

Improving Resilient Wastewater Infrastructure

Initiative Summary Statement:

Improve the operational capability of wastewater infrastructure and increase the speed of septic-to-sewer conversions where possible.

Initiative Description:

Objective: Promote the fortification of sanitary sewer infrastructure and prevent disruptions and overflows, particularly during and after catastrophic events, like Hurricane Ian. Enhancing the reliability of the wastewater systems and avoiding sanitary sewer overflows is crucial to safeguarding public and environmental health, enhancing community safety, and providing uninterrupted continuity of service. There are significant environmental impacts from sewage spills that cause harmful bacteria to infect the water system. It is essential to develop advanced wastewater treatment methods to improve water quality and remove harmful nutrients, bacteria, and other pollutants. It underscores the critical need for redundancy and the avoidance of service disruptions.

Need: Improving the operational capacity of wastewater systems, including the construction and installation of resilient wastewater infrastructure, such as septic-to-sewer conversions for households, is crucial to protecting people and the environment. The rehabilitation and construction of reclamation facilities, lift stations, and redundant connections between systems, and hardened and resilient wastewater infrastructure has been identified as a critical need of residents in the region.

Regional Approach: Coordinated expansion efforts should be implemented that support resilient actions for wastewater infrastructure by focusing on goals that strengthen and prevent disruptions. Redundancy can be increased through developing backup systems and connections to minimize the risk of service interruptions and overflows including backup generator power. By leveraging advancing technologies, enhanced monitoring systems and early warning systems can be employed to detect potential issues, address them proactively, and reduce the risk of service disruptions. The goal of establishing emergency response protocols and resources to swiftly address any disruptions or overflows when they occur should be addressed by local governments and utility providers as they play a critical role in the delivery of services. Jurisdictions should work with the County or utility provider to implement advancing and accelerating the use of reclaimed water. For example, the Village of Estero has taken the point of using reclaimed water and providing another source for the wastewater system.

Septic-to-sewer conversions prevent spillage and runoff from tidal, flood, and storm-related surge from impacting water quality. Sewer collection systems are more effective removing pathogens than septic systems and preventing nutrient pollution from the system into waterbodies and ultimately protecting ecosystems. A wastewater treatment framework should be developed to assist with future events. Prioritizing utility projects requires coordination and implementation of the following resilient actions to support resilient wastewater infrastructure:

- Increase capacity of existing wastewater treatment facilities.
- Harden wastewater facilities to protect systems from hazards.
- Construct additional facilities to increase capacity.
- Install deepwater injection wells.
- Increase redundancies and collaboration between utilities.
- Enhance redundant power and communications infrastructure.
- Understand potential breaches and leaks ahead of disasters.
- Prioritize completion of septic-to-sewer conversions for homes that utilize septic in environmentally sensitive areas including low lying, coastal, and riverine floodplains.

Impact: By focusing on these critical measures, wastewater infrastructure will be strengthened, disruptions prevented, and sanitary sewer overflows avoided. This not only enhances the seamless delivery of essential services but also plays a pivotal role in safeguarding public and environmental health, community safety, and the uninterrupted continuity of service, even amidst rapid growth and challenging circumstances.

Key Considerations:

- Assessment of Countywide wastewater infrastructure facilities.
- Prioritized list of wastewater improvement projects with criteria based on lessons learned during Hurricane Ian.
- Development of a Countywide GIS map of wastewater infrastructure facilities, prioritizing healthcare facilities, resiliency hubs, shelters, etc.
- Creation of an outreach process for community involvement to keep the community engaged and incorporate their feedback.
- Identify properties to be converted or any upgrades that need to occur to existing infrastructure and barriers or impediments.
- Incentivize and promote advanced wastewater treatment using the regulations already in place in the BMAPs.

Co-Sponsoring Branches:

Infrastructure

Stakeholders:

- County departmental experts on natural resources, utilities, and public works.
- Utility providers
- Municipal departmental experts on natural resources, utilities, and public works.
- Community development districts and other special districts providing utility services.

Potential Funding Sources:

- United States Environmental Protection Agency
- United States Department of Agriculture
- United States Bureau of Reclamation
- United States Army Corps of Engineers
- Florida Department of Environmental Protection
- Florida Department of Economic Opportunity
- Department of Commerce – Economic Development Administration
- National Rural Water Association
- Florida Rural Water Association
- Rural Community Assistance Partnership
- South Florida Water Management District
- Southwest Florida Water Management District

Resources:

- Study completed by Lee County Utilities.