

Stream LINES

Newsletter of the Gary Sanitary District



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Fall 2003

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The Gary Sanitary District is moving on a steady course to implement needed capital improvement projects for the sewer collection system and the wastewater treatment plant. More than \$21 million has been invested for the replacement or upgrade of outdated facilities and equipment.

Collection System Improvements

A few of the sewer collection system projects aimed at increasing overall conveyance capacity and reducing flooding include new storm sewers at 25th and Colfax and 35th and Burr Street and sanitary sewer extension projects at Lake Street and at U.S. 20 and Route 51. More than \$5 million has been invested for pumping station rehabilitation projects at 42nd and Johnson and at 15th and Clay. All of the collection system projects were completed in 2002.

Additionally, 67,000 lineal feet of new sanitary sewers are being installed in Black Oak, and will provide long awaited service to the previously unsewered areas of the Black Oak community.

Wastewater Treatment Plant Upgrades

Major projects for GSD's wastewater treatment plant include new headworks facilities, aeration system improvements, and upgrades to the plant electrical systems.

Completed and Current Capital Improvement Projects

Sewer Collection System

- 15th and Clay Pump Station Rehabilitation
- 25th and Colfax Storm Sewer
- 35th and Burr Storm Sewer
- 42nd and Johnson Storm Water Pump Station Rehabilitation and Sewer Installation
- US 20 & Route 51 Pump Station and Sewer Extension
- Forest Avenue Force Main Replacement Project
- Lake Street Pump Station and Sewer Extension
- Morgan Street Storm Sewer Installation
- Regulator Rehabilitation for Combined Sewer Overflow Monitoring
- Virginia Street Storm Water Sewer Installation
- 27th and Chase Street Pump Station Rehabilitation
- Black Oak Sanitary Sewer Extension
- Central Area Interceptor Sewer

Wastewater Treatment Plant

- Aeration System Improvements
- Filter Building Screen and Cells Rehabilitation
- Interim Headworks Project
- North Blower Building Rehabilitation
- Rehabilitation of No. 9 Primary Clarifier
- Sludge System Improvements
- Electrical Power Distribution Upgrades
- New Headworks/Detention Basin Project
- Rehabilitation of No.10 Primary Clarifier

- Completed
- Current



CRITICAL PROJECTS ON TARGET, CONT.

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Plant Headworks

The first stage of the wastewater treatment process is called primary treatment. During primary treatment, mechanical equipment, referred to as plant headworks, is the first step in removing pollutants from the wastewater. Headworks consist of a trash rack, bar screens, raw sewage pumps and grit removal equipment. All of the existing headworks equipment at the GSD plant has been in service for more than 25 years and requires extensive maintenance.

Raw sewage pumps are used to pump wastewater into the treatment plant that does not flow by gravity. Trash racks and bar screens catch and remove large materials such as rags, branches and debris as they flow past. After the wastewater flows past the bar screens, it moves to the grit chambers. Grit chambers slow the moving water long enough for grit, gravel and sand to be removed by falling to the bottom.

With the help of Congressman Peter Visclosky, GSD secured \$11.9 million in funding to correct the problems associated with the headworks facilities. An Interim Headworks Improvements project aimed at addressing critical operating problems

and extending the life and performance of the existing headworks has been completed. A new wastewater treatment plant headworks and equalization basin are currently under design. Construction of the new facilities will be completed in about five years. The expected life cycle of the interim facilities is about eight years and some of the interim equipment could be used in the new headworks system.

Aeration System Upgrade

Primary treatment is followed by secondary treatment, which uses biological methods or bacteria to consume or eat most of the remaining waste materials and pollutants from the wastewater. It is important that the bacteria thrive so that the pollutants are thoroughly removed.

Aeration is the process used to stimulate the growth of the pollution-killing bacteria. Aeration is the mixing of the wastewater with air or oxygen.

GSD is investing more than \$5 million to upgrade the existing aeration system. The benefits of the upgrade include lower costs for secondary treatment, increased treatment plant capacity, and a reduction in the volume and duration of combined sewer overflows (CSOs) during wet weather events. Reduced CSOs means that



Newly installed fine pore diffusers significantly lower energy costs.

less untreated water is released into the Little Calumet River and the Grand Calumet River.

Improvements to the aeration system include new oxygen transfer equipment called fine pore diffusers, new meters for measuring oxygen levels, piping modifications, and blower system improvements. The existing aeration system has tube type air diffusers that have very low oxygen transfer efficiency, inoperable meters, and connectors on the piping used to direct the flow of the oxygen that have deteriorated. These conditions have resulted in unreliable, inefficient and costly operations.

The upgraded aeration system will result in a substantial savings in annual operating costs and more reliable secondary treatment. Construction of the project has been completed. ♦

STORM WATER MANAGEMENT

Storm water management means controlling rain or melting ice or snow that runs off the surface of the land. The volume of storm water increases as land is developed. Development can cause flooding, erosion, damage to bridges and roads, and carry chemicals and other

pollutants miles from their source, contaminating drinking water, endangered wildlife habitats, and recreational areas along the way.

In March 2002, in compliance with Indiana law, the City of Gary created a Storm Water Management District

to manage storm water discharges. The firm of Beam, Longest and Neff, LLC is completing engineering services to meet the September 2003 deadline for filing GSD's Notice of Intent with IDEM. ♦

INNOVATIVE DESIGN ALLEVIATES STORM WATER PROBLEMS



The storm water management collection and disposal system developed for the new Gary Baseball Stadium received an Honor Award from the Consulting Engineers Council of Indiana. The consulting firm of DLZ, Indiana, LLC. (DLZ) designed the project.



