



# RESPONSIBLE MANAGEMENT ENTITIES

FOR EFFECTIVE I/A SYSTEM MANAGEMENT

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Barnstable County Department of Health and Environment









**THINGS THAT ARE ABOUT AS  
EXCITING AS WHAT I AM  
GOING TO BE TALKING ABOUT**



Form **1040** Department of the Treasury - Internal Revenue Service  
**U.S. Individual Income Tax Return** (99)

Filing status:  Single  Married filing jointly

Your first name and initial \_\_\_\_\_

Your standard deduction:  Standard deduction  Self-employed deduction

If joint return, spouse's first name \_\_\_\_\_

Spouse standard deduction:  Spouse's standard deduction  Spouse's self-employed deduction

Spouse is blind  Spouse is a dependent

Home address (number and street) \_\_\_\_\_

City, town or \_\_\_\_\_

**Dependent:**  
 (1) First name \_\_\_\_\_

**Sign Here**  
 Joint return? See instructions. Keep a copy for your records.

**Paid Preparer Use Only**  
 For Dis...

Form **1040** Department of the Treasury - Internal Revenue Service  
**U.S. Individual Income Tax Return** (99)

Filing Status:  Single  Married filing jointly

Check only one box. If you checked the MFS box, enter a child but not your dependent.

Your first name and middle initial \_\_\_\_\_

If joint return, spouse's first name \_\_\_\_\_

Home address (number and street) \_\_\_\_\_

Form **1040** Department of the Treasury - Internal Revenue Service  
**U.S. Individual Income Tax Return** (99)

Filing status:  Single  Married filing jointly  Married filing separately

Your first name and initial \_\_\_\_\_

Your standard deduction:  Standard deduction  Self-employed deduction

If joint return, spouse's first name \_\_\_\_\_

Form **W-4** Department of the Treasury Internal Revenue Service  
 Complete Steps 2-4 to claim exemption from withholding

**Step 1: Enter Personal Information**

(a) First name and last initial \_\_\_\_\_

Address \_\_\_\_\_

City or town, state and ZIP code \_\_\_\_\_

(c)  I am a U.S. citizen or resident alien  I am a nonresident alien who is not a resident of the United States

Form **W-9** (Rev. October 2018) Department of the Treasury Internal Revenue Service

1 Name (last, first, middle initial) \_\_\_\_\_

2 Business name (if different from name) \_\_\_\_\_

















# 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**

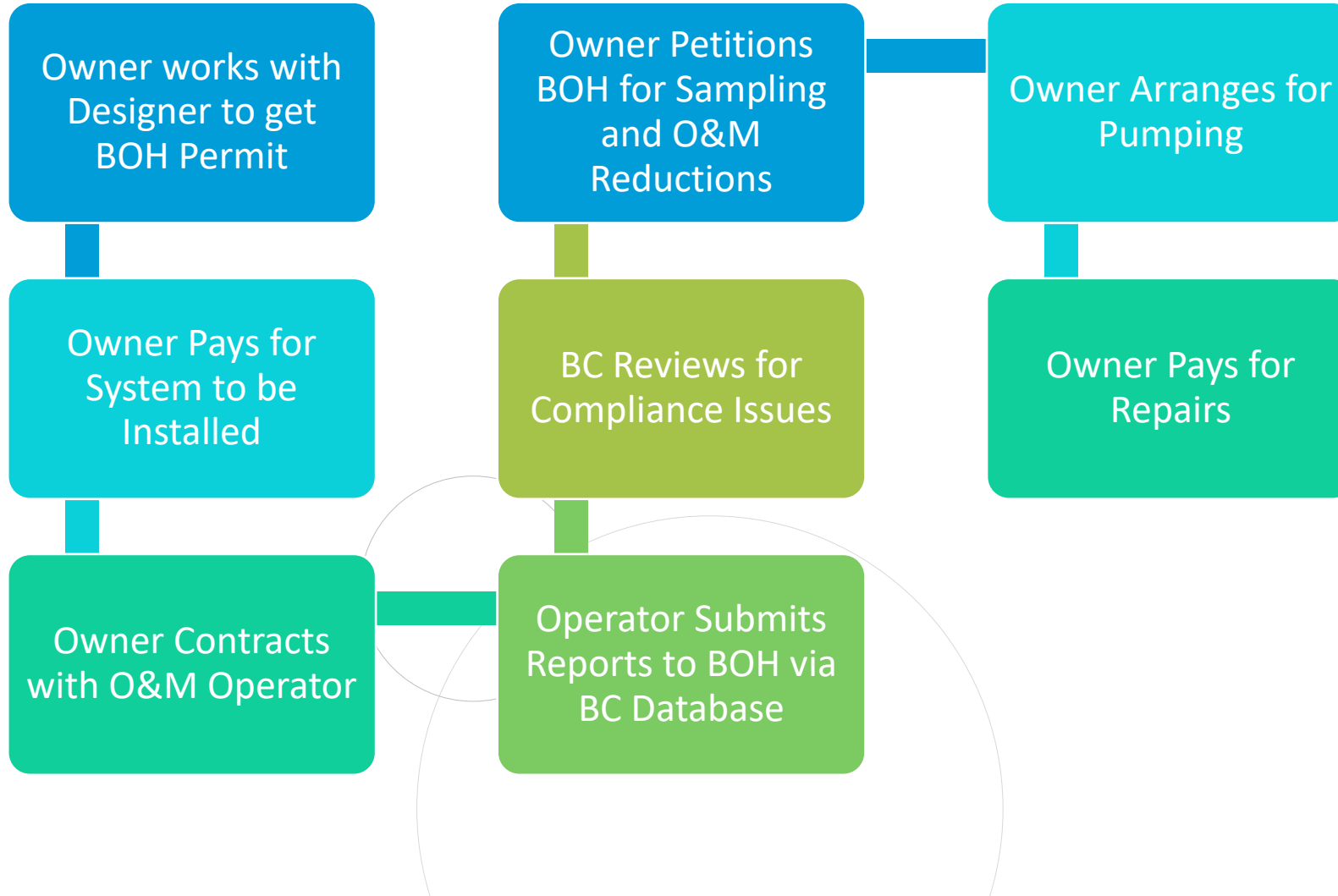
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7.42 8.52 6.47  
5.42 0.58 6.02  
3.56 7.43



