The Tennessee Advisory Commission on Intergovernmental Relations

226 Anne Dallas Dudley Blvd., Suite 508
Nashville, Tennessee 37243-0760
Phone: (615) 741-3012
Fax: (615) 532-2443
www.tn.gov/tacir

MEMORANDUM

TO: Commission Members

FROM: Cliff Lippard
Executive Director

DATE: 30 May 2024

SUBJECT: Wastewater Systems Operations and Finances Report – Draft Report for Review and Comment

---

The attached draft Commission report is submitted for your review and comment. It was prepared in response to a request from County Executive and TACIR commission member Jeff Huffman that the Commission study the operations and financing of Tennessee's wastewater systems. County Executive Huffman asked that the study examine

- the condition of Tennessee's wastewater systems,
- the number of wastewater systems that have enforcement letters from the Tennessee Department of Environment and Conservation,
- the best practices for wastewater system management from other states,
- new technologies for wastewater system management that local governments could consider and would be permissible under Tennessee Department of Environment and Conservation rules,
- methods of wastewater system management that have not worked and should be avoided,
- the best methods for financing sewer lines and wastewater treatment plants, and
- the best methods to reduce the operating costs of wastewater systems.

Based on requests from other TACIR commissioners, the scope of the study was expanded to include looking at

- the governance structures of wastewater systems, whether the members of their governing bodies are compensated; and whether the compensation includes benefits, and
- staffing issues at wastewater systems.

The staff found the following in its research:

The condition of Tennessee's wastewater systems. The staff found that Tennessee has invested heavily in upgrading its wastewater infrastructure, but some systems are struggling to maintain their aging equipment while meeting growing service demands. The 2022 Infrastructure Report Card from the American Society of Civil Engineers graded Tennessee's wastewater infrastructure a C-. The report card states that over the past decade, efforts to expand capacity to support a growing population have resulted in neglected maintenance. They noted that this was evidenced by the increased number of sewer overflows, which have at times resulted in sewer tap moratoriums—a temporary restriction on establishing new sewer connections or taps to existing infrastructure—essentially putting a pause on new development.

Wastewater systems in Tennessee will likely need to spend billions to pay for the repair, replacement and expansion of their infrastructure. The state's 2018 report, *TN H2O*, estimated it would cost approximately $8.9 billion to fund the repair and replacement of aging wastewater infrastructure and to extend the wastewater services to support the state's growing population from 2018 through 2040. However, TACIR's infrastructure survey estimates that $3.5 billion is needed to fund wastewater infrastructure projects from FY 2022 through FY 2042.

The number of wastewater systems that have enforcement letters from the Tennessee Department of Environment and Conservation. As of May 2024, there were 57 local governments that operate wastewater systems with active enforcement orders. There were also 13 other entities that operate wastewater systems with active enforcement orders—7 of the 13 are privately operated, 4 that are operated by schools, and 2 that are operated by the state. There are 36 local governments that operate wastewater systems with sewer moratoriums.

The best practices for wastewater system management from other states and the best methods to reduce the operating costs of wastewater systems. Asset management plans can help systems manage their infrastructure needs more efficiently by prioritizing projects and planning for their funding. Systems like Mount Pleasant Waterworks in South Carolina and Hastings Utility in Nebraska demonstrate the benefits of incorporating computerized maintenance management systems and GIS into

their asset management process to help improve planning. The use of the Effective Utility Management framework developed by United States Environmental Protection Agency and other water and wastewater industry organizations can also help systems manage more efficiently. Systems like Austin Water in Texas and Columbus Water Works in Georgia have used the framework which led to improved employee recruitment and customer satisfaction initiatives. Efficient energy consumption can help cut operating costs.

Methods of wastewater system management that have not worked and should be avoided. TACIR staff did not identify any valid management practices that should be avoided. Rather, research and interviews confirmed the risks of failing to properly manage equipment and assets. Neglecting regular equipment maintenance can lead to costly repairs and non-compliance with state regulations. Failing to implement an asset management plan can result in poor prioritization of infrastructure needs and inadequate funding for capital improvements. Ignoring energy efficiency measures can lead to unnecessary expenditures and higher operational costs. Improper dosing or monitoring of chemical disinfection can release harmful byproducts or fail to remove pathogens adequately, posing health risks. Additionally, inadequate sludge treatment and disposal can contaminate soil, water, and air.

The best methods for financing sewer lines and wastewater treatment systems. Their best option will likely involve a combination of funding sources including grants, loans or bonds depending on the project size and the individual circumstances that exist at the utility.

New technologies for wastewater system management that local governments could consider and would be permissible under Tennessee Department of Environment and Conservation rules. Wastewater treatment systems, to include a few in Tennessee, are using technologies and processes that help them to extract resources from wastewater like water for irrigation, nutrients for fertilizers, and biogas for fuel. With technologies like membrane bioreactors, systems can remove more contaminants from water, and they can process sludge more efficiently with thermal hydrolysis. And the use of solar photovoltaic (PV) panels can help systems save some money on electricity.

Information about the governance of wastewater systems. Most of the public wastewater systems in the state, 82%, are operated by municipalities, and the municipalities' governing bodies oversee them. A few municipalities have separate utility boards that govern their systems. The remaining 13% of systems are governed by a variety of entities including boards of utility districts, municipal energy authorities,

or water and wastewater authorities. A few systems are operated by counties and metropolitan governments that are governed by the county or metropolitan government's governing board, a utility or public works department in the government or a separate utility board. Some systems are operated by local governments working together jointly and are overseen by a board or committee. There are 13 private, investor-owned wastewater systems.

Compensation of wastewater systems' governing body members. Compensation for the people who serve on the public wastewater systems' governing bodies varies across the state with 65% of respondents to a survey by Commission staff reporting that they compensate their board members, with amounts ranging from $50 per month to $17,000 per year. Benefits also vary, with 32% of respondents offering health insurance, 23% providing vision insurance, and 20% offering dental insurance.

Staffing issues at wastewater systems. Sixteen percent of respondents to the Commission staff survey said they had difficulty attracting and retaining certified wastewater operators. This is due in part to an aging workforce and difficulty in attracting younger workers. Retention is also an issue, as operators often leave for better-paying jobs at other wastewater systems.