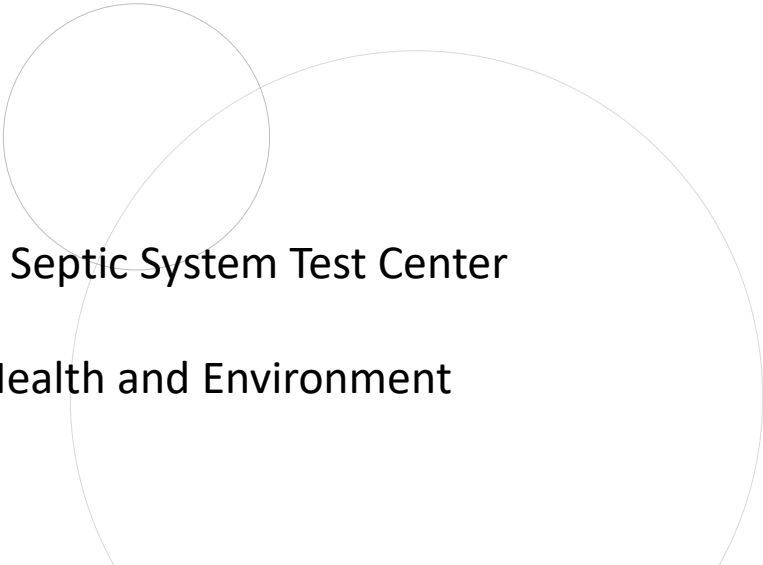




RESPONSIBLE MANAGEMENT ENTITIES


FOR DECENTRALIZED WASTEWATER TREATMENT INFRASTRUCTURE

Brian Baumgaertel
Director, Massachusetts Alternative Septic System Test Center
Senior Environmental Specialist
Barnstable County Department of Health and Environment







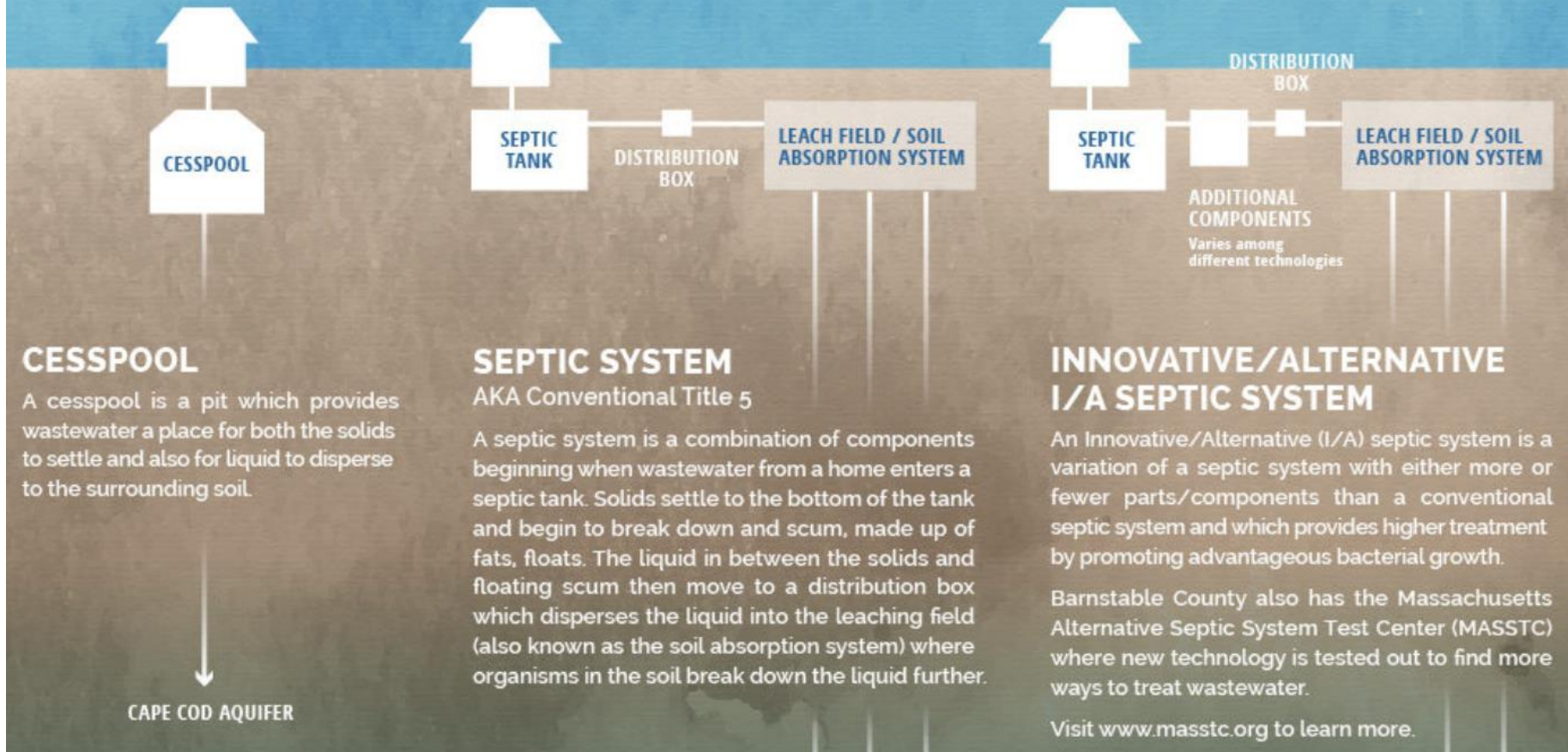


WHAT IS AN I/A SYSTEM?



