



WATER RESOURCES COMMISSIONER

Jim Nash

ANNUAL REPORT

2018 Executive Summary



TO THE PEOPLE OF OAKLAND COUNTY

A MESSAGE FROM JIM NASH, OAKLAND COUNTY WATER RESOURCES COMMISSIONER

My staff and I continued our focus on using cost-effective measures, prudent financial management and state-of-the-art operations and maintenance to make our water, sewer, and stormwater systems work even better. These long-term efforts, some listed below and others throughout the report, will bring efficiencies that will help keep our future rate increases to a minimum while protecting our vital water resources. This year we have expanded our public education efforts to help our residents understand the issues we face and how we serve the public.

We are working with the Southeast Michigan Council of Governments to help Southeast Oakland County communities coordinate their development codes and ordinances to encourage the development of green stormwater infrastructure. This effort will help 14 local governments deal with stormwater issues more efficiently and will act as a model for other communities. Our office is improving the closed circuit televised monitoring of our underground infrastructure through new technologies, reducing maintenance costs and improving our asset management system. We are finishing a project in Pontiac to replace all residential and commercial water meters in the city, making meter reading easier and more efficient. By next fall our work at the Clinton River Water Resource Recovery Facility (formerly the Pontiac Wastewater Treatment Plant) will be completed. This project will reduce operational costs for the 13 communities now served by the facility.

I joined with 700 organizations in May to celebrate National Infrastructure Week, which helps the public understand the issues facing our aging infrastructure. We grew this event into a series of 10 talks at libraries across Oakland County in 2018, titled *"Water Infrastructure 101, What You Need to Know Below and Beyond."* From Southfield to Oxford Township and from Rochester to Highland Township, I met residents concerned about water quality who understood the economic impact of our water resources and the need to protect them. I will be continuing these library events into 2019.

For the first time in 2018, we increased our educational outreach by hosting an informational booth at the Michigan State Fair in Novi. I joined WRC staff to talk about protecting our water resources with residents from all over Oakland County, Southeast Michigan and the state.

We continued the educational programs I started since I became commissioner: including the 5th Annual Art-Fish-Fun Festival for families at Beaudette Park in Pontiac and the 6th Annual Stormwater Summit at Lawrence Technological University. In addition, I have kept traditions started by my predecessors, such as the 12th Annual Clinton River Watershed Festival, the 16th Annual Rouge River Watershed Festival, and the 14th Annual Kids' Clean Water Calendar Art Contest involving fourth and fifth graders from across Oakland County. These ongoing efforts showcase the importance of protecting our natural water resources and environment for future generations.

As your Oakland County Water Resources Commissioner, I am available to you. Please contact me at (248)858-0958 if you have any concerns, questions or thoughts to share.



"SPRING INTO SCIENCE"
EDUCATION EXPO AT CRANBROOK



"WATER INFRASTRUCTURE 101"
BRANDON TOWNSHIP PUBLIC LIBRARY



"HEALTHY LIVING EVENT"
COUNCIL OF ASIAN PACIFIC AMERICANS

2018 FISCAL YEAR BUDGET

Cass Lake, Waterford

Fiscal Year 2018 WRC Actual Expenditures

ENTERPRISE FUNDS

The Water Resources Commissioner's budget is comprised of a series of funds. The largest of the funds, Enterprise Funds, are made up of numerous communities' funds and system funds and represents just over half (52.9 percent) of the approximately \$451 million spending plan. Operating expenses, including labor, contracted services, materials, and water and sewer services from the Great Lakes Water Authority, are paid through these funds.

MAINTENANCE FUND

It covers operation and maintenance expenses for all types of drains; ranging from small-rural agricultural drains to large-urban systems that cross county boundaries. Additionally, funds for maintaining various lake levels throughout the county are included in this fund.

CONSTRUCTION FUND

This fund covers the cost of new infrastructure projects including the repair and rehabilitation of existing infrastructure to extend its useful life.