Award-winning Virginia Street Storm Sewer installation

The 5,500 seat Gary Baseball Stadium, located on a 13.5-acre urban site, contributes a large volume of storm water from a variety of sources. The total storm water load contributed to the Gary Baseball Stadium comes from a sophisticated storm water collection system for the playing field, as well as from roof drains, floor drains, and parking lot drainage structures. Storm water for the stadium project is conveyed by both pumping and by gravity.

The site for the new stadium is completely surrounded by combined sewers. One of the challenges of the project was to substantially reduce the storm water flowing into these sewers by incorporating subsurface storm water infiltration/retention facilities into the system. The second challenge was to extend the life of these facilities and prevent them from

becoming clogged by the pollutants and sediments typically found in parking lot runoff.

These challenges were met by installing hydrodynamic storm water separators upstream of each infiltration/retention facility, thus reducing the total suspended solid and oil load in the runoff. A third unique component of the project included the installation the Virginia Street Storm Sewer by micro-tunneling techniques, which minimized the disruption of traffic and utilities and reduced the potential for damage to adjacent structures and railroads during installation.

The success of this project further demonstrates GSD's commitment to delivering quality capital improvements to all of its customers. 💧

WET WEATHER BRINGS WATER QUALITY MANAGEMENT CHALLENGES

State and federal regulatory policies require communities like Gary to develop and implement policies that reduce adverse impacts on water quality caused by (1) combined sewer overflows, and (2) storm water runoff. The Indiana Water Pollution Control Board has established a standard that designates all Indiana waters to be suitable for full-body contact recreation and aquatic life. That is, waters must be "fishable and swimmable."

Combined Sewer Overflow (CSO) Control

Like those in many older metropolitan communities, the GSD sewer system comprises both separate sewers and combined sewers. Separate sewers

are designed for either sanitary flow or storm water. Combined sewers carry domestic sewage in dry weather and storm water run-off during wet weather. During periods of heavy rain, CSOs act as relief valves, allowing some of the combined wet weather flows to go directly into a river or stream. The Grand Calumet River and the Little Calumet River are the two water bodies affected by CSOs from the GSD sewer system.

CSOs are subject to both state and federal regulations. GSD must comply with three key responsibilities:

1. Characterize the combined sewer system and its impact on streams (Grand Calumet River and Little Calumet River). This process

involves collecting and analyzing existing data on streams and sewer systems, identifying sources of pollution, reviewing existing programs and regulations, and collecting new data if necessary.

2. Develop and implement a CSO Operational Plan that can reduce overflows without requiring significant engineering studies or construction cost.
3. Develop a long-term control plan that takes into consideration the unique condition of the GSD and evaluates the cost-effectiveness of various control strategies.

GSD has completed items 1 and 2 and retained consulting engineer Beam, Longest and Neff, LLC to help develop the Long Term CSO Control Plan. 💧



WATER QUALITY MANAGEMENT PUBLIC ADVISORY GROUP

A Water Quality Management Public Advisory Group has been formed to help GSD educate and involve the public in developing sound solutions to water quality management issues. This diverse citizens' group includes small business owners, environmentalists, educators, public officials and representatives from community organizations.

The first meeting of the group, held April 24, 2003, was a workshop that familiarized members with combined sewer overflow control and storm water management issues.

During the July 17 meeting, group members visited a representative sample of CSO outfalls to view points at which the public might encounter the effects of CSOs. A heavy thunderstorm during the tour gave members a first-hand look at CSO overflow. 💧



Water Quality Management Public Advisory Group visits CSO outfall.

LEADING THE WAY

A dynamic leadership team is working diligently to move the Gary Sanitary District to the top of the list of the country's well-run publicly owned treatment works. GSD Director Charles "Spike" Peller, Jr. earned both B.S. and M.S. degrees in civil engineering from Purdue University. He is a licensed engineer in both Indiana and Illinois. Peller's professional credentials include executive public works management

responsibilities and experience in planning, design, and construction of sewage collection and treatment facilities, highways and bridges, and drinking water systems. Prior to joining GSD, Peller served as the Director of Public Works for the City of Gary and as District Program Development Engineer for the Indiana Department of Transportation. 💧



Library Locations for GSD Video

Gary

- Main - 220 W. 5th Avenue
- DuBois - 1835 Broadway
- Brunswick - 4030 West 5th Avenue
- Kennedy - 3953 Broadway
- Tolleston - 1113 Taft Street
- Wildermuth - 501 S. Lake Street

Lake County

- Merrillville - 11919 W. 86th Avenue
- Lake Station - 2400 Central Avenue
- Hobart - 100 Main Street
- New Chicago - 3250 Michigan Street

INVOLVING KIDS IN WATER ISSUES

Project WET (Water Education for Teachers; www.projectwet.org) sponsors an annual Make a Splash Day on the last Friday in September. This day of hands-on water investigations attracts more than 50,000 students in all 50 states and the District of Columbia. Students learn about spring water, ground water, water management, water quality, and more.

Give Water a Hand (www.uwex.edu) is a national watershed education program that teams students in youth organizations and school classes with educators and natural resource experts to take community action to protect water. The program offers free Action Guides and Leader Guides on its website.

Even young children can participate in projects and activities that have a measurable impact on water quality, and GSD currently is developing a Student Outreach Program. 💧



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GSD Special Administrator

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