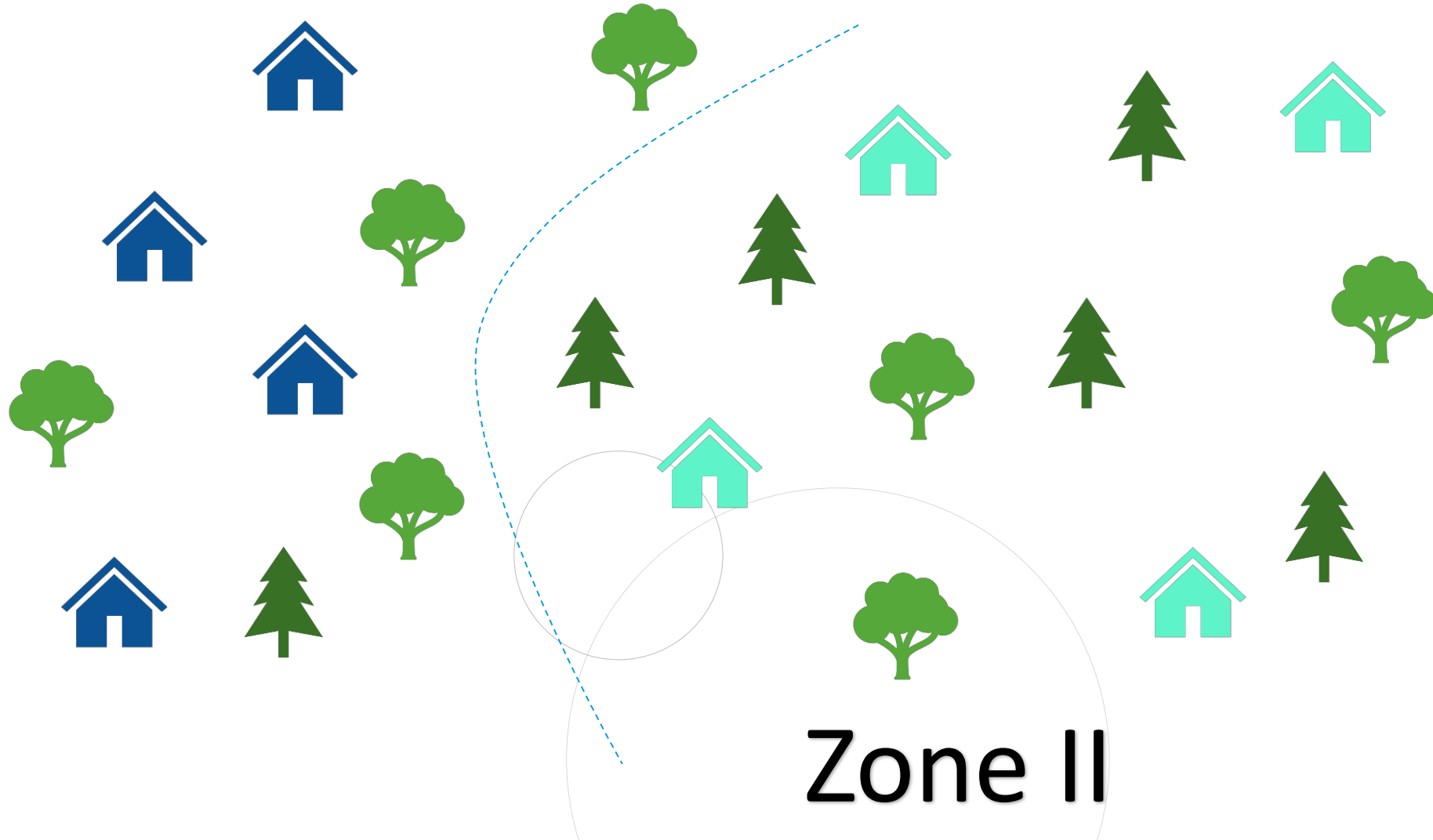
I/A VS. SEPTIC SYSTEMS

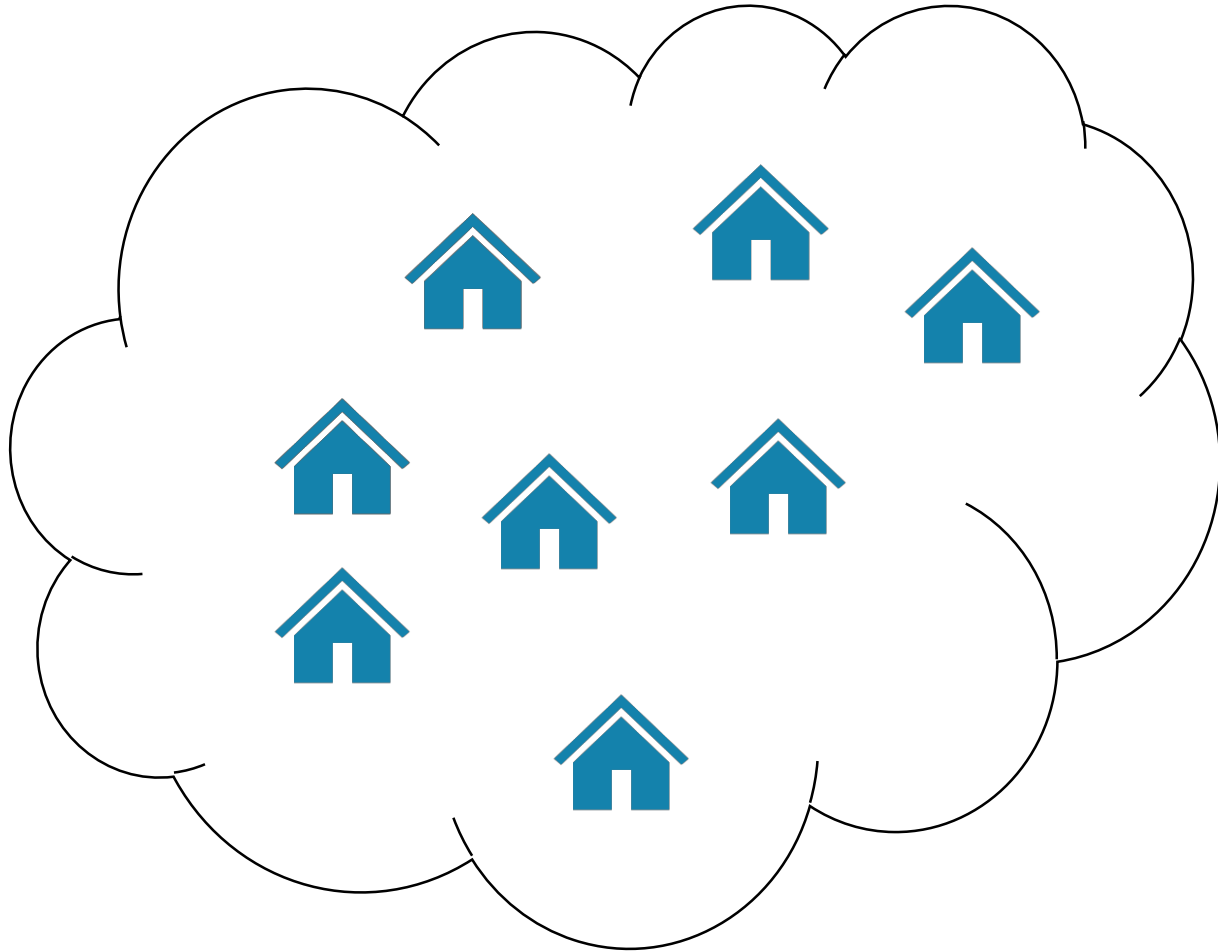
WHAT ARE SOME DIFFERENT TYPES OF ONSITE WASTEWATER TREATMENT SYSTEMS?