DEBT FUNDS

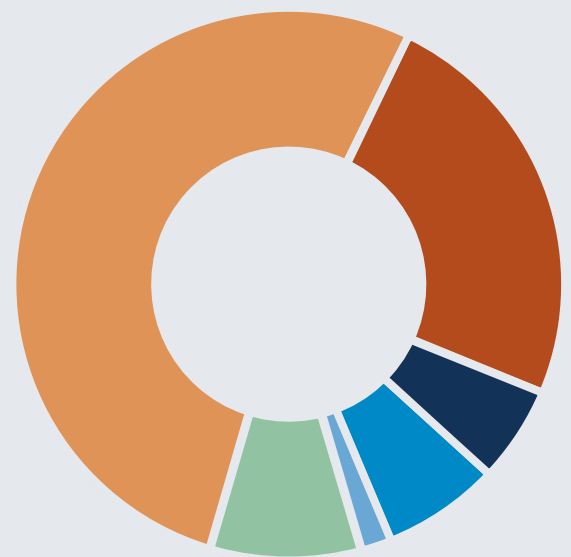
Debt Funds represent the accumulation of revenues for the payment of long-term debt.

GENERAL FUND

Although the General Fund is Oakland County's chief operating fund, it represents a small fraction (1.6 percent) of the Water Resources Commissioner's budget. Approximately \$7 million comes from the County's General Fund because the main source of revenue is received from water and sewer rates, and special assessments.

INTERNAL/REVOLVING FUNDS


These funds are used for vehicles, equipment, and reimbursement for specific projects.



Expenditure Totals: \$451,775,765
Total % of Expenditures: 100%

Enterprise Funds	\$239,324,999	52.9%
Maintenance Fund	\$109,234,295	24.2%
Construction Fund	\$25,337,619	5.6%
Debt Funds	\$32,006,731	7.1%
General Fund	\$7,121,802	1.6%
Internal/Revolving Funds	\$38,750,319	8.6%

For more information, please visit:
OakGov.com/mgtbud/fiscal



WATER RESOURCE RECOVERY

Exceeding Industry Standards

Lake Sixteen, Lake Orion

HAMILTON RELIEF DRAIN BANK STABILIZATION PROJECT

Construction of the Hamilton Relief Drain Bank Restabilization Project in Rochester Hills began in February 2018. Design and construction services for this project were unique and challenging. Drain outfall at the Clinton River had caused severe channel and embankment erosion.

In addition, a plunge pool had developed at the base of the existing outfall that exposed a 24" sanitary sewer pipe, owned by Rochester Hills, and the existing embankment protection had deteriorated and was effecting neighboring private property. To avoid future damage, WRC began the bank restabilization project.

This project involved relocating the 24" sanitary sewer pipe, constructing a new concrete headwall and apron, as well as reforming the channel and armoring the embankment. Rock vanes were installed to dissipate the energy of the drain, and log vanes were constructed to better direct water flow to the river.

Through the collective efforts of WRC, Rochester Hills, and the consulting team, Anderson, Eckstein, & Westrick, Inc., the team was able to address the issues by providing public information, criteria development and professional judgment. Their significant insight into stream bank stabilization, plunge pools and the protection of private property was integral to the project.

This project was crucial to the preservation of the Clinton River's water quality, which serves as an important part of the Clinton River Watershed. It encompasses 760 square miles with thousands of lakes, ponds, and wetlands servicing four counties, 72 communities, and approximately 1.5 million people. Construction was completed in May 2018. Pictured below are the before and the after photos of the project.

24-HOUR POLLUTION HOTLINE

As part of Oakland County's Illicit Discharge Elimination Program, the WRC provides a 24-hour hotline for reporting pollution. Promotional materials, such as the magnet pictured below, were distributed at all educational events WRC participated in throughout the year.

The public is encouraged to report any suspicious discharges or illegal dumping of pollution into storm drains, lakes, creeks or streams.

