

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
- Next Steps
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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

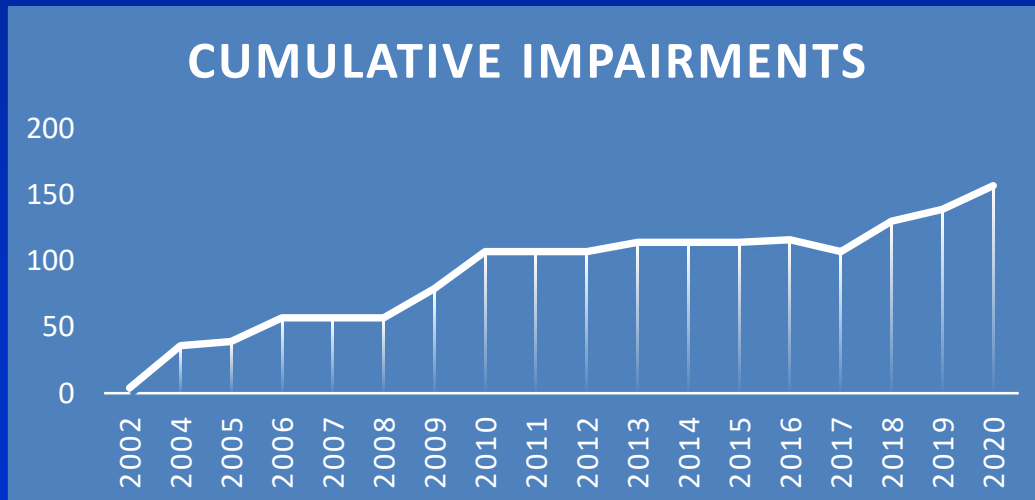
■ Orange County's Water Resources

- 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

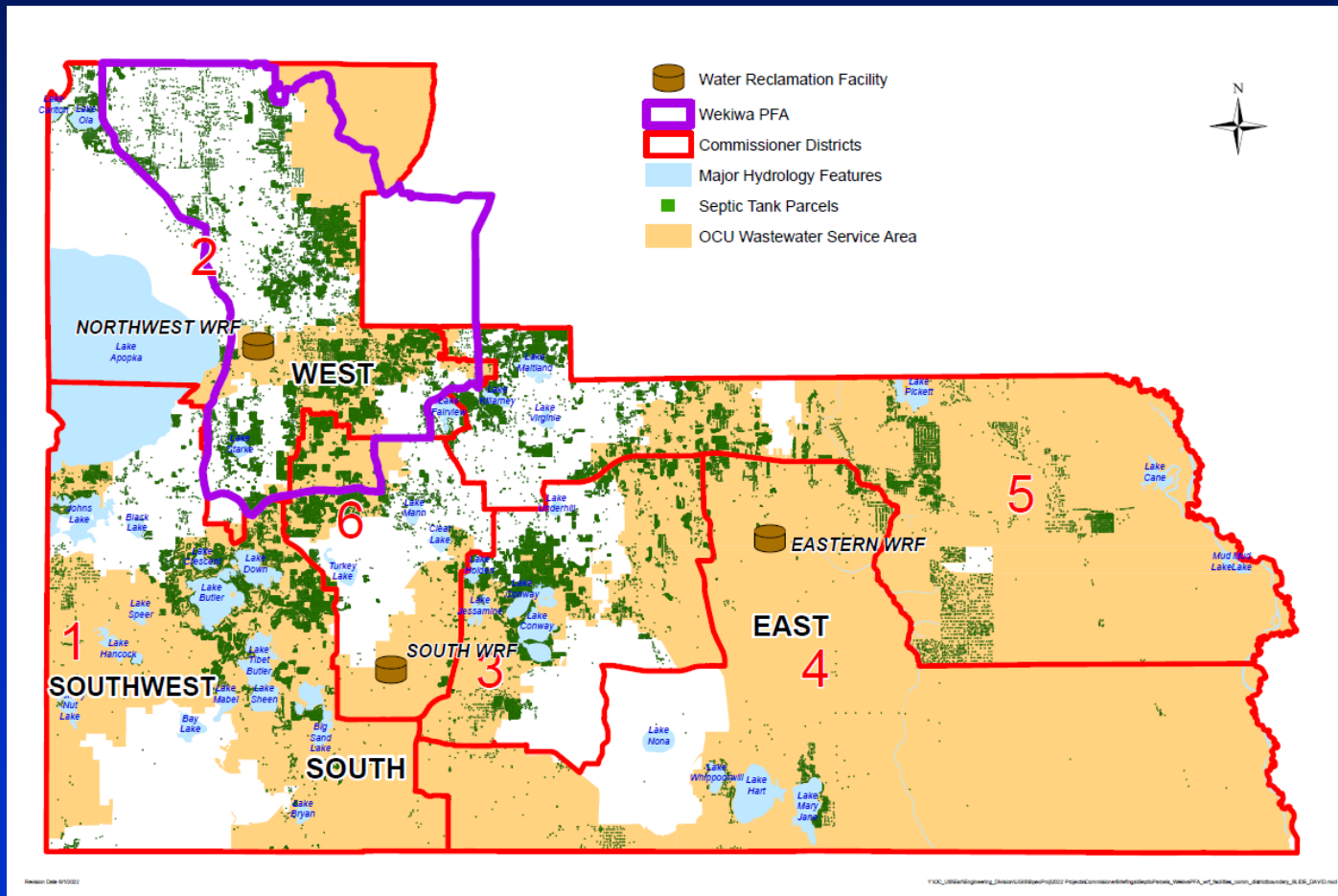
- Natural water quality throughout the region is impaired by nutrients
- Excess nutrients cause overabundance of algae
- Algae can adversely affect the environment



