020)**
  - Incorporate Wastewater and On Site Treatment and Disposal Systems (OSTDS) Plans into nutrient BMAPs by July 1, 2025
  - Inventory and develop projects to address septic within jurisdiction of local governments
- **FDEP Developed OSTDS TAC Committee**
  - Recommendations (Dec 2021) – State will consider these recommendations when making rule updates

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Subgroup C Details

Participants

- PEDS
  - Environmental Protection Division (lead)
  - Neighborhood Services Division
- Public Works
  - County Engineer
  - Development Engineering Division
- Utilities
  - Deputy Director
  - Utilities Engineering Division
- Florida Department of Health in Orange County

Subgroup C Details

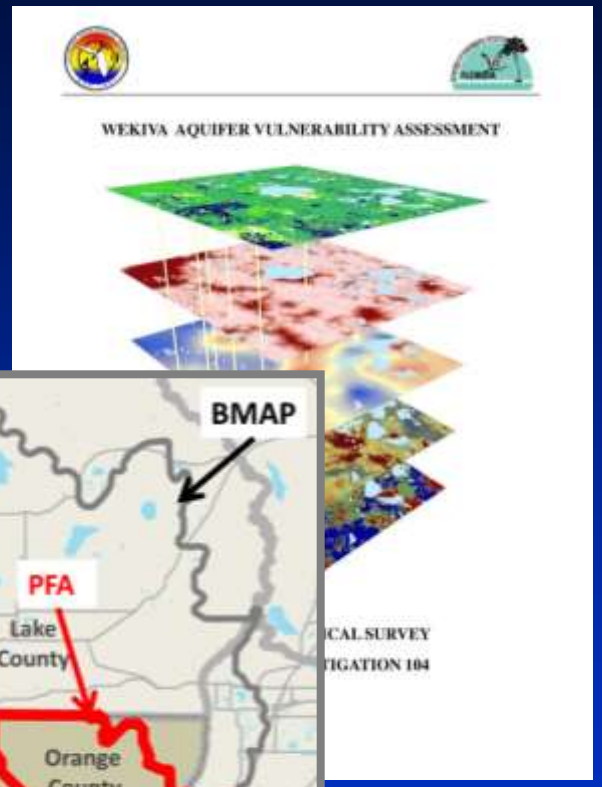
Objectives/Scope

- Conduct modeling to identify vulnerable areas
- Identify areas where upgrade may be required
- Several technologies are available - standards for upgrading systems (feasibility)
- Issues related to implementation
- Identify funding sources to incentivize homeowners to upgrade
- Recommend policy changes

Subgroup C Details

Vulnerability Assessment & Feasibility Studies

- **Groundwater Vulnerability Study**
  - Identify areas of vulnerability throughout the County
  - Using scientific models and methods
- **Identify PFAs based on more vulnerable areas and practical considerations**
  - Areas where new conventional septic systems will not be allowed and existing conventional septic systems should be phased out over time
- **Feasibility Studies**
  - Prioritize areas for sewer
  - Identify septic upgrade areas