In 2018 our efforts helped prevent the following from entering our waterways:

- 4.2 million gallons of sewage
- 175 gallons of fuel, oil and grease
- 963,000 pounds of sediment
- 20 yards of yard waste



BEFORE



AFTER

**POLLUTION
HOTLINE**
(248) 858-0931



CUTTING-EDGE FACILITY SLATED FOR COMPLETION IN 2019

Significant construction progress has been made since the state-of-the-art Clinton River Water Resource Recovery Facility (CRWRRF) biosolids Thermal Hydrolysis Pretreatment process (THP) project was introduced in 2017. The biosolids building will include a new storage pad and will be only the fourth of its kind in the nation.

The pretreatment process uses high temperature and pressure to break down and change the form of biosolids that come from wastewater making them easier to process. Long-term benefits include a 20 percent reduction in biosolids, landfill disposal cost by 75 percent, the facility's carbon footprint by 50 percent and will also include generating revenue with the acceptance of septage flow at the facility.

The implementation of leading-edge approaches to wastewater recovery and the use of exceptional quality biosolids will create safe fertilizer and methane gas products. These new products will be sold to the public and the methane gas will also be used to power the facility. These innovations will help with WRC's affordability goals for the 13 communities invested in the Clinton River Water Resource Recovery Facility.

This facility is a one-of-a-kind project in Michigan that will improve the quality of life in Oakland County, and showcase innovation at its best. By fall, this project is scheduled for completion. To learn more, go to oakgov.com/water and view the "***What You Need to Know About Our Water Resources***" video.



INNOVATIVE STORMWATER TECHNOLOGIES

A code audit of George W. Kuhn Drainage District communities aims to increase innovative stormwater technologies across the district. Stormwater is a significant contributor to pollution in our rivers, lakes and streams. Introducing innovative stormwater technologies and clarifying the benefits of green infrastructure in Oakland County and regionally is a strategic goal of WRC. This goal has linked us with the Southeast Michigan Council of Governments (SEMCOG) through a grant which provides for reviewing local codes to remove any barriers to the development and installation of new stormwater practices that will help keep harmful nutrients out of our water environment.

The code audit will be specific to each of the 14 communities within the George W. Kuhn (GWK) Drainage District (Berkley, Birmingham, Clawson, Ferndale, Hazel Park, Huntington Woods, Madison Heights, Oak Park, Pleasant Ridge, Royal Oak, Southfield, Troy, the Charter Township of Royal Oak, and the Village of Beverly Hills).

Several meetings with the communities will take place over a one-year period to review local zoning ordinances, stormwater design standards and other local policies and to recommend updates to those that create barriers to the implementation of green infrastructure and other stormwater technologies. The GWK code audit will recommend a policy framework for future stormwater standards that can be implemented by all communities and stakeholders.

The code audit will help lay the foundation to protect the environment and serve as a regional model for other communities. This will create long-term efficiencies with cost benefits for the GWK communities. To learn more about the code audit, go to oakgov.com/water and click on the GWK Green Infrastructure link. Pictured above are the parking lot rain garden on the left, and the vegetated stormwater bumpout to the right, which are located in Royal Oak. Each of these bio-retention green infrastructure items soak up stormwater and helps prevent water from entering street drains.