- 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

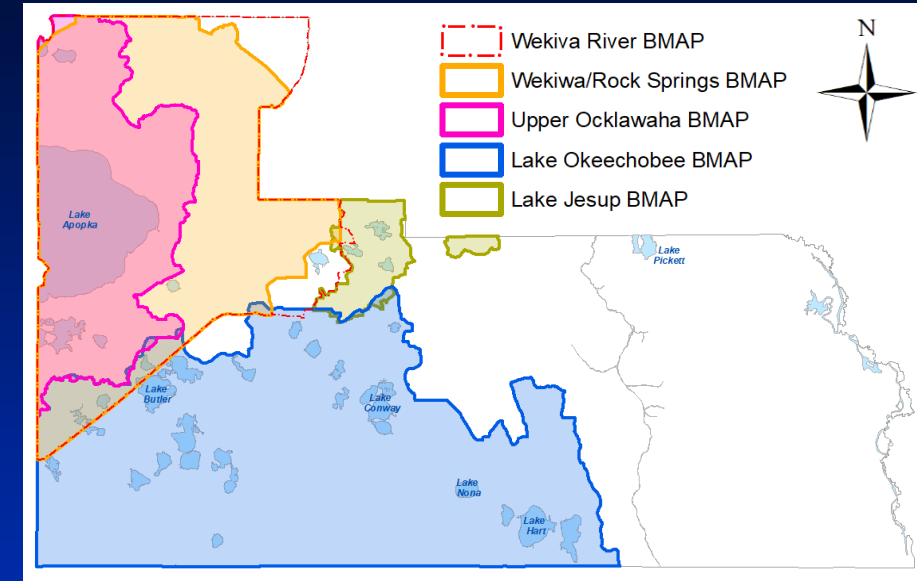
- Septic Upgrades as Potential Strategy for BMAPs
- Wekiwa requires upgrades/sewer within PFA
 - Highest sources of nitrogen from septic and fertilizer