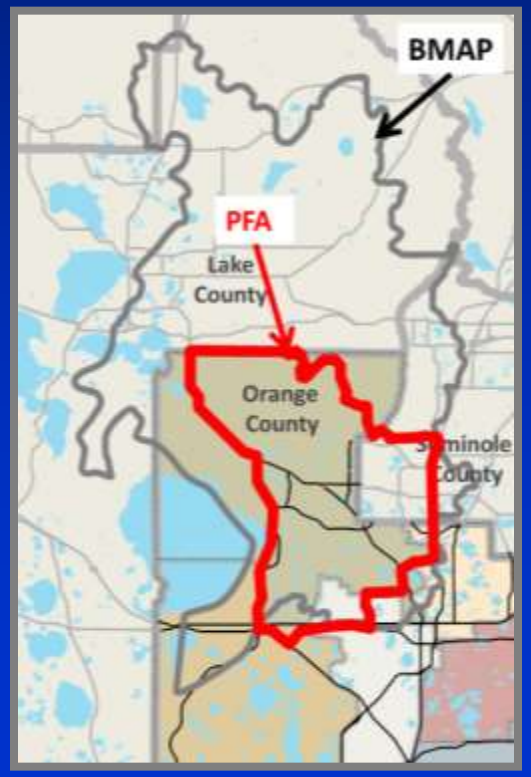
Subgroup C Details

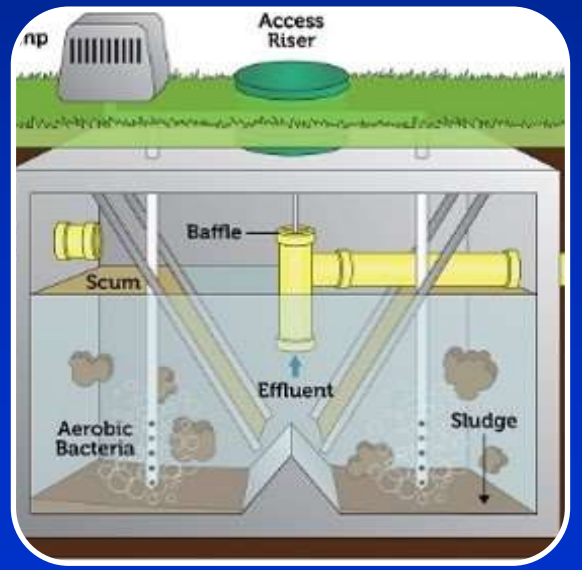
Vulnerability Assessment & Feasibility Studies

Identify Vulnerable Areas (PFAs)

Determine Areas Where Connection to Central Sewer is Feasible

Determine Areas Where Septic Systems Upgrades are Feasible





Subgroup C Details

Vulnerability Assessment

- **Identify vulnerable areas where upgrades may be required**
  - **More Vulnerable – Top priority for septic to sewer connection or septic upgrades**
    - **Consider conducting feasibility studies for septic to sewer connection (Subgroup B)**
    - **Consider conducting feasibility studies for septic tank upgrades (Subgroup C)**
  - **Vulnerable – Second tier priority for septic to sewer connection or septic upgrades, if adequate resources available**
  - **Less Vulnerable – Conventional septic tanks do not pose a significant concern**