# How it Works Now (In Barnstable County)





# MODEL 1 – HOMEOWNER AWARENESS



# MODEL 1 – HOMEOWNER AWARENESS

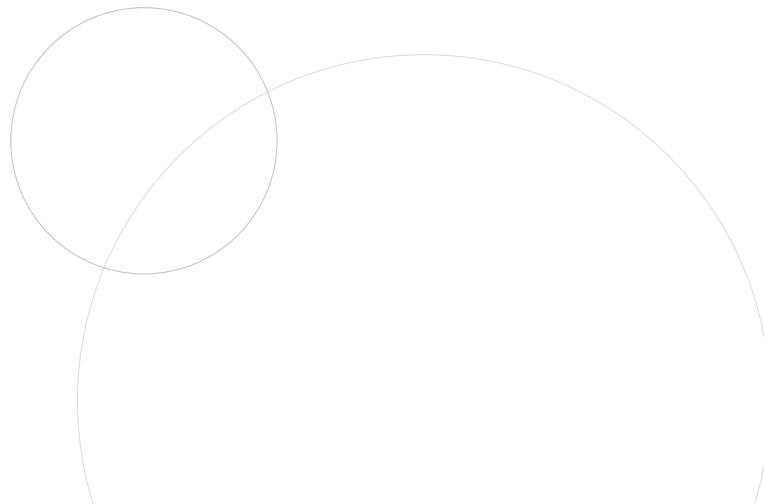
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## Applications

- 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

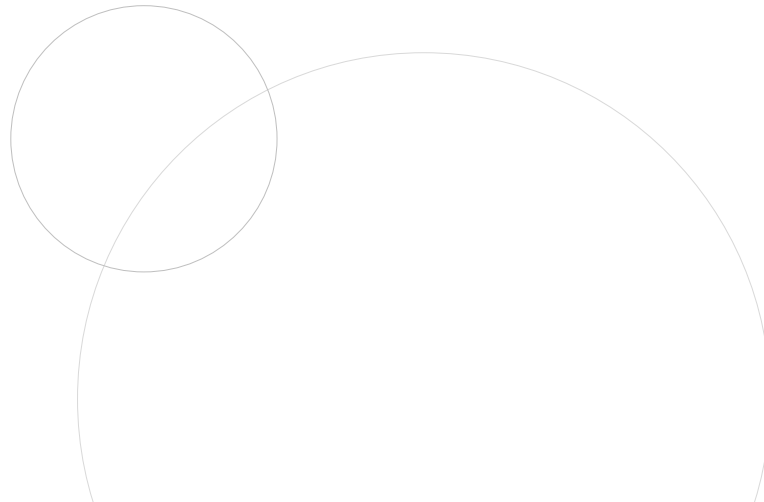
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## Benefits