■ 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**

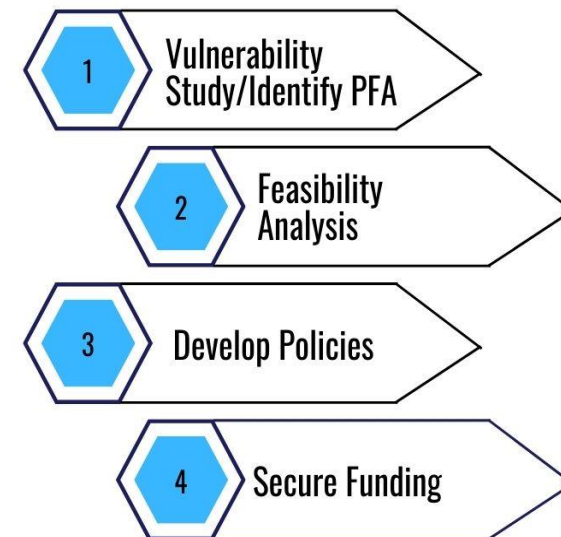


Subgroup C Details

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



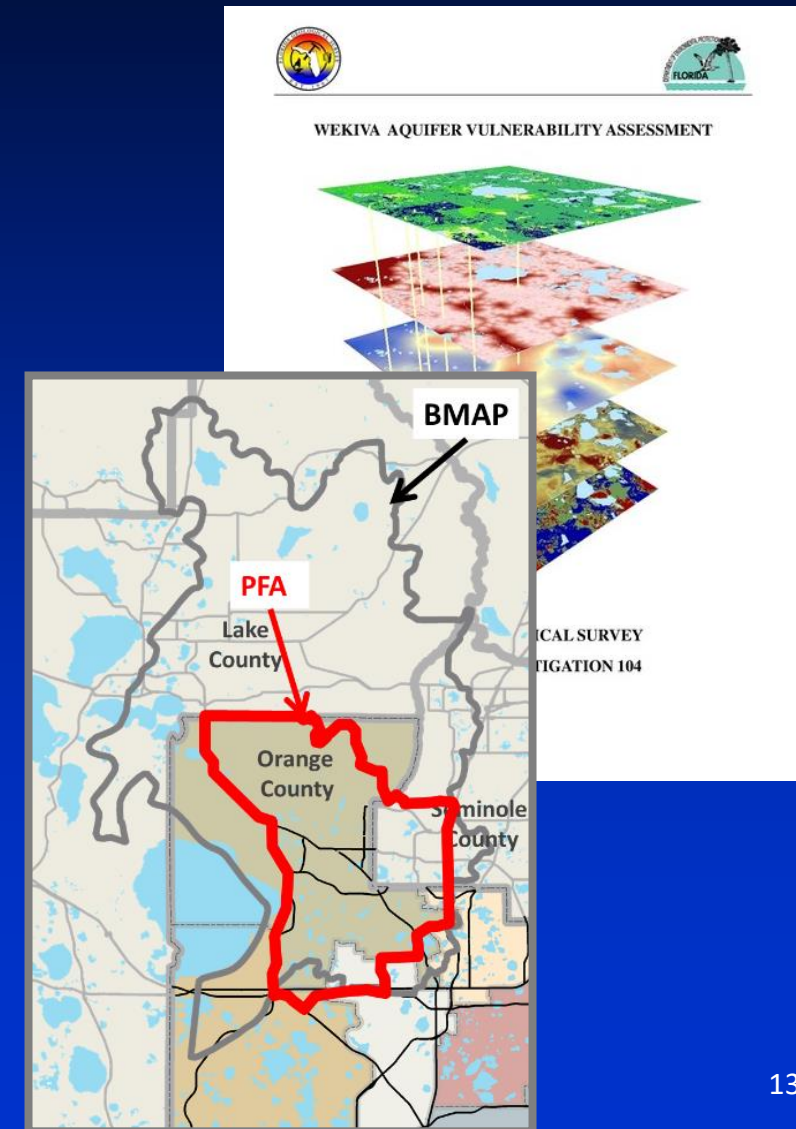


Subgroup C Details

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

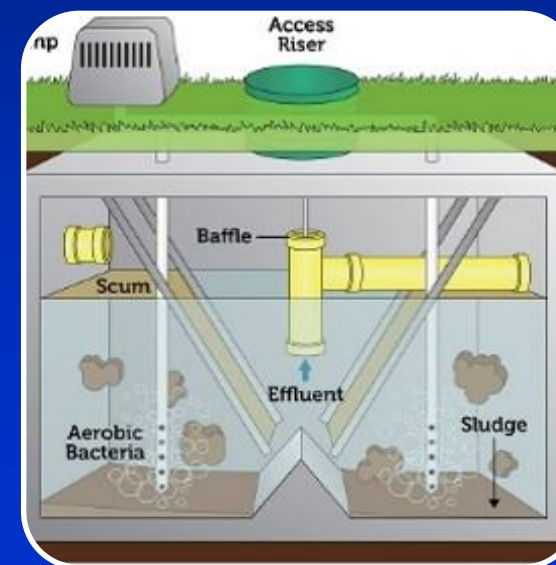
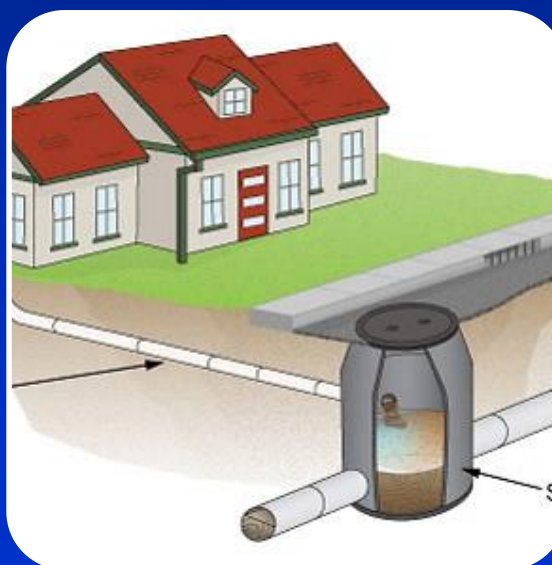
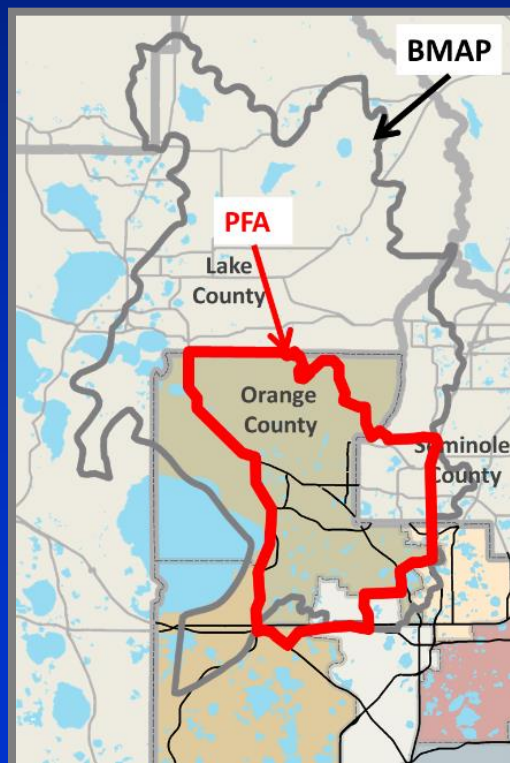
Identify Vulnerable
Areas (PFAs)