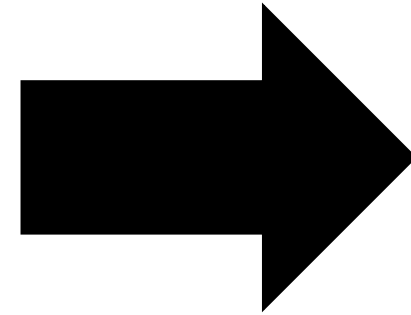


INDIVIDUAL SYSTEMS FOR INDIVIDUAL NEEDS





Hypothetical
Watershed



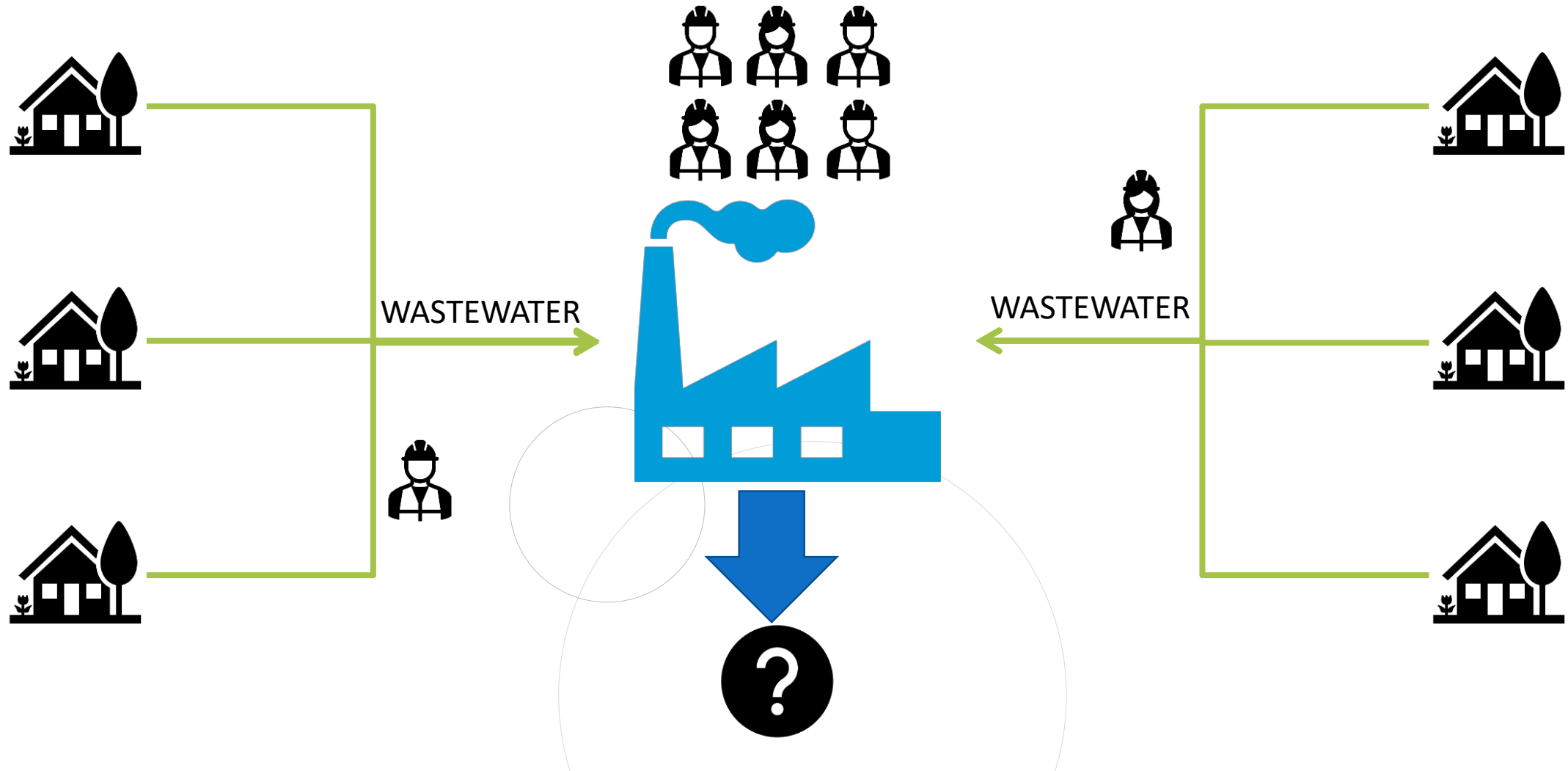
Target
Nitrogen
Removal



~~19 mg/L~~

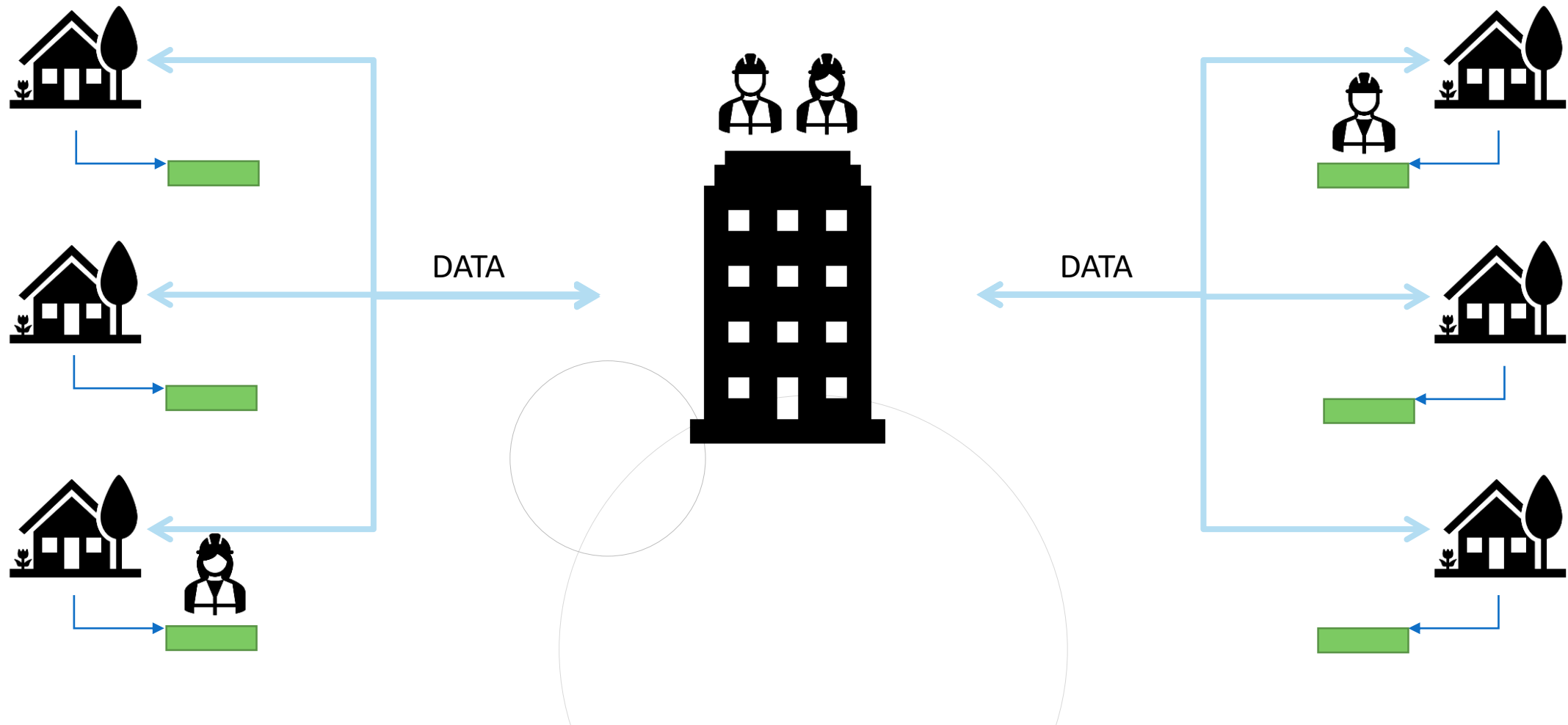


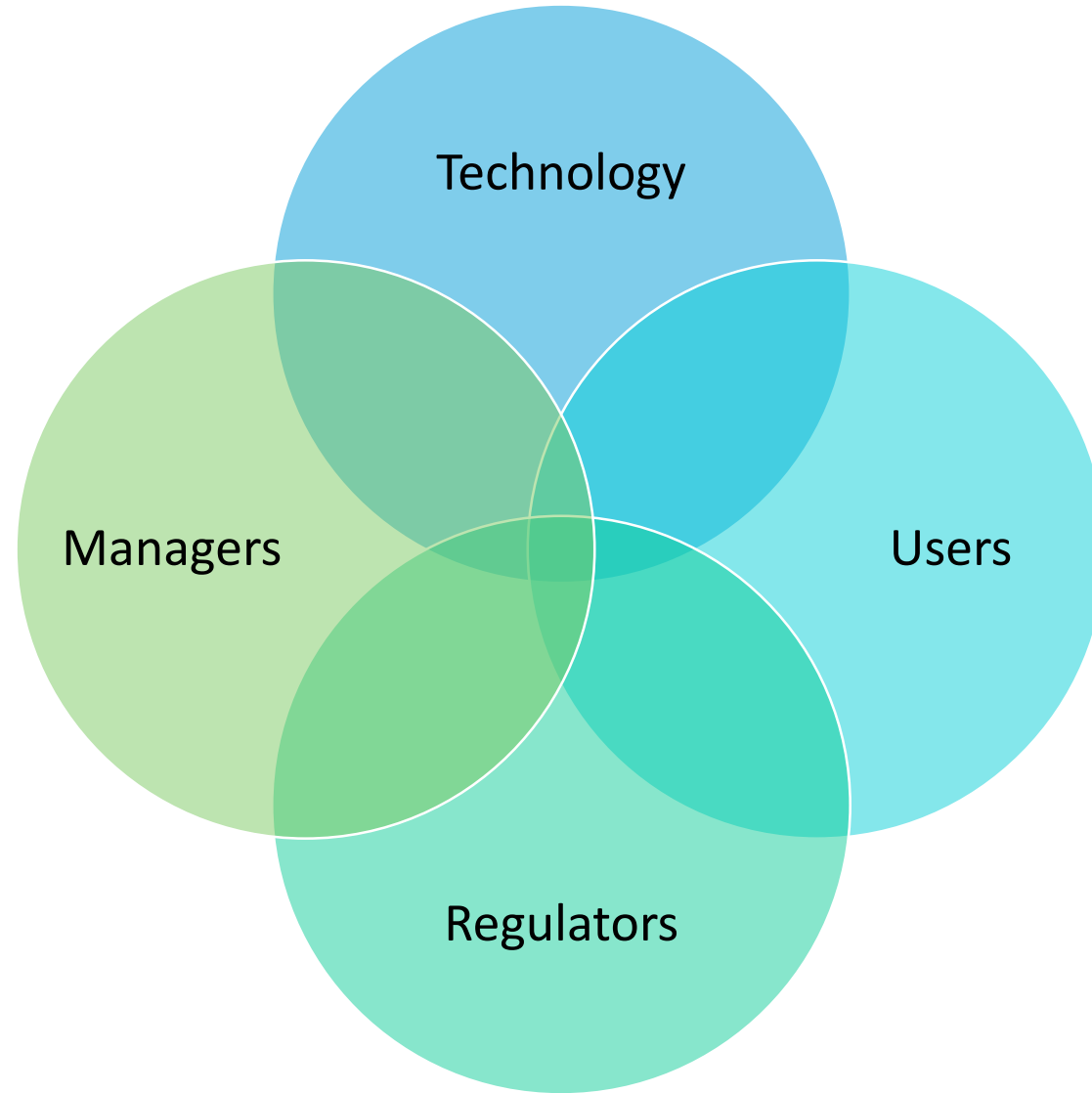
CENTRALIZED WASTEWATER TREATMENT INFRASTRUCTURE





DECENTRALIZED WASTEWATER TREATMENT INFRASTRUCTURE







WHAT IS AN RME?

ACRONYMS THAT ARE NOT WHAT WE ARE TALKING ABOUT







RESPONSIBLE MANAGEMENT ENTITIES

- An organization or collection of organizations tasked with overseeing the cradle-to-grave lifecycle of onsite wastewater treatment infrastructure



