Colchester
VERMONT

Welcome

to a

Public Forum on Wastewater in the Inner Bay

Why We're Here

- The Colchester Selectboard asked the Planning Commission to gather public input, develop options for addressing these longstanding wastewater issues, and report back to the Selectboard in September 2019.

- The Planning Commission will explore options to address wastewater pollution in Inner Malletts Bay. Options that the Commission will evaluate include extending the town sewer line, developing community septic systems, buying up properties as they become available, and installing composting toilets.

- The Planning Commission will begin by preparing objective materials to help residents consider these options. These materials will address issues related to land use/zoning, parks and recreation, transportation and stormwater in Inner Malletts Bay.

Why We're Here

- The Selectboard has asked us to look at all available options
- We're actively seeking public input

Tonight’s Agenda

7:00 Welcome and Review Agenda

7:05 Brief Summary of this Afternoon’s “Walk and Talk”

7:15 Informational Presentation

7:45 Questions and Discussion

8:30-ish Review Next Steps and Adjourn

Ground Rules

- Respect the agenda and process
- Listen to others
- Share your opinion politely
- Share “air time”
- Treat people respectfully
- Mute your cellphones

What We’ve Learned from You So Far

Online survey op
May 31st.

Tinyurl.com
/Colchester MBI

Summary of Today's Walk and Talk


0
0.5
1
Miles
2
2
MILTON
MAYO RD
School Number 3
Walnut Ledge
Champlain Cemetery
Chimney Corner
Mallets Creek
Mallets Bay State Park
Colchester Pond
7
EAST RD
COLCHESTER
ESSEX
United Church of Colchester
Pond Brook
Union Memorial School
Center Cemetery
Colchester
Our Lady of Grace Church
BAY RD
Munson Cemetery
Nourses Corner
Crooked Creek
Inner Malletts Bay
Malletts Head
2A
Malletts Head Seaplane Base
BLAKELY RD
SEVERANCE RD
KELLOGG RD
Outer Malletts Bay
Malletts Bay Cemetery
School Number 4
Malletts Bay
89
Malletts Bay Congregational Church
Unification Church
Colchester High School
Smith Hollow Creek
Colchester Middle School
Blakey School
Sunderland Brook
Thayer Beach
Holy Cross Church
Holy Cross Cemetery
Shipman Hill
15
Colchester Point Upper School
Champlain Landing Field
HEINEBERG DR
MALLETTS BAY AV
Fort Ethan Allen Cemetery
Fanny Allen Hospital
Fanny Allen Cemetery
Merrill Cemetery
Community Lutheran Church
Saint Michael College
MAIN
LAFOUNTAIN
SPRING
ALLEN
ROUTE 127
Morehouse Brook
Lake Champlain

Water Quality Issues

The Inner Bay is being polluted by:

- Human waste water
- Stormwater
- Wild bird and other animal waste
- Human waste and other pollutants from boats

Tonight's Focus

- The Town is taking a number of steps to better manage stormwater
- We are seeking creative ways to address other pollutant sources like wild birds
- The focus of tonight's meeting is human waste water

Human Waste Water

Human waste, and wastewater, contains material that can pollute water:

