Maryland
Department of the Environment

From Septics to Sewers

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Alternatives – Tetra Tech Report

- BAT upgrades to septic systems
- Cluster systems
  - Surface water discharges
  - Groundwater discharges
- Sewer connections

Surface Water Discharges

- Projects must address the impacts on:
  - Receiving water bodies
  - Local TMDLs
  - Tier II watersheds (high quality waters)

- Nitrogen – Projects might require N offsets or might generate nutrient credits

- Phosphorus – Projects will need P offsets

Objectives

- Address public health and water quality problems
- Reduce nutrient loads to meet the WIP
- Create nutrient credits for trading
- Increase the number of rate-payers to support wastewater treatment systems
- Accommodate development opportunities where appropriate
- Access BRF funds

The Idealized Process

1. Identify a septic problem area
2. Decide if State funding will be requested
3. Prepare a plan for the sewer service area and sewer lines
4. Amend the Comprehensive Plan
5. Amend the Water & Sewer Plan…

The Idealized Process *(cont.)*

6. Request MDE funding
7. MDE requests a PFA exception
8. Apply for permits: NPDES

   Groundwater

   Construction

The Actual Process

- ***Simultaneously, analyze:***

  Problem areas

  Alternative solutions

  Citizen input

  Comp plan issues

  W&S amendments

  Legal requirements

  Affordability

  Financing

- This is an iterative process - Drill down with more detail as alternatives are analyzed

1. Identify a septic problem area

- Local health department historical knowledge
- Sanitary survey
- Locations of septics in **impermeable soils**
- Locations of septics in **high groundwater areas**
- Locations of septics on **small lots**

How do septic systems work?

- Septic tank – solids sink to bottom; decomposed by bacteria
- Partially treated liquid effluent goes to trenches or drain fields
- Biomat forms at drainfield/soil interface – fine solids, dead bacteria, soil bacteria
- **Unsaturated soil with oxygen** required to allow aerobic bacteria to live and destroy pathogens