Parking Lot Rain Garden



Stormwater Bumpout



ASSET MANAGEMENT

Planning Safe & Sustainable Infrastructure for Coming Generations

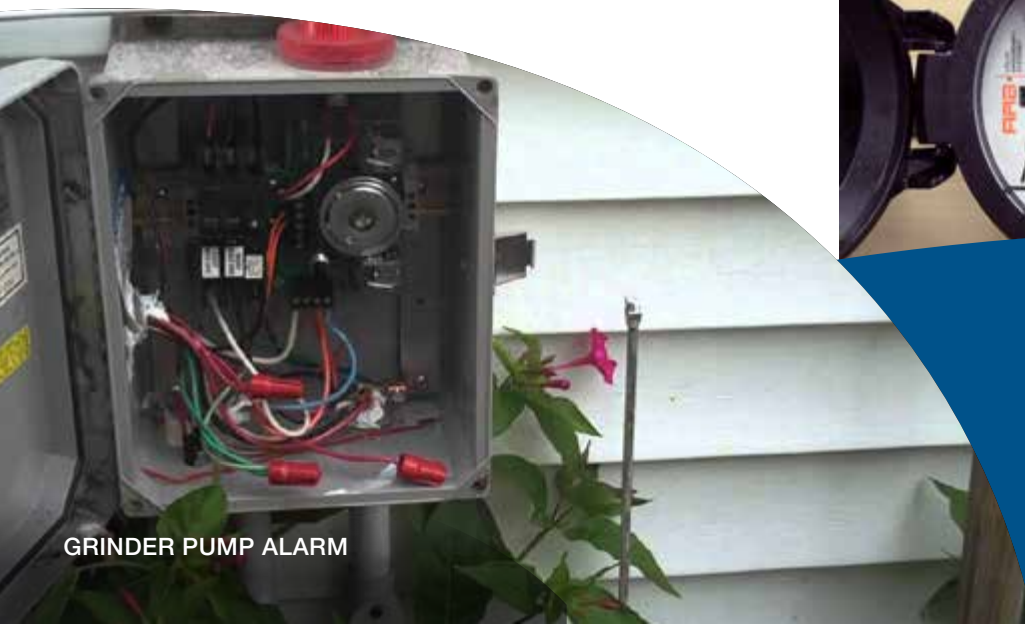
Fireworks over Lake Orion

FRANKLIN SEWER ALARM REPLACEMENT PROJECT IMPROVES MONITORING PROCESS

During the summer, the Franklin Sewer Alarm Replacement Project was completed. As a result, WRC installed approximately 715 new grinder pump alarm panels throughout the Village of Franklin. This was implemented when a majority of the alarm panels reached the end of their useful life, while other panels were not working. WRC upgraded the system by investing \$1.86 million into the project. The Village of Franklin's capital reserves and the sale of bonds funded the project.

Each new grinder pump alarm panel automatically records information; allowing WRC to analyze the data and evaluate the condition of the pump equipment. In emergencies, Oakland County Safety Dispatch receives critical information from the alarm panels alerting it of problems.

Grinder pump alarm panel equipment has a life expectancy of 10 to 15 years. They are crucial in monitoring individual grinder pumps to help warn of basement backups and potential pump failures.



GRINDER PUMP ALARM

WATER METER GRANT FUNDS USED TO UPGRADE AREA SYSTEM IN 2018

Special funds were secured through the Michigan Department of Environmental Quality's Drinking Water & Municipal Assistance Revolving Loan Section for approximately \$6 million. This low-interest loan will help upgrade the city of Pontiac's residential and commercial water meters.

The new light activated water meters allow cellphone or LED flashlights to be used to read them. The new meters measure water usage and have enhanced leak detection to assist customers to identify leaks. The new meters have a solar panel to power the display. More than 13,000 meters have been installed. When the meter project is completed in the spring of 2019, WRC will have installed 15,000 new meters. Go to oakgov.com/water to learn "[How to Read Your Water Meter](#)." Click on the publication section of the website. For questions regarding your meter call (248) 858-0958.



For more information
about WRC projects, please visit:
oakgov.com/water/pages/projects

CAPITAL IMPROVEMENT PROJECT PRODUCES SAVINGS

Economic growth and sound fiscal management practices were two key factors cited as contributors to the construction bond issued for the Evergreen-Farmington Sewage Disposal System capital improvement project receiving an AAA bond rating, the highest credit rating given by Moody's Investors Service.