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



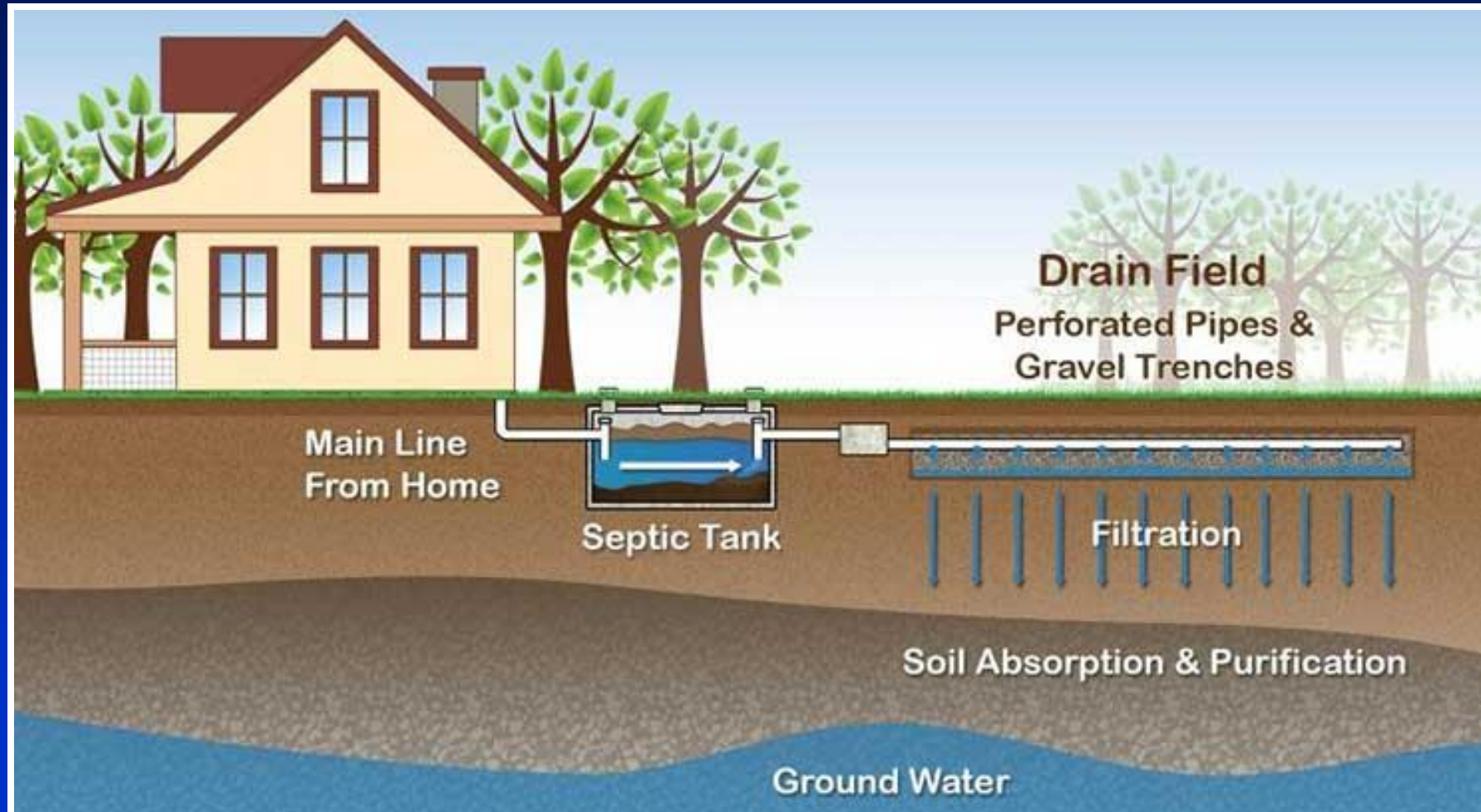
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Septic Upgrade Options