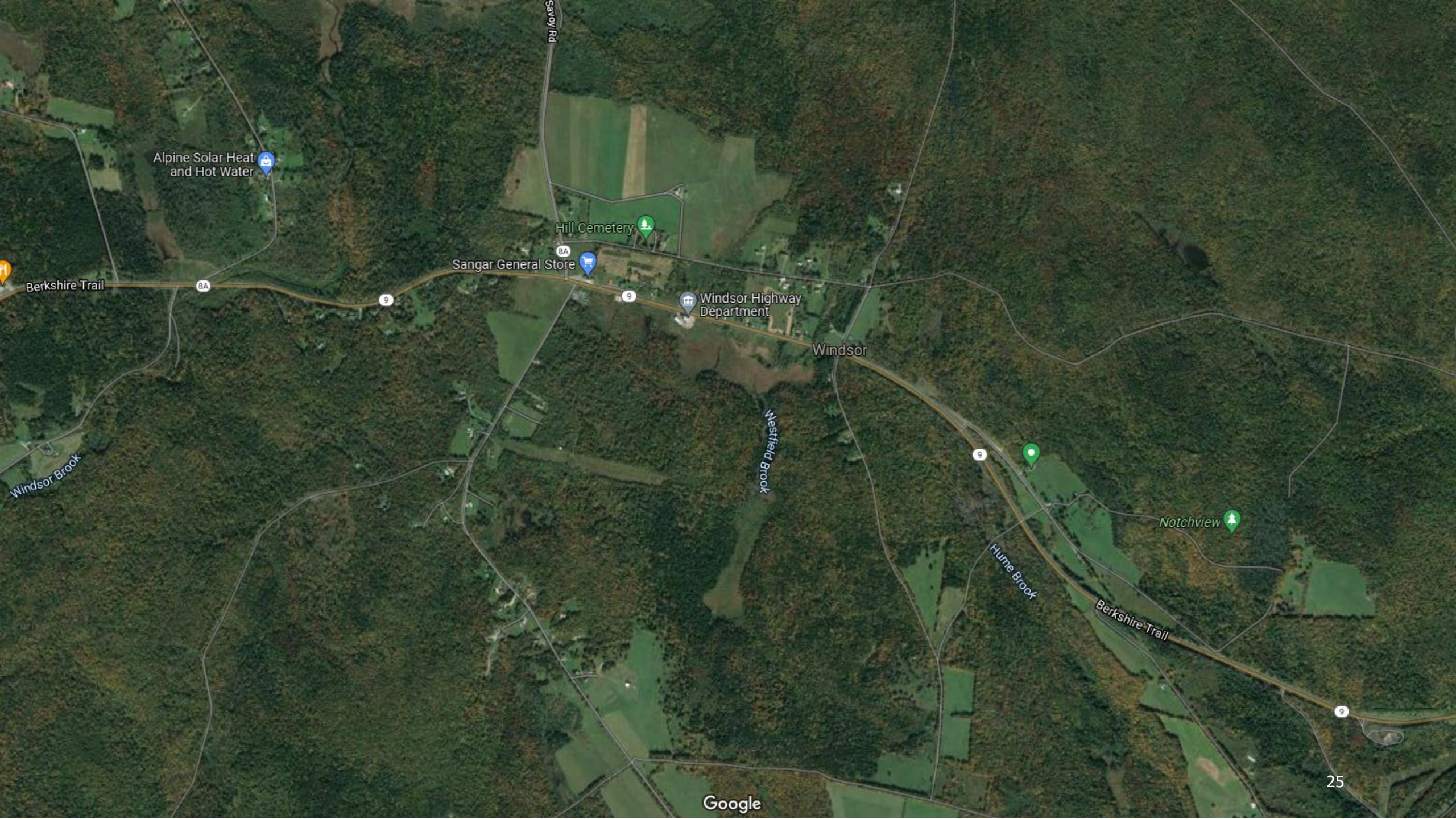
- Code-compliant system.
- Ease of implementation; based on existing, prescriptive system design and site criteria.
- Provides an inventory of systems that is useful in system tracking and area-wide planning.

