

# where does it



go?



and why does it  
matter to our  
**health** and  
**environment?**



UNDERSTANDING THE VALUE OF CLEAN WATER

presented by the **NORTHEAST OHIO REGIONAL SEWER DISTRICT**



# where does it go?

## first, what is “it”?

The “it” in this question refers to the **wastewater** from your home and from businesses, as well as the **stormwater** that enters the street sewers when it rains. “It” is water in all its stages of use, including the clean water that you enjoy every day.



## so where does it go?

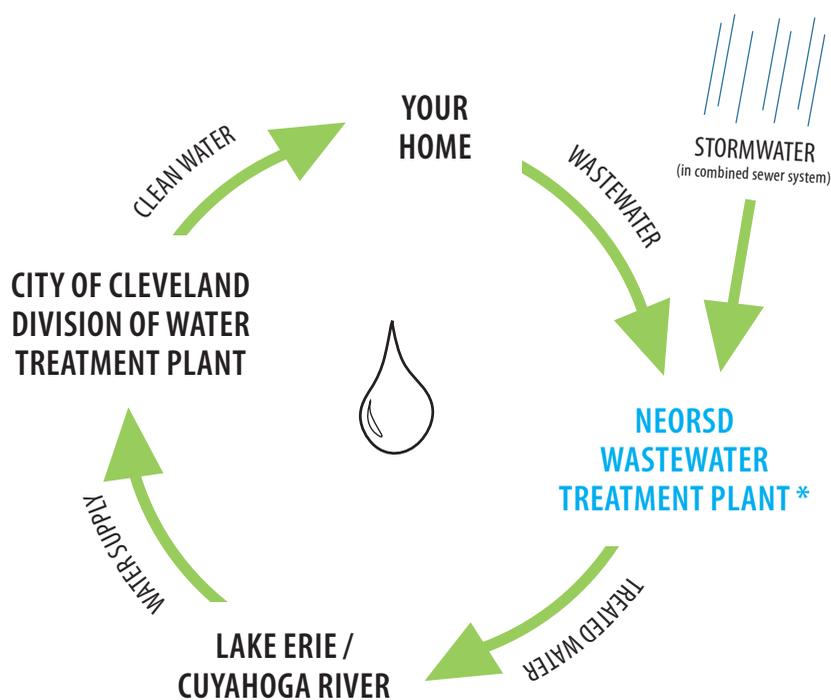
The short answer is that it goes to the wastewater treatment plants of the **NORTHEAST OHIO REGIONAL SEWER DISTRICT** (NEORSD). But more important is where it ultimately ends up: in Lake Erie, the source of our clean water. Understanding this cycle highlights the essential role that wastewater treatment plays in preserving Greater Cleveland’s most valuable natural resource.

### THE DISTRICT’S ROLE

The District transports and treats wastewater in the Greater Cleveland area. We are often confused with the Cleveland Division of Water, but we are two separate entities with very distinct responsibilities. The Division of Water takes water from the lake and treats it **BEFORE** you use it for drinking, bathing, washing, and so on. The District cleans the water **AFTER** you use it.

After you use the water, it is considered wastewater. From the pipes in your home or business, wastewater travels through your local sewer system into one of our large **interceptor sewers** and then to one of our three treatment plants. Once we treat and clean the wastewater, it is transported back into the Cuyahoga River and Lake Erie, re-entering our water supply.

In our **combined sewer system** (see page 7), we also collect and treat the stormwater that flows into street sewers.



*\* That's us!*

# and why does it matter?

Let's face it, without water — clean water in particular — we could not survive. Clean water is essential to public health, and it also plays a key role in stimulating our economy, protecting our environment, and assuring a bright future for Greater Cleveland. You may have never thought about all the ways clean water benefits our region. But let us show you . . .



## the VALUE of CLEAN WATER:

It stimulates our economy!

**PAGE 4**

It protects our health!

**PAGE 6**

It protects our environment!

**PAGE 8**

It assures a bright future for Greater Cleveland!

