



## Macomb County Public Works Fall 2019

Candice S. Miller, Commissioner



Deep under Eastpointe and St. Clair Shores, the Stephens Relief Drain was built in the mid- to late 1960s, as can be seen in this photo taken in January 1968. The drain is named for the road it travels under, Stephens, which is also known informally as 9 1/2 Mile Road. Henry Stephens was president of Stephens State Bank in what was then known as Halfway, today called Eastpointe. While his bank failed during the Great Depression, the Stephens Building which once housed the bank still stands — with Mr. Stephen's name etched into the facade — at the corner of Gratiot Avenue and Stephens. The building was relocated a few hundred feet to its current location a number of years later when Gratiot was widened from two lanes to a four lane avenue. The Stephens Relief Drain underwent a thorough inspection by Macomb County Public Works in 2017 and continues to serve the community today as a major storm drain. It empties directly in to Lake St. Clair, carrying rain water and snow melt out of neighborhoods and into the lake.

[Publicworks.macombgov.org](http://Publicworks.macombgov.org)



# Taking Aim at CSOs



## Macomb County's plan to reduce Combined Sewer Overflows

# Message from the Commissioner

Throughout the course of my career in public service, I have had the good fortune to learn something virtually every day on the job. From Harrison Township supervisor to Michigan Secretary of State and on to the halls of Congress, I believe I was able to gain the knowledge and skills necessary to help me with what has always been my number one goal: to preserve our magnificent Great Lakes for the next generation and beyond.

I am very pleased to report that the Macomb County Public Works Office is well on the way to that goal. The centerpiece of our efforts is taking shape now at the Chapaton Pump Station in St. Clair Shores. There, a 30 million gallon retention basin that was state of the art more than 50 years ago is getting a major upgrade and expansion. Our team has gone over the operations of that facility with a fine-tooth comb, looking for any little efficiency we can find. At the same time, we have hired a design firm that is well along the way on designing an expansion of the facility.

Improving Chapaton operations is foundational to Macomb County's ongoing relationship with our beloved and critical Lake St. Clair. During heavy rain events, the sewer systems in two of our county's oldest communities – St. Clair Shores and Eastpointe – become overwhelmed. That's where Chapaton comes in to play. The basin there can hold up to 30 million gallons of this excess storm water and sewage. Then, once the rain passes, the sewage can be sent back into the system for transport to the giant sewer treatment facility in Detroit for full treatment. While we hold the sewage at Chapaton, we treat it with a bleach solution to kill harmful E.coli bacteria that exists in the sewage. There are, on average, 6-12 times per year, however, when our 30 million gallon holding tank is not enough. On those occasions, we have to release that treated combined sewage overflow, or CSO, into Lake St. Clair.

This has been going on for more than 50 years. It is gross. It is unacceptable. And it has to stop.

Our plan calls for construction on our Chapaton improvements to begin in early summer 2020. For more details, see the second to last page of this report.

While much of our focus has been on Chapaton, that project has been far from the only thing keeping our office busy. As you can see on the next page, work has begun on our large green infrastructure project on the Sterling Relief Drain in Sterling Heights. Sometimes, it is obvious to see how our work impacts water quality on the lake, as in the Chapaton project. Sometimes, it is not so obvious. Perhaps the Sterling Relief project falls in to this second category. The Sterling Relief Drain serves a large swath of the city, providing necessary drainage to roughly a quarter of the city's residents and many, many businesses, including several major auto plants. Through our project, we will "daylight" a portion of the drain, allowing more water to pass through a wetlands-



**ABOVE: Commissioner Miller at the Clinton River Spillway, site of a \$4.4 million restoration project. The project was substantially completed in 2018, with some minor landscaping touch-ups being accomplished in 2019.**

#### ON THE COVER:

**The outfall gate at the Chapaton Retention Basin in St. Clair Shores. INSET: Commissioner Miller with Pete Trombley, the basin manager.**

