



## DECENTRALIZED WASTEWATER TREATMENT CAN BE COST EFFECTIVE AND ECONOMICAL



*Decentralized wastewater treatment can provide a long-term and cost-effective solution for communities by:*

- *avoiding large capital costs,*
- *reducing operation and maintenance costs, and*
- *promoting business and job opportunities.*

### HOW CAN DECENTRALIZED WASTEWATER TREATMENT BE COST-EFFECTIVE AND ECONOMICAL?

**Avoiding large capital costs** – For new and upgraded service, decentralized systems typically involve a small initial investment for a community relative to larger systems. Generally, total per connection cost of a decentralized system will be lower than the equivalent conventional gravity system serving the same area. However, the site-specific size of the differential will depend on land costs, topography, presence of shallow rock, lot density, etc. Decentralized systems can be built “just-in-time” to meet local demands and take advantage of the latest cost-saving technology. Decentralized systems typically require less expensive and easy to install small piping. These systems can help communities delay or avoid costly infrastructure capacity upgrades to larger facilities. The costs of transporting waste over longer distances to reach existing facilities can also be avoided. As a bonus, decentralized systems can be recognized as “green” and thus may be eligible for special funding opportunities such as the green project reserve under the Clean Water State Revolving Fund (CWSRF).

EPA promotes use of CWSRF as a means for states to implement comprehensive wastewater system management programs, and EPA has been encouraging states to re-evaluate their CWSRF programs to ensure decentralized needs are adequately determined and sufficiently funded.

**Reducing operation and maintenance costs** – Decentralized systems typically use small and relatively simple equipment that can be easy and affordable to operate, maintain, and replace. Additionally, because these types of systems treat wastewater close to the source of generation and often use some passive treatment, such as soil dispersal, these systems may offer substantial savings in energy costs. A 2002 Electric Power Research Institute report concluded that at least 4% of energy use in the U.S. is associated directly with water transport and treatment. On a community level, this can translate to about 25% of a community’s energy use. Finally, because systems frequently serve a fairly small number of users, disruptions and costs associated with malfunctions are also relatively small.

**Promoting business and job opportunities** – Use of decentralized systems can generate local economic opportunity for service providers such as inspectors, installers, and designers. Engineers with local experience can be incredibly valuable in designing decentralized systems to ensure safe and efficient treatment of wastewater. In addition, jobs can be generated for service providers such as installers and pumpers as well as manufacturers—through increased demand. These systems can be financed on a small scale that provides opportunities for use of local financial institutions.

*The EPA Decentralized Wastewater Memorandum of Understanding (MOU) Partnership, created in 2005, has served as an ongoing cooperative relationship between the EPA and Signatory Organizations to effectively and collaboratively address management and performance issues pertaining to decentralized systems.*

## WHERE IT'S WORKED

### Mobile, AL

The Mobile Area Water and Sewer System (MAWSS) and the city of Mobile, Alabama, together with South Alabama Utilities in Mobile County, manage two centralized plants and more than 15 cluster systems serving residential, commercial, and school properties. In addition, a sewer mining demonstration project provides reclaimed water for landscape irrigation. Faced with significant growth and aging infrastructure, MAWSS decided to begin using cluster facilities to serve new residential developments. In this way, MAWSS improved service to residents, provided a new business and revenue source, and protected water quality using professionally managed decentralized systems, while saving money on costly sewer extensions. The sewer mining project demonstrated the feasibility and cost-effectiveness of integrating decentralization into an urban centralized system, as well as reuse of treated wastewater to conserve community water supplies. South Alabama Utilities has provided decentralized wastewater treatment service to growing parts of Mobile County where centralized wastewater service was not available or cost effective.

*Advanced treatment units*



### Olympia, WA

The Lacey, Olympia, Tumwater, and Thurston County (LOTT) Alliance is a water and sewer utility serving the Olympia, Washington area. The Alliance wanted to meet the needs of a growing population with a system providing greater environmental benefits. They developed a 20-year plan that calls for construction of three satellite reclaimed water treatment plants that promote wastewater reuse, wisely manage community resources, and take advantage of the latest advances in technology. The utility's plan includes a strong educational component, highlighting the benefits of water reclamation and reuse.

*Wastewater lagoon*



## ADDITIONAL RESOURCES

Decentralized Water Resources Collaborative – [www.decentralizedwater.org/research\\_by\\_category.asp](http://www.decentralizedwater.org/research_by_category.asp)

Consortium of Institutes for Decentralized Wastewater Treatment – <http://www.onsiteconsortium.org/decentmgmt.html>

Water Environment Research Foundation – <http://www.werf.org/i/a/k/DecentralizedSystems.aspx>

For more information on the individual MOU Partners, click on the logos below or go to <http://www.epa.gov/owm/septic>.



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