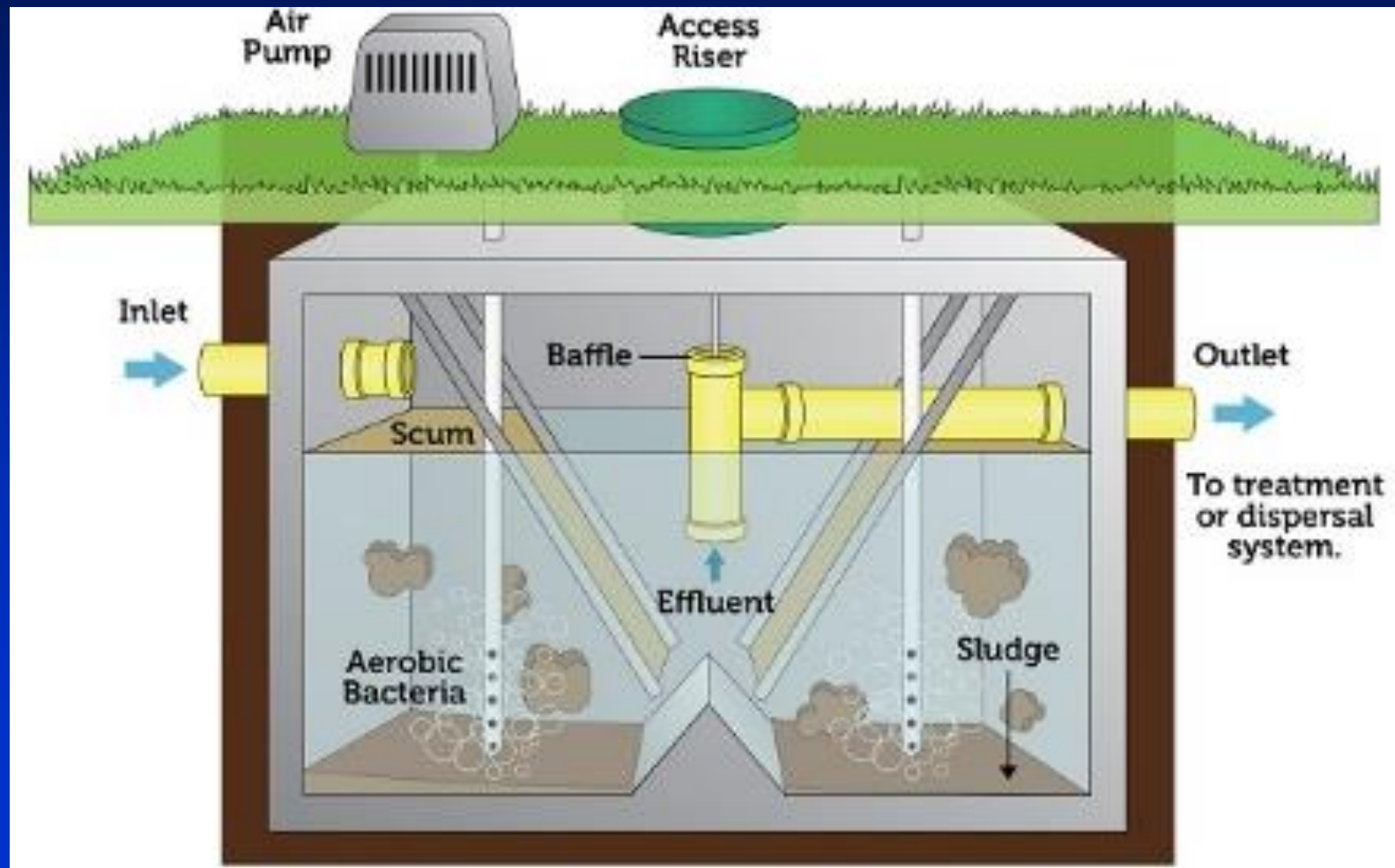
Conventional Septic System





Septic Upgrade Options