## 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

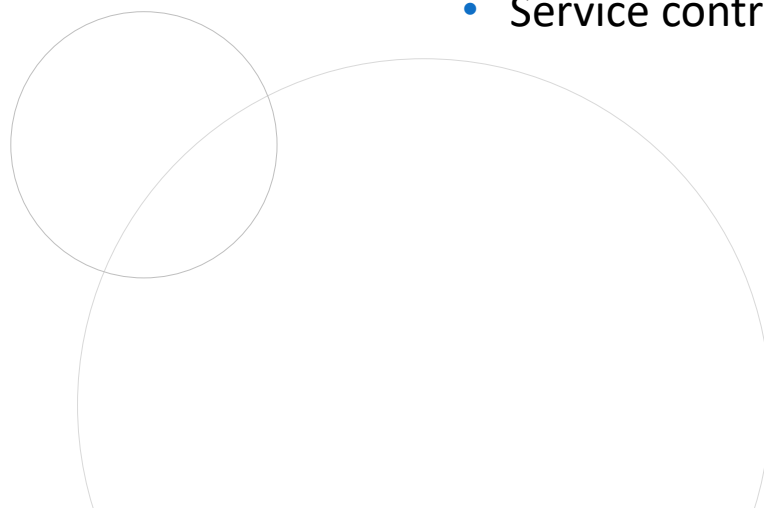
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## Applications

- 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

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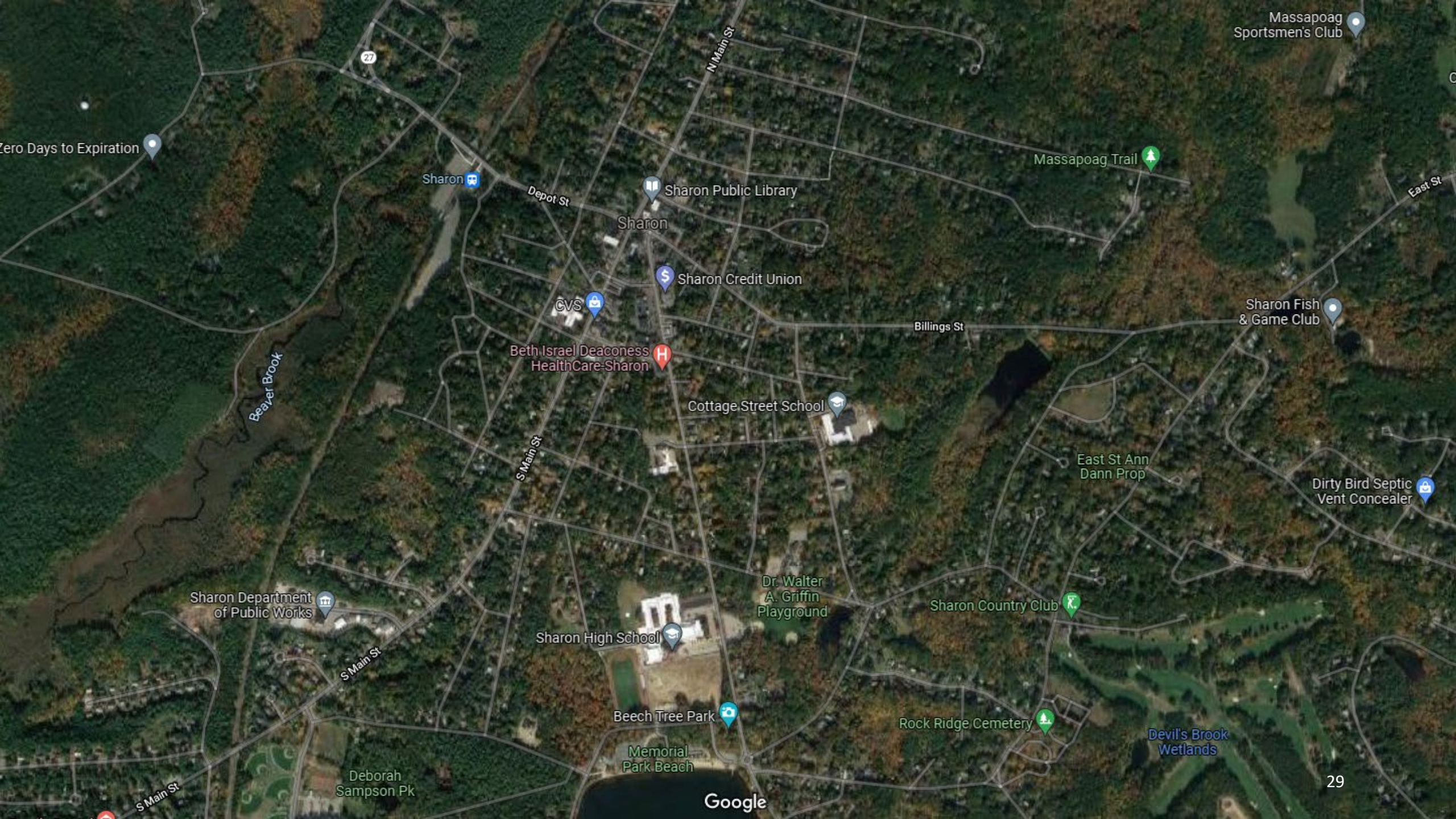
## Benefits