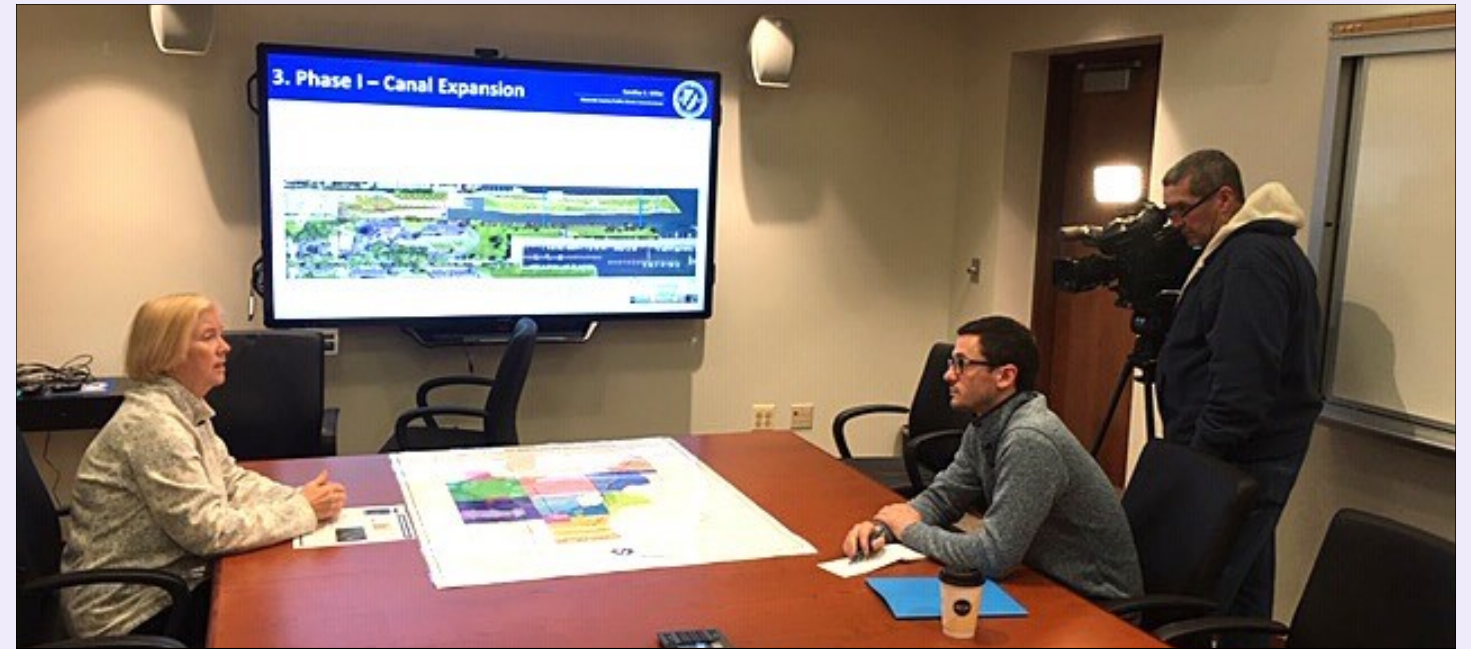
type of environment, rather than through a pipe. This will allow more sediments to settle out and be naturally absorbed by the grasses, flowers, shrubs and trees we will be planting in the drain. This means far less pollutants from the Sterling Relief Drain will make it out to Lake St. Clair. We will be letting Mother Nature perform her natural task while actually improving the Sterling Relief's ability to handle heavy flows when necessary.

Recently, we have also been working with DTE and Consumers Energy. The two utilities are investing a combined more than \$80 million in Macomb County in 2019 in a series of power service upgrades. We are supporting these two important partners where their service lines intersect with our drains, working together wherever possible to maximize the efforts of all involved. Having adequate drainage and power services is part of the critical backbone that allows our economy to thrive.

I believe it is an exciting time to live, work and raise a family in Macomb County. Should you ever have any questions about any of these projects or other MCPWO activities, please do not hesitate to contact my office at [public.works@macombgov.org](mailto:public.works@macombgov.org) or call my office at (586) 469-6101.