**PAGE 10**



### also inside:

careers in clean water **PAGE 5**

how **stormwater** affects you **PAGE 9**

helping public education in Cleveland **PAGE 11**

save money on your sewer bill **PAGE 11**

**“Of all of this region’s assets, none comes close to matching the importance of its abundant supply of fresh water.”** —*The Plain Dealer, December 2, 2007*

## the VALUE of CLEAN WATER:

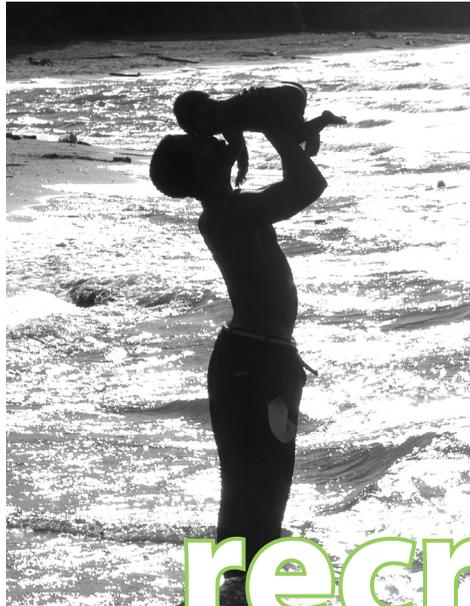
# It stimulates our economy!

### CLEAN, SAFE RECREATION AND VALUABLE WATERFRONTS

Lake Erie is one of the largest bodies of fresh water in the world, and Edgewater Park is one of the most heavily visited state parks in Ohio. The Cuyahoga River also is a huge recreational resource, offering such activities as fishing and rowing. Our waterfronts — and the promise of clean, safe recreation — bring significant revenue into our local economy.

Furthermore, the lakefront of the 1960s and '70s would not have been such a welcoming site for today's Cleveland Browns Stadium, the Rock and Roll Hall of Fame and Museum, and the Great Lakes Science Center. Back then, who would have believed that Cleveland would host national fishing tournaments, or that major waterfront neighborhoods along the Cuyahoga would evolve?

Yet these are the results of the astounding recovery the Cuyahoga River and Lake Erie have made over the past 35 years — a recovery the Northeast Ohio Regional Sewer District's work has helped make possible.



## recreation



## waterfront living



## MEANINGFUL CAREERS

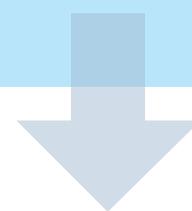
With a workforce of more than 600 people in over 200 different jobs, the Northeast Ohio Regional Sewer District provides opportunities for employment in technical disciplines such as biology, chemistry, engineering, environmental science, and wastewater plant operation — and in fields such as business, finance, communication, information technology, and law. Through job fairs and internships, the District makes a concerted effort to recruit talent from Northeast Ohio.

As our organization expands and long-term employees retire, individuals with a passion for this region and the appropriate skill sets will be able to discover a rewarding career in this industry.

# 7 REASONS to consider a career with us

*When considering a career move, wastewater treatment does not naturally pop into mind for most people. However, ask a District employee why people rarely leave our agency. The answers may surprise you!*

- 1 SERVE A GREATER GOOD** Working to assure clean water for Greater Cleveland, District employees are proud of their contribution to this region.
- 2 FAMILY FIRST** While employees are expected to give a full day's work, management offers flexible schedules, reduced work weeks, and other forms of leave to assure that you can attend to important commitments at home.
- 3 HEALTH CARE** Choose between two plans that provide a high level of coverage for you and your family at a relatively small out-of-pocket cost.
- 4 OPPORTUNITY** A large percentage of our workforce will soon retire. Promotions are occurring throughout the District at an unprecedented rate, and major programs designed to further protect clean water will result in additional professional opportunities.
- 5 TUITION ASSISTANCE** Need more education? We offer a Tuition Assistance Program.
- 6 RETIREMENT** Few pension plans can match the Ohio Public Employees Retirement System. OPERS offers three retirement plans to meet your needs.
- 7 COMPETITIVE PAY** The District offers a very competitive rate of pay in a wide range of positions.



