

**Research Plan: Wastewater Systems: Operations and Financing**

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Executive Director Approval: Initial: *[Signature]* Date: *6/21/2023*

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**Purpose**

To study and identify the most efficient ways to finance and operate the state’s wastewater systems.

**Background**

Smoothly functioning wastewater systems are essential to protect public health and the environment and to promote economic development. Wastewater can carry disease causing pathogens and harmful chemicals and heavy metals which cause a variety of environmental and health problems, so it is essential for communities to be able to effectively treat wastewater to protect their population. A wastewater system in a community can also make it easier to attract new businesses and higher density development.

Because public wastewater systems are largely out of sight, they are taken for granted. We assume that they will continue to carry out the function for which they were installed. But many of the public wastewater systems in use today are very old, having been installed during the growth period after World War II. Most systems were designed with a 50 to 100-year life cycle, and over the years the materials used in their construction have lost their structural integrity because of corrosion and natural deterioration from use. Old clay pipes fail at the joints, and roots grow into them. As more and more wastewater systems reach the end of their useful lives, major programs of systematic rehabilitation will have to be undertaken to ensure that they function properly.

In addition to repairing or replacing aging wastewater infrastructure, communities are also dealing with the challenge of financing the construction of new public wastewater systems or the expansion of existing systems to meet the needs of a growing population. US Census estimates show that Tennessee's population grew by 2% between April 2020 and July 2022, and the University of Tennessee's Boyd Center for Business and Economic Research estimates that Tennessee could grow by nearly a million people over the next 20 years. Sewer lines as well as treatment plants were sized and installed at a time before the recent rapid growth of the state's population. Treatment plants can be expanded, but lines cannot, at least not without replacing them. Not only can expansion challenge the entire system, but it may also result in a diversion of effort and attention away from the long-term preservation of existing facilities.

It will be expensive to fund repairs and expansion of wastewater systems in the state. In the American Society of Civil Engineers' *2022 Tennessee Infrastructure Report Card* report, it is estimated that the state needs \$5.9 billion to fund repair and replacement of aging wastewater infrastructure through 2040. It is also estimated in the report that Tennessee needs just under \$3 billion to extend wastewater service to the state's growing population through 2040.

At the January 2023 Commission meeting, County Executive Jeff Huffman asked TACIR to study the operations and financing of Tennessee's wastewater systems. He said the study should 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 centers, and
- the best methods to reduce the operating costs of wastewater systems.

## **Define the Problem**

Much of the wastewater system infrastructure in the state is old and in need of being repaired or replaced while Tennessee's population growth is creating the need for expansion of existing facilities or the building of new wastewater facilities. High costs might affect the ability of local governments to repair and operate existing wastewater facilities or build new ones, creating potential risks for the public and the environment.

## **Assemble Some Evidence**

- Interview the Commissioner who requested the study, County Executive Jeff Huffman.
- Interview stakeholders to determine what is driving the issue. These include but are not limited to representatives of the
  - United States Department of Agriculture
  - United States Environmental Protection Agency (EPA)
  - Tennessee Department of Environment and Conservation (TDEC)
  - County Technical Advisory Service (CTAS)
  - Municipal Technical Advisory Service (MTAS)
- Review view past legislation meant to address this issue, including committee hearings on those bills and the fiscal notes.
- Review Tennessee's relevant statutes and regulations.
- Review relevant federal statutes and regulations.
- Review relevant literature.
- Review similar policies and laws of other states.
- Gather relevant data sets.

## Proposed Research Timeline