BEFORE THERE WERE RME'S

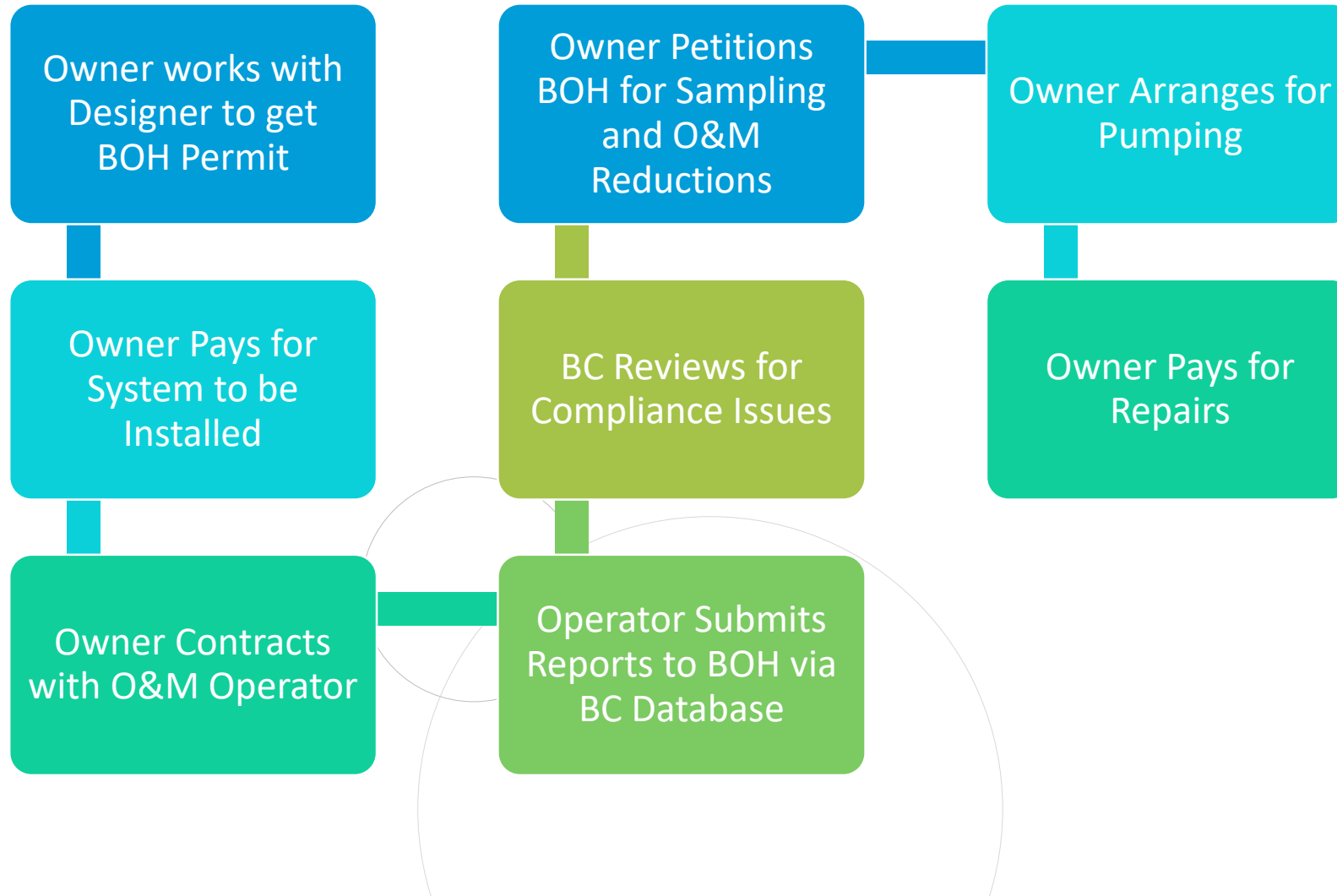
THERE WAS CHAOS





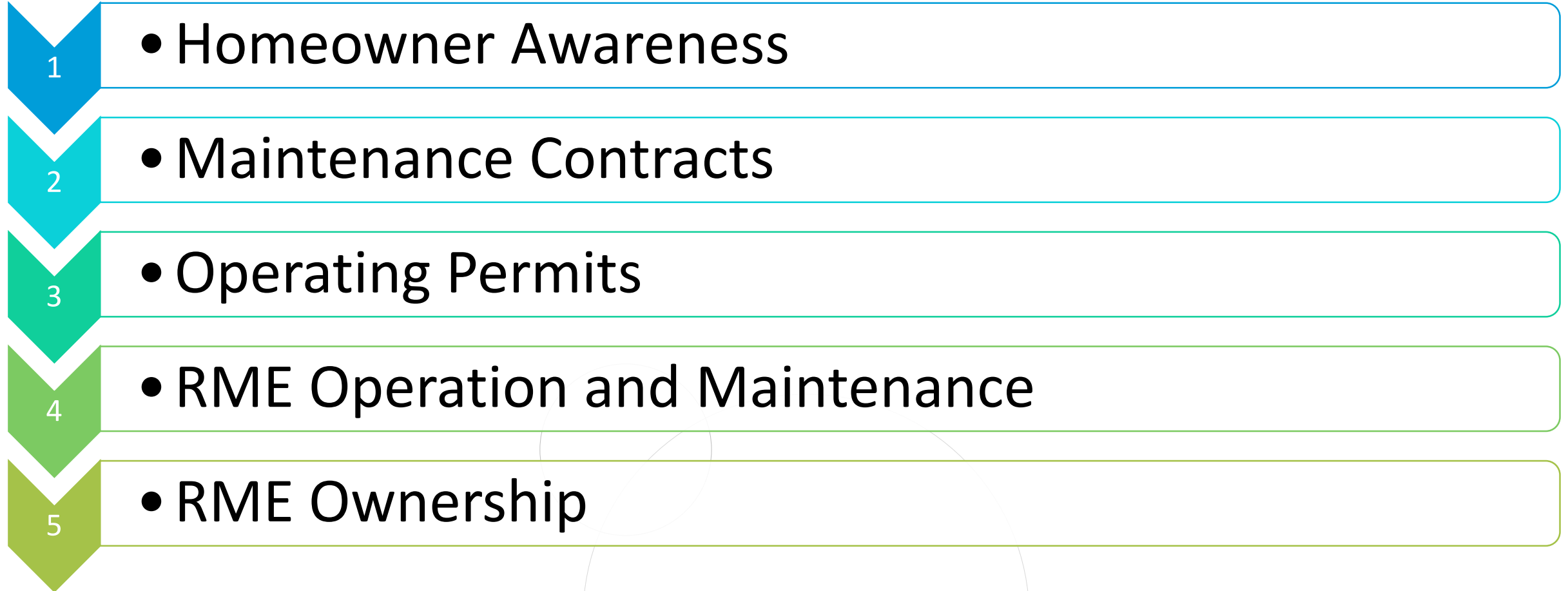


How it Works Now (In Barnstable County)





5 Levels of RME





MODEL 1 – HOMEOWNER AWARENESS



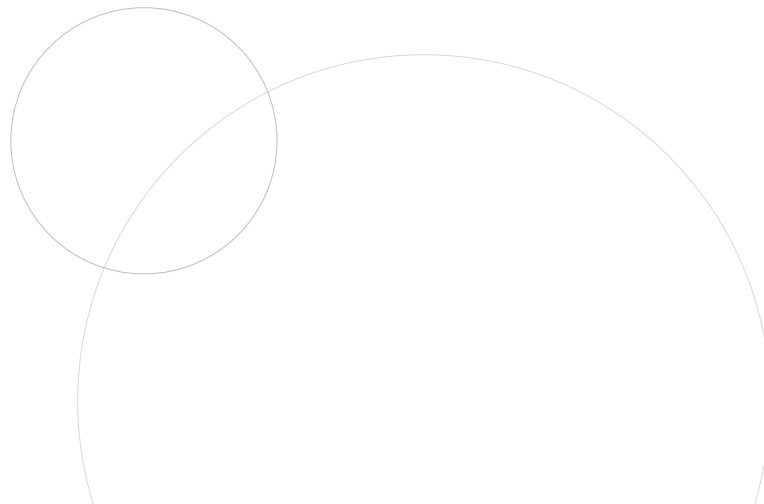
MODEL 1 – HOMEOWNER AWARENESS

Applications

- Low environmental sensitivity.
- Sites suitable for fully compliant systems.

Description

- Systems properly sited and constructed based on prescribed criteria (like Title 5).
- Owners made aware of maintenance needs through reminders.
- Inventory of all systems.