**Work at a place  
where you can  
grow your career.**

Visit  
[www.neorsd.org/careers](http://www.neorsd.org/careers)  
or call the Employment  
Information Line at  
**216.432.7300**

## the VALUE of CLEAN WATER:

# It protects our health!

### WATER QUALITY

The District's improvements to its sewer system and treatment plants, as well as our enforcement of industrial wastewater regulations, have dramatically improved water quality and the ecosystems dependent on it.

The interceptor sewers and storage tunnels that we build (*see page 7*) help alleviate the flooding of local sewers, which is a direct public health benefit.

In addition, the District is actively involved in monitoring the environmental safety at our local beaches. Our environmental laboratory and water quality investigators sample and test the water in our Lake during the recreation season and any other time we believe public health may be affected. Collecting this information allows us to further reduce the impact of pollution on the environment.



## HOW DO WE MONITOR WATER QUALITY?

### LAKE SAMPLING

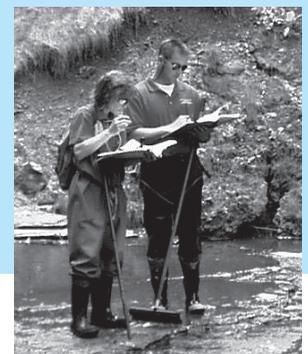
Up to 21 lake sites along the Greater Cleveland shoreline are periodically sampled for bacteriological, chemical, and physical parameters. These data can alert the District, as well as other agencies and citizens, to problems. Our sampling has contributed to Ohio's basis for issuing safe fish-consumption advice and safe-swimming postings at area beaches.

### STREAM AND RIVER SAMPLING

We currently conduct chemical and habitat analysis on area streams. In addition to data on pollutants and habitat, we conduct biological surveys for fish and aquatic insects. The types, numbers, and diversity of these organisms are indicators of the health of the stream's ecosystem.

### DRY WEATHER OUTFALL SAMPLING

The District's investigators periodically inspect our area streams, searching for improper discharges of sanitary or industrial sewage to the environment. Samples are collected and returned to our Analytical Services laboratory. If the lab's analysis indicates the presence of sewage, investigators trace the discharge back to its source. Then we pursue the elimination of the discharge and notify the Ohio Environmental Protection Agency.



## CONTROLLING **CSO** (COMBINED SEWER OVERFLOW) AND HELPING COMMUNITIES **REDUCE FLOODING**

Cleveland's earliest sewers are "combined sewers" that carry sewage, industrial waste, and stormwater (from rain and melted snow) in a single pipe. When indoor plumbing was first developed, the pipes from residences were fed into the original storm sewers, which would empty raw sewage directly into area streams and Lake Erie.

Thankfully, treatment plants were eventually built at the end of the pipes to process the sewage before it enters the environment. But numerous "outfalls" — or **combined sewer overflows** (CSOs) — along the length of the pipes were kept to release the excess water that the sewers cannot fully contain during heavy rains and to help prevent street and basement flooding.

The District is implementing projects to reduce these overflows, to meet EPA mandates. "Some outfalls currently overflow 70 to 80 times a year," explains Stormwater Program Manager Betsy Yingling. "We intend to get that number down to fewer than four at each location."

The District is building gigantic storage tunnels to hold the overflow during heavy rains until our treatment plants can process this water. These tunnels provide relief for overloaded pipes, which can help local communities alleviate sewer backups and flooding problems.

The largest of our CSO-control projects to date is the Mill Creek Tunnel, which can store

up to 72 million gallons of overflow from the Mill Creek Interceptor (serving 12 communities including Cleveland, Cuyahoga Heights, and Garfield Heights). Thanks to the Mill Creek Tunnel, annual CSO will be reduced from over 500 million gallons down to 14 million.

Mill Creek is one of many CSO-control projects that the District has already undertaken to protect the public health in Cleveland by improving water quality in area streams and Lake Erie.



