

Don't Forget About Funding Maintenance

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The National Onsite Wastewater Association (NOWRA) made great progress in the past few years in lobbying efforts with Congress. In 2018, NOWRA's lobbying efforts have resulted in testing a question and hopefully adding it, about whether a home relies on an onsite sewage system to the American Community Survey, were instrumental in bringing about federal legislation that requires EPA to establish a clearinghouse for onsite wastewater information and to have EPA disseminate information to local government about the cost effectiveness of onsite wastewater options for development, and to require EPA to report on their progress in these two areas and their efforts in general to increase deployment of onsite sewage technologies (National Onsite Wastewater Recycling Association, 2018).

These advances are momentous for the industry and hopefully herald a new age for onsite wastewater, bringing attention to the challenges rural and suburban homeowners face in relying on onsite wastewater solutions. After all, it will be great to replace the phrase "approximately 25% of US homes rely on onsite wastewater solutions" with a phrase that gives an accurate number.

One of the challenges many homeowners face is the cost of an onsite system. For new homes, builders and buyers expect to pay the cost of the onsite sewage system, and regulators assure that the proposed systems meet the rules. But in the case of failing onsite wastewater systems, little financial assistance is available and many rural homeowners are not in the position to assume the cost.

"A substantial number (40%) of rural Americans struggle with routine medical bills, food and housing. And about half (49%) say they could not afford to pay an unexpected \$1,000 expense of any type"**Invalid source specified.** Even simple repairs to onsite sewage systems will easily exceed \$1000 due to the necessity of bringing an excavator and crew to the site.

Conventional onsite sewage systems have a septic tank to provide primary setting and some anaerobic digestion of solids followed by a system to distribute septic tank effluent through the soil where the effluent is treated by various biochemical processes in the soil. Where parallel flow-splitting is provided, conventional onsite sewage systems fail due to unequal flow-splitting because roots have infiltrated the distribution box or because distribution box is degraded or damaged. Hydraulic overload due to excessive water use in the home or infiltration of rainwater also causes failures. Eventually almost all conventional systems will fail when all the oxygen in the soil dispersal field is consumed.

Many homeowners believe that pumping out the septic tank is a magical fix for all septic system problems. For systems that are experiencing seasonal high water table (SHWT) problems, pumping out the tank may relieve the pressure in the system long enough to get the homeowner through to the growing season, when the trees bud out and cause the SHWT to subside. But

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pumping out the septic tank is primarily a maintenance measure to remove inorganic solids from the tank to prevent their traveling to the soil absorption system and clogging the soil; it's not really a fix for the system.

While pumping out the septic tank is an essential maintenance measure for conventional systems, alternative systems, onsite sewage systems that provide advanced treatment and/or pressure dispersal, require more active operation and maintenance (O&M) measures. The operator of an alternative system must check not only on the function of all the components of the system, but also attend to periodic cleaning of filters, and monitoring of the soil absorption system to assure equal distribution. The operator must provide periodic field testing and sampling of the effluent from the treatment system to assure that the biological processes are providing effective treatment.

In Virginia, current assistance programs funded by EPA or USDA Rural Development through various subrecipients will fund repair or replacement of failing systems, but do not currently provide a mechanism for assisting homeowners with annual maintenance, even for alternative systems.

In Virginia, Total Maximum Daily Load (TMDL) grants do provide some funding to assist homeowners with maintenance of onsite systems located in impaired watersheds. These grants are often not well publicized and require a cost-match from the homeowner. Low-income homeowners who cannot afford maintenance and repairs often cannot afford half the cost of maintenance and repairs either. Even these TMDL programs offer assistance only once whereas alternative systems require maintenance at least annually, some more often.