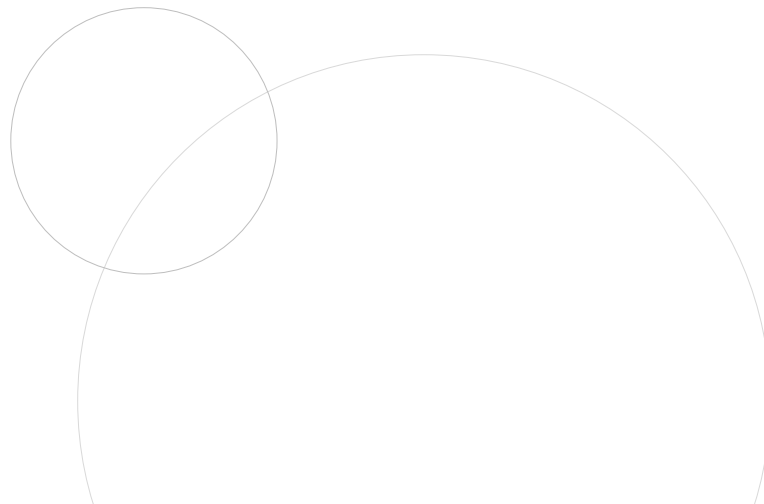
MODEL 1 – HOMEOWNER AWARENESS

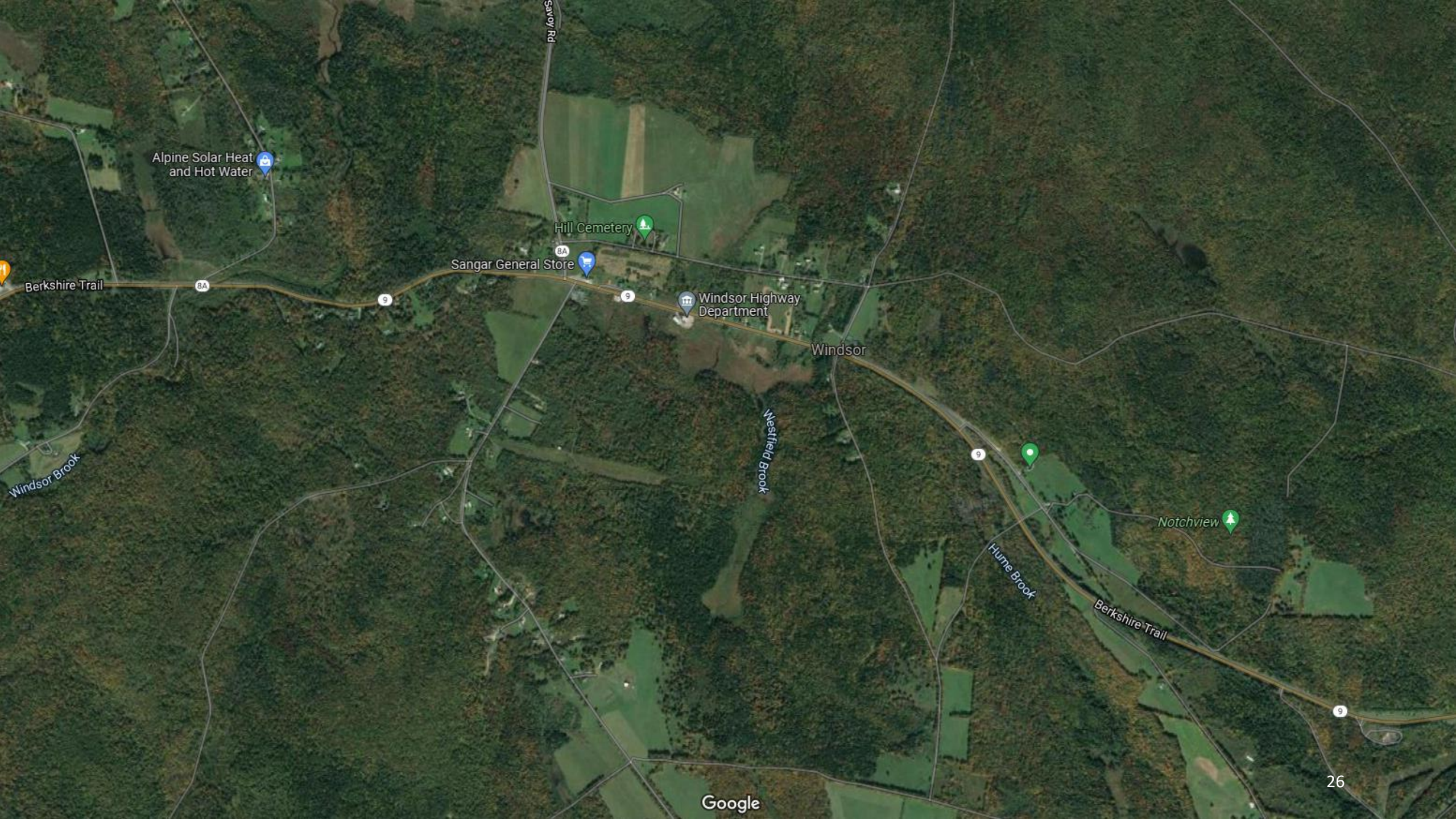
Benefits

- Code-compliant system.
- Ease of implementation; based on existing, prescriptive system design and site criteria.
- Provides an inventory of systems that is useful in system tracking and area-wide planning.

Limitations

- No compliance/problem identification mechanism.
- Sites must meet siting requirements.
- Cost to maintain database and owner education program.





Alpine Solar Heat and Hot Water

Hill Cemetery

Sangar General Store

Windsor Highway Department

Windsor

Notchview



MODEL 2 – MAINTENANCE CONTRACTS



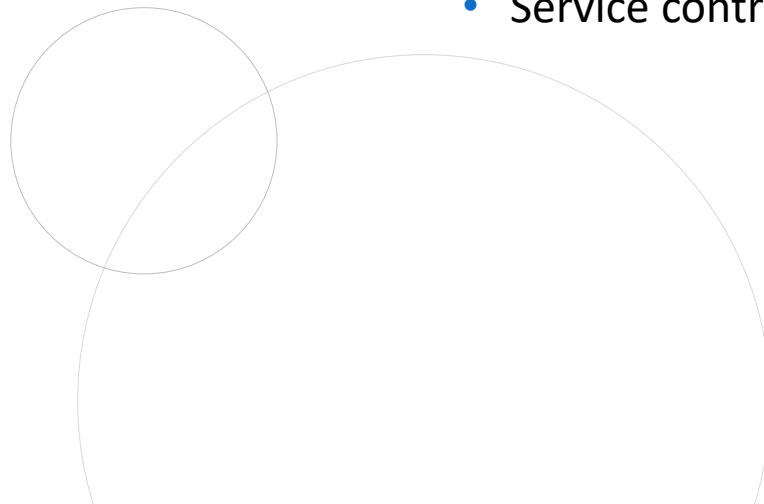
MODEL 2 – MAINTENANCE CONTRACTS

Applications

- Areas of low to moderate environmental sensitivity where sites are marginally suitable for conventional onsite systems due to small lots, shallow soils, or low permeability soils.
- Small clustered systems

Description

- Systems properly sited and constructed.
- More complex treatment options, including mechanical components or small clusters of homes.
- Requires service contracts to be maintained.
- Inventory of all systems.
- Service contract tracking system





