



the Commission in the Classroom

Classroom Resource: Where Does Your Flush Go?

Supports learning on a variety of topics including the water cycle, environmental science, STEM and engineering, community development, and history.



Topics:

- Where Does Your Flush Go?
- From Sewer Pipes to Treatment Plants
- Treating Wastewater
- Love Your Sewers
- Daily Life and Public Health

Resource Components:

- Topic Overview
- Key Words
- Key Topics: Environmental Protection and Infrastructure Reinvestment
- History of Bondi's Island
- Critical Questions
- Additional Resources



This resource is provided by the Springfield Water and Sewer Commission to help educators and students explore the region's water and wastewater system and enhance classroom learning. For more information please contact the Commission at info@waterandsewer.org or 413-452-1300.

Additional resources are available on the Commission's website: waterandsewer.org/education/



Springfield Regional Wastewater Treatment Facility (SRWTF)
Bondi's Island, Agawam, MA

Where Does Your Flush Go?

When you flush your toilet, take a shower, or run your faucet, did you ever wonder *where does that water go*?

Wastewater treatment is out of sight and out of mind, but it plays an important role in public health and daily life.

In Springfield, wastewater from homes, schools, and businesses is collected in sewer pipes and conveyed across the Connecticut River to the Springfield Regional Wastewater Treatment Facility (SRWTF) on Bondi's Island in Agawam, MA.

Outbreaks to Infrastructure: A Brief Sewer System History

In the 1800s sewer pipes began to be installed in the City of Springfield to transport household sewage away from neighborhoods to prevent the spread of disease.

From the early to mid-1900s more sewer pipes were constructed – many of which were designed to capture both sewage from homes and businesses, and rainwater from storms. This combined wastewater was conveyed away from the city center and on to the wastewater treatment plant on Bondi's Island, which was originally constructed in 1938. During heavy rain, the combined sewer pipes can become overwhelmed. To prevent backups into neighborhoods or damage at the treatment facility, the system was designed to release excess flow into nearby waterways—such as the Connecticut River—through what are known as combined sewer overflows (CSOs).

In 1977 following the passage of the [Clean Water Act](#), a new treatment plant was constructed on Bondi's Island. This was designed with modern wastewater technology and capacity to treat approximately 60 million gallons per day, with additional capacity for peak/wet weather flows (due to those combined pipes). The SRWTF remains in service today.



Construction of the SRWTF in the 1970s.

Key Words

Wastewater

The dirty water that goes down our sinks, showers, and toilets after we use it.

Sewer

A pipe under the ground that takes wastewater from sinks, toilets, and drains to a place where it can be cleaned.

Clean Water Act

A law passed in 1972 that sets rules to help reduce pollution into oceans, rivers, lakes, and streams. It helps keep these waterways clean and safe for people, animals, and plants.

Wastewater Utility

A department or organization that collects and treats used water from homes, schools, and businesses. Utilities must follow strict regulations to keep our communities healthy and protect the environment. In Springfield our wastewater utility is the Springfield Water and Sewer Commission, a regional, public water utility.



Springfield Regional Wastewater Treatment Facility Bondi's Island, Agawam, MA



From Sewer Pipes to Treatment Plants

Water that has been used is collected in the sewer pipes in your home then flows on to larger sewer pipes buried in the streets. The wastewater continues to flow through miles of pipes on its way to SRWTF on Bondi's Island. Wastewater from low-lying neighborhoods sometimes needs a little boost and passes through pump stations that help pump it to higher points.

Sewer System and Pump Stations

Sewer crews are responsible for the daily operation and maintenance of more than 400 miles of sewer pipes in Springfield streets. This includes routine cleaning of the pipes, using robotic cameras to assess the pipes, and responding to backups or other sewer emergencies.

Crews also operate and perform routine maintenance at the pump stations including cleaning any clogs or debris, checking safety and electrical systems, and ensuring the pumps keep the wastewater flowing to treatment.



Connecticut River Crossing

After passing through the miles of sewer pipe, and possibly a pump station, the wastewater flows on to the SRWTF on Bondi's Island in Agawam, MA.

If you look at a map, you may notice that the SRWTF is located across the Connecticut River from the City of Springfield – *how does the wastewater make its way across the river?* It flows through pipes buried beneath the river and arrives at the treatment facility on Bondi's Island.



Wastewater Contract

The Springfield Water and Sewer Commission owns the SRWTF and neighborhood pump stations, but daily operations are managed by the Commission's contract operator, **Veolia North America.**



Springfield Water and Sewer Commission Administrative Offices on Bondi's Island.

The Commission works closely with Veolia on daily wastewater operations, capital projects, long-term planning, and public education and outreach.

Within the city, the sewer pipes are owned and maintained by the Commission. The Commission's Field Services Division has a dedicated sewer crew that maintains and cleans sewer pipes, performs sewer pipe repairs and replacements, oversees the CCTV/sewer inspection program, and responds to emergencies.