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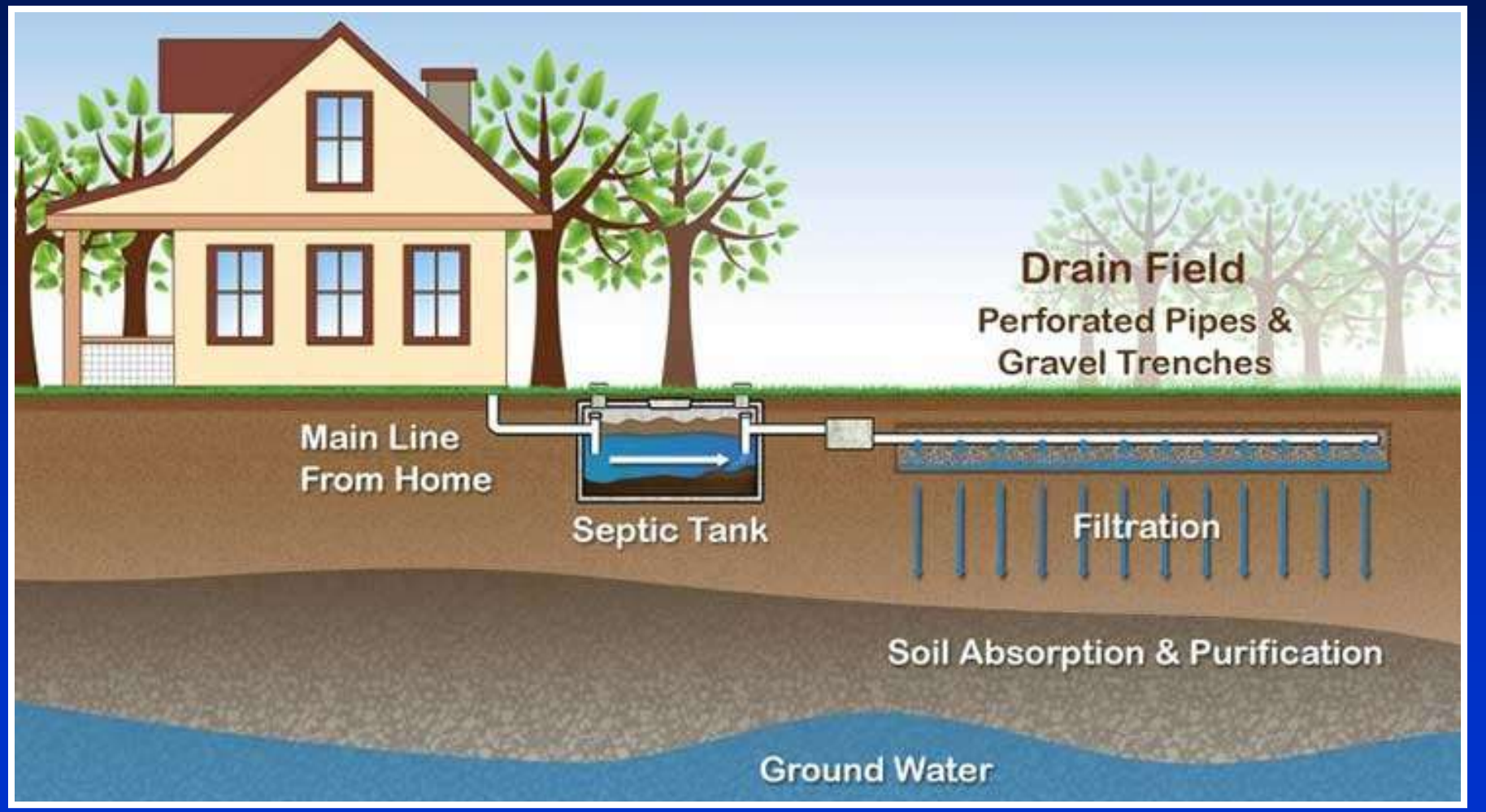
