

Where  
does  
it  
go?

Your Sewer Service • 2013 Annual Report



**Charleston**  
Water System

# A lot happens after you flush.

The water that goes down your drains and toilets begins a long journey back into the water environment—a journey that protects public health and keeps our waterways clean.

## Wastewater Collection

Charleston Water System's collection system consists of more than 700 miles of pipes, 187 pump stations, and 16 miles of deep tunnels.

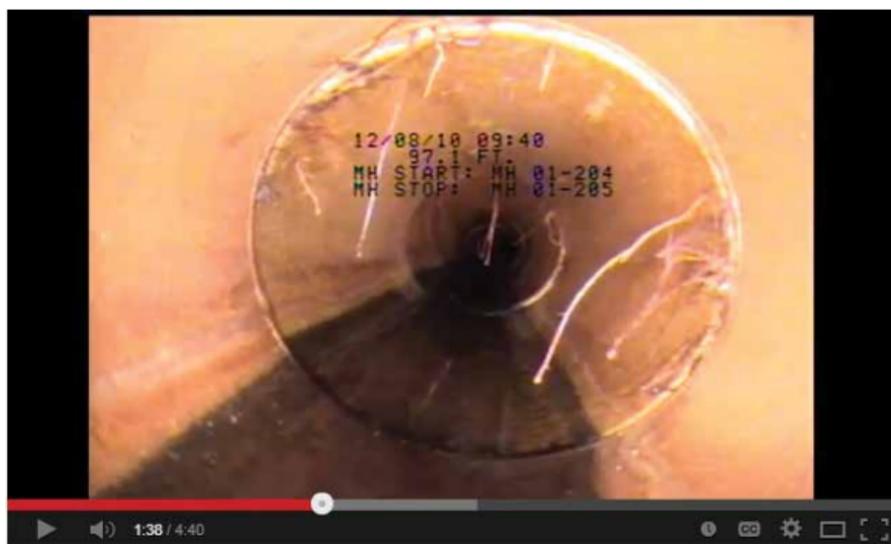
This system delivers wastewater to our Plum Island treatment plant, located off Harbor View Road on the Charleston Harbor.

## Wastewater Treatment

At the plant, wastewater flows through a sequence of basins, each designed to remove a specific type of pollutant. The plant treats about 22 million gallons every day.

The resulting clean water is released into the Charleston Harbor, and the solid material removed during the treatment process is taken to a waste-to-energy facility that uses it to produce electricity.

Our Plum Island plant has been recognized for meeting or exceeding all of its permit requirements for the last seven years!



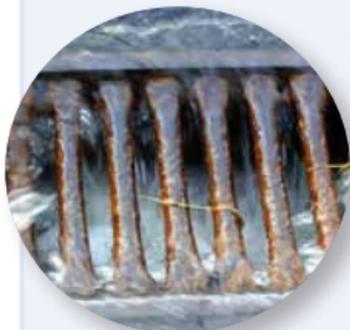
**Watch a video!** Go inside the sewer system and wastewater treatment plant. Visit our web site or find us on YouTube at [www.youtube.com/CharlestonWater](http://www.youtube.com/CharlestonWater).

## Wastewater vs. Stormwater

**Wastewater**, or sewage, comes from drains and toilets. It flows through our sewer system to the Plum Island Wastewater Treatment Plant.



**Stormwater** is rain water runoff from roads and parking lots. It flows into a separate storm drain system that empties directly into a waterway. Charleston Water System does not handle stormwater.



## What Not to Flush...or Drain

Help prevent clogs in your plumbing and the public sewer system by only flushing human waste and toilet paper. Put everything else in the trash, especially grease and wipes.

Pouring grease down the drain or into the toilet will eventually block a pipe, and could result in a sewer back-up.

Wipes and other fibrous materials—even those labeled “flushable”—tangle into massive knots that can also block pipes, damage pumps, and cause sewer overflows.

### The Do Not Flush List

- Paper towels, baby wipes, and rags
- Disposable toilet brushes
- Anything made of plastic
- Fats, oils, and grease
- Kitty litter
- Medications

**Wipes clog pipes!**  
Put them in the trash,  
not the toilet.





## Our Infrastructure

Providing reliable sewer service requires continually investing in our infrastructure.

This includes replacing old pipes and pump stations, expanding our system to serve a growing population, and upgrading processes to meet new regulatory requirements to protect the environment and public health.

Major capital projects are funded by impact fees and revenue bonds supported by sewer rates.

### 2013 Wastewater Capital Projects in Progress

Project Name	Est. Total Cost
West Ashley Sewer Tunnel Replacement	\$58 million
Red Top Regional Pump Station and Wastewater Interceptor Project, Phase I	\$23 million
Church Creek Interceptor Rehabilitation	\$3 million
Daniel Island Wastewater Treatment Plant Screening & Odor Improvements	\$1 million
Johns Island Wastewater Interceptor	\$3.5 million



Construction of a new wastewater pump station off Bees Ferry Road in the Red Top area.

### **West Ashley Sewer Tunnel Replacement Project**

In April 2013, construction began on the final phase of one of the largest infrastructure projects in our history: Replacing the deep tunnel system that carries wastewater to the Plum Island Wastewater Treatment Plant.

Construction of the West Ashley tunnel involves drilling a 1.6-mile tunnel under the Wappoo Cut, building a new pump station and piping at the treatment plant, and making sewer system improvements in several areas.

Construction is scheduled to be complete in 2015.

Installing a new sewer line along Harbor View Road for the West Ashley Sewer Tunnel Replacement Project.



# 2013 Performance

Charleston Water System met or surpassed all wastewater regulatory requirements in 2013.

## Wastewater Collection System

Measure	2013 Actual	Reg / Limit
Reportable Sanitary Sewer Overflows (SSOs)	10 total <1 per 100 miles of pipe	Report to SCDHEC >5,000 gal: Limit 2 per 100 miles of pipe
Pipeline failures	2.66 per 100 miles of pipe	No reg/limit
Pipeline inspection via robotic video camera	75 miles	No reg/limit
Pipeline cleaned	183 miles	No reg/limit

## Plum Island Wastewater Treatment Plant

Measure	2013 Actual	Reg / Limit
Ultimate Oxygen Demand (UOD)	2,228 lbs	30,174 lbs monthly average
Dissolved Oxygen (DO)	6.1 mg/L	1.0 mg/L minimum
Biochemical Oxygen Demand (BOD)	5 mg/L	30 mg/L monthly average
Fecal Coliform	7 CFU/100ml	200 CFU/100ml monthly geometric avg
Ammonia	< 1 mg/L	20 mg/L monthly average
Total Suspended Solids	6 mg/L	30 mg/L monthly average
Flow	22 mgd	36 mgd
Total Phosphorous	3 mg/L	None
Total Nitrates	25 mg/L	None

### Abbreviations:

**mg/L**— milligrams per liter; **lbs**—pounds; **mgd**—million gallons per day; **CFU**—colony forming unit; **reg**—regulatory; **gals**—gallons; **ml**—milliliter

**Our Mission** is to protect public health and the environment of our service community by providing clean water services of exceptional quality and value.



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