- 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

Sharon

Massapoag Trail

Sharon Public Library

Sharon

Sharon Credit Union

CVS

Beth Israel Deaconess HealthCare-Sharon

Sharon Fish & Game Club

Billings St

Cottage Street School

Beaver Brook

East St Ann Dann Prop

Dirty Bird Septic Vent Concealer

S Main St

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

S Main St

Google



# **MODEL 3 – OPERATING PERMITS**



# MODEL 3 – OPERATING PERMITS

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## 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

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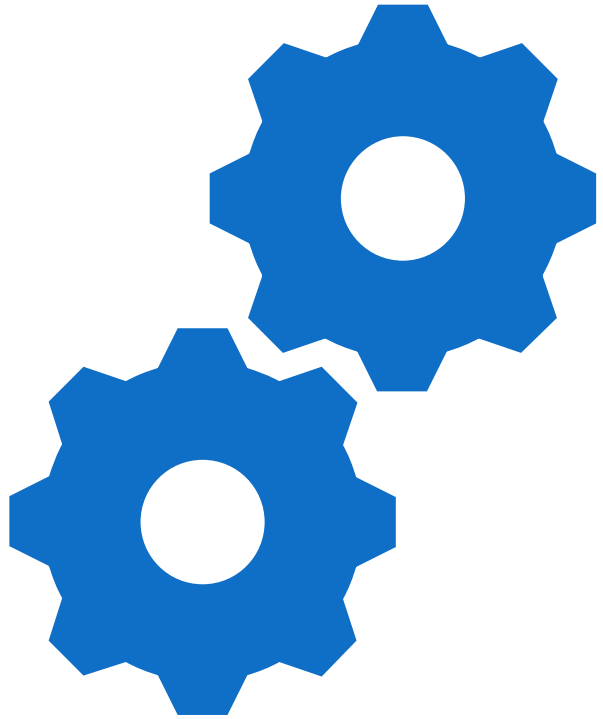
## Benefits

- 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

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## 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


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## 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

6

SOUTH  
WELLFLEET

Blackfish Creek 

White C



# **MODEL 5 – RME OWNERSHIP**



# MODEL 5 – RME OWNERSHIP

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## 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

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## 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.