**Thanks to the Mill Creek Tunnel, annual CSO will be reduced from over 500 million gallons down to 14 million.**

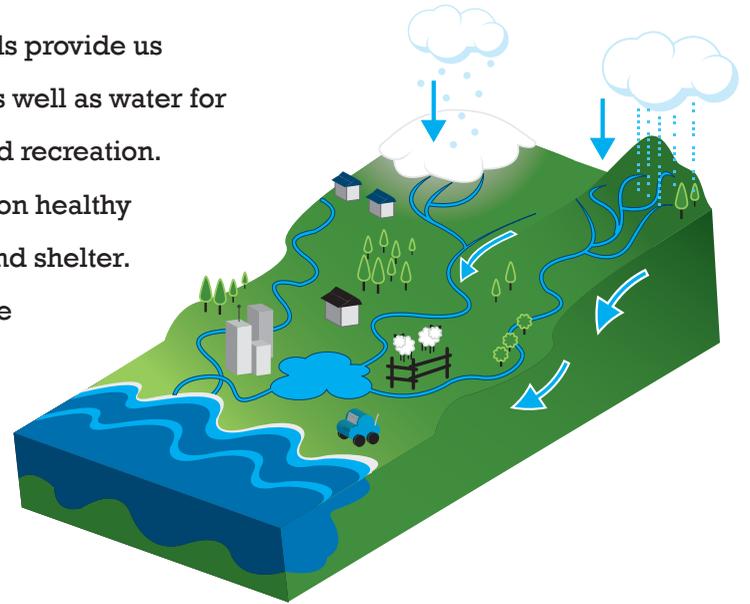
## the VALUE of CLEAN WATER:

# It protects our environment!

### WATERSHEDS

A **watershed** is the area of land that drains into a body of water, such as a stream or Lake Erie. Rainwater and melted snow (often called **stormwater**) flows downhill through the watershed to streams, rivers, and the lake, carrying any pollutants (motor oil, animal waste, fertilizers) and debris it picks up along the way.

Healthy watersheds provide us with drinking water, as well as water for irrigation, industry, and recreation. Our wildlife depends on healthy watersheds for food and shelter. Everything that is done in our watershed affects the entire ecosystem.



## what we're doing today . . .

### BRINGING STREAMS BACK TO LIFE

The District's ecological work has evolved in conjunction with its efforts to improve water quality through projects like the Mill Creek Tunnel (see page 7). "Along with working to reduce combined sewer overflows, the District decided that it should be at the forefront of a holistic approach to watersheds and stream restoration," explains Environmental Planner Mark Link. "We work closely with communities to identify and restore streams that have degraded due to erosion or in terms of habitat."

One of the ecological restoration projects Mark is working on is **West Creek**, a tributary of the Cuyahoga River that flows nine miles through Parma, Seven Hills, Brooklyn Heights, and Independence. The project involves eight restoration sites along the creek, including a

modification to a concrete barrier (constructed during the creation of Interstate 480), to allow for the unimpeded migration of steelhead trout.

Mark notes the unfortunate results of taking our streams and lakes for granted. "We've lost 90% of our wetlands, which once helped to protect the Lake Erie shoreline and control stream erosion," he says. "But it takes just one community to change its practices and serve as a model for the others."

**It takes just one community to serve as a model for others.**



## THE IMPACTS OF STORMWATER

The inability to effectively deal with stormwater results in flooded homes and streets, more pollutants entering our waterways, and erosion problems.

When it rains, the ground and bodies of water (ponds and streams) take in as much stormwater as they can. But in cities, pavement has replaced the natural green spaces that slow the pace of water runoff. Roads, parking lots, driveways, and sidewalks can't absorb water, so it moves quickly over these paved

surfaces into nearby streams or storm sewers, which can become overloaded.

In addition, the scouring effect of fast-moving stormwater impacts the stability of riverbanks and the fish, insects, and plants that live in area streams.

Solving stormwater problems can be difficult, since runoff from one community can drain into another. A regional approach is needed.

