

SEA LEVEL RISE AND VULNERABLE INFRASTRUCTURE: WASTEWATER

Issue

Conventional septic systems are vulnerable to **sea level rise** and recurrent flooding. Malfunction and failure of these systems threaten **public health** and present a **pollution risk** to waterways.

Solutions

Raised Mound and Elevated Systems

- Raised mound systems are a potential solution for properties with **shallow soil depth** conditions or **high groundwater levels**. Additional elevation **protects the drain field from recurrent flooding effects** and provides more soil through which effluent can travel.
- Elevated systems are installed completely above ground, and are therefore **protected from sea level rise**. Treated sewage is subject to VDH alternative system requirements (12VAC5-613 et seq.).

Community Systems

- These systems are a potential solution for **properties in rural subdivisions**.
- Community systems are a decentralized treatment option that **spreads the financial and maintenance burden** amongst multiple property owners.

Reclamation and Reuse Systems

- These systems are **fully automated, self-contained units** that remove suspended solids, soluble organics, ammonia, and pathogens.
- Compact sizes allow for placement in a garage or utility room, **lessening the risk from the impacts of flooding**.
- They reduce nutrient loads in waterways, reduce groundwater draw and attendant land subsidence, and allow for reuse of water for irrigation, laundry, flushing, etc.



Virginia Department of Health

The Virginia Code § 32.1-164 was recently amended to strengthen wastewater infrastructure.

In furtherance of this amended Code, VDH is currently reexamining its sewage handling and disposal regulations in order to incorporate climate change considerations.

For more information about VDH septic repair assistance options and relevant case studies, see [insert title of and link to updated VCPC septic paper].





Considerations for Solutions

Raised Mound and Elevated Systems

- **Barriers** include regular inspections by VDH (Virginia Code §32.1-164(A)) and upfront equipment and installation costs.
- **Implications:** Shifts financial and maintenance burdens to individual property owners.
- **Considerations:** Local governments can explore funding assistance to offset the costs to property owners. A pilot program is underway in the Middle Peninsula that will evaluate elevated septic system efficacy, cost and design.

Community Systems

- **Barriers** include site suitability and the financial burden of both (i) upfront costs of designing and building these systems and (ii) the continued cost of operation and maintenance.
- **Implications:** Localities with low-lying land cannot utilize these systems. Community buy-in is critical.
- **Considerations:** Local governments could collaborate with state authorities, and create grant programs to incentivize the transition to community systems.

Reclamation and Reuse Systems

- **Barriers:** VDH (12VAC5-610-690) and DEQ (9VAC25-740-10 et seq.) regulations contain potential limitations on residential implementation.
- **Implications:** Requires more monitoring by individual property owners than traditional septic systems.
- **Considerations:** Potentially scalable, either as individual units or as community systems.

Funding & Grants

- [Fight the Flood](#)
- [Southeast Rural Community Assistance Project, Inc. \(SERCAP\)](#)
- [Middle Peninsula Planning District Commission \(MPPDC\) Onsite Repair Program](#)
- [Virginia Coastal Resilience Funding Database](#)
- [National Association of Counties](#)
 - See Open Notices of Funding under "Implementing Infrastructure Investments at the County Level"
- [Virginia On Site Sewage Indemnification Fund](#)

Local Government Actions

- Local governments could consider **community outreach and education campaigns** that focus on vulnerability and impacts of sea level rise on wastewater infrastructure.
- Localities could connect property owners to information about alternative septic options and assistance programs.
- For example, Virginia Code § 32.1-164.1:01 establishes a fund to assist Virginia property owners "to repair a failing onsite sewage system or install an onsite sewage system on any property that lacks adequate sewage disposal."