Sincerely,

*Candice S. Miller*



**Commissioner Miller outlines upgrade plans at the Chapaton Pump Station to Matthew Smith, a Channel 7 reporter. Having an open and transparent planning process is a key component of good government.**

## Chapaton Upgrade Construction Scheduled

Construction is expected to begin in June 2020 on a multi-million dollar expansion of the Chapaton Pump Station and Retention Basin in St. Clair Shores. The basin provides up to 30 million gallons of storage for times when heavy rains overwhelm sewer operations in St. Clair Shores and Eastpointe. The Macomb County Public Works is launching a two-phase project centered around expansion of the canal that connects the facility to Lake St Clair and a series of gates that will allow more

sewage to be held over the short-term in the underground pipes that serve the facility. Together, these upgrades, along with a number of smaller improvements, will more than double to storage capacity of the facility, reducing the number and volume of annual combined sewer overflows into Lake St. Clair by an estimated 75 percent.

The Chapaton station is located at 9 Mile and Jefferson in St. Clair Shores.

Construction on the first phase of the project, the canal expansion, is

scheduled to be put out to bid in February or March of 2020. The second phase of the project will go out to bid in early 2021. A final cost estimate of the project will be determined once construction bids are received. MCPWO has already received partial funding from the State Legislature and the Macomb County Board of Commissioners to offset costs. Construction of each of the two major phases of the project is expected to take about two years to complete.

## Stay Connected!

**E-NEWSLETTER:** Subscribe to our monthly e-newsletter to get all the latest news and updates about what is happening at the Macomb County Public Works Office. Via the e-newsletter, you will find links to our info sheets, news links and educational videos, including our highly-popular "Know Your County Drain" series. To subscribe to this free service, send us an email at [public.works@macombgov.org](mailto:public.works@macombgov.org).

**SPEAKERS SERVICE:** MCPWO offers a free Speakers Service for community groups, service clubs, neighborhood associations and other groups around Macomb County. Our programs include photos and videos of what's happening and are tailored to be focused on the community in which they are held. To schedule a speaker, contact [Anthony.Lewis@macombgov.org](mailto:Anthony.Lewis@macombgov.org).



**BEFORE**



**AFTER**

## We Find 'Em — We Fix 'Em

The Bridgewood Pump Station in a retention pond in the Stadler Drain in Clinton Township was the subject of emergency repairs in Spring 2019. The pump structure -- a relatively small, unmanned structure -- was wearing away from erosion.

The pond is located just west of Garfield in a residential area, about halfway between 17 and 18 Mile roads. To the west of Garfield, the Stadler Drain is an underground, enclosed drain (in other words, a pipe in the ground).

East of Garfield, the Stadler becomes an open, surface drain (in other words, looks like a small stream). At the western edge of Resurrection Cemetery, the Stadler enters the Kukuk-Canal Relief Drain and water flow travels north to the Canal Drain, which parallels Canal Road, traveling east to the Clinton River and then into the river and on out to Lake St. Clair.

During the work, we determined that the open portion of the Stadler Drain is in need of some attention this

summer, to remove woody debris that is clogging the flow. That work is scheduled for late 2019.

Over the past year-plus, MCPWO has been working to add all of the unmanned facilities under its control to its remote data sensor system, known as SCADA, to help identify trouble areas more quickly. MCPWO currently has more than 17,000 data points on its SCADA system to monitor storm water and sanitary sewer systems throughout the county.



# Along the flyway...

The Macomb County Public Works Office is using \$1.82 million in grants to transform two miles of the 5.2-mile Sterling Relief Drain in Sterling Heights, utilizing green infrastructure to better serve the community. The project is focused on water quality and improving the operation of the drain, but will include the creation of a butterfly "flyway" as a side benefit.

Work on the project began in June, after several months of detailed planning work. Construction will continue into Fall 2019. Plantings along the drain property will begin in earnest this fall. Along with hundreds of trees of various types, the plantings will include milkweed and other pollinators, which are an ideal habitat for Monarch butterflies.

The grants will pay for upgrades along the drain, which runs west to east through Sterling Heights, roughly halfway between 15 Mile Road and Metropolitan Parkway. The work will take place along the drain between Van Dyke and Schoenherr roads.

The work will include "daylighting" portions of the drains central channel - making that area appear like an intermittent stream that will often be dry - and planting more than 5,000 bushes and plants along with the trees in total in the drain property.