How do septic systems work? *(cont.)*

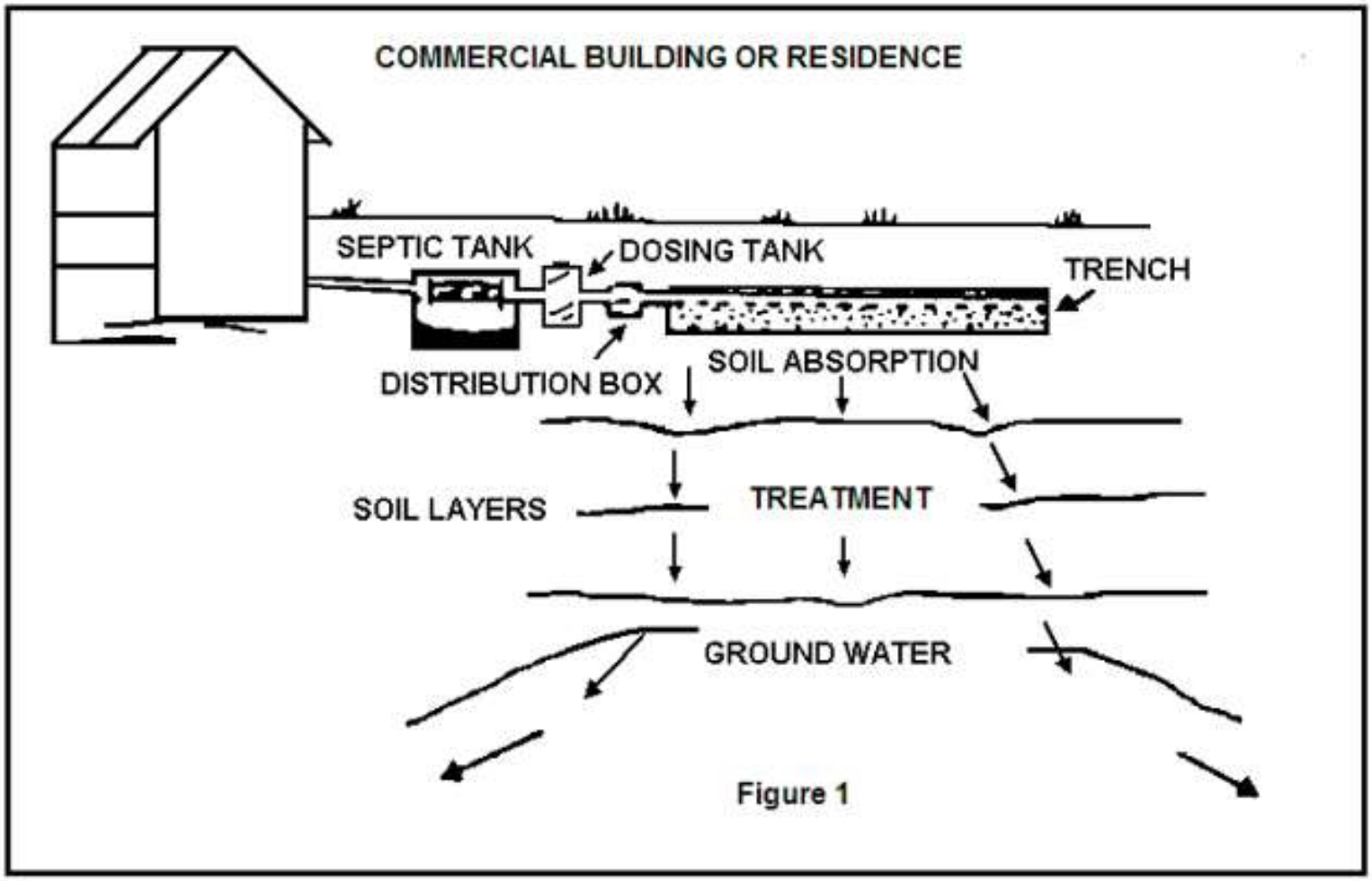


Figure 1

What is a septic failure?