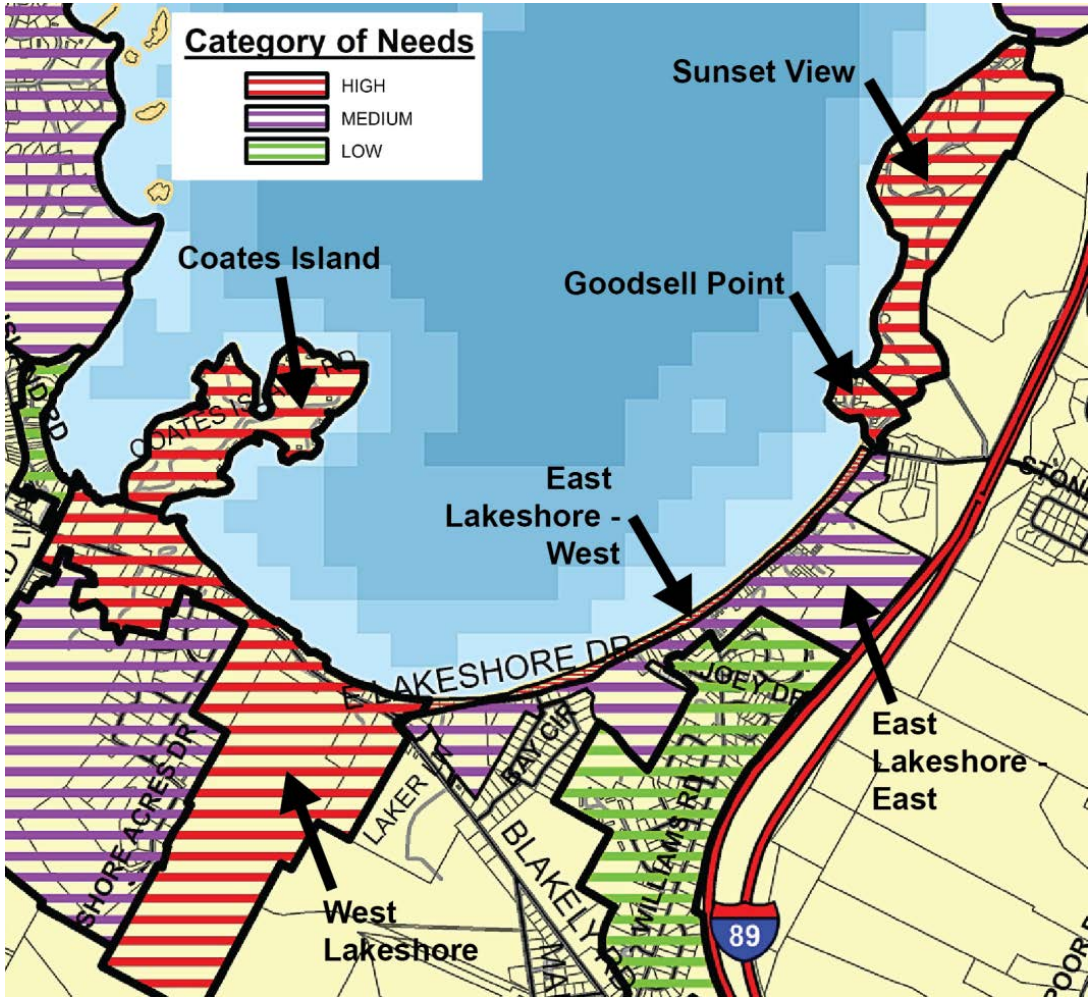
- Biodegradable organic matter
- Nutrients (phosphorus and nitrogen)
- Pathogenic parasites, bacteria, and viruses
- Toxic organic compounds and metals
- Pharmaceuticals and personal care products

Waste Water Needs, 2009-13 Study

Most parcels bordering inner Malletts Bay have significant constraints and cannot support properly functioning septic systems:

- Replacement areas
- Distance to surface waters
- Soil suitability
- Depth to groundwater
- Depth to bedrock

West Lakeshore, west side of East Lakeshore, and Goodsell Point ranked “high needs”



Inner Bay

Residences and businesses along Lakeshore Drive and Goodsell Point use on-site septic systems.

Reasons Septic Systems Fail

Septic systems do not work well if:

- They are located areas with high groundwater
- They are located in areas of shallow bedrock
- The leachfields are partially or completely clogged by a “biomat” of bacteria
- Tanks, pipes, pumps, etc. age out

Septic Systems in the Inner Bay

Most of the septic systems in the Goodsell Point and Lakeshore Drive area:

- Are located in area of shallow ground water or shallow bedrock (or both),
- Are aging systems that are likely to have partially clogged leachfields,
- Are too close to the lake

Complaints

- Town Officials regularly receive complaints from residents because they smell or see wastewater and/or other pollutants.

Effluent Surfacing from Tank

Effluent Surfacing from Leachfield

The Current Situation

- State law allows these systems to operate until wastewater surfaces.
- Because the area is so close to the lake, untreated and poorly treated wastewater runs into the lake.
- Residences and businesses along Lakeshore Drive and Goodsell Point generate about 90,000 gallons of wastewater daily.

