

## Wastewater Treatment

The Wastewater Treatment Department, or more commonly referred to as the Sewer Department, came under control of the Norwich Public Utilities on July 1, 1971. But the origin of Norwich's sewer system dates back to the Industrial Age, when pipes were installed in densely populated neighborhoods to carry waste to the local rivers. The factories also took advantage of their proximity to the rivers to dump industrial waste, including dyes and chemicals, directly into the rivers. It was believed that the rapid currents would carry the waste away. At the time, "the solution to pollution was dilution" was the accepted practice in most 'modern' cities, and was actually promoted as a benefit to living in Norwich.

It wasn't until the mid-1930's that the City of Norwich built its first sewer treatment plant. In 1936, a sewer system was constructed to eliminate six points of raw sewage discharge into the Thames River. At the same time a primary sewage treatment plant was built on Hollyhock Island, located between the east and west banks of the Yantic River in the downtown area. This plant was designed to serve a population of 4,000 people, and treat 400,000 gallons of waste per day.

Around 1945, the City began studying the problem of collecting and treating the remaining sewage from the rest of the city. At that time, there were 26 locations where raw sewage would dump into the rivers. In 1947, the Connecticut Department of Health approved a plan for the construction of an additional primary sewer plant adjacent to the current facility. At the same time, the City continued to expand the sewer infrastructure throughout Norwich. By 1951, there were over 33 miles of sewer pipe installed, serving an estimated population of 20,000. The new plant began operation in 1956, and cost about \$1,653,000 to construct. The new plant could treat 4.5 million gallons of waste each day.

**You Can Rely on Us!** 2014 Marks the 110th Year Norwich Public Utilities has been providing reliable utility services to Norwich. Throughout the year in each issue of Community Matters we will be showcasing the various services that we provide to our community.

Throughout the 1960s and 1970s, the City continued to expand its sewer system to aid industrial development. In 1972, the Environmental Protection Agency (EPA) enacted the Clean Water Act which required treatment plants to upgrade to secondary biological treatment. As a result, in 1973, the Sewer Plant was once again upgraded and expanded further north on Hollyhock Island. By this time, there were over 63 miles of sewer lines in Norwich, 17 pumping station and the average daily flow was expanded to 8.5 million gallons. The cost of the 1973 expansion was \$8.75 million.



*aerial view of facility, circa 1998*

Around that same time, and now under the direction of the Department of Public Utilities and the Sewer Authority, plans were underway to separate storm and sanitary sewer lines. By the mid-1980s, separation work was completed in the West side, Washington Square, Sachem/Yantic Street, and portions of the downtown areas. Today, only 14 of the 43 active sewer overflows remain.

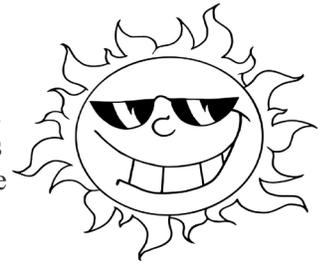
### Clean Rivers, Clean Harbor, Sound Norwich

After 40 years in operation many of the existing treatment plant's major components are beyond their useful life and in critical need of an upgrade or replacement. In 2004, Norwich Public Utilities submitted a **Facilities Plan** to the State of Connecticut for review and

approval. Components of this plan included reconstructing the plant and replacing aging infrastructure, improvements to the treatment processes, removal of harmful nitrogen from the discharge to meet environmental regulations, odor elimination, and the elimination of all the remaining sewer overflows in the City. The State approved the plan in 2008.

In 2010, NPU began the first major upgrade to the plant. The plant's failing primary digester was upgraded to state-of-the-art technology, including a new cover to capture the methane gas (a by-product of the digestion process.) The methane gas is now used as a fuel source to power the plant and other important components of the treatment process. The cost for the digester upgrade was \$9 million dollars.

# Protect Yourself from the Summer's Heat.



At last -- it's time to put away the sweaters and put on the shorts. For months we have been looking forward to the warm weather. But sometimes the summer can get too hot, resulting in heat disorders that can affect your health. These include sunburns, heat cramps, heat exhaustion, and heat stroke. Taking precautions to avoid experiencing these disorders will not only make getting through the heat easier, it can save your life!

**Avoid the Heat.** Stay out of the heat and indoors as much as possible. Spend time in an air conditioned space. Just two hours a day in an air-conditioned space can significantly reduce the risk of heat-related illness.

**Dress for the heat.** Wear loose-fitting clothes that cover as much skin as possible. Lightweight, light-colored clothing that reflects heat and sunlight and helps maintain normal body temperature. Protect your face and head by wearing a wide-brimmed hat.

**Drink FOR the Heat.** Drink plenty of water and natural juices, even if you don't feel thirsty. However, if you have epilepsy or heart, kidney, or liver disease; are on fluid-restrictive diets; or have a problem with fluid retention you should consult a doctor before increasing liquid intake.