This project should improve sewage disposal in parts of Southfield and Farmington Hills. Bonds that receive AAA ratings save taxpayers significant money because it allows Oakland County to borrow money at the lowest interest rate possible. According to Moody's, the high rating reflects the county's healthy financial position, moderate debt and pension obligation, and low fixed costs. The Evergreen-Farmington Sewage Disposal System capital improvement bonds total \$8.3 million.

This capital improvement project consists of the following components:

- The design, attainment of the easement, repair and replacement of a collapsed 48" diameter sewer pipe with a new 24" diameter sewer pipe at Telegraph and Franklin roads in Southfield
- Lining an existing 48" diameter sewer pipe to extend its service life and cleaning debris from the downstream 48" diameter sewer pipe resulting from the collapse
- The construction and design of a grade protection pump station along with easement acquisition at Eldon Street and Middlebelt Road
- The design and replacement of the current Eight Mile Sanitary Sewer Pump Station automatic transfer switch



Asset Management *(Continued)*

CCTV INNOVATION SAVES TIME AND MONEY

Closed circuit television (CCTV) technology is used to perform inspections on sewer and drainage pipe systems. It is a less intrusive way to expose defects, the likelihood of failure and the rehabilitation needs of a pipe system.

Many sewer and drainage pipe systems run under major roads throughout Oakland County. Through the use of this technology, proactive measures are taken in an effort to prevent catastrophic events.

Before this technology, pipelines were dug up, disturbing residential landscapes and causing major traffic delays due to construction and road closures. By reviewing the televised footage, WRC inspection crews can examine the underground infrastructure, identify and repair with methods such as pipe patching and vactor cleaning. This approach saves communities money. Instead of replacing an entire system, communities incur small incremental maintenance costs over longer periods of time. Projects like the Franklin Road sinkhole in Southfield can be addressed proactively, saving communities' money in maintenance costs and repairs (sinkhole pictured on the previous page).

Incorporating cutting-edge CCTV technology into WRC's asset management plan ensures that communities achieve the greatest benefit at the lowest cost while maximizing their assets' lifespan. CCTV technology is one example of our asset management plan that ensures maintenance efficiency and cost savings for our communities.



Through the use of CCTV technology, proactive measures are taken to prevent catastrophic events.



OUTREACH & EDUCATION

Investing in our Future through Educational Outreach

ART FISH FUN, Pontiac

ANNUAL KIDS' CLEAN WATER CALENDAR CONTEST

“Protect and Improve Water Quality” is the founding principle on which the annual Kids’ Clean Water Calendar Contest was established.

Nearly 700 fourth and fifth grade students representing 18 Oakland County schools participated in the 14th annual Kids’ Clean Water Calendar Contest. The 2019 calendar features the artwork of 12 monthly, 12 honorable mention and 24 special acknowledgment winners. This year’s grand prize calendar cover winner of the “Clean Water is Life” artwork was Julia Janowicz from Barnard Elementary in Troy.

On Dec. 8, the 12 monthly winners and their guests attended an awards ceremony and luncheon held at the Cranbrook Institute of Science in Bloomfield Hills. Each winner received a framed copy of their drawing, prizes, and took a photo with Commissioner Nash.



Annual Kids’ Clean Water Calendar Contest Winners

A variety of prizes and educational materials identifying simple steps that can be taken to protect and improve water quality were given to the award winners. The luncheon and prizes were funded by the nonprofit Pure Oakland Water.

Since the calendar contest began in 2005, there have been more than 13,000 entries and 72,500 calendars distributed. Free calendars are available while supplies last by calling (248) 858-5264.

PARTNERING WITH OAKLAND COUNTY PARKS AND RECREATION HIGHLIGHTS WATER RESOURCES

For the first time, WRC collaborated with Oakland County Parks and Recreation to educate the public about our precious water resources by visually sharing what we need to do to protect them. Featured throughout Oakland County Parks are valuable water resource tips and educational information on seasonal kiosk boards that will be viewed by more than two million visitors.

Look for messages ranging from FOG (fats, oils and grease), pollution prevention, and other issues that promote public awareness and encourage public action in new ways.