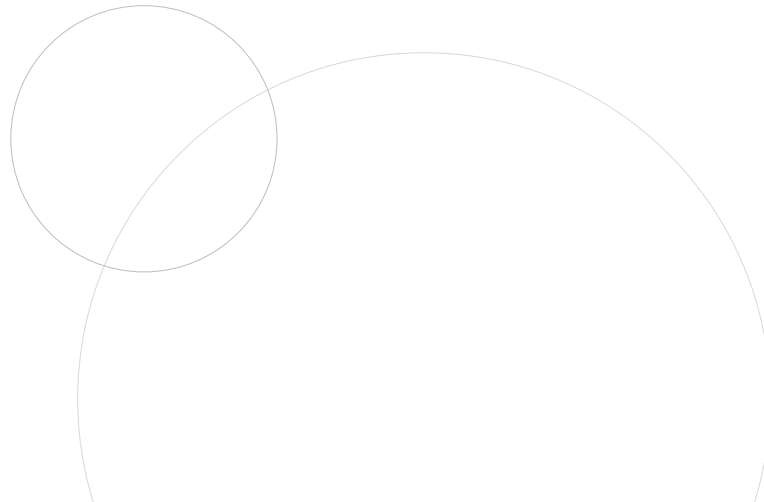
MODEL 2 – MAINTENANCE CONTRACTS

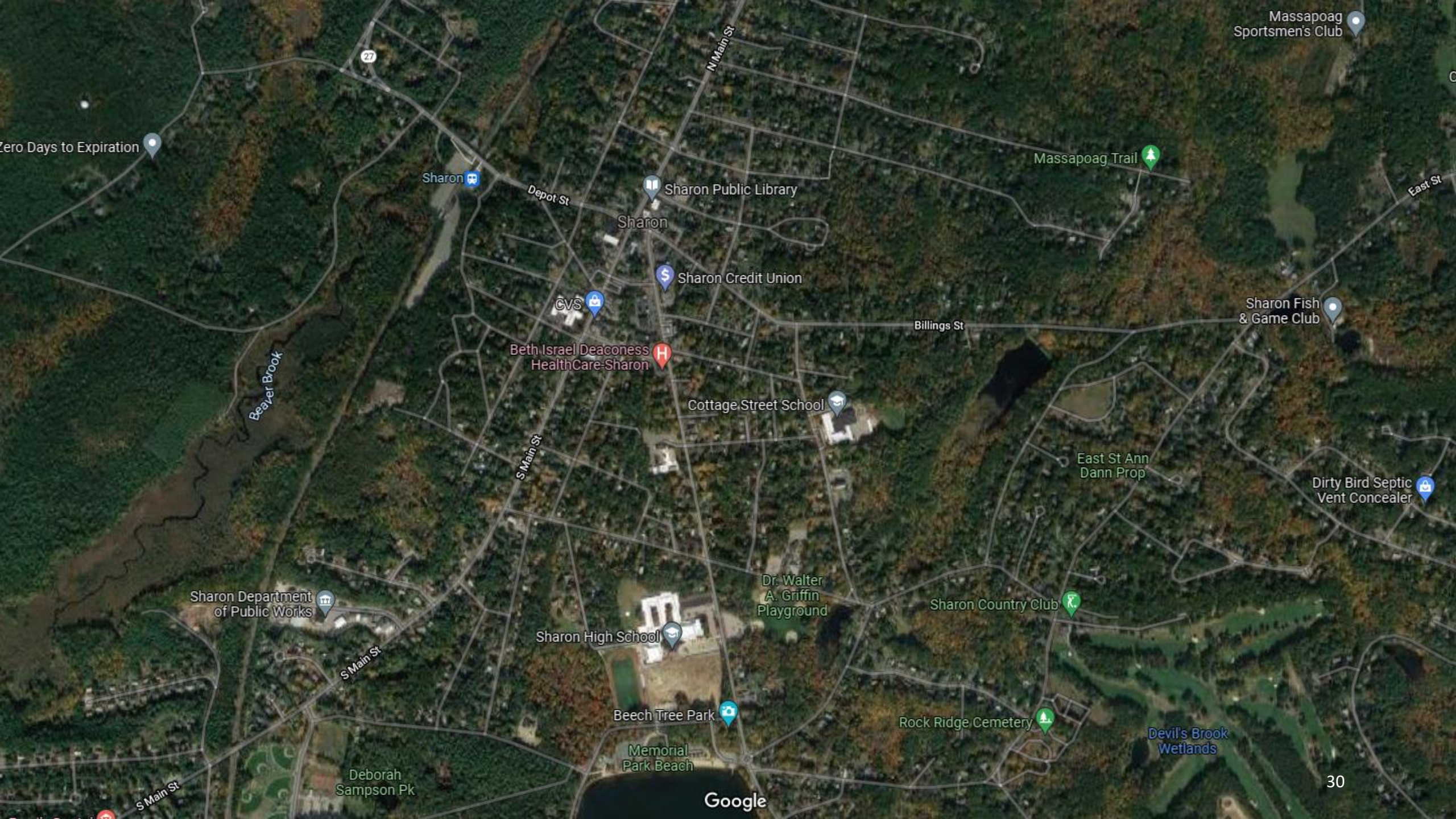
Benefits

- Reduces the risk of treatment system malfunctions.
- Protects homeowner investment.

Limitations

- Difficulty in tracking and enforcing compliance because it must rely on the owner or contractor to report a lapse in a valid contract for services.
- No mechanism provided to assess effectiveness of maintenance program.





Massapoag Sportsmen's Club

Zero Days to Expiration

Massapoag Trail

Sharon

Sharon Public Library

Sharon

Sharon Credit Union

CVS

Beth Israel Deaconess HealthCare-Sharon

Billings St

Sharon Fish & Game Club

Cottage Street School

East St Ann Dann Prop

Dirty Bird Septic Vent Concealer

Sharon Department of Public Works

Dr. Walter A. Griffin Playground

Sharon Country Club

Sharon High School

Beech Tree Park

Rock Ridge Cemetery

Devil's Brook Wetlands

Deborah Sampson Pk

Memorial Park Beach

Google

30



MODEL 3 – OPERATING PERMITS



MODEL 3 – OPERATING PERMITS

Applications

- Areas of moderate environmental sensitivity such as wellhead or source water protection zones, shellfish growing waters, or bathing/ water contact recreation.
- Systems treating high-strength wastes or large-capacity systems.

Description

- Establishes system performance and monitoring requirements.
- Allows engineered designs but may provide prescriptive designs for specific receiving environments.
- Regulatory oversight by issuing renewable operating permits that may be revoked for noncompliance.
- Inventory of all systems.
- Tracking system for operating permit and compliance monitoring.
- Minimum for large-capacity systems



MODEL 3 – OPERATING PERMITS

Benefits

- Allows systems in more environmentally sensitive areas.
- Operating permit requires regular compliance monitoring reports.
- Identifies noncompliant systems and initiates corrective actions.
- Decreases need for regulation of large systems.
- Protects homeowner investment.

Limitations

- Higher level of expertise and resources for regulatory authority to implement.
- Requires permit tracking system.
- Regulatory authority needs enforcement powers.



MODEL 4 – RME OPERATION AND MAINTENANCE



MODEL 4 – RME OPERATION AND MAINTNENACE

Applications

- Areas of moderate to high environmental sensitivity where reliable and sustainable system operation and maintenance (O&M) is required, e.g., sole source aquifers, wellhead or source water protection zones, critical aquatic habitats, or outstanding value resource waters.
- Clustered systems

Description

- Establishes system performance and monitoring requirements.
- Professional O&M services through RME (either public or private).
- Provides regulatory oversight by issuing operating or NPDES permits directly to the RME. (System ownership remains with the property owner.)
- Inventory of all systems.
- Tracking system for operating permit and compliance monitoring.