Options

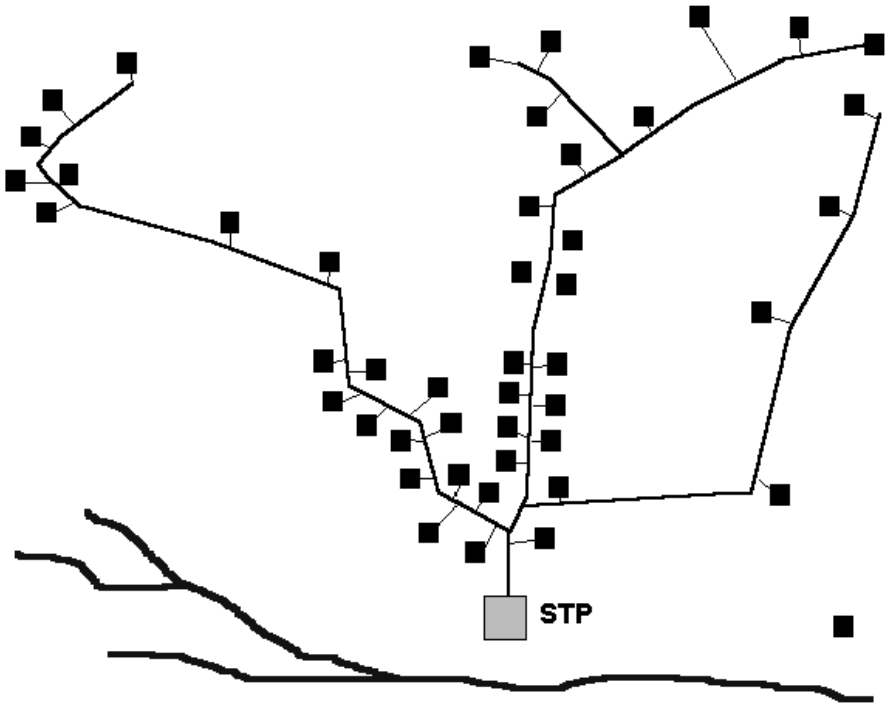
Options the town is considering include:

- A new sewer line
- Community septic systems
- Town buyouts of properties, *if the property owner is willing to sell*.
- Others?

New Sewer Line

Wastewater collected via sewer lines, treated at an advanced Wastewater Treatment Plant, and discharged to surface water

- Life-cycle costs per property are comparable to constructing and maintaining a new septic system
- The projected cost to a single residential building in the Malletts Bay sewer service area would have been ~$23,000 over 25 years
- A sewer would remove human waste from the shoreline



