BLACKSBURG, VIRGINIA

PROBLEM

Blacksburg, Virginia, like many growing communities, faced the challenge of meeting development needs with a decentralized system or extending the existing centralized sewer system. The town considered factors such as cost, construction-related traffic disruptions, floodplain and creek impacts due to centralized sewer main construction, collection system infiltration/inflow and leakage, treatment effectiveness, and other factors.

SOLUTION

The town established a workgroup to evaluate wastewater treatment system alternatives. After careful review, Blacksburg chose to conduct a pilot project to test the feasibility of a decentralized, clustered system.

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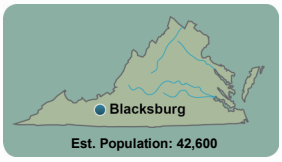

OVERVIEW

When Blacksburg, Virginia, began investigating wastewater alternatives in 2000, it recognized that management was the key to the success of the system (Mattingly and Tremel 2002). The town selected Management Model 5 as a pilot approach for the Tom's Creek community. The program consists of:

- **Operating permit requirements**
- **RME with enforcement authority**
- **Requirement for the use of trained personnel**
- **Remote monitoring and routine inspections conducted by RME**
- **System database maintenance**

PUBLIC WORKS DEPARTMENT SERVES AS RME

Blacksburg chose to have its existing public works department assume the role of wastewater utility—or RME—for the community of Tom's Creek. The town's public works department both owns and manages the clustered system as it does other wastewater infrastructure. The RME chose a hybrid collection system including a Septic Tank Effluent Pump (STEP) pressure system combined with a Septic Tank Effluent Gravity (STEG) system. Users of the clustered system pay the same residential water and wastewater rates as customers served by centralized sewers in the area.

Approximately 200 homes in the Village of Tom's Creek are served by the STEP/STEG system. Trained RME personnel inspect each tank every two years. Each house must have an individual septic tank for which residents have maintenance responsibilities, including avoiding practices such as dumping large quantities of fats, oils, grease, chemicals, or solid waste down drains or toilets. When inspections reveal recurring problems, the RME notifies the resident and takes corrective action.

REMOTE MONITORING RELAYS OPERATING PROBLEMS

Blacksburg uses internet-based, remote monitoring to relay system operating problems. The system sends emails or page alerts to designated maintenance personnel when it detects problems.

RESULTS

Selection of the STEP/STEG system has saved the community more than $1 million in construction, with operation and maintenance costs similar to that of conventional centralized systems. The town's public works department conducts annual inspections of each STEP/STEG system and pumps the 200 septic tanks as needed. The program estimates that pumping should occur every seven years and estimates an average cost of $150 per tank.

One of the town's concerns was centralized sewer collection system leakage. During heavy rains, the STEP/STEG system, by design, shows no infiltration/inflow or leakage and maintains a stable level of treatment. Also, the town is using septic tank effluent gravity collection systems for new developments, where possible, rather than the pump (STEP) approach, in order to minimize costs for maintaining and operating pumps and other equipment.

References and Resources

Mattingly K., and Tremel, M. 2002. A Unique Public Management Entity in the Town of Blacksburg, Virginia. **http://corralesnm.net/wasteWater/resources/21917152844.pdf**. Accessed March 29, 2010.

Toms Creek Sewage Options Working Group. 2001. Recommended Decentralized System. **http://www.tcbsewer.org/MAIN/STEP.htm**. Accessed March 31, 2010.

Population data—Census Bureau, State and County QuickFacts, Blacksburg(Town), 2010. **http://quickfacts.census.gov/qfd/states/51/5107784.html**