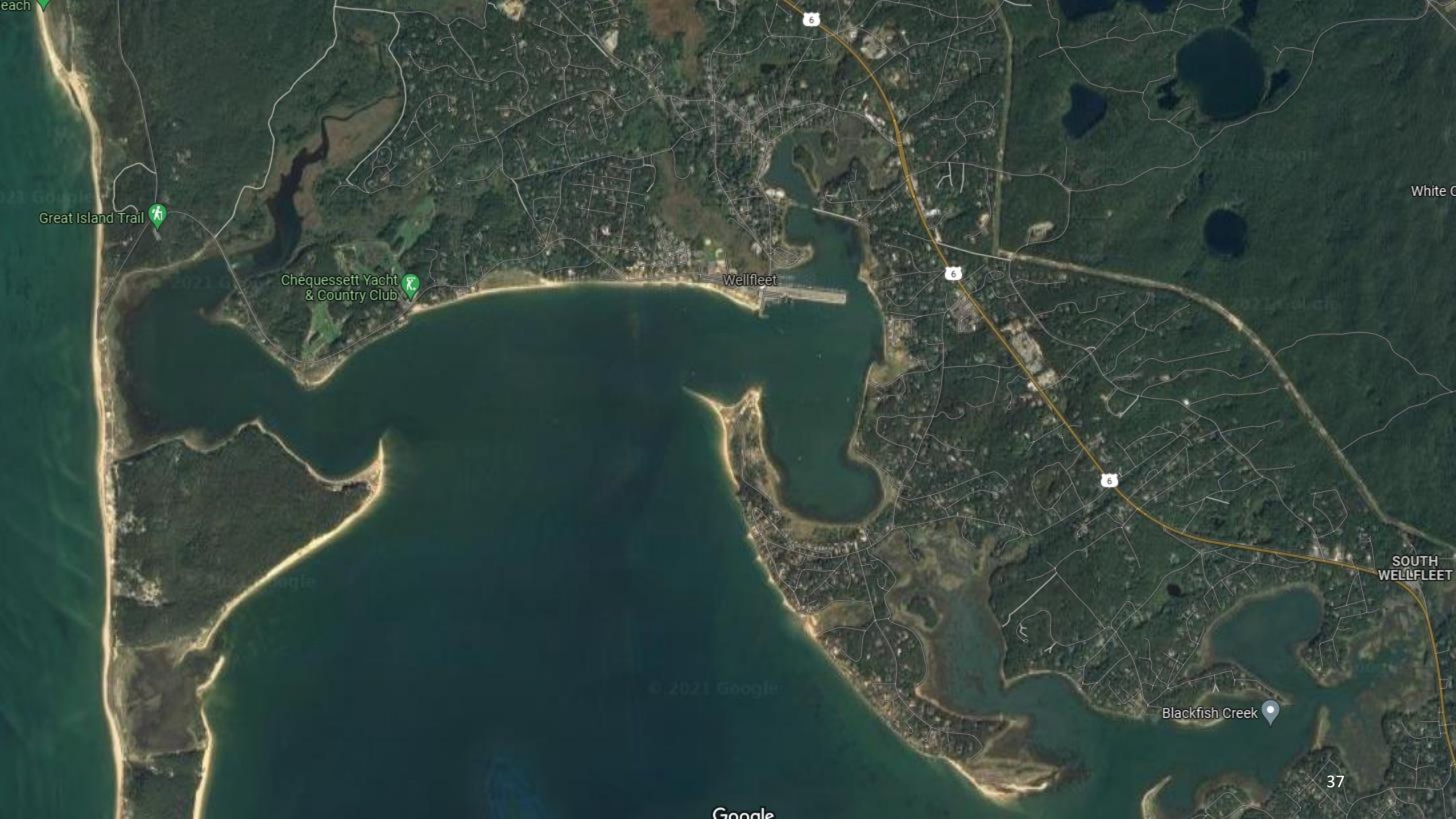
MODEL 4 – RME OPERATION AND MAINTENANCE

Benefits

- O&M responsibility transferred from the system owner to a professional RME that is the holder of the operating permit.
- Identifies problems needing attention before failures occur.
- Allows use of onsite treatment in more environmentally sensitive areas or for treatment of high-strength wastes.
- Can issue one permit for a group of systems.
- Protects homeowner investment.

Limitations

- Enabling legislation may be necessary to allow RME to hold operating permit for an individual system owner.
- RME must have owner approval for repairs; may be conflict if performance problems are identified and not corrected.
- Need for easement/right of entry.
- Need for oversight of RME by regulatory authority.



Great Island Trail



Chequessett Yacht & Country Club



Wellfleet

6

6

SOUTH
WELLFLEET

Blackfish Creek



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37



MODEL 5 – RME OWNERSHIP



MODEL 5 – RME OWNERSHIP

Applications

- Areas of greatest environmental sensitivity where reliable management is required. Includes sole source aquifers, wellhead or source water protection zones, critical aquatic habitats, or outstanding value resource waters.
- Preferred management program for clustered systems serving multiple properties under different ownership (e.g., subdivisions).

Description

- Establishes system performance and monitoring requirements.
- Professional management of all aspects of decentralized systems through public/private RMEs that own or manage individual systems.
- Qualified and trained owners and licensed professional owners/operators.
- Provides regulatory oversight by issuing operating or NPDES permit.
- Inventory of all systems.
- Tracking system for operating permit and compliance monitoring.



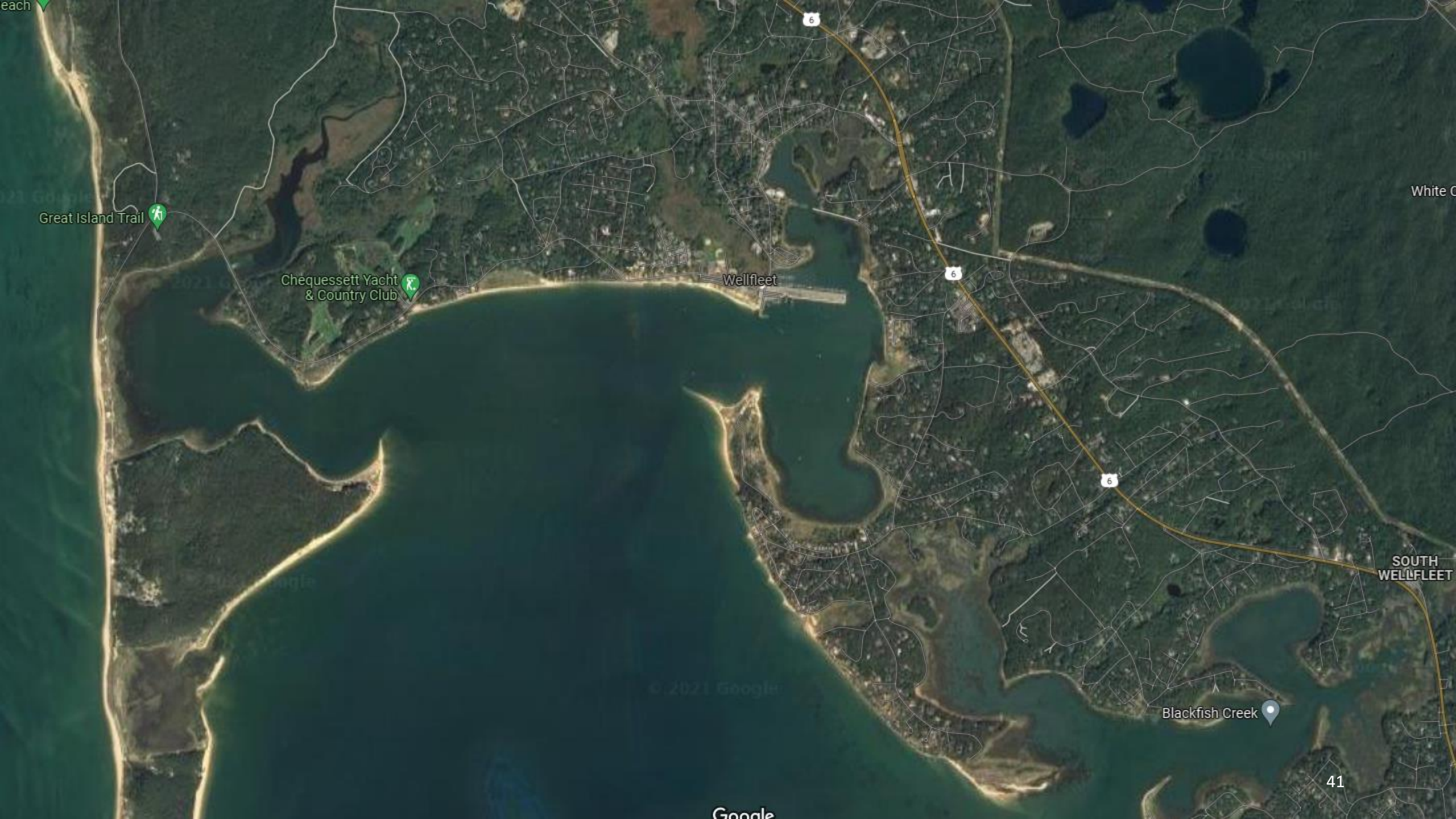
MODEL 5 – RME OWNERSHIP

Benefits

- High level of oversight if system performance problems occur.
- Simulates model of central sewerage, reducing the risk of noncompliance.
- Allows use of onsite treatment in more environmentally sensitive areas.
- Allows effective area-wide planning/watershed management.
- Removes potential conflicts between the user and RME.
- Greatest protection of environmental resources and owner investment.

Limitations

- Enabling legislation and/or formation of special district may be required.
- May require greater financial investment by RME for installation and/or purchase of existing systems or components.
- Need for oversight of RME by regulatory authority.
- Private RMEs may limit competition.
- Homeowner associations may not have adequate authority.



Great Island Trail



Chequessett Yacht & Country Club



Wellfleet



Blackfish Creek



SOUTH WELLFLEET

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41



THANK YOU



masstc@barnstablecounty.org



www.masstc.org