Most homeowners do not understand how their onsite sewage system, whether conventional or alternative, functions. Most of the eastern counties in Virginia require septic tank pumpouts every five (5) years through a law passed in the 1990s to support the Chesapeake Bay. Alternative systems were rare when this law was passed and the author has encountered a number of homeowners with alternative systems who believe that the five-year-pumpout requirement is the only maintenance required for their alternative system also. Alternative systems became more prevalent in Virginia throughout the 2000s when first the Sewage Handling and Disposal Regulations 12 VAC 5 610 (SH&DR), were updated to allow shallow-placed systems, then the Code of Virginia §32.1-164.6 was enacted allowing professional engineers to design onsite sewage systems outside the SH&DR, and finally the Regulations for Alternative Onsite Sewage Systems 12 VAC 5 613 (AOSS Regs) were passed.

While the AOSS Regs have always required maintenance of these systems at least annually, licensure for alternative onsite sewage operators lagged slightly behind the requirements in the regulations, initially making it difficult for homeowners to find someone qualified to properly maintain alternative systems. Other developments with the AOSS Regs delayed enforcement of the requirement for annual maintenance such that when the health department began sending out letters in 2018 to enforce annual maintenance requirements, at least 4373 homeowners, approximately 27% of AOSS owners, would be receiving letters in the first round of mailings.

The author routinely speaks to homeowners who had no idea that annual maintenance was required for their alternative systems until receiving that letter from the health department. Many state that they have faithfully had the tank pumped every 5 years, and thought that maintenance was all that was required. When we meet with them to assess their systems, many can be brought into proper functioning with a few minor repairs. Some of these homeowners, however, must completely replace their AOSS primarily due to lack of maintenance.

As we speak with homeowners, we find that many knew they had an alternative system and that special maintenance was required, but they never read the materials that came with their system. Unable to find information about their systems, they just gritted their teeth and hoped that nothing bad would happen. Some think that a wet spot or two in their yard was OK, just something to endure and mow around, not understanding that these were symptoms of a problem. We have found a few that contacted the manufacturer for a replacement compressor, pump, or other component when they could not find a licensed operator.

Discussing maintenance with the owner is complicated when you are also the selling your services. Having a “neutral” source of information is helpful to convince owners that we are not trying to sell them a frivolous service, but rather to provide them with the support they need to keep their systems functioning properly. We try to find ways to make the science and mechanics of onsite sewage systems understandable to homeowners who have many demands on their time and money.

CONCLUSION

As laudable programs offered by state and federal housing departments and programs like Habitat for Humanity offer pathways to home ownership for low to moderate income (LMI) individuals, the onsite industry must find some ways to make maintenance contracts more accessible to these homeowners. Elderly homeowners on fixed income who have paid off their homes through their working years are also often in need of assistance for maintenance matters. If these owners lived in homes served by public water and sewer, the utilities could offer them programs made possible because the economy of scale and the low-cost loans and grants available to the utility allows financing options. For owners with private wells and onsite wastewater systems, maintenance is usually only available through small businesses struggling to stay afloat themselves. These small operators are not able to charge to cover infrastructure because the client can leave at any time and raising their price can easily put them out of a contract.

Some sort of background funding structure that allows a homeowner to apply for assistance would be a great help. The model for TMDL funding could work, but with a different structure for cost-share, allowing low to moderate income homeowners to spread out the cost. Perhaps having LMI homeowners pay a small monthly fee into a fund would be a way to establish funding for such a program. If the fund were established by a government agency or even a non-profit organization, the funding organization could apply for supplemental funding through some of the established sources, or even take donations.

As housing development moves into soil areas not suitable for conventional septic tank-drainfield systems, and as LMI individuals or those on a fix income own or purchase “bargain” properties that require alternative onsite sewage systems, the problem of funding annual maintenance for

LMI homeowners becomes more acute. Climate change will also make this problem more acute in coastal areas as water tables rise and more alternative systems are required.

As the industry welcomes more discussions about funding for onsite sewage systems, let's look beyond funding the initial installation: don't forget about funding maintenance.

References

National Onsite Wastewater Recycling Association. (2018, October). *Here's the latest news on NOWRA's Advocacy Efforts*. Retrieved from NOWRA:
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