Springfield Regional Wastewater Treatment Facility Bondi's Island, Agawam, MA



Treating Wastewater at the SRWTF

At the SRWTF wastewater flows through a multi-step process, using mostly biological and mechanical processes to clean the water.



Primary Treatment

During the first step of treatment grit and other solids are removed from the wastewater. As part of this process wastewater flows through a series of screens, removal tanks, and clarifiers.

Secondary Treatment

Secondary treatment relies on a natural process known as Biological Nutrient Removal (BNR) during which bacteria (or “bugs”) further break down dissolved solids.

Returning Clean Water to the Environment

After secondary treatment, the water is disinfected with chlorine to eliminate any remaining pathogens. The chlorine is then removed, and the clean water is returned to the environment via the Connecticut River.



Pictured: After treatment and disinfection, clean water is discharged from the SRWTF to the Connecticut River.

Service Area

The SRWTF treats wastewater from across the region serving approximately 250,000 people in Springfield, Ludlow, Longmeadow, East Longmeadow, Wilbraham, Agawam, and West Springfield.



York Street Pump Station



The York Street Pump Station, located in Springfield, across the river from the SRWTF.

The York Street Pump Station and Connecticut River Crossing Project (YSPS), completed in 2023, was a \$137 million investment—one of the region’s largest wastewater infrastructure upgrades in decades.

The new station replaces the original 1938 facility and roughly doubles its pumping capacity. The project also added three new conveyance pipes beneath the Connecticut River, providing redundancy to the existing 1938 and 1974 pipes.

The new YSPS incorporates climate-resilient design features to help ensure long-term, reliable service.

Learn more:
<https://bit.ly/YSPS>



Love Your Sewers

Wastewater treatment is a remarkable process that is essential for protecting public health and our environment, but we can all do our part to help ensure that the system is maintained and continues to operate efficiently.



What can residents do to protect their sewer system?

Remember the 3Ps

The only items that should ever be flushed down the toilet are **P**ee, **P**oo, and (toilet) **P**aper.

Wipes Clog Pipes

Despite what some packaging might say there are no wipes that can be safely flushed into the sewer system. Wipes are designed to hold up when wet (not break down like toilet paper). While wipes may pass through the plumbing at your toilet, they can clump together causing messy and costly backups in the sewer service pipe at your property or in the sewer main in the street. Wipes can also damage machinery and equipment at neighborhood pump stations and the SRWTF – and clogged wipes at pump stations must be removed by hand.



FOG Clogs

Fats, Oils, and Grease, known as FOG, from food products or from cooking can also clog sewer pipes. FOG can accumulate over time, developing what is known as “fatbergs” and significantly reducing the diameter of the sewer pipe. In the kitchen, pour cooking grease in a can and let it harden, and then toss it in the trash.



Pictured: (top right) A wastewater crew member removes clogged wipes and other materials from a pump station in a Springfield neighborhood; (bottom right) Fats, oil, and grease that have solidified in a sewer pipe, causing what is called a fatberg. Fatbergs narrow the diameter of the sewer pipe and can cause blockages.

Environmental Stewardship



Connecticut River, Springfield, MA

Since the 1990s, Springfield and other communities along the Connecticut River have committed significant resources to improve the environmental health of the river.

To date, more than \$300 million has been spent in Springfield alone to improve wastewater pipes and pump stations, replace aging infrastructure, and reduce the amount of combined sewer overflows (see page 1) by approximately 50%.



Recreation on the Connecticut River in Springfield.

Learn more about the Commission's environmental stewardship: waterandsewer.org/cso/





Sewer crews repair a sewer pipe in a Springfield neighborhood.



The SRWTF host tours so students can see the wastewater treatment process and learn about the essential role it plays in our everyday lives.



How Bondi's Island Got Its Name

(or so legend has it)



Construction on Bondi's Island in 1975.

Luigi Bondi immigrated from Italy with his wife and children in the late 1800s. He was in the produce business and purchased an island on the Connecticut River in 1889. It is unknown if it was an island at the time or a peninsula – as it is today – surrounded on three sides by the waters of the Connecticut and Westfield Rivers.

Mr. Bondi tended to peach trees on the island for his produce business and had plans to create a recreation area in the future. Eventually, the City of Springfield purchased the land, and in the 1930s constructed a wastewater treatment facility there.



Though Mr. Bondi's island never became a recreational area like he intended, it has become a center of the region's environmental protection.

Note: The story of Bondi's Island includes a bit of local lore, but historical records confirm that Luigi Bondi did immigrate to Springfield and worked as a produce farmer in the late 1800s.

Questions

- 01** Where does the water go after it goes down the sink, toilet, or shower?
- 02** Why do you think wastewater treatment plants have multiple steps to clean the water?
- 03** Why do we need to clean wastewater before putting it back into waterways?
- 04** How can you help protect the sewer system?