An established regional organization, the District is planning to

join more than 800 communities around the country (including Columbus, Cincinnati, and Toledo) that have taken the important step to create stormwater management programs, to address the flooding and environmental damage that stormwater can cause.

Fewer flooding incidents, healthier waterways, and a better quality of life for Greater Cleveland are the goals of the District's Stormwater Management Program.

## helping communities

# STORMWATER MANAGEMENT

*Large volumes of fast-moving stormwater from one area can impact communities downstream. The District's proposed Stormwater Management Program addresses stormwater problems that stretch across community borders:*

### FLOODING AND EROSION

**Flooding and stream erosion has increased in the last three decades, impacting property values and natural resources.** The District's watershed-centered stormwater program addresses regional flooding and erosion problems (instead of isolated occurrences) to strategically reduce the impact of heavy rains.

### POLLUTION

**Stormwater run-off from lawns and streets carry chemicals, debris, and trash that pollute area waterways, impacting water quality.** The District can assist with projects that reduce pollutants from entering local waterways, and provide educational tools that explain stormwater retention methods (such as rain gardens and rain barrels).

### COMBINED SEWER OVERFLOWS

**Heavy rains increase the likelihood that sewers carrying both wastewater and stormwater will overload and discharge into the environment.** The District continues to build projects to reduce combined sewer overflows. To further address this problem, the District can help communities develop solutions to control the flow of stormwater *before* it enters the sewers.



## the VALUE of CLEAN WATER:

# It assures a bright future for Greater Cleveland!

### SUSTAINING AN INVESTMENT

A built-to-last infrastructure is an investment in Cleveland's present and future. We constantly assess our sewers and treatment plants, making sure they are sustainable.

In our 35-year history, we've invested over \$2.2 billion in projects that have a direct effect on protecting public health. And in the next three decades we'll invest \$4 billion to maintain our existing assets and facilities and expand our CSO controls (*see page 7*).

In addition, our water quality and natural environment are threatened by unresolved regional stormwater problems (*see page 9*). The District is seeking to implement a program to help local communities control flooding, pollution, and erosion issues that come with heavy rains.

Our acceptance of these challenges means job and business opportunities for local contractors, engineers, suppliers, and support providers as we strive to best serve our region.

Given the costs of these endeavors, we are always working to improve our financial processes to ensure proper stewardship of the public's funds.

### HANDLING EMERGING POLLUTANTS

New and potentially more dangerous compounds are emerging in our environment: pharmaceuticals, cosmetics, antibacterial soaps, and other pollutants. All of these can have a negative impact on water quality.

This is an area of significant new research, and Cleveland's medical and academic communities provide the perfect backdrop for advancing our understanding of these impacts.

### THE NEXT 35 YEARS

While Cleveland has much to offer, we understand the obstacles before us. This is why we must build upon the resources so readily available: like-minded organizations and agencies, a dedicated workforce that is willing to take on new initiatives and priorities, and most important — our clean water itself.

We are proud of our contributions to water quality and the rebirth of Lake Erie and the Cuyahoga River. The rebirth continues, and our role in the next 35 years will be even more critical.



# sustainability

## INSPIRING ENVIRONMENTAL AWARENESS THROUGH PUBLIC EDUCATION

The District's educational outreach activities enhance elementary and high-school learning, prepare students for proficiency exams, and provide scholarships for students interested in pursuing careers in wastewater treatment.

One class of seventh-graders recently participated in a groundbreaking program at Carl & Louis Stokes Central Academy (on East 40th Street). **Aquabots** — a robotics program and competition focused on enhancing students' math, science, computer, and communication skills — first arrived at Central Academy in 2006 as a pilot program developed by technology firm Paragon TEC and the District.

"Aquabots is one of the best programs that I have been a part of in Cleveland," says Vernon

Slivka, science teacher and Aquabots team coach. "It was really hands-on."

Says seventh-grader James Tyler, "I learned how to do things I never thought I could. Our coach [District Engineer Joseph Kunzler] believed in us, and we learned to believe in us, too."