# 13 ASPECTS OF RME'S TO CONSIDER

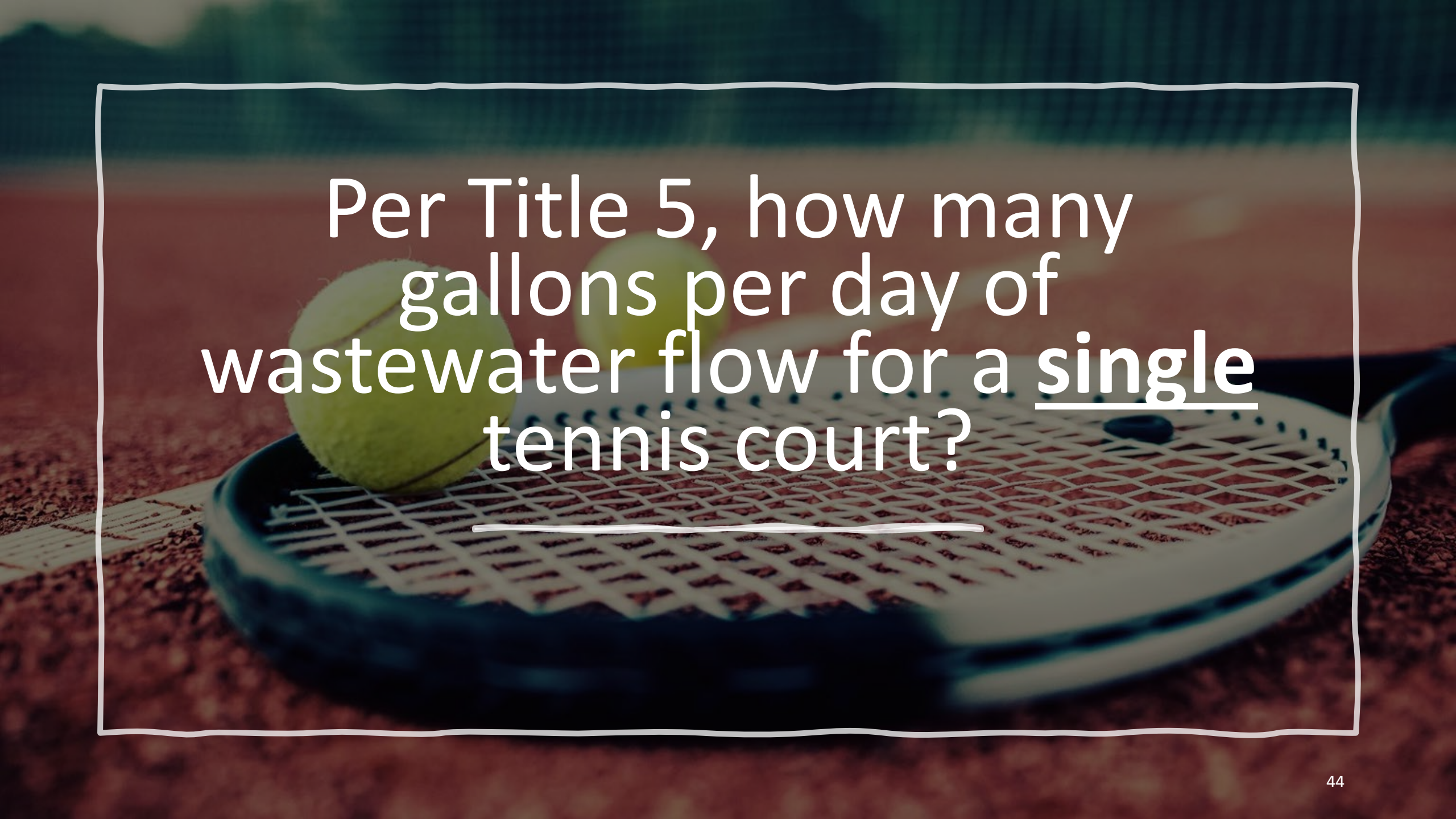






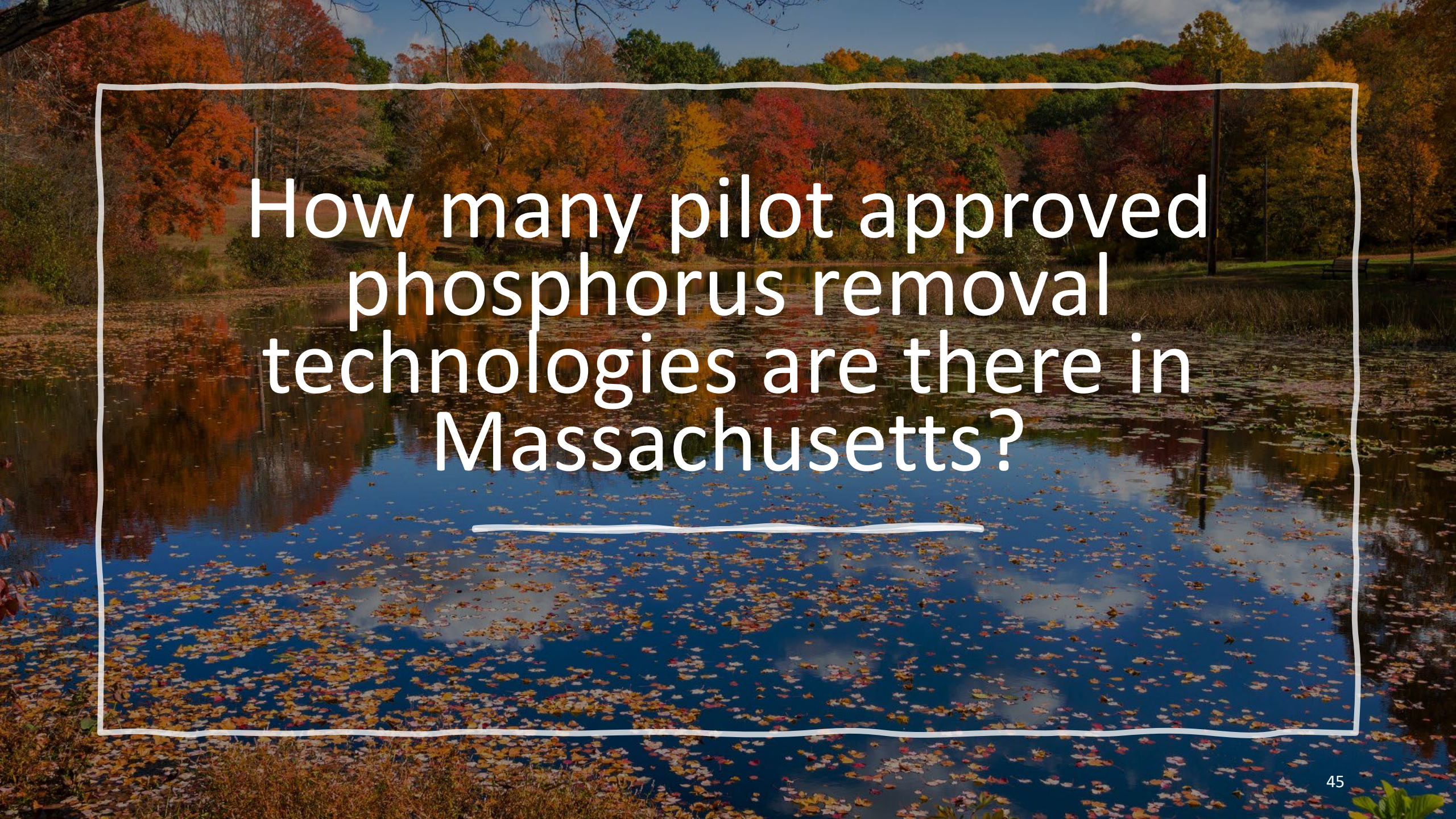
A close-up photograph of a manual hand pump. A person's hand is visible on the left, gripping the black handle. The pump is made of weathered, blue-grey metal and is mounted on a concrete base. A white plastic nozzle is attached to the side, and a stream of water is being sprayed out of it. The background is a blurred outdoor setting. The entire image is framed by a white, hand-drawn style border.

How many RME models are there?

A photograph of a tennis racket and two tennis balls on a tennis court. The racket is white with a blue frame and a white mesh head, lying on the reddish-brown clay court. Two bright yellow-green tennis balls are positioned near the racket. The background is a blurred view of the court and a fence.

Per Title 5, how many gallons per day of wastewater flow for a single tennis court?

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How many pilot approved  
phosphorus removal  
technologies are there in  
Massachusetts?

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## **CAN I/A SYSTEMS BE COST EFFECTIVE?**





# TWO KINDS OF COSTS

## Capital Construction Costs



## Ongoing Operational Costs





## Six Keys to Driving Down Capital Costs

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Fund Onsite  
Infrastructure  
Like Centralized

Invest in  
Innovation

Streamline  
Permitting  
Process

Use Cluster  
Systems

Find Economies  
of Scale

Invest in the  
Local  
Workforce





## Six Keys to Driving Down Management Costs

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Use an RME

Reduce  
Number of  
O&M Visits

Control  
Pumping  
Costs

Bid Out O&M  
to Private  
Sector

KISS  
Technologies

Reduce  
Number of  
Samples

# RESPONSIBLE MANAGEMENT ENTITIES (RME'S)

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





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## Reduce Number of Operation and Maintenance Visits

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- Monthly O&M may be required.
- Remote monitoring can be used in place of O&M visits.
- Need to identify sensors that provide biggest offset at lowest cost.

# CONTRACT WITH EXISTING PRIVATE SECTOR COMPANIES FOR O&M

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- Bid process to get lower cost rather than homeowner going it alone.
- Utilizes existing O&M industry, keeping jobs intact.
- Better quality control.