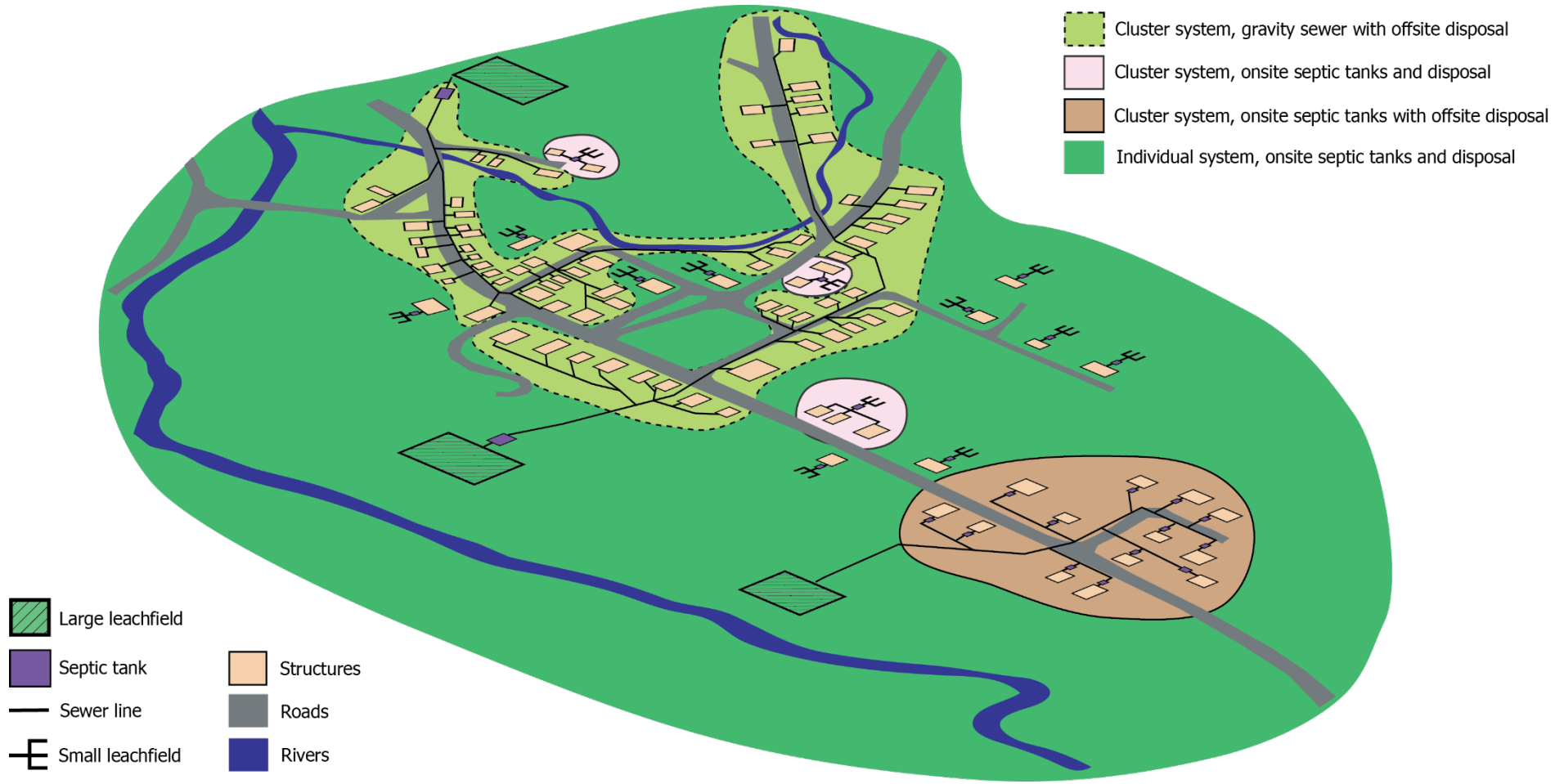
Centralized wastewater treatment (US EPA, 2003)

Community Septic Systems

Wastewater is collected via septic tanks and sewer lines, treated depending on site conditions and design flows, and discharged to soil and groundwater.

- Systems are located near the buildings they serve, so human waste is treated and remains near the shoreline
- Systems range in size, cost, and complexity. Shared systems can serve two homes or hundreds.
- All septic systems need soil. There are very few places in the Inner Bay that have adequate soils.

Community Septic Systems



Town Buyouts of Properties

ONLY if the property owner is willing!

- Costs of property acquisition and "restoration" are difficult to estimate
- A buyout program would not improve wastewater treatment for shoreline properties where owners want to continue existing uses

Seeking Your Input re Options

Are there other options that you'd like the town to consider?

Weighing the Options

As the Town weigh the options, we will consider

- Effectiveness
- Cost
- Ability to handle existing and additional wastewater as aging systems fail
- Potential effects of development pressure

Seeking Your Input:
Criteria for Weighing Options

Are there other things we should consider as we weigh the options?

Information You Need?

Is there more information you need, as we as a town move forward?

Discussion

What would you like to share with us about your perspective, interests, and concerns?

Seeking Your Input

- What opportunities for input would you like as this process moves forward?