- Typical failing system:

  Visible as a surface discharge

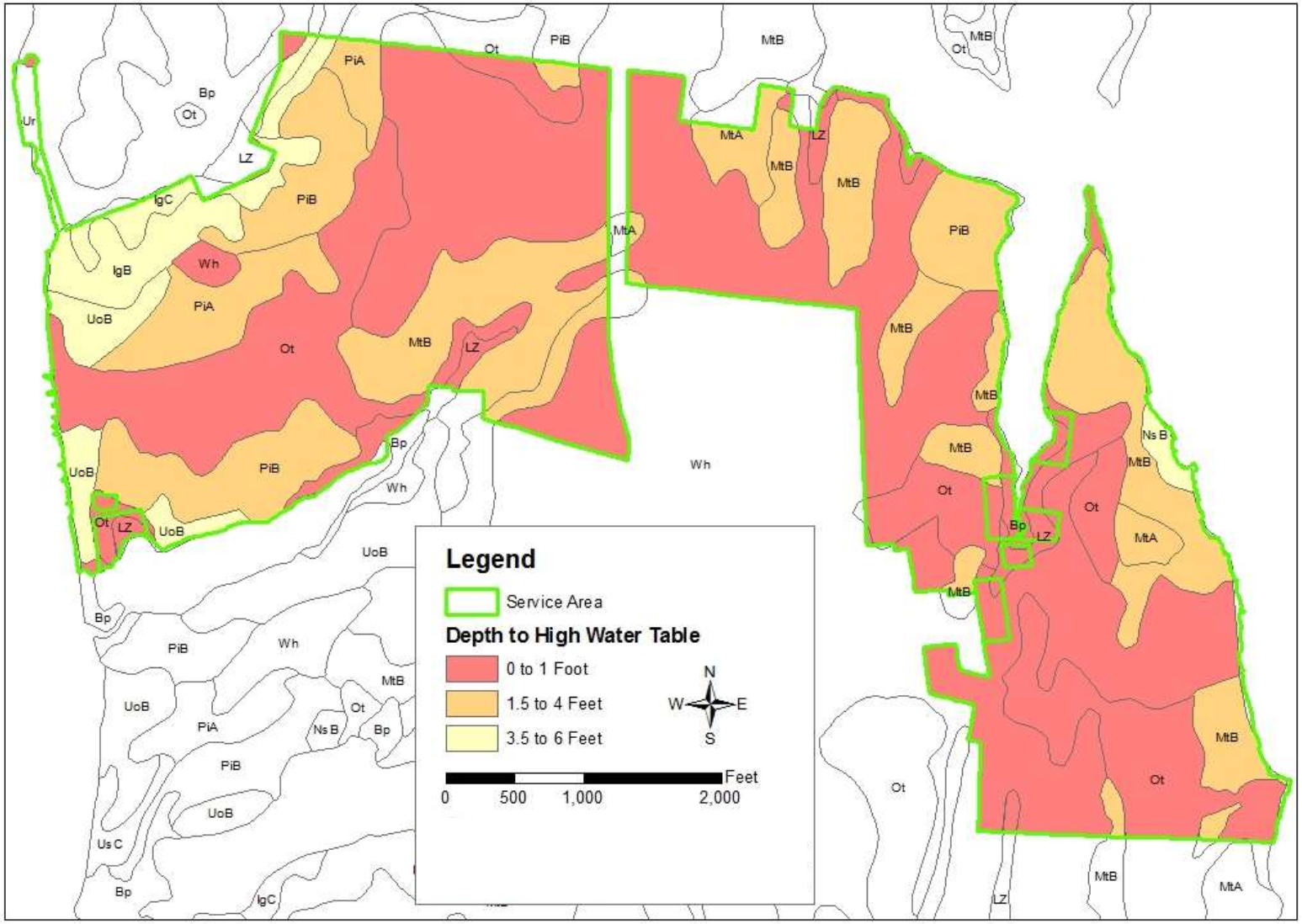
- Non-conforming system:

  Inadequate treatment zone - less than 4 feet

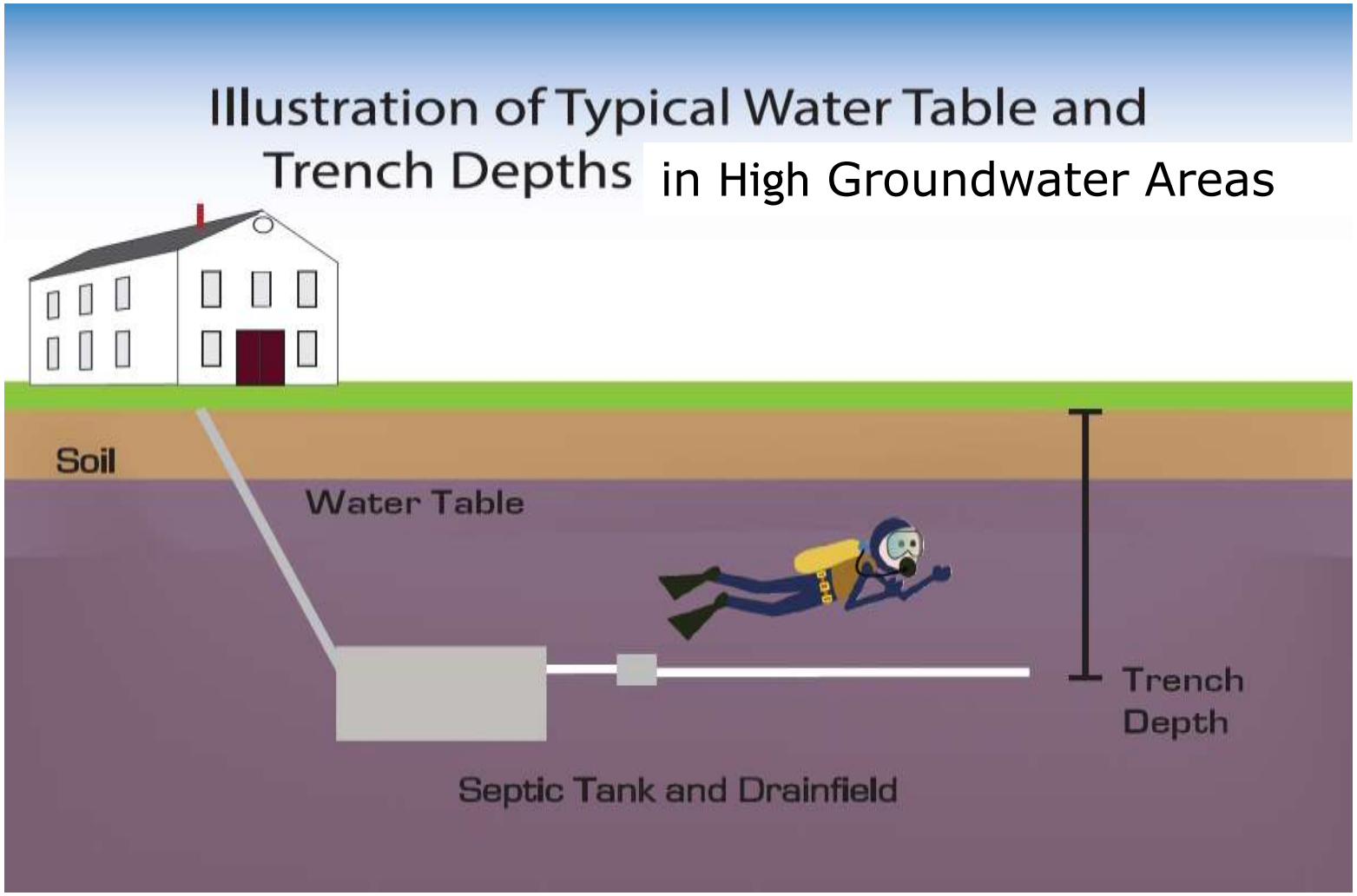
  Inadequately-sized system

Soils with Poor Permeability

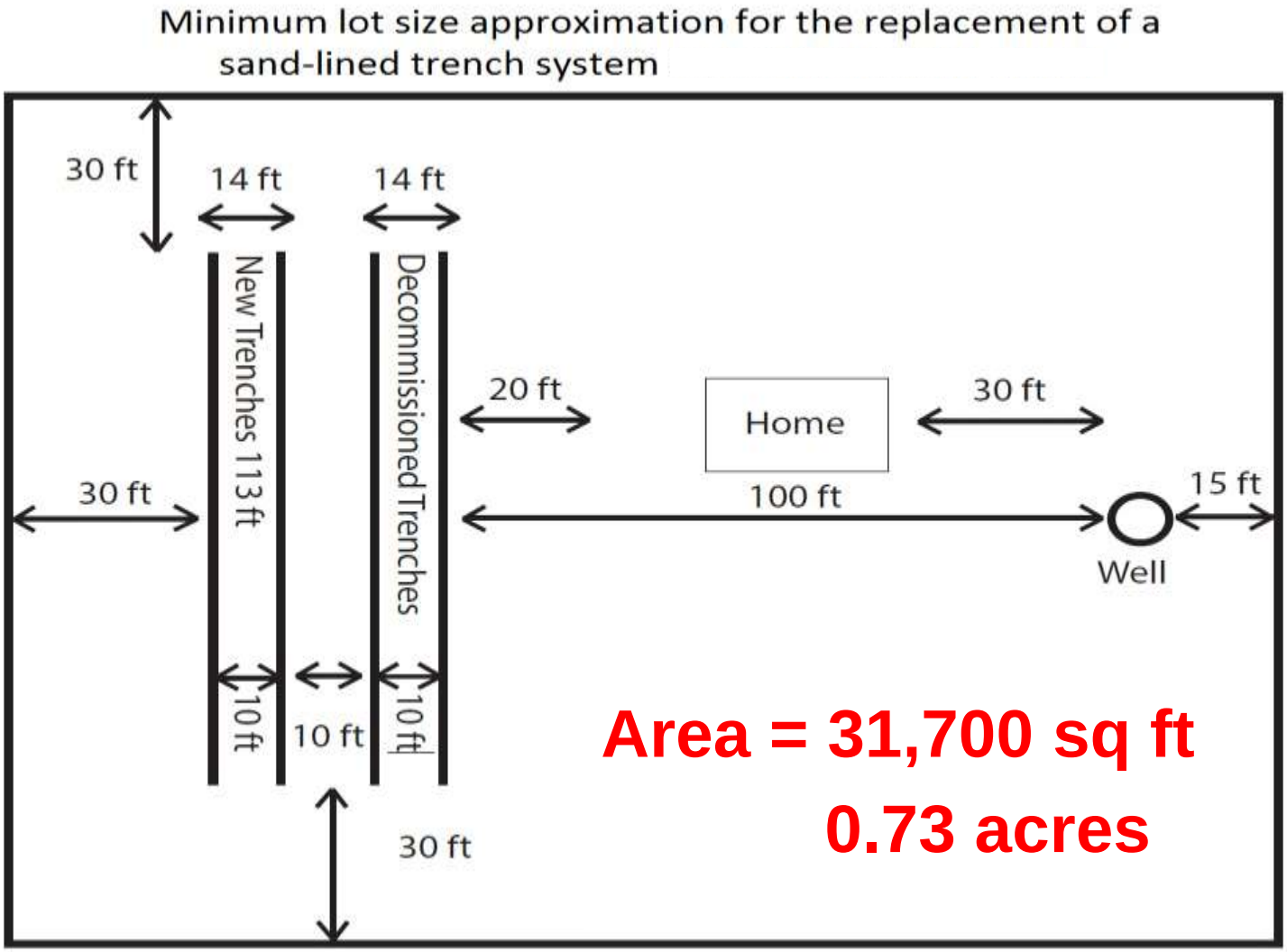
High Groundwater



High Groundwater and Septic Trenches



Replacement System Under Ideal Conditions



Public Health and Environmental Issues

- Failing septic systems and
- Systems penetrating groundwater

Result in

- Little or no treatment of pathogens (bacteria and viruses)
- High nitrogen loads to the Chesapeake Bay

Public Health and Environmental Issues

- High groundwater
- Soils with poor permeability
- Small lot sizes

3 Strikes and You're Out!

2. Decide to seek State funding

- Analyze the density of the problem area
- Decide if the density should be increased to create a growth area
- Maryland law - Service must be provided to vacant lots adjacent to a sewer line
- Some infill needed for affordability

3. Prepare a plan for sewer service

- Scope of the project area
- Capacity of the WWTP to accept flows
- AG's opinion – Service to vacant lots
- Locations and sizes of sewer lines
- Costs / affordability
- Financing package
- **Outreach, outreach, outreach!**

4. Amend the Comprehensive Plan

- If necessary, amend the Comprehensive Plan to include the proposed sewer service area
- If possible, revise the PFA to include the proposed sewer service area
- The Water & Sewer Plan should be consistent with the Comprehensive Plan

5. Amend the Water & Sewer Plan

- Number and percentage of failing systems
- Number and percentage of systems in high GW, impermeable soils, and on small lots
- Age of the community
- Efforts to replace the failing systems
- **Description of the project and map of the proposed service area & sewer lines**

Considerations

- Maryland law - Service must be provided to vacant lots adjacent to a sewer line
- Some infill needed for affordability
- State financial assistance ensures limited infill development