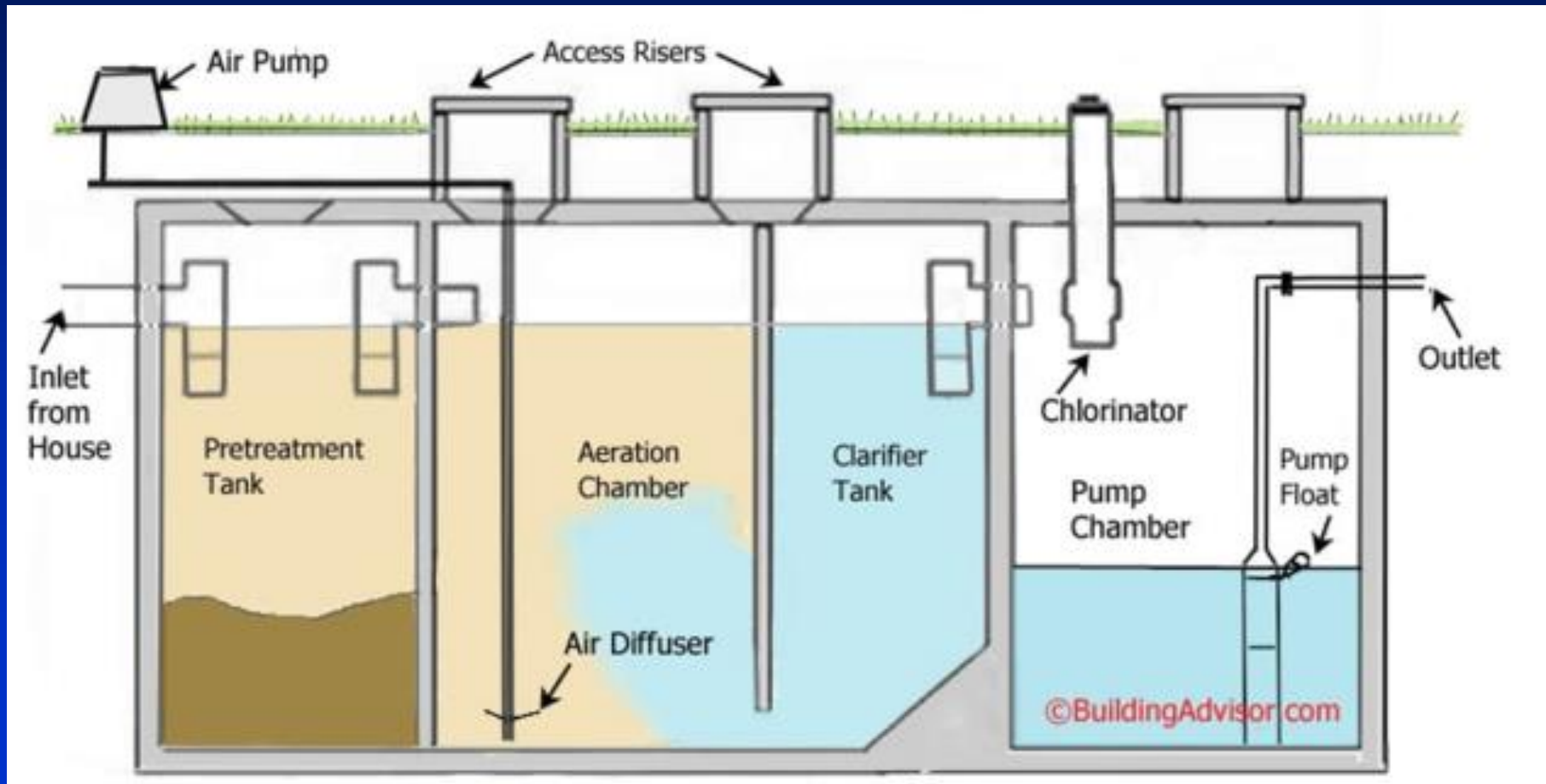
Nitrogen-Reducing Aerobic Treatment Unit (ATU)