"This will not only enhance the operation of the drain by better allowing Mother Nature to act as a natural sponge for storm water, reducing flood risk and improving water quality, but will also create a

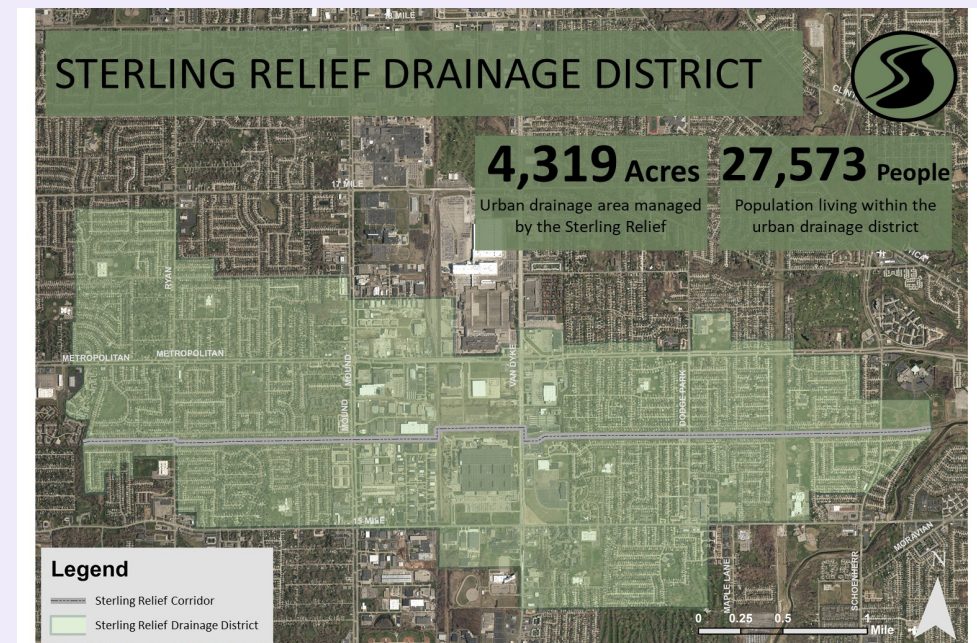
beautiful new green zone in central Sterling Heights," said Macomb County Public Works Commissioner Candice S. Miller. "Everything we do in this office is with an eye toward water quality."

The U.S. Environmental Protection Agency is providing a \$1.25 million grant to support the work. An additional grant of \$600,000 is being provided by the National Fish & Wildlife Foundation.

Design work has already begun

with substantial completion of the work expected by the end of 2019.

"This project will greatly improve the quality of life for the residents in the central portion of the city, by creating a beautiful new view, filled with trees and the birds and other wildlife they will attract," Miller said.



# On Duty



**24-hour hotline:  
877-679-4337**



## MCPWO's 24-hour pollution response

"We find a problem and we fix it."

That's our motto here at the Macomb County Public Works Office and we have been doing a lot more fixing lately.

During the summer months, MCPWO typically sees an uptick in the calls in to our 24-hour hotline. Staffed around the clock, the hotline, 877-679-4337 is where people can report pollution issues or other abnormalities with a county drain. During the warm weather months, more residents are outside enjoying nature, which also leads to more discovering pollution in our drains.

Recently, a person out for a hike in Sterling Heights alerted us to a discoloration on the Burr Relief Drain (pictured, above left). We quickly engaged with a neighboring industrial property owner, who took directed steps to eliminate the pollution from

entering our drain. Oftentimes, the local fire department and/or the community's department of public works responds as well, as we first work to contain any contaminant that may be entering the drain.

We take every complaint seriously and take every step to ensure that our waterways are protected. That's one of the reasons why our local community partners are so important — we believe in taking a team approach to tackle a problem. After receiving a report, we immediately send a team to survey the area of concern and move quickly to contain and remove any contaminants in the drain. Once the pollutant is contained, we work to find the source and will hold any polluter accountable for their actions. Reports from residents are a vital link in our work to keep our county drains pollution-free and working properly.