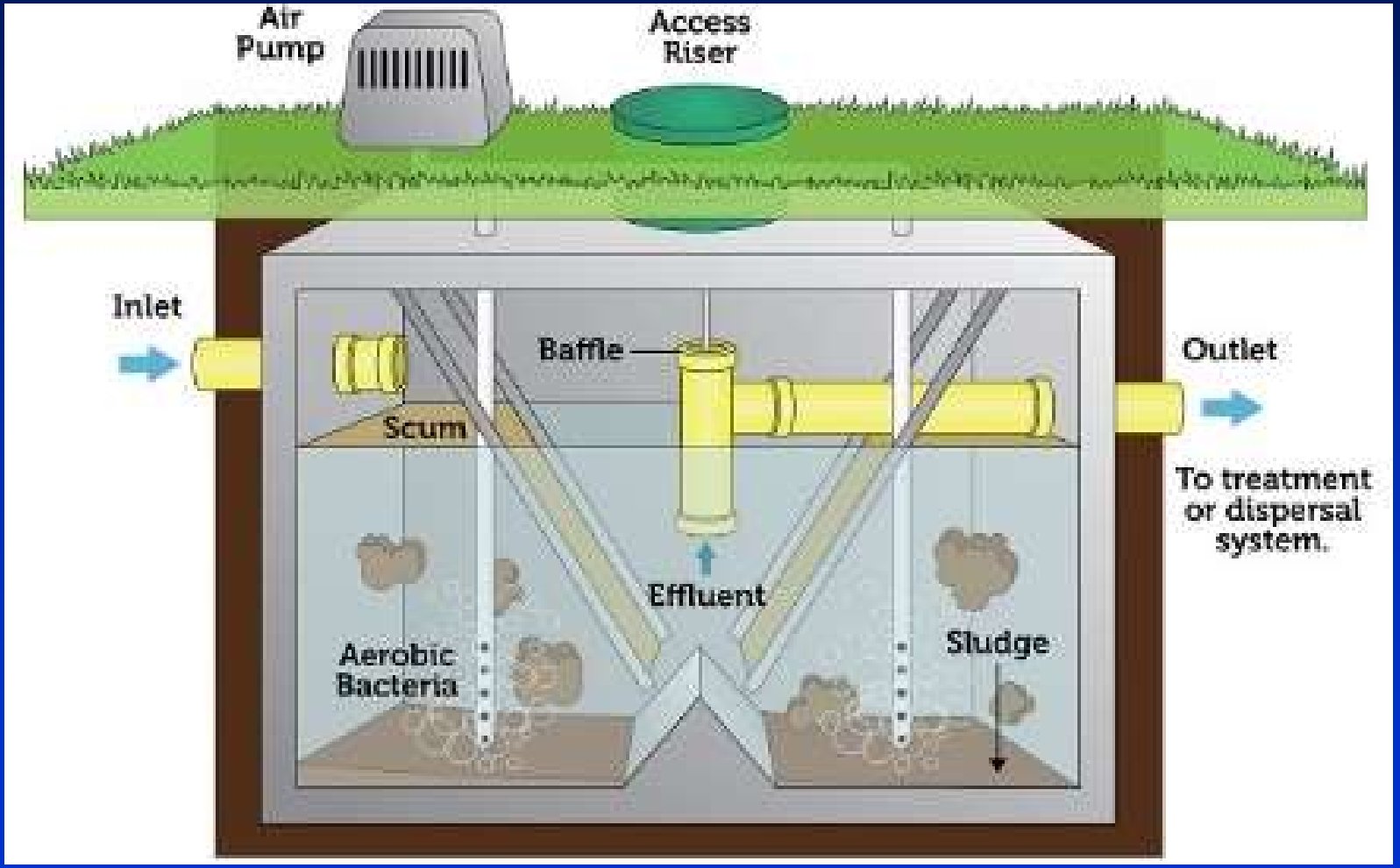
Septic Upgrade Options