- **Strike a balance - Solve public health problem, allow limited infill, achieve affordable project**

6. Request MDE Financing

State Revolving Fund (SRF) Loan:

- 1.5% to 2.0% interest rate
- Up to 30-year loan term
- Assessment on all lots to pay back loan debt
- Vacant lots usually pay an economic premium

House Bill 11 of 2014 (BRF)

- *Expands Use of the BRF Fund*

  Provides grants for connecting septics to a WWTP at BNR or ENR; or to a community system at ENR

- *Helps Homeowners*

  Provides septic grants toward the cost to connect to public sewer ($20,000 max)

- *Provides Financial Flexibility*

  Provides for repayment of eligible debt principal over time, where grant funds are insufficient

House Bill 11 Requirements

- Documented environmental problem
- More cost-effective for nitrogen removal than upgrading septics *or* replacement not feasible
- Consistent with comp plan and W&S plan
- Septic systems installed as of October 1, 2008
- Granted a PFA exception by the SGCC
- Consistent with a public health area of concern
- Denied access for properties outside service area

House Bill 11 Requirements *(cont.)*

Requires MDE to consider:

- Public health issues
- Potential infill development
- Measures taken to mitigate the potential impacts of new growth
- Net nitrogen reduction from the project, including loading from new growth

7. Request the PFA Exception

- MDE will request the PFA exception
- Denial of sewer access for any future connections not in service area
- County must conform to 2013 model MD Floodplain Ordinance – min. 2 ft. freeboard
- County must assess climate change vulnerability and outline strategies to enhance resilience

8. Apply for Permits

- NPDES Permits
- Groundwater Discharge Permits
- Construction Permits

Our Shared Mission

Improve water quality

and protect public health!

Questions?

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Water Management Administration

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