

# CASE STUDY

## VACUUM SEWER UPDATES PROVIDE NET TRAJECTORY FOR SEPTIC TO SEWER PROGRAMMING

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Jacksonville, Florida, United States

JEA's sewer collection system handles more than 80 million gallons of wastewater every day. Their waste collection and treatment system consists of more than 3,900 miles of collection lines, over 1,300 pumping stations, and eleven wastewater treatment plants.

JEA has employed the use of Vacuum sewers in the past operating five vacuum collection networks across JEA's Service area. Sadly, JEA's experience with the vacuum collection networks, rollout, and maintenance left a bad taste throughout the organization and community.

Due to the above JEA was not interested in septic to sewer programs utilizing Vacuum technology. This left the City of Jacksonville and JEA looking to traditional or other options for their large septic to sewer projects.

Vacuum sewer was the right technology for a lot of the areas that are serviced or need to be serviced due to their flat, water laden topography. However, it was clear a new approach was needed to ensure the success of the technology, additionally the success of the JEA and the City of Jacksonville in their efforts to provide sewer services to the community.



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## THE CHALLENGE

Retrofit existing vacuum sewer systems that JEA had been struggling with, provide training and raise expectations and awareness as to minimum vacuum sewer standards.

Flovac faced the significant task of enhancing awareness about the critical standards and requirements that underpin the vacuum collection network's effectiveness. This challenge was not only about disseminating information but also ensuring that the foundation of success for such systems was well-understood across the board. It was crucial that every stakeholder recognized the importance of adhering to these minimum benchmarks to guarantee the network's optimal performance and longevity.

To tackle this task effectively, Flovac embarked on a collaborative journey with JEA, engaging closely with their operations, management, and engineering personnel. The aim was to foster a comprehensive understanding of the technology among these key groups, equipping them with the knowledge and insight necessary to set realistic expectations. Through this concerted effort, Flovac sought to ensure that JEA's staff were not just familiar with the technical aspects of the vacuum collection network but were also well-prepared to navigate its complexities and challenges.

## key outcomes

- 1. LOW CAPITAL INVESTMENT AND EFFICIENT CONSTRUCTION**  
Shallow trenches translate to reduced construction costs and faster deployment, minimizing impact on residents.
- 2. ENVIRONMENTAL PROTECTION**  
Because vacuum systems operate with negative pressure, no sewage can leak out (even in the event of a rupture), there are no overflows and rainfall cannot infiltrate.
- 3. STABILITY**  
Flovac's inlet system is designed to ensure air is always automatically entering the system and can be programmed to take account of high or low-flow periods.
- 4. RELIABILITY**  
Flovac's system requires only low power supply at the vacuum pump station, which can be secured with a backup.
- 5. EASE OF OPERATION AND MAINTENANCE**  
The system can be easily monitored and maintained by the operator.

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### THE FLOVAC SOLUTION

Flovac, not new to the industry but new to JEA, started down the road of a simple yet tried and true approach to supporting the vacuum collection network operation team training. In 2016, Flovac was commissioned to spend time with the operations team and provide insight as to industry best practices and how vacuum systems should perform. This was extremely well received by the collections network team and this relationship and support is ongoing.

Through this process and introductions, Flovac equipment was adopted into JEA's Standards and is now stocked in the JEA storeroom. Flovac is informed they are still the only supplier for vacuum sewer systems "stocked in the storeroom" for use within the existing networks in addition to Flovac's Valve pits being stocked at the construction depot.

In 2019, Flovac was asked to participate in the JEA's Innovation lab rolling out telemetry to existing collection networks to help upgrade the systems and also showcase JEA's commitment to innovation and growth. Flovac was featured in the JEA internal calendar in two separate months.

Flovac also partnered with Cisco Industries to provide a communications backbone to the JEA service area. This partnership allows for Flovac's vacuum sewer telemetry equipment to connect to the JEA, Cisco backbone and provide real-time data to the operations team. Flovac is one of the first to partner with Cisco IoT- Asset Vision as a 3rd party in the LoRaWAN solutions space.



JEA's Mickhael Sulayman, with Hazen and Sawyer introducing Flovac and advancements in vacuum technology for pending Septic to sewer Projects.



Flovac Products featured in the JEA innovation Lab

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“The guys went directly to the pod and replaced the controller. Before, they would have to isolate the line, operate the valves in the street and follow the branch, then walk and check each pod ‘til they found the problem.”

- Chuck Martin  
WWRT Maintenance Coordinator

## THE RESULTS

In 2019, JEA’s leadership team concluded that if this is the new standard in vacuum sewer systems then JEA was interested again in the use of vacuum sewer systems for Septic to sewer projects.

This led to the septic to sewer master plan, provided by Engineering firm Hazen and Sawyer, re-introducing the use of vacuum sewer systems in the initiative, and realizing projected savings of \$250 million by doing so compared to traditional collection networks.

Fast forward to 2023, Flovac was invited by JEA and Hazen and Sawyer to present to the septic to the septic to sewer committee and go over what should be minimum standard withing the vacuum sewer industry. This information is being worked into the masterplan for the JEA’s future planned vacuum system.

Today as septic to sewer programs kick off. Flovac’s Vacuum equipment is already starting to roll out equipment to support JEA and the City of Jacksonville in their plans. Flovac pride themselves in being at the ready to support this important initiative.

### for more information

Join us in shaping a sustainable future. To learn more about how Flovac is leading the change in environmental engineering and how we can assist in your wastewater management needs, contact us at [info@flovac.com](mailto:info@flovac.com)