Conventional Septic System



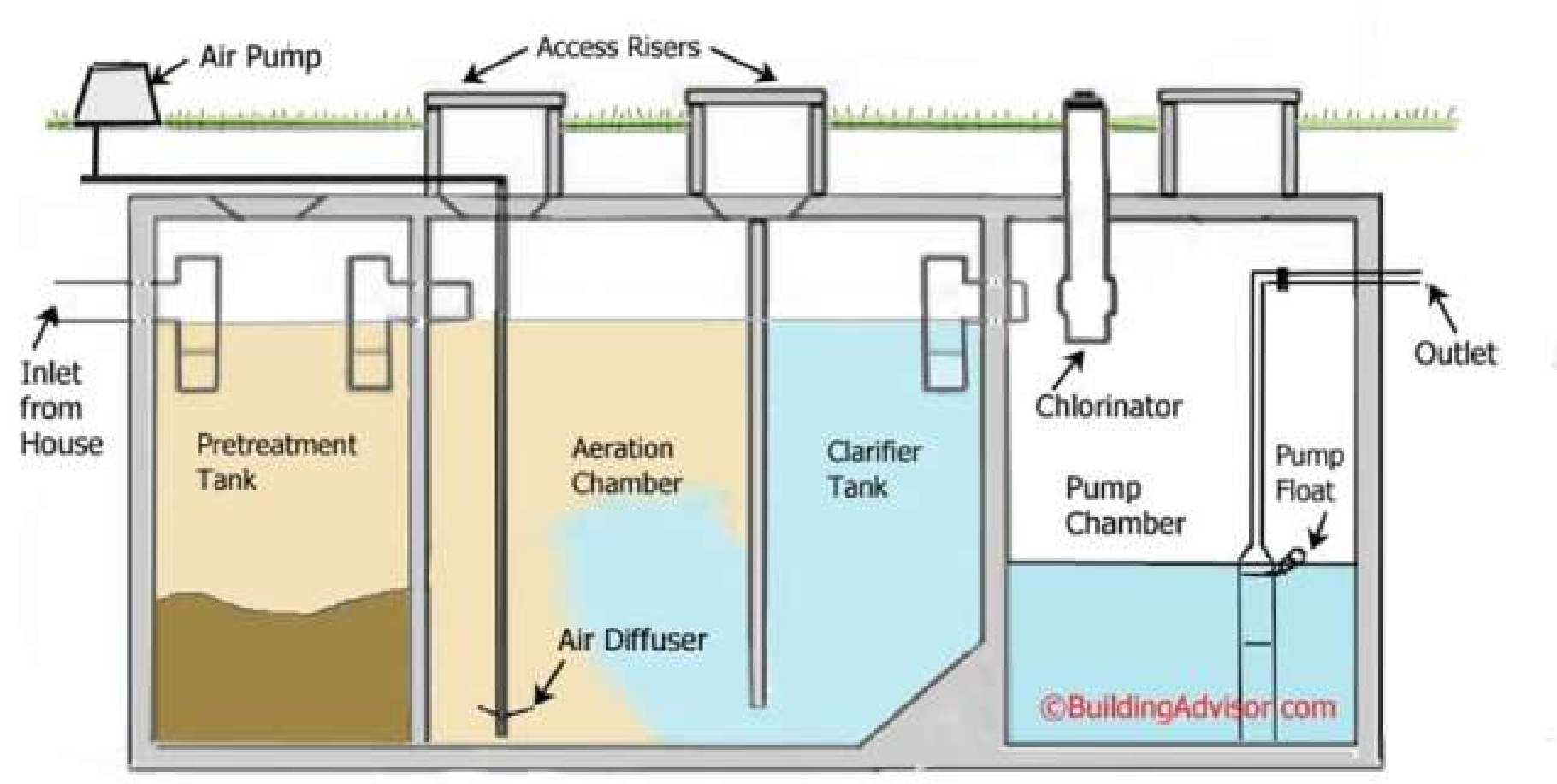
Septic Upgrade Options

Nitrogen-Reducing Aerobic Treatment Unit (ATU)