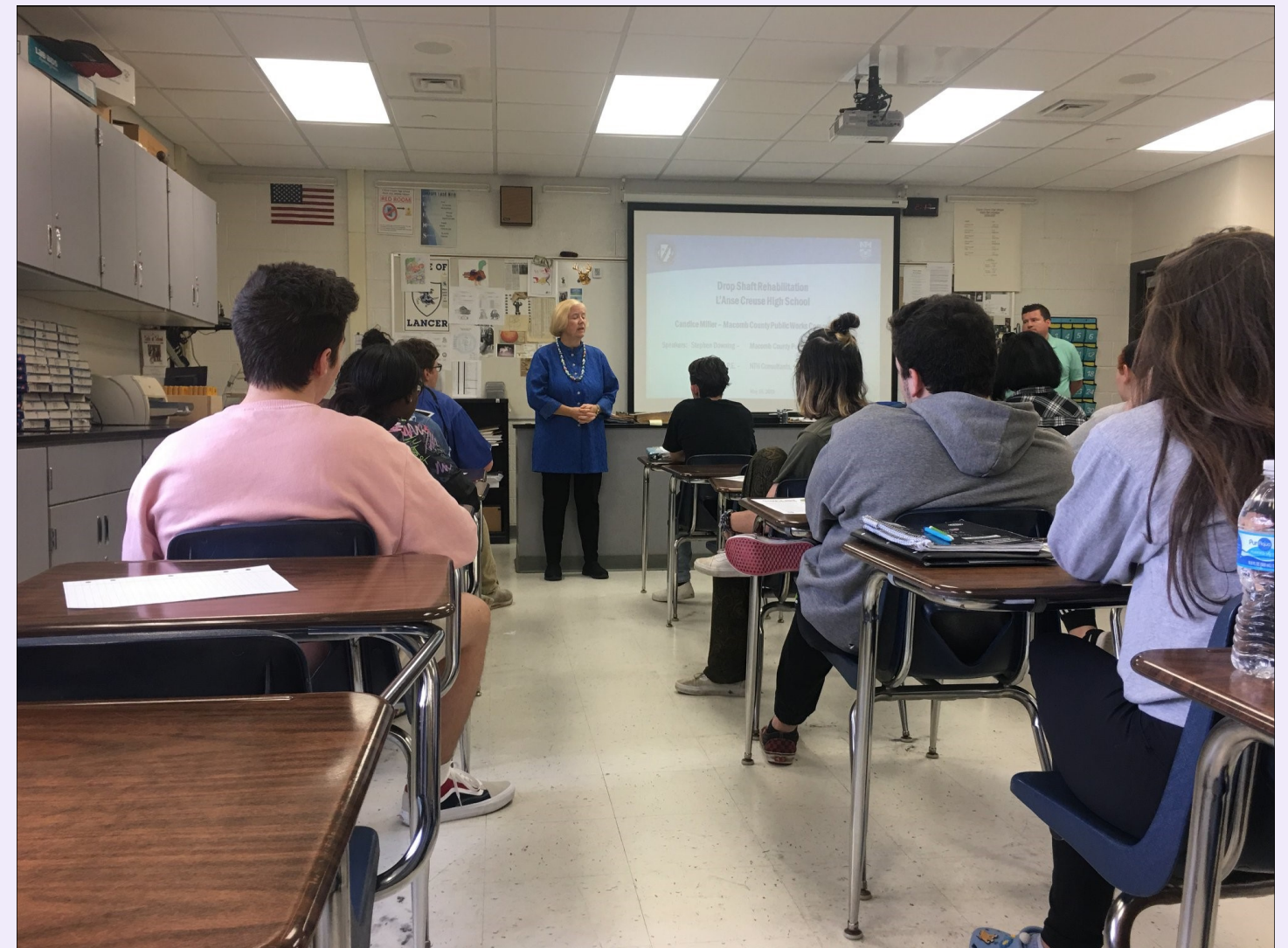
### PHOTOS:

**Top left: Concrete wash-out in the Burr Relief Drain in Sterling Heights.**

**Top right: Diesel fuel in the Red Run Drain in Warren.**

**Lower right: Sediment and debris in the Sharkey Drain, under I-696 in Warren.**

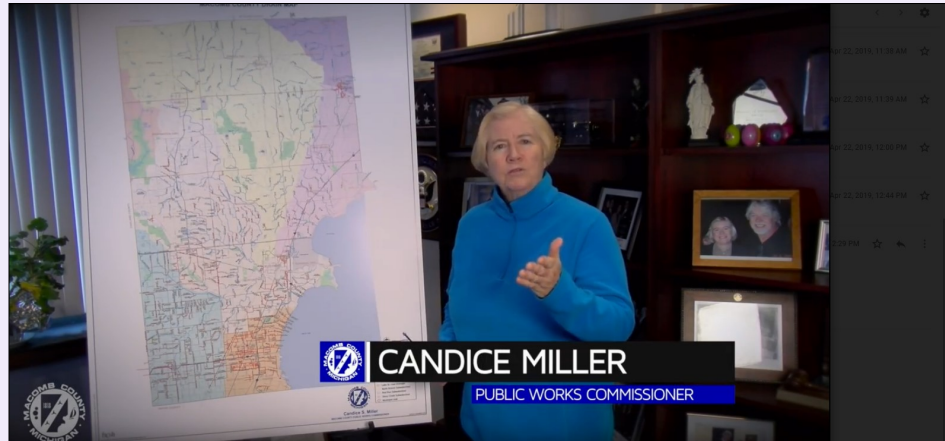
**FOUND & FIXED!**



## In the Classroom

The Macomb County Public Works Office is launching an educational program to reach out to high school environmental classes. The program began with a first visit to a classroom at L'Anse Cruese High School, where Commissioner Miller and MCPWO staffers briefed students in an environmental science class on how sewer systems are an important part of the ecology of a community. Our goal is two-fold, to educate students about how our sewer systems support the goal of clean water in Lake St. Clair and beyond, and to spark the interest of potential future civil engineers. MCPWO staff will be making more high school visits in the fall. A field trip curriculum for the Clinton River Spillway is also available for both schools and community groups. If you are interested, contact our office at (586) 307-8273.

# Education & Outreach

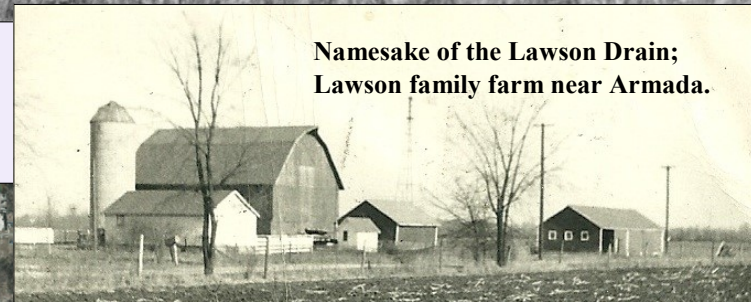


**CANDICE MILLER**  
PUBLIC WORKS COMMISSIONER

Couchez family farm. St. Clair Shores. Namesakes of the Socia-Couchez Drain.



The Pingel Drain was named for a prominent banker.