Students have the opportunity to design a robot that can perform activities related to the District's clean-water work. In addition, writing, presentation, and computer assignments increase the students' awareness of future career options.

"The greatest value came in the form of career discovery," says Technology Education Instructor Teddy Mwonyonyi. "It jump-started students into thinking about what they want to be when they grow up."

## CLEAN WATER MONEYSAVERS

### SUMMER SPRINKLING PROGRAM

Residential water use increases in the summer due to lawn sprinkling and other seasonal use. Most of this additional water does not return to the sanitary sewer system. So from May 1 through September 30, sewer charges are based on average winter water usage or actual summer water usage, *whichever is lower*.

To qualify, you must reside in an owner-occupied one, two, three, or

four-family residence and be billed by the District. (The service and mailing addresses must match.) Application cards are available by calling District Customer Service at **(216) 881-8247**.\* The deadline for this year's program is April 30.

### HOMESTEAD RATE PROGRAM

A reduced sewer charge is available to customers 65 and older, or to anyone under 65 who is totally disabled.

To qualify, your household income must be \$27,000 or less, and you must own the property in which you live. Application forms are available by calling District Customer Service at **(216) 881-8247**.\*\*

\* To apply for the Summer Sprinkling Program, residents of Berea, Cleveland Heights, and North Royalton should contact their billing agents:

**BEREA (440) 891-3308**  
**CLEVELAND HEIGHTS (216) 291-5995**  
**NORTH ROYALTON (440) 582-6234**

\*\* To apply for the Homestead Rate Program, Berea residents should contact their billing agent at **(440) 891-3308**. North Royalton residents should contact the Cleveland Water Department at **(216) 664-3130**.

# CLEAN WATER TIPS

**By properly disposing of hazardous wastes, you can avoid potential plumbing problems in your home and contribute to the safety of your community.**

Do not pour solvents, pesticides, paint thinners, motor oil, and other chemicals down the drain or into storm sewers.

**FACT:** In addition to treating over 229 million gallons of wastewater daily, the District participates in two hazardous waste roundups throughout Cleveland and also provides a free mercury thermometer exchange program to all residents.

**Collecting rubbish can improve your community and help us continue assuring clean water for Greater Cleveland.** As simple as it sounds, properly disposing of trash

and collecting discarded rubbish (cigarette butts, plastic bottles, fast-food wrappers) can enhance your property and keep your community and our waterways clean.

**FACT:** In 2007, the District collected over 12 tons of **floatables** (rubbish captured in our sewer systems and natural water resources).

**Participating in beach or stream cleanups is a fun way to get involved in your community while protecting our natural clean-water resources.** By getting your family and friends involved in beach and stream cleanups, you can help others see the importance of clean water in our daily lives.

**FACT:** In addition to participating in beach and stream cleanups, the District engages

in a variety of events to promote community involvement, including public meetings and partnerships with local area schools.

where can I find more information?

**[www.neorsd.org](http://www.neorsd.org)**

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## OTHER RESOURCES:

**[www.clevelandwater.com](http://www.clevelandwater.com)**

**[www.gcbl.org](http://www.gcbl.org)**

**[www.epa.state.oh.us](http://www.epa.state.oh.us)**

**[www.odh.state.oh.us](http://www.odh.state.oh.us)**

**[www.clevelandhealth.org](http://www.clevelandhealth.org)**

**[www.ccbh.net](http://www.ccbh.net)**

**[www.cuyahogaswd.org](http://www.cuyahogaswd.org)**

**[www.cuyahogaswcd.org](http://www.cuyahogaswcd.org)**

**[www.cuyahogariverrap.org](http://www.cuyahogariverrap.org)**

## take a tour to see **where it goes!**

The Northeast Ohio Regional Sewer District provides opportunities for group tours at its wastewater treatment plants for an overview of the treatment process, and at the Environmental & Maintenance Services Center (EMSC) for a laboratory overview. Since the tours include outdoor walking and demonstrations, they are only offered between March and October. **To schedule a tour, contact Communications & Community Relations at 216.881.6600.**

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