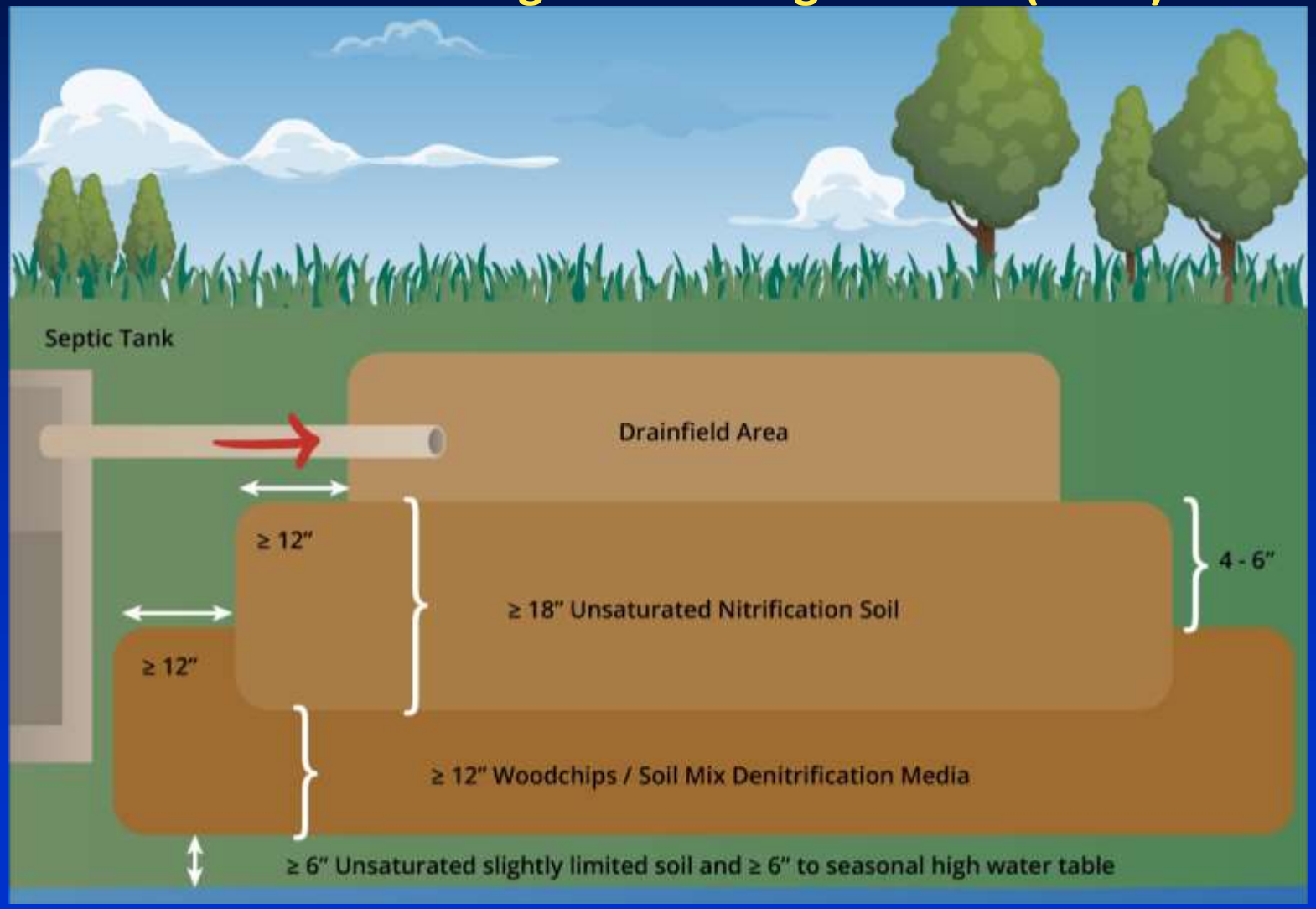
Septic Upgrade Options

Performance Based Treatment System (PBTS)



Septic Upgrade Options

In-Ground Nitrogen-Reducing Biofilter (INRB)



Septic Upgrade Options

Type of System	Capital Cost	Annual O&M Cost	Other Issues
Conventional	$8,000-$15,000	$100	No electricity required
Aerobic Treatment Unit	$15,000-$25,000	$400-$1,150	Electricity required
Performance Based Treatment System	$18,000-$30,000	$400-$1,150	Electricity required Engineered by P.E.
In-Ground Nitrogen-Reducing Biofilter	≥$10,000	$100	No electricity required

Septic Upgrade Options

Applicable Rules and Standards

- 62-6, FAC – FDOH/FDEP Standards for Onsite Sewage Treatment and Disposal Systems
  - Rulemaking to revise the regulations has begun
  - Aerobic Treatment Units (ATU) – NSF 245 (Nitrogen-Reducing) certified systems – FDEP/FDOH maintains approved list
  - Performance Based Treatment Systems (PBTS) – must be designed by a P.E.
  - Passive nitrogen reducing systems (INRB) – specific design requirements
  - Verified during permitting process by FDOH
- Identify what standards will be adopted by Orange County
  - Incentives vs. requirements and enforcement procedures

Septic Upgrade Options

Implementation Challenges

- Systems that require electricity cease functioning when power goes out
- Additional maintenance requirements and costs vs. traditional septic systems
- Failure to maintain may impact water quality as much as if traditional septic were in place
  - FDOH requires 3rd party maintenance agreement during permitting
- Effectiveness for phosphorus removal not determined yet