Outreach & Education (Continued)

WRC'S MULTIMEDIA APPROACH INFORMS PUBLIC

In the spring, WRC implemented a new approach bringing awareness to the issue of Fats, Oils and Grease (FOG) and flushable wipes in our sewer system.

We created bookmarks to explain that FOG should not be poured down drains or sinks and that flushable wipes are not biodegradable; and, should not be flushed. Fats, oils, grease and flushable wipes cause serious damage to pipes by clogging the system. This causes toilet overflows and sewer backups and, can cause massive structural damage in the pipes.

Just last year, WRC responded to 572 plugged sewer calls from 19 communities that cost more than \$300,000. Remember to "Protect Your Pipes! Throw Away Wipes!" and to "Prevent the Clog, Don't FOG!"

To learn more, go to oakgov.com/water and view the informational video titled "*What You Need to Know About Our Water Resources.*"



WRC COLLABORATES WITH STATE FAIR FOR FIRST-TIME WATER LITERACY EFFORT



WRC joined more than 100,000 visitors at the Michigan State Fair. This collaborative effort was historic for our organization, and for five days brought agriculture and water together to provide valuable information regarding water resources to the public.

WRC began the first day of the fair at the Suburban Collection Showplace in Novi by giving away hundreds of educational bookmarks promoting how Fats, Oils and Grease (FOG), and flushable wipes should be discarded. The bookmarks were included as a part of the children's book signing event, which showcased national authors such as Christopher Paul Curtis, an award-winning Newbery Medal author of the book "Bud, Not Buddy," and **J. Gabriel Gates, author of "The Sleepwalkers"** (pictured to the left). They spoke about their work along with other authors.



By promoting water infrastructure literacy during "WRC Day" Aug. 30, we unveiled our new informational video, "*What You Need to Know About Our Water Resources.*" The video provided facts regarding water resources, water conservation, and highlighted helpful tips to protect water quality. See the video at oakgov.com/water.

Commissioner Jim Nash and the WRC Volunteer Ambassadors answered a series of questions during the fair. The newly formed ambassadors consist of community-service minded WRC employees and family members, who volunteer their time to support community and educational causes. Volunteers from public and private organizations have joined with the WRC Ambassadors to support community projects as well.

Informational flyers and materials ranging from PFAS (perfluoroalkyl substances consisting of chemical compounds), water industry careers, and the Water Residential Assistant Program (WRAP) were shared. This information was provided courtesy of the Michigan Ground Water Association, Oakland Livingston Human Services Agency, the Wayne Metropolitan Community Action Agency, the Great Lakes Water Authority, the WRC, and other organizations. Our collaboration with the Michigan State Fair resulted in WRC receiving a special tribute certificate from state officials honoring our support and involvement with this longstanding family tradition and event.

LEARN ABOUT PFAS

As more becomes known about this class of chemical compounds perfluoroalkyl substances called PFAS, we will continue to inform the public. PFAS have been used since the early 1900s and are found in numerous man-made products. A wide range of products used in manufacturing, non-stick materials, flame-retardants, firefighting foam material, and garments have been identified as containing PFAS. In some communities, traces of PFAS have been found in surface water, groundwater, community well systems and even in wildlife.

To view statewide information on PFAS including survey and test findings for Oakland County, go to michigan.gov/pfasresponse. Please know that PFAS have not been detected in any of the 19 community water systems that WRC operates. All PFAS related matters are under the jurisdiction of the state of Michigan.

For more information about Oakland County's water systems, including a list of PFAS resources, visit oakgov.com/water. For questions relating to PFAS or testing please call 1-800-648-6942 or go to michigan.gov/pfasresponse.