Next Steps

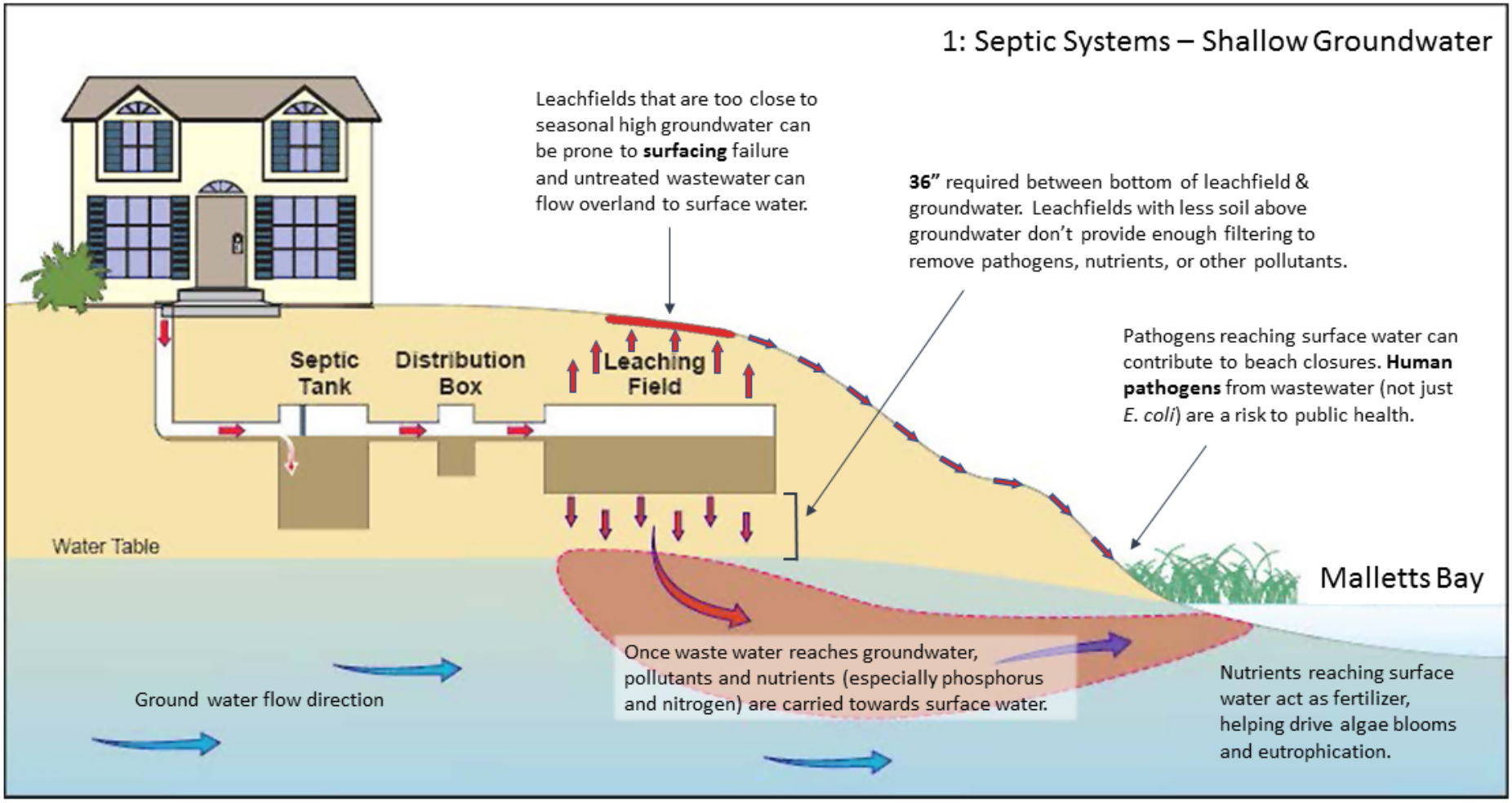
- Thank you for your input!
- We will circulate a summary of what we heard tonight early next week.