**Do not drink IN the Heat.** Avoid alcoholic beverages and beverages with caffeine, such as coffee, tea, and cola. Alcohol and caffeine constrict blood vessels near the skin reducing the amount of heat the body can release.

**Eat for the Heat.** Eat small meals more often. Avoid using salt tablets, unless directed to do so by a physician.

**Living in the Heat.** Slow down. Reduce, eliminate, or reschedule strenuous activities such as running, biking and

lawn care work when it heats up. The best times for such activities are during early morning and late evening hours.

**Do not leave children in a closed vehicle,** even for a few minutes. This is a "No-Brainer". Temperatures inside a closed vehicle can reach 140°F-190°F degrees within 30 minutes on a hot, sunny day.

**Help your pets keep their cool.** It will "feel" as hot for them as it will for you. As with children, do not leave your pets in a closed vehicle.

## Summer Energy Efficiency Tips:

**Protect windows.** Hang shades, draperies, awnings, or louvers on windows that receive morning or afternoon sun. Outdoor awnings or louvers can reduce the heat entering the house by as much as 80%.

**Conserve electricity.** Don't set your air conditioner's thermostat colder than normal when you turn it on. It will not cool your home any faster. Instead, it will result in excessive cooling and an unnecessary expense. Using an interior fan along with your air conditioner will help spread the cooler air more efficiently.

**Keep lights turned down or turned off.** Also, don't place lamps or other appliances near your air conditioner thermostat. The heat from these appliances will cause the air conditioner to run longer than necessary.

source: <http://www.srh.noaa.gov/oun/?n=safety-summer-summertsafety>

# Energize Norwich: what you need to know to convert

As our gas expansion team works diligently to bring natural gas to as many customers as possible, we want to give our customers insight on how we prioritize projects and what that may mean for your area.

Our top priorities for 2014 gas construction include:

- Customers who live on streets that will be paved by the city and state this year. Once the streets are paved, these customers will be ineligible for a gas connection for a minimum of 5 years, as per the city's paving policy. Roads that are between 5-10 years old will require a \$2,500 connection fee to cover a portion of the repaving necessary to dig a newer road. For state owned roads, once the repaving is completed, the \$2,500 fee remains in effect indefinitely until we receive notice of a failure status.

- All areas where NPU is upgrading gas infrastructure due to regulatory requirements set forth by the Distribution Integrity Management Program (DIMP).

- Customers with inactive gas service to their homes. These lines must be made live by the end of 2014, or they will be cut off at the street, per regulatory requirements.

- The Royal Oaks neighborhood. NPU is replacing and upgrading the water main infrastructure in this neighborhood and will be running gas mains while the roads are open.

- Any customer within 200' of a current gas line that isn't on a newly paved road.

Customers interested in converting their home to natural gas are urged to call us ASAP to be added to our schedule. The current deadline for guaranteed 2014 gas service is August 1st, 2014. For more information on the natural gas expansion project and upcoming informational meetings, visit [www.energizenorwich.com](http://www.energizenorwich.com), or call Katie Moors at 860-823-4514.

## Sound, continued from pg. 1

Currently, NPU is in the process of designing the remaining plant upgrades necessary to ensure we meet current and future discharge limits set by the State and EPA, meet nitrogen removal limits as identified by the Connecticut Department of Energy and Environmental Protection (CT DEEP) Long Island Sound Initiative, handle a peak Combined Sewer/Storm flow of 33 million gallons/day (mgd), and provide regional treatment capacity for six (6) rural surrounding towns.

The “Sound Norwich” project is estimated at \$100 million dollars, no small amount by any means. However, NPU has been working diligently to seek and apply for all funding opportunities to help minimize the cost to the community.

When completed, the Wastewater Treatment Plant will be designed to serve the citizens of the City of Norwich for the next 20 years.

## How Does a Wastewater Treatment Plant Work?

We tend to want to ignore thinking about what happens when we flush the toilet, but there is a lot of work that must take place to disinfect and remove the contaminants from the waste and return clean water back to the environment. This work is done in two steps, Primary Treatment and Secondary, or Advanced Treatment, to process liquids and solids.

**Primary Treatment** is a physical process that removed about 30% of the BOD (biological oxygen demand).

Primary treatment starts with the sewer collection system, which takes the waste from the homes and business and delivers this material to the plant. Screens remove trash and other non-biodegradable materials, which are then properly disposed of. The waste then travels through a grit chamber, which allows the heavier solids to settle to the bottom and are removed. The final step in the primary treatment allows the wastewater to flow through a primary sedimentation tank where the smaller particles settle. This material, called sludge, is thickened



*Anaerobic Digester*

and sent to the anaerobic digester for additional processing. The digested sludge is removed and ‘dewatered.’ Once thickened, the sludge is then sent to an incinerator where it is used as a heat source. The remaining liquid, called primary effluent, enters the secondary treatment process.