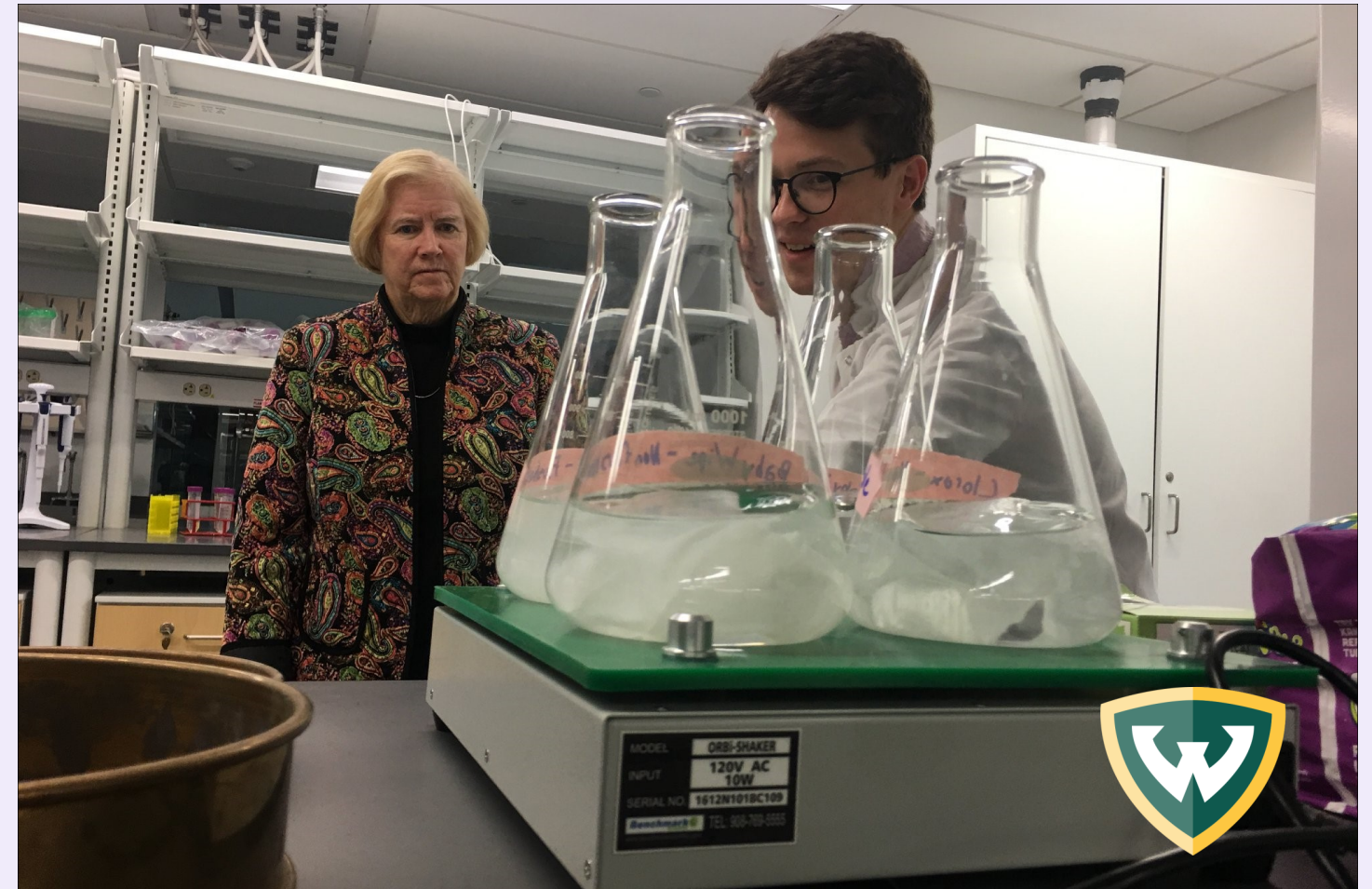
Namesake of the Lawson Drain; Lawson family farm near Armada.



Map of the Lawson Drain, Shelby Township.

## Know Your Drains

The Macomb County Public Works Office's popular Know Your Drain video series is making its rounds of Macomb County. To date, we've highlighted drains in Lenox, Chesterfield, Shelby and Armada Townships and in St. Clair Shores and Warren. The videos highlight the history and operation of various drains. They can be found on our website and YouTube page and are posted periodically to our Facebook page.



Wayne State University research associate Adam Pederson explains tests being run on so-called "disposable" wipes to Commissioner Candice Miller at a WSU lab. The university is running a number of research projects utilizing materials from the infamous Macomb County Fatberg, utilizing a grant from the National Science Foundation.

## After study, Fatberg heads to Science Center

What do you do after you excavate a 100-ton congealed mass of fats, oils, greases and sundry solids, too disgusting to mention out of a county sewer system? Why you use the opportunity to launch a public education campaign, of course.

Over the past six months, a team of researchers at Wayne State University have been studying the "Fatberg," trying to figure out steps to prevent them from forming and the best ways to disperse them when they do form.