Septic Upgrade Options

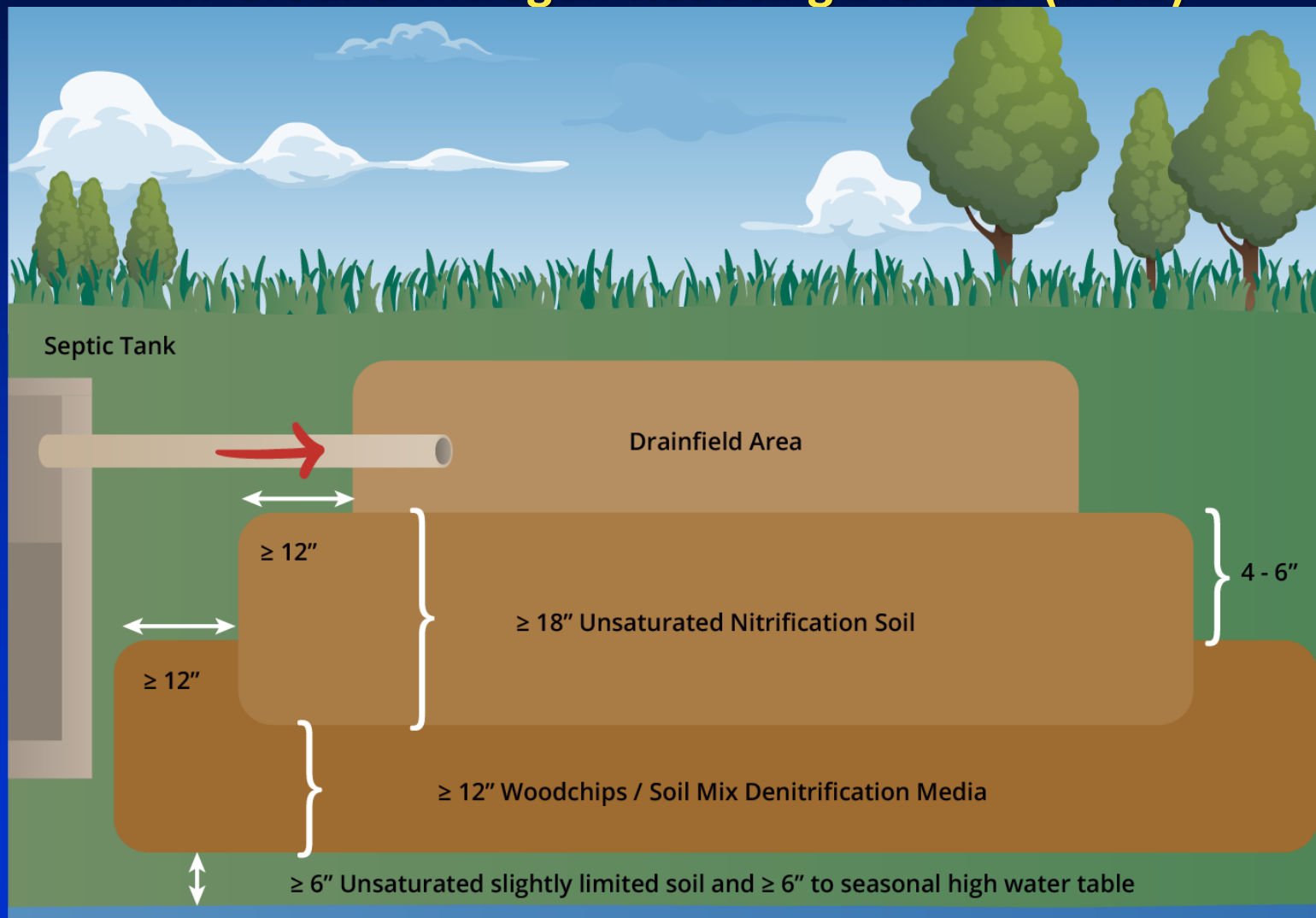
Performance Based Treatment System (PBTs)





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

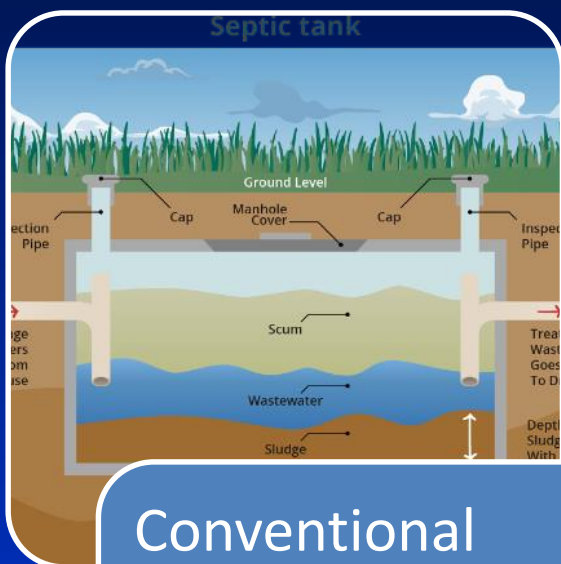
- **Identify Funding Sources to Incentivize Homeowners to Upgrade**
 - **Grants from FDEP or WMDs**
 - **Septic Upgrade Incentive Pilot Program: \$7,000 for 22 homes in Wekiwa PFA**
 - **Outside of Wekiwa PFA - Competitive grant funding may be available**
 - **Estimated Cost to Upgrade**
 - **Consider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