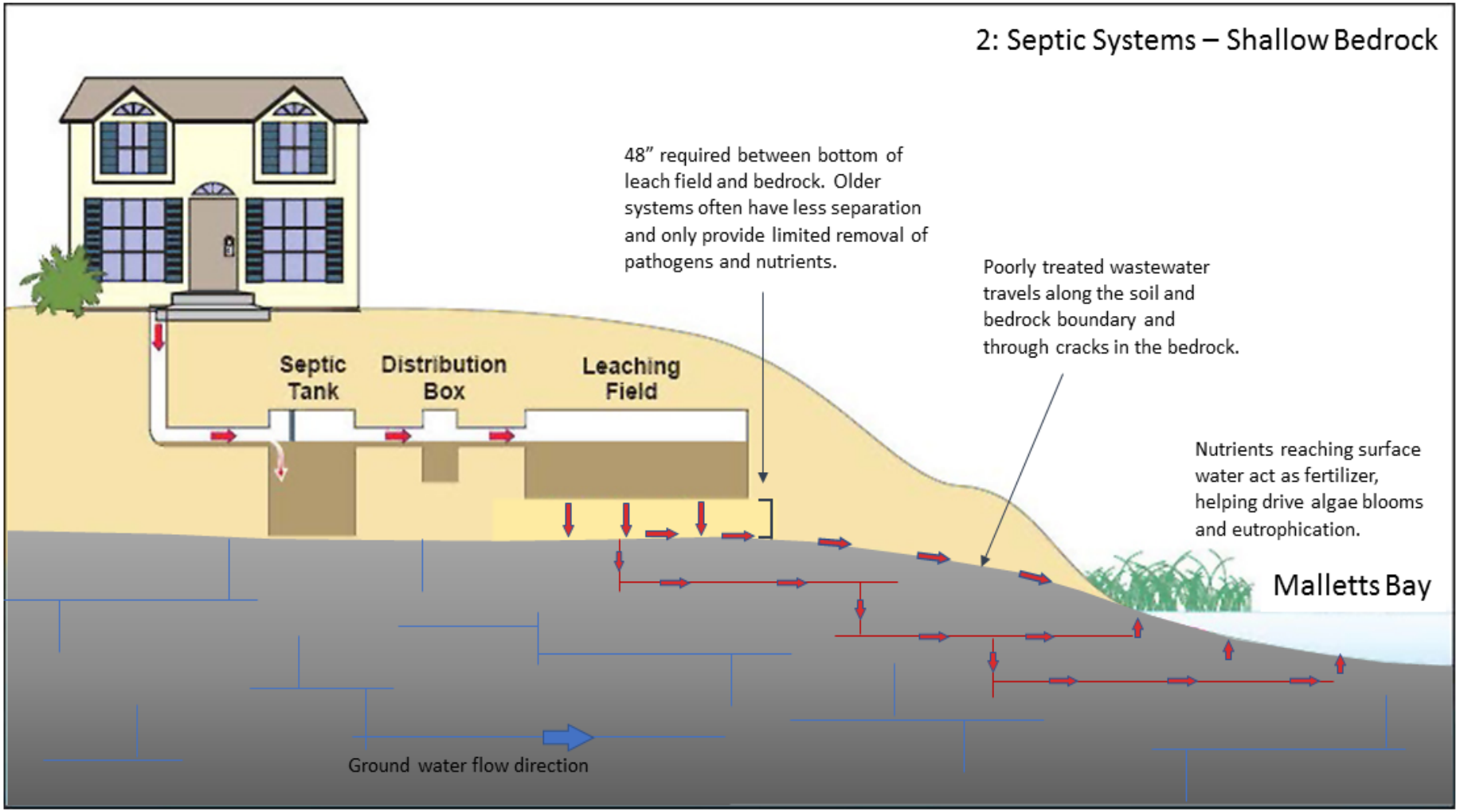
We Want to Continue to Hear From You

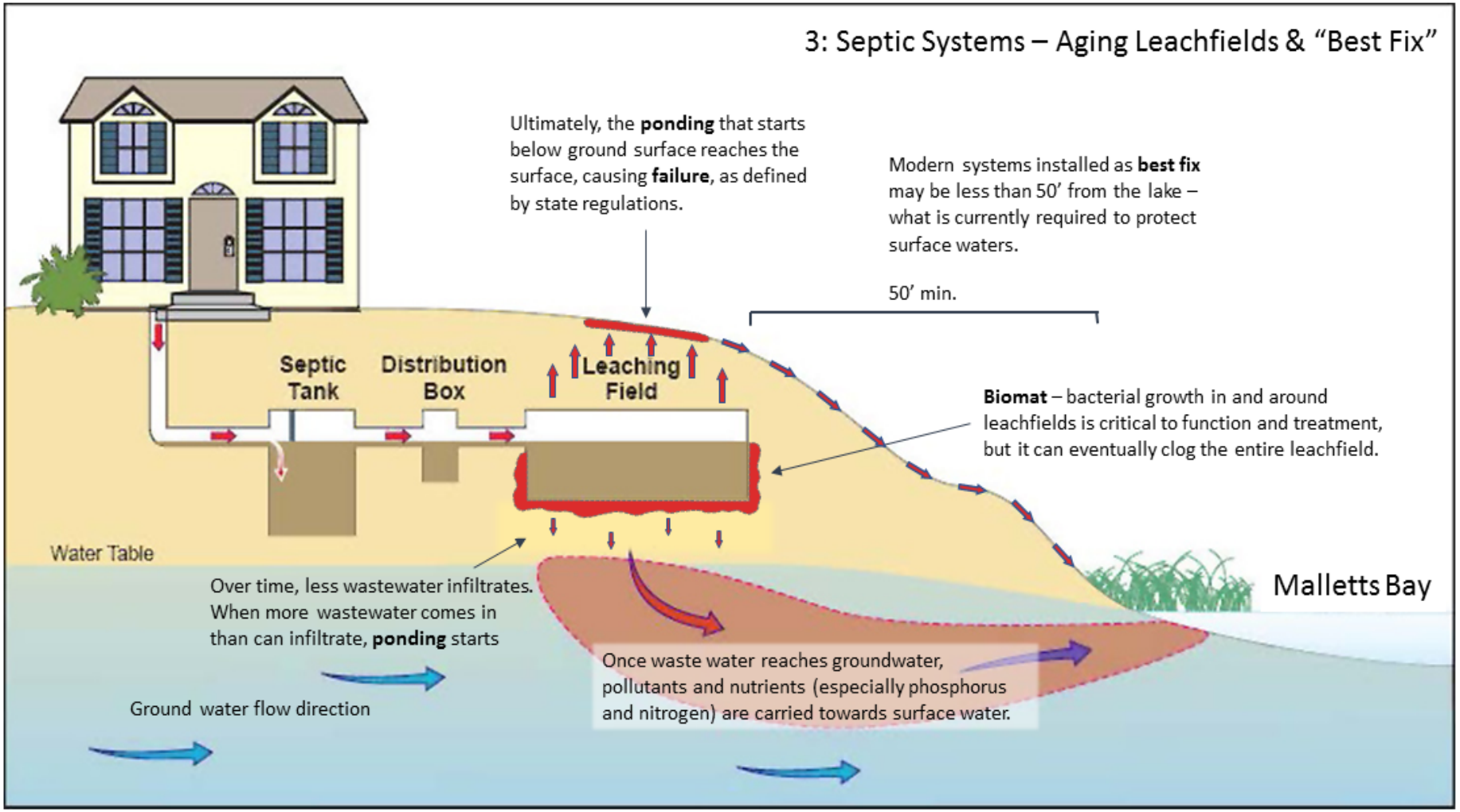
On-going Opportunities for Input

- On-line Survey tinyurl.com/ColchesterMBI
- Call (Sarah Hadd 264-5602)
- E-mail (shadd@colchestervt.gov)


Thanks for Coming!


1: Septic Systems – Shallow Groundwater
Leachfields that are too close to seasonal high groundwater can be prone to **surfacing** failure and untreated wastewater can flow overland to surface water.
36" required between bottom of leachfield & groundwater. Leachfields with less soil above groundwater don't provide enough filtering to remove pathogens, nutrients, or other pollutants.
Pathogens reaching surface water can contribute to beach closures. **Human pathogens** from wastewater (not just *E. coli*) are a risk to public health.
Septic Tank
Distribution Box
Leaching Field
Water Table
Malletts Bay
Once waste water reaches groundwater, pollutants and nutrients (especially phosphorus and nitrogen) are carried towards surface water.
Ground water flow direction
Nutrients reaching surface water act as fertilizer, helping drive algae blooms and eutrophication.


2: Septic Systems – Shallow Bedrock
48" required between bottom of leach field and bedrock. Older systems often have less separation and only provide limited removal of pathogens and nutrients.
Poorly treated wastewater travels along the soil and bedrock boundary and through cracks in the bedrock.
Septic Tank
Distribution Box
Leaching Field
Nutrients reaching surface water act as fertilizer, helping drive algae blooms and eutrophication.
Malletts Bay
Ground water flow direction


3: Septic Systems – Aging Leachfields & "Best Fix"
Ultimately, the **ponding** that starts below ground surface reaches the surface, causing **failure**, as defined by state regulations.
Modern systems installed as **best fix** may be less than 50' from the lake – what is currently required to protect surface waters.
50' min.
Septic Tank
Distribution Box
Leaching Field
Biomat – bacterial growth in and around leachfields is critical to function and treatment, but it can eventually clog the entire leachfield.
Water Table
Over time, less wastewater infiltrates. When more wastewater comes in than can infiltrate, **ponding** starts
Malletts Bay
Once waste water reaches groundwater, pollutants and nutrients (especially phosphorus and nitrogen) are carried towards surface water.
Ground water flow direction