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Policy Development/Funding Sources

More Vulnerable Areas

- Require advanced nitrogen treatment for septic systems in new developments for lots <1 acre in size (Septic Subgroup A)
- Septic to sewer feasibility studies (Septic Subgroup B)
  - Will require prioritization
  - To be completed by County (state funding not anticipated)
- Require failing conventional septic systems to upgrade to advanced treatment

Policy Development/Funding Options

Other Policy Considerations

- Timing for implementation
- Effect on septic tank industry and property owners
- Operating agreement between FDOH/FDEP and Orange County
  - FDOH is the permitting authority under the auspices of FDEP
  - FDOH in Orange County implements state requirements
  - Operating agreement needed for FDOH to implement local requirements that vary from state requirements
  - FDOH may request funding to implement local requirements

Policy Development/Funding Options

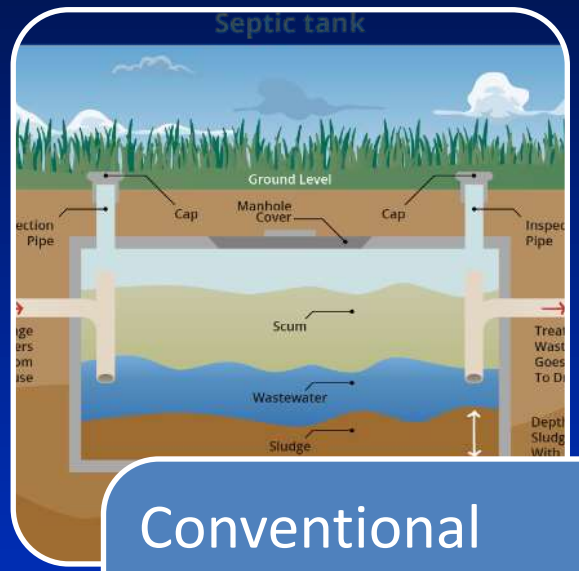
Identify Funding Sources for Upgrades

- **Identify Funding Sources to Incentivize Homeowners to Upgrade**
  - **Grants from FDEP or WMDs**
    - **Septic Upgrade Incentive Pilot Program: $7,000 for 22 homes in Wekiwa PFA**
    - **Outside of Wekiwa PFA - Competitive grant funding may be available**
  - **Estimated Cost to Upgrade**
  - **Consider using County General Fund resources as a strategy to meet BMAP requirements**

Policy Development/Funding Options

Identify Funding Sources for Upgrades

Wekiwa PFA and in OCU Service Territory

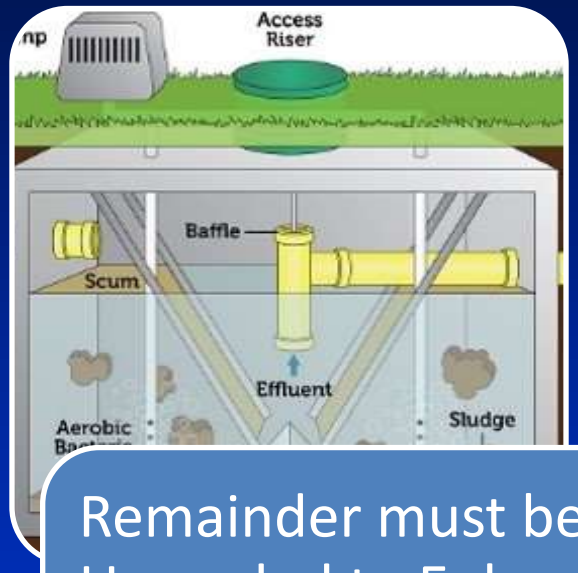


Conventional Septic Systems

- 17,762 total
- 16,096 on lots less than 1 acre

Feasible to Connect to Central Sewer in 20 years

- 4,720 (29%)
- $354 million (total)
- Up to 25% (OCU)