Policy Development/Funding Options

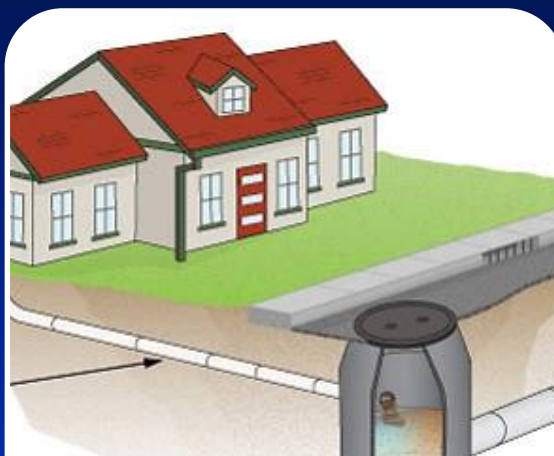
Identify Funding Sources for Upgrades

Wekiwa PFA and in OCU Service Territory



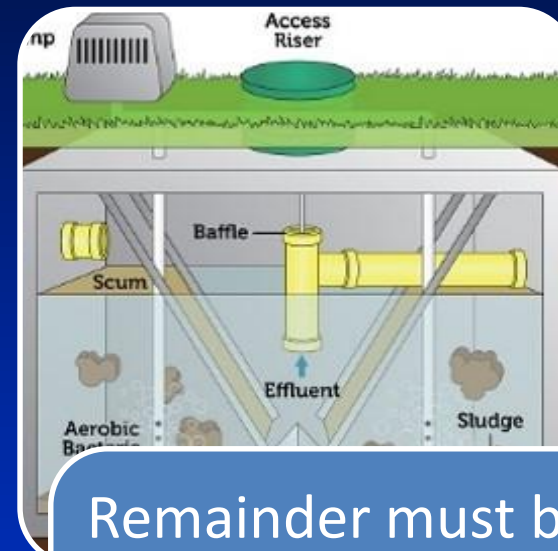
Conventional Septic Systems

- 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

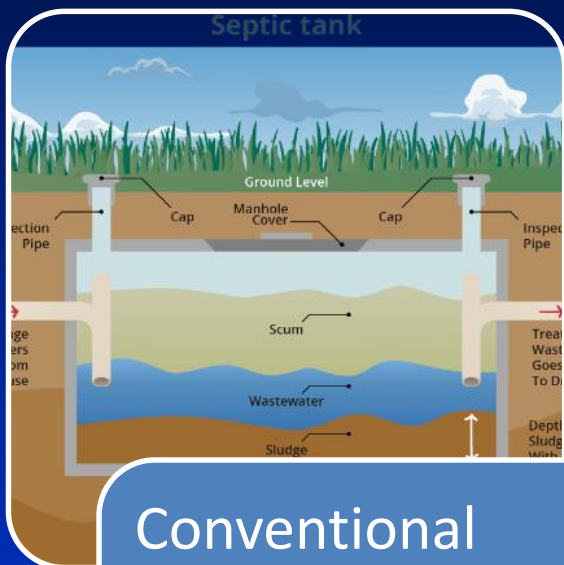
- 11,376 parcels < 1 acre in size (71%)
- \$228 million (total)
- \$80 million (incentive)



Policy Development/Funding Options

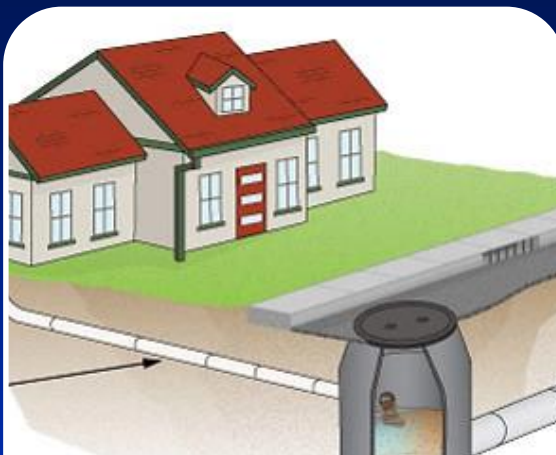
Identify Funding Sources for Upgrades

Outside Wekiwa PFA and in OCU Service Territory



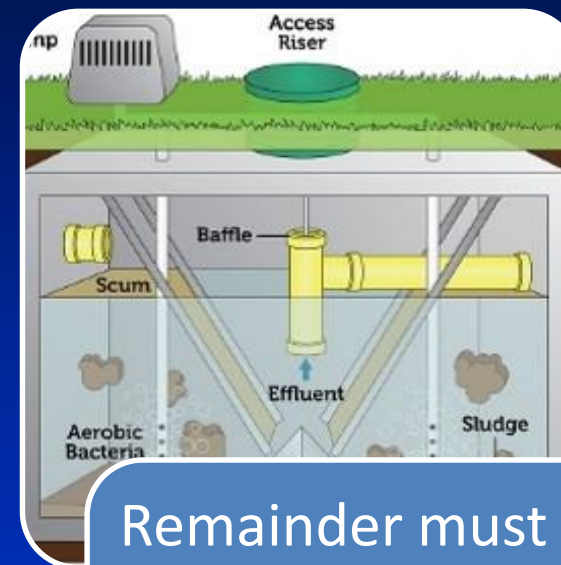
Conventional Septic Systems

- 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**