**Secondary Treatment** (a biological process that removes the remaining pollutants):

The second step, secondary treatment, begins with the wastewater flowing through aeration tanks, where air is added to the wastewater, bacteria and other microorganisms. The oxygen from the air results in the growth of helpful microorganisms. These microorganisms consume the harmful organic matter in the wastewater.

The waste continues through the secondary sedimentation tank. In the process the microorganisms and waste form clumps and settle. The thickened material is sent to the anaerobic digester. The remaining water is disinfected and discharged from the plant.

## Challenges of Treating Wastewater

Not everything entering the wastewater plant is organic and easy to treat. Often hazardous chemicals are flushed into the sewer collection system, intentionally or by accident. These can include materials such as fats and grease from cooking, oil dumped into sewer drains, cleaning products, pesticides, even medicine.

Wastewater can also include common everyday items such as paper products, baby wipes, sanitary products, etc. Treatment facilities are not designed to handle toxic or non-biodegradable materials.

When these materials pass through the collection system and enter the treatment process, the results can be anything from blockages that result in backups, damaged equipment, additional treatment, and interference of the biological process.

No matter the cause, the ultimate result is additional operational and maintenance expenses that ultimately get paid for by the customers.



# Communitycalendar

NORWICH PUBLIC UTILITIES

July 2014

July-Aug, 2014

## Rock the Docks

The Annual "Rock the Docks" concert series at Howard Brown Park on the Norwich waterfront. Wednesdays, starting July 9th, from 6:00 P.M. to 8:00 P.M. For more information, contact the Greater Norwich Chamber of Commerce at 860-887-1647 or visit [www.norwichchamber.com](http://www.norwichchamber.com).

### Schedule of Performances:

July 9th - EasyBaby  
July 16 - Eight to the Bar  
July 23 - Coyote River Band  
July 30 - Johnny the East Coast Rockers  
August 6 - The Fat Cats  
August 13 - Melaena

Brought to you by the Norwich Harbor Management Commission, the Greater Norwich Area Business/Industry Foundation, and the Greater Norwich Chamber of Commerce.



We realize that many people find road construction to be a major inconvenience when driving through Norwich. However, this disruption is necessary, as our crews are working hard to ensure your utilities are always delivered safely and reliably to your home or business. Please ensure their safety by obeying the flaggers and driving slowly and cautiously through a construction zone. Failure to obey the rules can result in severe fines!

July - October 2014

## Farmers Market

The Farmers Market located at the Howard Brown Park in downtown Norwich will be open every Wednesday from 10 AM to 2 PM.

August 5, 2014

## National Night Out

Enjoy food, entertainment and fun at the annual National Night Out, held at the ShopRite Plaza on West Main Street from 6 PM - 9 PM. Contact 860-886-5561 for more information.

September 6, 2014

## Taste of Italy

The Italian community in Norwich shares their tasty culinary heritage at this annual event, now in it's 22nd year, held under the tent at Howard Brown Park. Contact Frank Jacaruso Jr. at 860-889-0864 for details.

September 21, 2014

## Norwich Auto Show

This event, held at Dodd Stadium on Stott Avenue in Norwich, features hundreds of antique and classic cars for auto enthusiasts. This family event features something for everyone: live music, face painting, LEGO building contest, arts & crafts, flea market and business expo. Event is from 8 AM to 3:30 PM. Contact the Greater Norwich Area Chamber of Commerce for more information at 860-887-8351.

October 17-19, 2014

## The Friends of Otis Semi-Annual Book Sale

Early Bird Preview: Friday, Oct. 17th 9-10 AM; \$10 Admission

Free General Admission:

Friday, Oct. 17th: 10 AM - 3 PM  
Saturday, Oct. 18th: 10 AM - 3 PM  
Sunday, Oct. 19th: Noon - 3 PM

Otis Library's Book Sale offers thousands of books! All proceeds from the sale will benefit the Otis Library. For more information, 'like' Friends of Otis on Facebook: <https://www.facebook.com/friendsofotis>

**Recycling at its best:** The Friends of Otis Library collects clean, gently used books, CDs, and DVDs, two bags or boxes at a time, at the Otis Library, 261 Main Street, Norwich. For larger donations, please call 860-889-2365, ext. 125. No textbooks, magazines, or encyclopedias, please.

Norwich Public Utilities' water customers are now able to view the 2013 Norwich Water Quality Report online at

<http://j.mp/NPU-water-report>.

This report contains important information about the source and quality of our drinking water. If you prefer to receive a printed copy of this report mailed to you, please call

Norwich Public Utilities at  
860-887-2555.



Scan this code with your smartphone for instant access



**Norwich  
Public Utilities**

173 North Main Street, Norwich, CT 06360

## Here to Serve You

Visit our web site for more information:

[www.norwichpublicutilities.com](http://www.norwichpublicutilities.com)

Please call, fax or email us your questions, comments and suggestions.  
Norwich Public Utilities, 173 North Main Street, Norwich, CT 06360  
TEL: 860-887-2555 Fax: 860-823-4172 Email: [communitymatters@npumail.com](mailto:communitymatters@npumail.com)



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