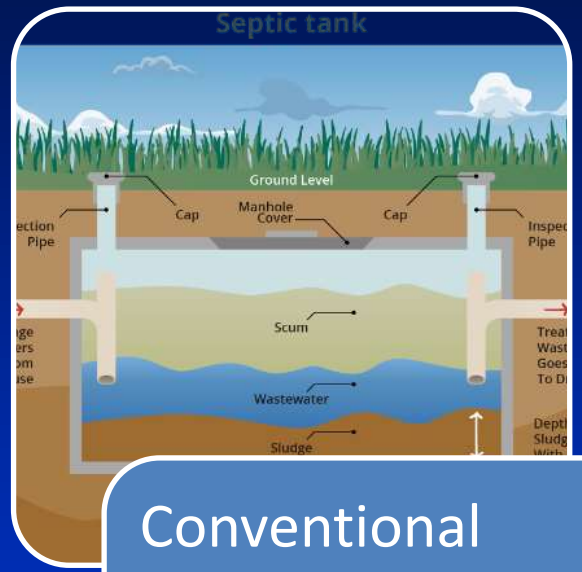
Remainder must be Upgraded to Enhanced Treatment

- 11,376 parcels < 1 acre in size (71%)
- $228 million (total)
- $80 million (incentive)

Policy Development/Funding Options

Identify Funding Sources for Upgrades

Outside Wekiwa PFA and in OCU Service Territory

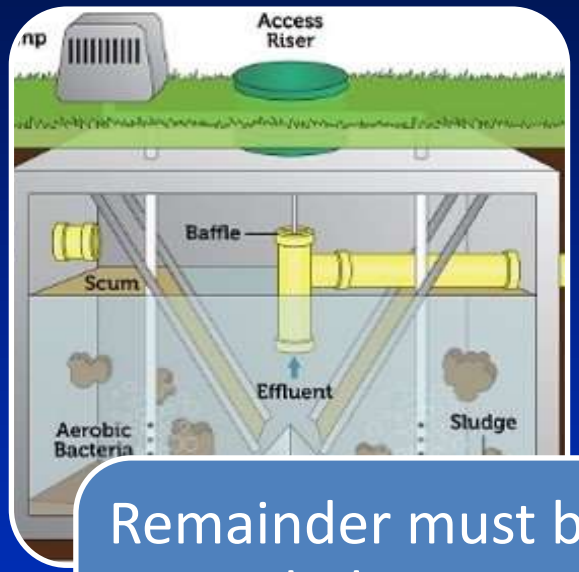


Conventional Septic Systems

- 41,879
- # in PFAs TBD

Feasible to Connect to Central Sewer

- # TBD
- $40K-$75K per system
- OCU = up to 25% per ordinance



Remainder must be Upgraded to Enhanced Treatment

- # TBD
- $10K-30K per system
- Potential incentive = $7K per system

Policy Development/Funding Options

Stakeholders

- Policy Makers (Orange County BCC)
- State Agencies (FDEP, FDOH, SJRWMD, SFWMD)
- Municipalities
- Septic Tank Industry (equipment vendors, installers, maintenance entities, Florida Onsite Wastewater Association)
- Development Industry (residential, commercial, contractors, builders, engineers, attorneys)
- Environmental Groups
- Orange County Residents, Homeowners, and Visitors

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Next Steps

- Complete Vulnerability Assessment Study
- Complete Feasibility Studies for more vulnerable areas
- Stakeholder engagement (including advisory boards)
- Work Session and Public Hearings with Board regarding policy direction and ordinance updates
- Seek grant funding opportunities
- Evaluate costs and budget resources to implement septic upgrade incentive program
- Negotiate agreement with FDEP/FDOH

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Summary

- Nutrient water quality impairments are increasing and septic systems are a large source
- Conventional septic systems provide safe, effective sewage treatment in appropriate locations
- Advanced nitrogen treatment systems are available for areas with water quality concerns
- Subgroup C addresses existing septic tanks impacting water quality
- Both connecting to sanitary sewer and upgrading septic involves additional costs for homeowners and other potential concerns