**K** keep  
**I** +  
**S** uper  
**S** imple



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## KISS Technologies

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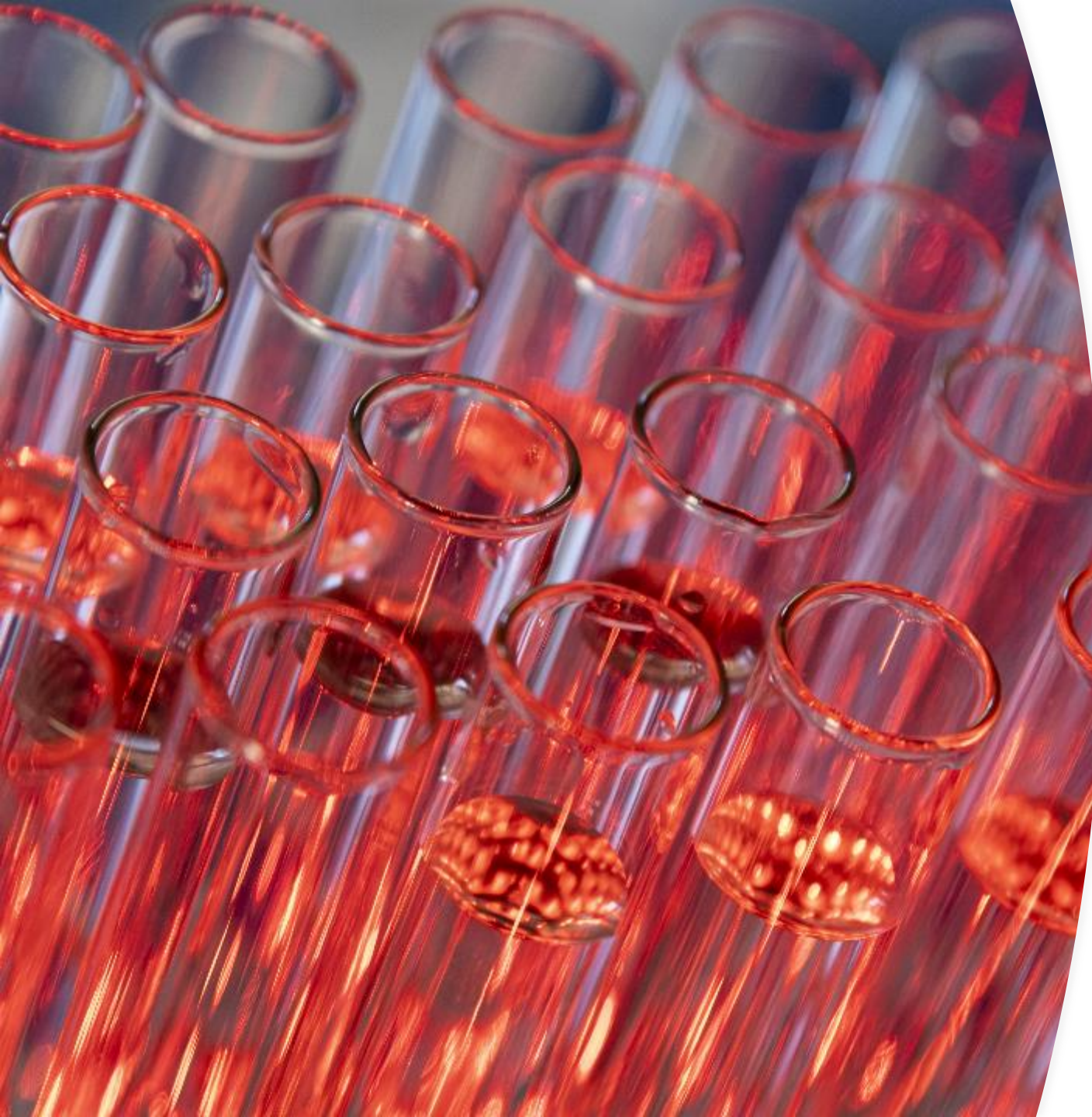
- Lower per-unit repair cost.
- Shorter O&M visits -> Lower O&M costs.

# CONTROL PUMPING COSTS

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- Bid process to get lower cost rather than homeowner going it alone.
- Identify or develop facilities to accept and treat septage and WRRF sludge.





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## Reduce Number of Samples Required for Compliance

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- Low-cost sensor technology that can be deployed on individual systems.



# CAPE COD RME WORK GROUP

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## Participants

- MASSTC
- Cape Cod Commission
- Town of Wellfleet
- Town of Barnstable
- Town of Falmouth
- MA DEP
- MA Clean Water Trust
- US EPA
- Buzzards Bay Coalition

## Goals

- Build an RME framework for Cape Cod
- Identify ways to push technology forward
- Identify ways to reduce costs associated with I/A deployment and management
- Identify funding sources







# THANK YOU



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[www.masstc.org](http://www.masstc.org)