In 2018, the Macomb County Public Works Office, through a series of inspections of our underground infrastructure network, discovered a Fatberg that was 100 feet long, 11 feet wide and six feet tall in a sewer pipe. We worked with a special contract firm to

remove the materials, which was significantly reducing flow capacity in the pipe. As part of the process, we expanding our "Wipes Clog Pipes" campaign, educating people not to flush "disposable" wipes down the toilet. These wipes – baby wipes, makeup removers and the like – can wreak havoc on the pumps in our sewer system, causing expensive repairs and adding hundreds of hours to our maintenance needs.

The Wayne State team was able to secure a grant from the National Science Foundation to study how Fatbergs form. The more we can learn, the more we can share with sewer operators across the nation. In the meantime, we are continuing and expanding our educational outreach.



And that's how the Michigan Science Center in Detroit got involved. The management team there saw an opportunity to continue their mission of using their museum to provide public education and information at the intersection of science and daily living. In September, the Michigan Science Center will launch a new public display, using an actual piece of the Macomb County Fatberg, to help educate people on how sewers work and how they are an important part of living in a community.

# 35 years later, pipes get a second look

Thirty-five years – almost to the day – after a Macomb County Public Works Office staffer spray painted his name on the inside of one of the massive underground pipes that carries storm water out of a local neighborhood and out to Lake St. Clair, he did it again.

A team of Macomb County Public Works Office staffers have been spending parts of their recent work days walking underground storm pipes, many of them 10-12 feet in diameter, making visual inspections. They are looking for trouble spots so preventive maintenance can be performed before a little problem becomes a big one.

“Preventive maintenance is the key,” said Commissioner Candice Miller. “So we are having our guys get into the pipes whenever the schedule allows, so they can make visual inspections. Then we work up a plan, as needed, to ensure the maintenance gets done.”

Which is how Joe Betz, one of the MCPWO’s senior members, found himself spray-painting on the inside of a pipe on Monday, June 3. The pipe is part of the 8 ½ Mile Relief, which runs about 45 feet below Eastpointe and St. Clair Shores. The pipe starts where a couple of other storm water lines come together, about 4.5 miles east of Lake St. Clair.

On April 17, 1984, Betz and another MCPWO staffer spray-painted their names and the date on the pipe, making a record of that inspection. On Monday, June 3, Betz and two of the MCPWO’s more junior employees, Trevor Semrow and Zack Heaton, added their names to the inside of the pipe.

The 8 ½ Mile Relief pipe connects at the lake’s edge to the Chapaton Pump Station in St. Clair Shores.

MCPWO is currently designing a major expansion of the Chapaton station, which will allow the retention basin there to hold more storm water and sanitary sewage during a major



**MCPWO employees in the 8 1/2 Mile Relief pipe, about 45 feet below Eastpointe. Employees make periodic walks of the pipe to look for abnormalities.**

rain event. In heavy rains, water from the pipe, with some sewage mixed in, is forced to overflow into the lake. Under the new design plan, the existing storage capacity at Chapaton will be expanded. In addition, a series of internal controls will be added to the pipe to allow more water to be held in the pipe, rather than spilled into the lake. The fact that the spray paint in the pipe was still clear after 35 years helps prove the concept that there is excess capacity in the pipe.

“A photo speaks a thousand words,” Miller said. “We need to maintain and invest in our infrastructure and that’s exactly what our department is doing.”

## That’s Grate Work!

While most of our drain maintenance projects involve backhoes, chainsaws and rakes, there is a little welding involved from time to time. Many of our drains cross under major roads. Often times, a grate is installed to prevent debris from accumulating under the road and clogging the culvert. This grate, on the Sutherland-Omig Drain along I-94 in Chesterfield Township, needed a little work this spring to keep water from backing up on to the expressway during rainfalls.



## On Main Street

The Woodbeck Drain crosses Main Street in Armada. This spring, a new culvert was put in place for the crossing. The crossing is corrugated steel pipe, 117 inches by 79 inches. The Woodbeck Drain serves the west end of the village and a portion of central Armada Township. It empties into the East Branch of the Coon Creek. MCPWO contributed to the project via the Drain Match Program in which the Public Works Office and local municipality contribute jointly to a drain maintenance or improvement project.