BECOME INFORMED ABOUT THE LEAD AND COPPER RULE

The Michigan Department of Environmental Quality revised the state's Lead and Copper Rules on June 14, in an effort to address drinking water quality. The rule revisions include:

- Requiring community advisory councils
- Performing a materials inventory of water service lines
- Modified sampling requirements
- Additional public notice requirements
- Lowering the lead action level
- Requiring removal of every lead service line, including public and privately owned portions of pipes in Michigan

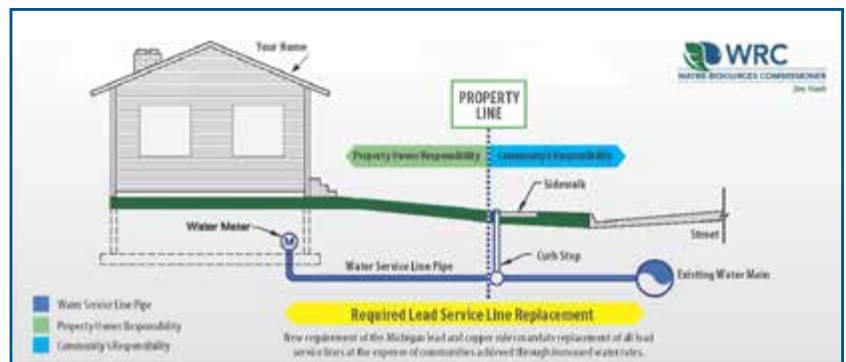
The estimated cost of lead service line replacement is \$2.5 billion and involves digging up 500,000 residential properties. The revised rules direct the cost of line replacement to be included on residents' water bills. A coalition consisting of WRC, the Great Lakes Water Authority, the city of Detroit, and the city of Livonia, along with support of more than 50 Michigan communities, is working toward fixing deficiencies in the revised rules to provide a better and more cost-effective method for lead service line removal. The diagram below illustrates the service line configuration.

FINANCIAL HELP WITH WRAP

The Water Residential Assistance Program (WRAP) is available for residents who meet income and program eligibility requirements.

To learn more about this program, which helps pay for water bills, offers home water audits and minor plumbing repairs, call (313) 386-9727 or go to oakgov.com/water.

You can also find WRAP flyers at the nearest Consumers Energy locations in Oakland County.



Questions?

wrc@oakgov.com

Office (248) 858-0958

Fax (248) 858-1066

oakgov.com/water

One Public Works Drive, Building 95 West | Waterford, MI 48328

Service Contact Numbers

WATER RESOURCES COMMISSIONER'S OFFICE

General Line

(248) 858-0958

Billing Services - Water/Sewer

(248) 858-1110

Construction Drain Maintenance

(248) 858-1105

Pump Maintenance

(248) 618-9690

Sewer Maintenance

(248) 858-1127

Soil Erosion

(248) 858-5389

Water Maintenance North*

(248) 858-4310

Water Maintenance South**

(248) 356-6299

Other Service Organizations

Oakland County Environmental Health Division

(248) 858-1312

Oakland County Health Division

(248) 858-1290

Michigan Department of Environmental Quality (MDEQ)

1-800-662-9278

After-hours water/sewer emergencies

(248) 858-0931

24-hour Pollution Hotline

(248) 858-0931

* Water Maintenance North Service Areas: Bloomfield Hills, Keego Harbor, Orchard Lake Village, Pontiac, Oakland Township, Oxford, and the Bavarian Soft Water System

** Water Maintenance South Service Areas: Bingham Farms, Commerce Township, Farmington Hills, Royal Oak Township, Highland Township, and Lyon Township

Exciting Career Opportunities at WRC

LEARN ABOUT CAREERS IN THE WATER INDUSTRY AT WORKFORWATER.COM



OAK PARK CAREER FAIR

Are you looking for a career opportunity where you can make a difference? Have you ever thought about a career in the water industry? The water industry offers a variety of career opportunities in areas like:

- Business Support Services
- Engineering
- Inspection
- Operations & Maintenance
- Stormwater Management

Check out the current WRC job listings!

OakGov.com/jobs • (248) 858-0530