TOWN OF HILLSBOROUGH

Understanding the Cost of Water and Sewer Service

Water and sewer service has long been underfunded across the country with rates that do not meet the actual cost of providing the service of clean and reliable water. The payments that Hillsborough customers make for water and sewer service pay for the operation, maintenance and improvement of the town's utilities system.

Taking care of what we have

When it comes to maintaining the pipes and treatment plants for our drinking and wastewater across the country, the United States does poorly, earning grades of C- and D+ in the 2021 Infrastructure Report Card from the American Society of Civil Engineers. In North Carolina, the grades from the most recent state report card in 2013 are slightly better — with a C+ for drinking water infrastructure and a C for wastewater infrastructure. The Town of Hillsborough strives to do better, already using solutions that the American Society of Civil Engineers recommends for raising the grade of drinking water and wastewater infrastructure, such as ensuring rates cover the full cost of service and resilient infrastructure.

The approach the town takes to its operations includes taking care of what it has. For the water and sewer system, this includes the treatment plants, pipes, other equipment and employees who operate and maintain the system. Your Hillsborough water and sewer bill reflects your contribution to the labor and the physical infrastructure required to have clean, accessible water when you want it and to have wastewater removed and safely returned to the environment in a form that protects life and downstream water supplies. The town does not make a profit from providing water and sewer service nor does it use water and sewer revenue for other purposes.

Costly service

Water and sewer service is expensive to provide. The main costs are:

- Treatment
- Pipes and other infrastructure
- Labor

Treatment —

The processes for treating raw water and wastewater require multiple stages and can take several days to reach a level that is safe to drink or to return to the Eno River.

Sedimentation basins at Hillsborough Water Plant

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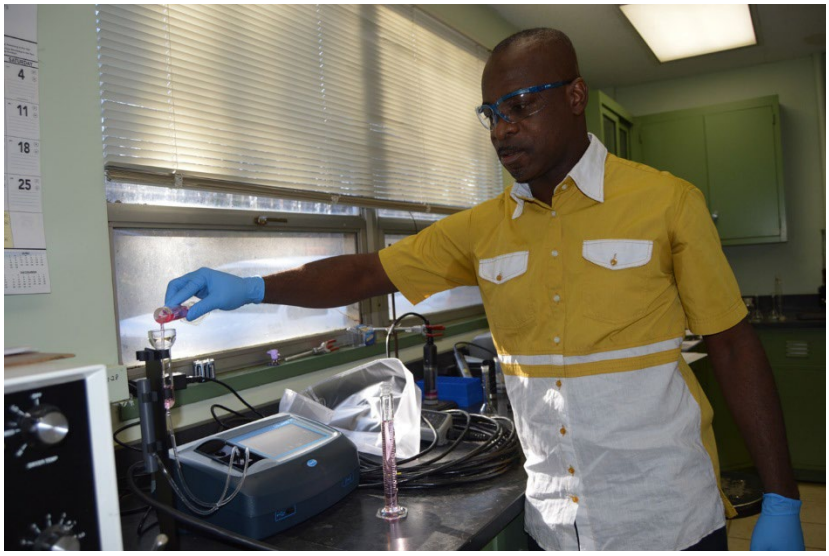
Drinking water:

Converting raw water into drinking water includes multiple chemical injections to help remove organic material from the water and to disinfect the water before releasing it for use by the community. The chemical process starts before the raw water reaches the Water Treatment Plant. At the plant, more chemicals are added to help with combining and filtering out organic material and also to adjust the color, acidity and alkalinity. The water goes through several filtration, aeration and clarification stages until finally moving through a fine filtration. At this stage, the water's turbidity is measured and filtration adjustments are made to remove any cloudiness from the water caused by large amounts of particles that are otherwise invisible to the eye. The water is then disinfected and final adjustments to acidity and alkalinity are made before the water is pumped through pipes to homes and businesses. Throughout the treatment process, employees test the water for more than 150 contaminants, making adjustments to the treatment as needed.

Wastewater:

The treatment process for wastewater also includes various stages of filtration, aeration and clarification to remove trash, organic materials and nutrients — such as nitrogen and phosphorus — that are harmful to aquatic life in large supplies. The water goes through a final fine filtration to remove any remaining solids and is then disinfected with chlorine. The chlorine is removed, and the water is pumped back into the Eno River. Trash removed during the wastewater's first filtration stage is washed, compacted and disposed of. The organic material filtered from the treated water is treated chemically to remove contaminants and to thicken it. Water content is then pressed out, and the remaining organic material is transferred to a tractor-trailer truck for delivery to a compost facility for use as a soil amendment. The wastewater left after washing the removed trash and pressing the removed organic material is piped back through the plant's various filtration stages.



Water quality testing at Hillsborough Wastewater Treatment Plant

Pipes and other infrastructure —

The extensive network of pipes, valves, pumps and tanks used to deliver water to homes and businesses and wastewater back to the town's plant for treatment need constant maintenance to ensure water runs smoothly and safely:

- Hillsborough's distribution system, which distributes drinking water to customers, is made up of 155 miles of pipe, 5 water tanks, and 5 booster pump stations.
- The collection system, which collects wastewater and transports it to the wastewater plant for treatment, is made up of about 99 miles of pipe, 1,811 manholes, and 24 sewage lift stations.

Each year, staff must hydraulically clean and inspect a minimum of 10% of the gravity pipes in the utilities system. Inspections are performed by camera and smoke testing to locate areas where the lines are failing or need maintenance.

Although gravity is the most cost-effective way to transport water, pump stations often are necessary to boost pressure and to keep water and sewage flowing in low areas. Hillsborough has more pump stations than a typical municipality. The pump stations are expensive to operate, and failures can result in sanitary sewer overflows and fines from the state.

Labor —

To ensure quality water is available all day every day, the utilities system must be staffed with highly trained employees who must be on call for any situation that affects the quality or accessibility of water. These jobs are demanding in their scope of responsibilities — from daily troubleshooting to system emergencies.

Hillsborough has a manager and operators at both of its water and sewer treatment facilities and also operates a certified bacteriological laboratory at the water plant. Its water distribution and wastewater collection division includes a supervisor, inspector, specialist for sewer backflow, and maintenance technicians responsible for repairing water line leaks, cleaning and repairing sewer lines, and maintaining booster pump stations and sewage lift stations. In addition to compensation, all these positions require training, certifications and up-to-date, in-depth knowledge of best practices and regulations.